MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

KMO ANADOLU
OTOYOL İŞLETME A.Ş.

NORTH MARMARA MOTORWAY PROJECT

(ASIAN PART: KURTKOY-AKYAZI SECTION)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

FINAL ESIA REPORT (ANNEXES)

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MARCH 2018

ANNEXES

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ANNEX-1 OFFICIAL DOCUMENTS AND LETTERS

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Annex-1. Official Documents/Letters

Annex-1.1. EIA Exemption Letter Regarding the Project

T.C.
ÇEVRE VE ORMAN BAKANLIĞI
Çevresel Etki Değerlendirmesi ve Planlama Genel Müdürlüğü

Sayı : B.18.0.ÇED.0.01.02.227.03.73 5704 44831
Konu: Kuzey Marmara Otoyolu

ULAŞTIRMA BAKANLIĞINA
(Karayolları Genel Müdürlüğü)

İlgi : Ulaştırma Bakanlığı Karayolları Genel Müdürlüğü'nün [illegible] tarih ve B.11.1.TCK.0.11.04-70-214-918 sayılı yazısı

İlgide kayıtlı yazı ile 2009 Yatırım Programı ve Otoyol Projeler Detayında 1991E040150 DPT numarasıyla yer alan "Kuzey Marmara Otoyolu (İstanbul Boğazı 3.Karayolu Geçişi dahil) Projesi"nin 17.07.2008 tarih ve 26939 sayılı ÇED Yönetmeliği'nin Geçici 3.maddesi kapsamında değerlendirilmesi talep edilmektedir.

İlgi yazı ekinde yer alan 1993 öncesi yıllarda yatırım programına alındığı tespit edilen karayolu projesi 17.07.2008 tarih ve 26939 sayılı ÇED Yönetmeliği'nin Geçici 3. maddesi uyarınca ÇED Yönetmeliği hükümlerine tabi değildir.

Diğer taraftan söz konusu projelerin inşaat ve işletme aşamasında 2872 sayılı Çevre Kanunu ile 5491 sayılı Çevre Kanunu'nda Değişiklik Yapılmasına Dair Kanun ve bu kanunlara istinaden çıkarılan yönetmeliklere uyulması ve ilgili kurum/kuruluşlardan gerekli izinlerin alınması gerekmektedir.

Bilgilerinizi ve gereğini arz ve rica ederim.

Fevzi İŞBİLİR
Bakan a.
Genel Müdür

DAĞITIM:
-Ulaştırma Bakanlığı
(Karayolları Genel Müdürlüğü)
-İstanbul Valiliği
(İl Çevre ve Orman Müdürlüğü)

KARAYOLLARI GENEL MÜDÜRLÜĞÜ
Genel Evrak
Havale Ed.
Tarih
Yıl Şefliği
Ubite
3-8 ÇED

Annex-1.2. Urgent Expropriation Decision for the Project

Annex-1.2.1. Decision numbered 2017/10039 and dated 20/3/2017

Karar Sayısı : 2017/10039

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında bazı taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması hakkındaki ekli Kararın yürürlüğe konulması; Ulaştırma, Denizcilik ve Haberleşme Bakanlığının 20/3/2017 tarihli ve 81545 sayılı yazısı üzerine, 2942 sayılı Kamulaştırma Kanununun 27 nci maddesine göre, Bakanlar Kurulu'nca 20/3/2017 tarihinde kararlaştırılmıştır.

Recep Tayyip ERDOĞAN
CUMHURBAŞKANI

Binali YILDIRIM
Başbakan

N. CANİKLİ
Başbakan Yardımcısı

M. ŞİMŞEK
Başbakan Yardımcısı

N. KURTULMUŞ
Başbakan Yardımcısı

Y. T. TÜRKEŞ
Başbakan Yardımcısı

V. KAYNAK
Başbakan Yardımcısı

B. BOZDAĞ
Adalet Bakanı

F. B. SAYAN KAYA
Aile ve Sosyal Politikalar Bakanı

Ö. ÇELİK
Avrupa Birliği Bakanı

F. ÖZLÜ
Bilim, Sanayi ve Teknoloji Bakanı

M. MÜEZZİNOĞLU
Çalışma ve Sosyal Güvenlik Bakanı

M. ÖZHASEKİ
Çevre ve Şehircilik Bakanı

M. ÇAVUŞOĞLU
Dışişleri Bakanı

N. ZEYBEKCİ
Ekonomi Bakanı

B. ALBAYRAK
Enerji ve Tabii Kaynaklar Bakanı

A. Ç. KILIÇ
Gençlik ve Spor Bakanı

F. ÇELİK
Gıda, Tarım ve Hayvancılık Bakanı

B. TÜFENKCİ
Gümrük ve Ticaret Bakanı

S. SOYLU
İçişleri Bakanı

L. ELVAN
Kalkınma Bakanı

N. AVCI
Kültür ve Turizm Bakanı

N. AĞBAL
Maliye Bakanı

İ. YILMAZ
Milli Eğitim Bakanı

F. IŞIK
Milli Savunma Bakanı

V. EROĞLU
Orman ve Su İşleri Bakanı

R. AKDAĞ
Sağlık Bakanı

A. ARSLAN
Ulaştırma, Denizcilik ve Haberleşme Bakanı

20/3/2017 TARİHLİ VE 2017/10039 SAYILI KARARNAMENİN EKİ

KARAR

Acele kamulaştırma

MADDE 1- (1) Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında ekli harita ile (I) sayılı listede güzergâhı, bulunduğu yer ve ada/parsel numaraları belirtilen taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması kararlaştırılmıştır.

Yürürlükten kaldırılan hükümler

MADDE 2- (1) Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında bazı taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması hakkındaki 11/10/2016 tarihli ve 2016/9373 sayılı Bakanlar Kurulu Kararının, ekli (II) sayılı listede belirtilen taşınmazlara ilişkin hükümleri yürürlükten kaldırılmıştır.

Yürürlük

MADDE 3- (1) Bu Karar yayımı tarihinde yürürlüğe girer.

Yürütme

MADDE 4- (1) Bu Karar hükümlerini Ulaştırma, Denizcilik ve Haberleşme Bakanı yürütür.

Annex-1.2.2. Former Decision numbered 2016/9373 and dated 11/10/2016, which is abolished with the Publishing of Current Decision numbered 2017/10039 and dated 20/3/2017

Karar Sayısı : 2016/9373

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi kapsamında ekli harita ile listede güzergâhı, bulunduğu yer ve ada/parsel numaraları gösterilen taşınmazların Karayolları Genel Müdürlüğü tarafından acele kamulaştırılması; Ulaştırma, Denizcilik ve Haberleşme Bakanlığının 7/10/2016 tarihli ve 233686 sayılı yazısı üzerine, 2942 sayılı Kamulaştırma Kanununun 27 nci maddesine göre, Bakanlar Kurulu'nca 11/10/2016 tarihinde kararlaştırılmıştır.

Recep Tayyip ERDOĞAN
CUMHURBAŞKANI

Binali YILDIRIM
Başbakan

N. CANİKLİ Başbakan Yardımcısı	M. ŞİMŞEK Başbakan Yardımcısı	N. KURTULMUŞ Başbakan Yardımcısı	Y. T. TÜRKEŞ Başbakan Yardımcısı
V. KAYNAK Başbakan Yardımcısı	B. BOZDAĞ Adalet Bakanı	F. B. SAYAN KAYA Aile ve Sosyal Politikalar Bakanı	Ö. ÇELİK Avrupa Birliği Bakanı
F. ÖZLÜ Bilim, Sanayi ve Teknoloji Bakanı	M. MÜEZZİNOĞLU Çalışma ve Sosyal Güvenlik Bakanı	M. ÖZHASEKİ Çevre ve Şehircilik Bakanı	M. ÇAVUŞOĞLU Dışişleri Bakanı
N. ZEYBEKCİ Ekonomi Bakanı	B. ALBAYRAK Enerji ve Tabii Kaynaklar Bakanı	A. Ç. KILIÇ Gençlik ve Spor Bakanı	F. ÇELİK Gıda, Tarım ve Hayvancılık Bakanı
B. TÜFENKCİ Gümrük ve Ticaret Bakanı	S. SOYLU İçişleri Bakanı	L. ELVAN Kalkınma Bakanı	N. AVCI Kültür ve Turizm Bakanı
N. AĞBAL Maliye Bakanı	İ. YILMAZ Millî Eğitim Bakanı	F. IŞIK Millî Savunma Bakanı	
V. EROĞLU Orman ve Su İşleri Bakanı	R. AKDAĞ Sağlık Bakanı	A. ARSLAN Ulaştırma, Denizcilik ve Haberleşme Bakanı	

Annex-1.3. Prime Ministry Circular (1/2)

Başbakanlıktan:

Konu : Kuzey Marmara (3. Boğaz Köprüsü Dahil) Otoyolu Projesi

GENELGE

2016/20

Karayolları Genel Müdürlüğünce (KGM) ihalesi yapılan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi ve Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi işlerinin belirlenen süre içerisinde tamamlanabilmesi için aşağıdaki tedbirlerin alınması uygun görülmüştür:

1- Proje kapsamında yapılacak kamulaştırmalar için gerekli olacak ödeneklerin serbest bırakma işlemleri işlerin gecikmesine meydan verilmeyecek şekilde yapılacak, yılı ödeneklerinin tamamının ilk üç ayda serbest bırakılması sağlanacaktır.

2- Proje güzergâhında yapılması gereken imar planı ve değişiklikleri, ilgili idarelerce 6001 sayılı Karayolları Genel Müdürlüğünün Teşkilat ve Görevleri Hakkında Kanunun 19'uncu maddesinde belirtilen azami sürelerin sonu beklenmeksizin en kısa sürede neticelendirilecektir.

3- Proje güzergâhında yapılması gereken imar planı çalışmaları ve bu çalışmalara altlık teşkil edecek hâlihazır haritaların üretimi, kıyı kenar çizgisinin tespiti, imar planına esas jeolojik ve jeoteknik etüt raporlarının hazırlanması veya onaylanmasına ilişkin her türlü iş ve işlemler; ilgili kamu kurum ve kuruluşlarınca en kısa zamanda sonuçlandırılacaktır.

4- Proje güzergâhında bulunan su, kanalizasyon, doğalgaz ve petrol boru hatları ile elektrik, haberleşme hatları ve tesislerinin güzergâh dışına taşınması sırasında bunlara ilişkin KGM ilgili birimleri tarafından talep edilecek izin, onay, kabul gibi iş ve işlemler, ilgili kuruluşlar tarafından geciktirilmeksizin yerine getirilecektir.

5- Projenin yapımı için gerekli olacak taş ocakları, kum-çakıl ocakları ve ariyet ocaklarının kamulaştırma, üretim izni, ruhsat ve tahsis işlemlerinin hızla gerçekleştirilebilmesi için gereken işlemler; ilgili kamu kurum ve kuruluşlarınca öncelikli ve ivedi olarak neticelendirilecektir.

6- Projenin gerçekleştirilmesi için gerekli olan Hazinenin özel mülkiyetinde veya Devletin hüküm ve tasarrufu altındaki taşınmazlar ile ormanlık alanlar ve diğer kamu kurum ve kuruluşlarına ait taşınmazların KGM'nin talebi doğrultusunda tahsis, izin, irtifak, devir veya yola terkin işlemlerinin hızla yürütülebilmesi için gerekli önlemler ilgili idarelerce alınacak, bunun için gerekirse mevzuatı çerçevesinde ilgili idarelerin taşra birimleri de yetkilendirilerek gecikmeye mahal verilmeyecektir.

7- Proje güzergâhında yapılacak kamulaştırmalar için 2942 sayılı Kamulaştırma Kanununun 10'uncu maddesi uyarınca açılan bedel tespit ve tescil davalarının kısa sürede neticelenebilmesi için ilgili kamu kurum ve kuruluşlarınca gerekli tedbirler alınacak, kamulaştırılacak taşınmazların değer tespitine yönelik olarak, KGM'nin ve mahkemelerin talep edeceği bilgi ve belgeler ilgili kamu kurum ve kuruluşları tarafından gerekli özen gösterilerek en kısa zamanda gönderilecektir.

8- Kamulaştırma çalışmalarının sağlıklı ve acele olarak neticelendirilebilmesi için; Proje bünyesinde yapılacak çalışmalar sırasında talep edilmesi halinde kamulaştırma planlarının hazırlanmasına ilişkin bilgi ve belgelerin gönderilmesine, planların arazi ve büro kontrollerinin yapılmasına ve 2942 sayılı Kanun uyarınca kamulaştırma işlemleri tamamlanan taşınmazların tapuda tescil-terkin edilmesine dair işlemler Tapu ve Kadastro Genel Müdürlüğü ilgili birimlerince acele olarak gerçekleştirilecektir.

Annex-1.3. Prime Ministry Circular (2/2)

9- Projenin gerçekleştirilmesi için gerekli olan malzeme ocakları, bağlantı yolları, enerji nakil hatları, depo alanları, hazır beton tesisleri, asfalt plenti ile alt ve üst yapı imalatları için gereken üretim tesisleri vb. diğer tesislerin çevresel etki değerlendirmeleri yapılırken projenin 7 Şubat 1993 tarihinden önce yatırım programına alınmış olması durumu ve Danıştay İdari Dava Daireleri Kurulunun 25 Mart 2015 tarih ve E: 2013/2534, K: 2015/915 sayılı kararı dikkate alınacak, Çevresel Etki Değerlendirmesi Yönetmeliğinden muafiyet hususu buna göre değerlendirilecektir.

10- Proje güzergâhı kapsamında bulunan veya yol yapım çalışmaları sırasında ortaya çıkacak taşınır veya taşınmaz tabiat ve kültür varlıklarına konu olan buluntulara rastlanması durumunda, durum ilgili Tabiat Varlıklarını Koruma Bölge Kurulu Müdürlüğü ve Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğüne bildirilecek ve Kurullar konuyu gündemine ivedilikle alacaktır. Bu konudaki Kurul çalışmalarına, sadece üyelere konu hakkında bilgi vermek üzere KGM teknik elemanları da çağrılacak, çalışmaların projenin özellikleri de dikkate alınarak, gecikmesine meydan verilmeden yapılması sağlanacaktır.

11- Kuzey Marmara Otoyolu Projesi, etkileşim halinde olduğu veya etkileşime girebileceği diğer projelere göre öncelik teşkil edecektir.

12- Güzergâhın geçtiği yerlerdeki mülki ve idari yöneticiler ile ilgili idarelerin taşra birimleri, kamulaştırılması yapılan taşınmaz malların maliklerinin ve adreslerinin tespitinde gecikmeye mahal verilmeyecek şekilde yardımcı olacaktır.

13- Kamu kurum ve kuruluşlarından, belediyelerden ve ilgili tapu müdürlüklerinden proje güzergahında kamulaştırılacak taşınmaz mallar için; 2942 sayılı Kamulaştırma Kanununun 10'uncu maddesi uyarınca açılabilecek olan davalarda, aynı Kanunun 11'inci maddesi gereğince KGM'ye verilecek emsal verileri ile mahkemelere sunulacak veriler arasında yeknesaklığın sağlanabilmesi için gerekli özen gösterilecektir.

14- Projenin hazırlanması için fotogrametrik yöntemle alım için gereken uçuş izinlerinin ivedilikle verilmesi sağlanacaktır.

15- Askeri alanlarda çalışma (proje ve kamulaştırma planları) yapmak için gerekli izin süreçleri en seri bir şekilde tamamlanacak, çalışmaların tamamlanabilmesi için verilecek müsaadenin işlemlerin gerektirdiği süreleri ihtiva etmesine özen gösterilecektir.

16- Proje ile ilgili her türlü plan, proje, yapım ve detay çalışmaları sırasında iş ve işlemlerin hızlı ve eksiksiz bir şekilde yerine getirilmesi için KGM merkez birimlerine, Karayolları 1. (İstanbul) Bölge Müdürlüğü ile KGM'nin görev ve yetki vereceği diğer taşra birimlerine, idare adına iş yapan yüklenici ve alt yüklenicilere tüm kamu kurum ve kuruluşları ile Valilikler tarafından mevzuatı gereğince gerekli yardım ve destek sağlanacaktır.

Bilgilerinizi ve gereğini önemle rica ederim.

Binali YILDIRIM
Başbakan

Annex-1.4. KGM Official Letter to Governmental Stakeholders (1/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

Sayı : 12134907- 170.99 / E. 251737 27.10.2016
Konu : Kuzey Marmara Otoyolu Kurum Görüşü ve Altyapı Deplasmanları

Paraf Nüshası

İlgi: Başbakanlık Personel ve Prensipler Genel Müdürlüğünün 23.08.2016 tarihli ve 2016/20 sayılı genelgesi.

Yap-İşlet-Devret yöntemi ile ihalesi yapılan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi KMO Avrupa Otoyol İşletmesi A.Ş. taahhüdünde, Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi İşi KMO Anadolu Otoyol İşletmesi A.Ş. taahhüdünde ve Bölge Müdürlüğümüzün denetiminde yürütülmektedir.

24 Ağustos 2016 tarihli ve 29811 sayılı Resmi Gazete'de yayımlanan Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi hakkındaki Başbakanlık Makamının ilgi sayılı Genelgesi ekte gönderilmektedir. 78 km uzunluğundaki Kınalı-Odayeri Kesimi güzergahı ve 176 km. uzunluğundaki Kurtköy-Akyazı Kesimi güzergahı: Kuzey Marmara Otoyolu'nun 3. Boğaz Köprüsü ile birlikte trafiğe açılan Odayeri-Paşaköy Kesimine bağlantıyı sağlayacaktır.

Belirtilen güzergahların 1/5000 Ölçekli Ön Projelerine ait planlar (ED50 3 derece, ED50 6 derece, ITRF96 koordinat sistemlerinde) yazımız ekinde CD ortamında gönderilmekte olup;

İlgili kurumlar (Liste 1) tarafından konuya ilişkin görüşlerin ivedilikle bildirilmesi, güzergah üzerinde yer alan meri 1/5000 ölçekli nazım imar planlarının ve 1/1000 ölçekli uygulama imar planlarının sayısal ortamda gönderilmesi.

Otoyol ve Bağlantı Yolu yapım çalışmalarının aksamadan ve zamanında gerçekleştirilebilmesi için belirtilen güzergahlar üzerinde bulunan mevcut yeraltı ve yerüstü tesislerinin tespit edilerek Otoyol Kamulaştırma sınırlarının dışına deplase edilmesi gerekmektedir. Güzergahlara rastlayan mevcut yeraltı ve yerüstü tesislerinin ilgili kurumlar (Liste 2) tarafından gönderilen planlara işlenerek tarafımıza iletilmesi ve deplasesi gereken tesisler için ivedilikle gereğinin yapılması hususlarında.

Gereğini bilgilerine arz/rica ederim.

Dr. Ahmet Taner HERGÜNER
Bölge Müdürü a.
Bölge Müdür Yardımcısı

EKLER:
1. Genelge (2 sayfa)
2. CD (1 adet)

DAĞITIM:

"Bu belge, güvenli elektronik imza ile imzalanmıştır."
http://www.kgm.gov.tr adresinden,"mhjzz311C70C" DYS No ve evrak tarihi ile erişebilirsiniz.

Hamidiye Mah. Kemerburgaz Cad. No: 170 PK 34408 Kağıthane/ İSTANBUL
Telefon No :212 3121700 Faks: 212 3127412
Internet Adresi :www.kgm.gov.tr

Bilgi İçin: Sinan SEZEN
Proje ve Danışmanlık Şefi
Tel - Faks: 212 3121700-
e-posta : ssezen2@kgm.gov.tr

Annex-1.4. KGM Official Letter to Governmental Stakeholders (2/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

Liste 1:

1- Altyapı Yatırımları Genel Müdürlüğü (Ankara)
2- TCDD 1. Bölge Müdürlüğü (Haydarpaşa)
3- Karayolları Düzenleme Genel Müdürlüğü (Ankara)
4- Ulaştırma Denizcilik Ve Haberleşme Bakanlığı 1. Bölge Müdürlüğü
5- Ulaştırma. Denizcilik Ve Haberleşme Bakanlığı 13. Bölge Müdürlüğü
6- Dsi 1. Bölge Müdürlüğü - Bursa
7- Dsi 3. Bölge Müdürlüğü - Eskişehir
8- Dsi 14. Bölge Müdürlüğü-İstanbul
9- İstanbul Orman Bölge Müdürlüğü
10- Sakarya Orman Bölge Müdürlüğü
11- Orman Ve Su İşleri Bakanlığı 1. Bölge Müdürlüğü
12- Milli Savunma Bakanlığı İstanbul İnşaat Emlak Bölge Başkanlığı
13- Milli Savunma Bakanlığı İzmit İnşaat Emlak Bölge Başkanlığı (Kocaeli)
14- Maden Tetkik Arama Marmara Bölge Müdürlüğü
15- Kültür Varlıkları ve Müzeler Genel Müdürlüğü
16- İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
17- İstanbul 2 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
18- İstanbul 5 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
19- Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü
20- Tabiat Varlıklarını Koruma Genel Müdürlüğü
21- İstanbul 1. Tabiat Varlıklarını Koruma Bölge Komisyonu
22- İstanbul 3. Tabiat Varlıklarını Koruma Bölge Komisyonu
23- İstanbul 4. Tabiat Varlıklarını Koruma Bölge Komisyonu
24- Kocaeli Tabiat Varlıklarını Koruma Bölge Komisyonu
25- İstanbul Çevre Ve Şehircilik İl Müdürlüğü

"Bu belge, güvenli elektronik imza ile imzalanmıştır."
http://www.kgm.gov.tr adresinden,"mhjzz311C70C" DYS No ve evrak tarihi ile erişebilirsiniz.

Hamidiye Mah. Kemerburgaz Cad. No: 170 PK 34408 Kağıthane/ İSTANBUL
Telefon No :212 3121700 Faks:212 3127412
Internet Adresi :www.kgm.gov.tr
Bilgi Için: Sinan SEZEN
Proje ve Danışmanlık Şefi
Tel - Faks: 212 3121700-
e-posta : ssezen2@kgm.gov.tr

Annex-1.4. KGM Official Letter to Governmental Stakeholders (3/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

26- Kocaeli Çevre Ve Şehircilik İl Müdürlüğü
27- Sakarya Çevre Ve Şehircilik İl Müdürlüğü
28- İstanbul Büyükşehir Belediye Başkanlığı
29- Kocaeli Büyükşehir Belediye Başkanlığı
30- Sakarya Büyükşehir Belediye Başkanlığı

Liste 2:

31- İstanbul Su Ve Kanalizasyon İdaresi Genel Müdürlüğü (İski)
32- Kocaeli Su Ve Kanalizasyon İdaresi Genel Müdürlüğü (İsu)
33- Sakarya Su Ve Kanalizasyon İdaresi Genel Müdürlüğü
34- Botaş Boru Hatları İle Petrol Taşıma A.Ş.
35- İstanbul Gaz Dağıtım Sanayi Ve Tic. A. Ş.
36- İzmit Gaz Dağıtım Sanayi Ve Ticaret A.Ş.
37- Gebze Gaz Dağıtım A.Ş.
38- Adapazarı Gaz Dağıtım A.Ş.
39- Teiaş 1. İletim Tesis Ve İşletme Gurup Müdürlüğü
40- Teiaş 4. İletim Tesis Ve İşletme Grup Müdürlüğü
41- Teiaş 5. İletim Tesis Ve İşletme Grup Müdürlüğü
42- Boğaziçi Elektrik Dağıtım A.Ş.
43- Anadolu Yakası Elektrik Dağıtım A.Ş.
44- Sakarya Elektrik Dağıtım A.Ş
45- Türk Telekom İstanbul Anadolu Yakası İl Müdürlüğü
46- Türk Telekom İstanbul Avrupa Yakası İl Müdürlüğü
47- Türk Telekom Kocaeli İl Müdürlüğü
48- Türk Telekom Sakarya İl Müdürlüğü
49- Silivri Belediye Başkanlığı
50- Çatalca Belediye Başkanlığı
51- Arnavutköy Belediye Başkanlığı
52- Eyüp Belediye Başkanlığı
53- Esenler Belediye Başkanlığı
54- Sultangazi Belediye Başkanlığı
55- Pendik Belediye Başkanlığı
56- Tuzla Belediye Başkanlığı
57- Gebze Belediye Başkanlığı
58- Dilovası Belediye Başkanlığı
59- Körfez Belediye Başkanlığı

"Bu belge, güvenli elektronik imza ile imzalanmıştır."
http://www.kgm.gov.tr adresinden."mhjzz311C70C" DYS No ve evrak tarihi ile erişebilirsiniz.

Hamidiye Mah. Kemerburgaz Cad. No: 170 PK 34408 Kağıthane/ İSTANBUL
Bilgi İçin: Sinan SEZEN
Proje ve Danışmanlık Şefi
Telefon No :212 3121700
Faks: 212 3127412
Tel - Faks: 212 3121700-
İnternet Adresi :www.kgm.gov.tr
e-posta : ssezen2@kgm.gov.tr

Annex-1.4. KGM Official Letter to Governmental Stakeholders (4/4)

T.C.
KARAYOLLARI GENEL MÜDÜRLÜĞÜ
1. Bölge Müdürlüğü

60- Derince Belediye Başkanlığı
61- İzmit Belediye Başkanlığı
62- Kartepe Belediye Başkanlığı
63- Adapazarı Belediye Başkanlığı
64- Serdivan Belediye Başkanlığı
65- Akyazı Belediye Başkanlığı
66- Milli Savunma Bakanlığı Akaryakıt İkmal
Ve Nato Pol Tesisleri İşletme Başkanlığı

26/10/2016
26/10/2016 Şef : N. ACAR
26/10/2016 Şef : S. SEZEN
26/10/2016 K.M.O.Başmühendisi : K. KİLİMCİ
: B. YARAMAN

"Bu belge, güvenli elektronik imza ile imzalanmıştır."
http://www.kgm.gov.tr adresinden."mhjzz311C70C" DYS No ve evrak tarihi ile erişebilirsiniz.

Hamidiye Mah. Kemerburgaz Cad. No: 170 PK 34408 Kağıthane/ İSTANBUL
Telefon No : 212 3121700 Faks: 212 3127412
Internet Adresi : www.kgm.gov.tr

Bilgi Için: Sinan SEZEN
Proje ve Danışmanlık Şefi
Tel - Faks: 212 3121700-
e-posta : ssezen2@kgm.gov.tr

ANNEX-2

MAPS AND DRAWINGS

ANNEX-2. MAPS AND DRAWINGS

Annex-2.1 Typical Cross-sections for the Motorway

Annex-2.2 Typical Cross-sections for the Central Reserve of the Motorway

Annex-2.3 Typical Cross-sections for the Motorway Side Slopes

Annex-2.4 Typical Cross-sections for the Access Roads

Annex-2.5 Typical Cross-sections for the Central Reserve in Access Roads

Annex-2.6 Typical Cross-sections for the Interchange Access Roads

Annex-2.7 Typical Cross-sections for the Interchange Arms

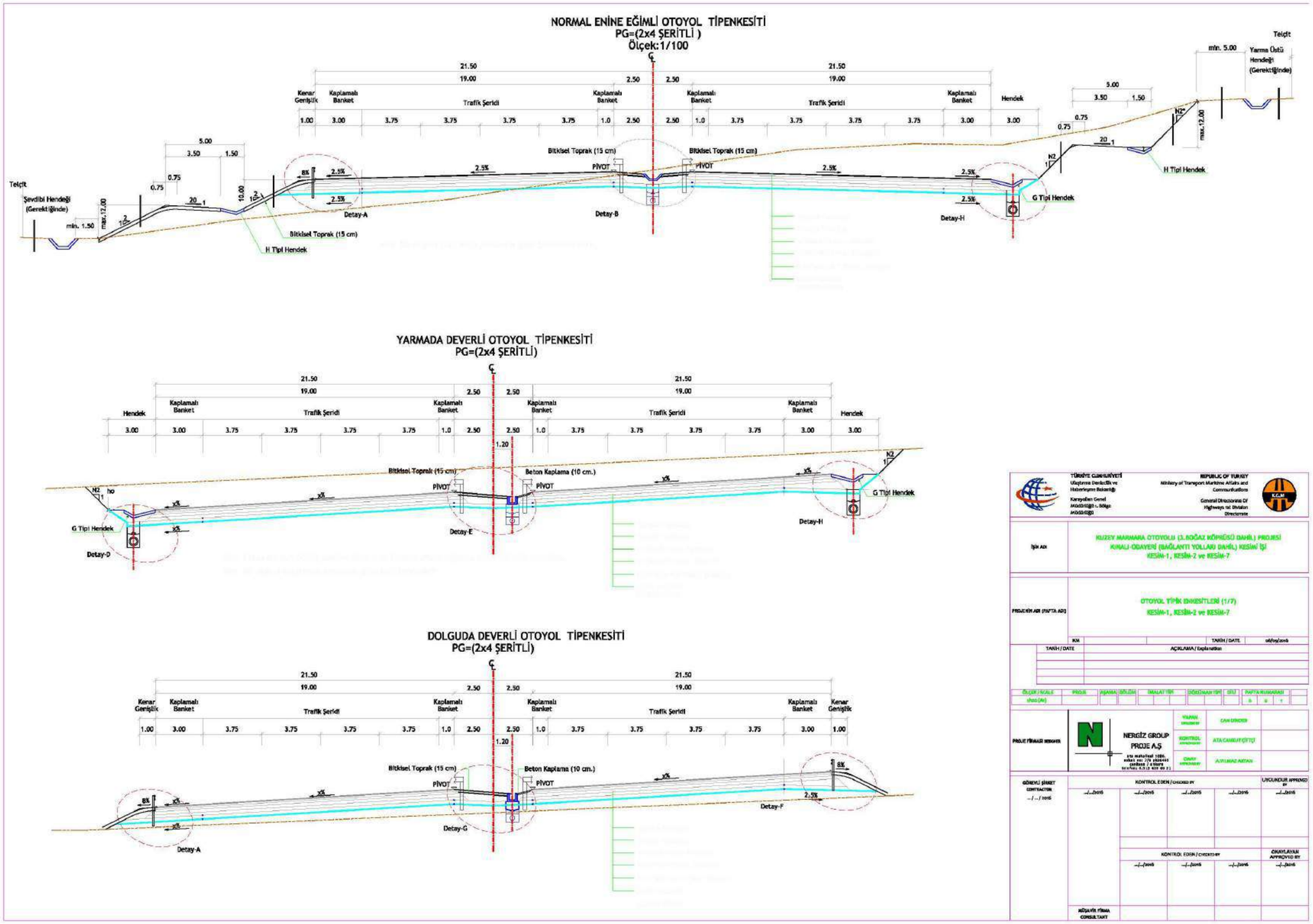
Annex-2.8 Typical Cross-section for Tunnel

Annex-2.9 Typical Girder Cross-section (Closely Spaced)

Annex-2.10 1/500.000 scale MTA Landslide Risk Map

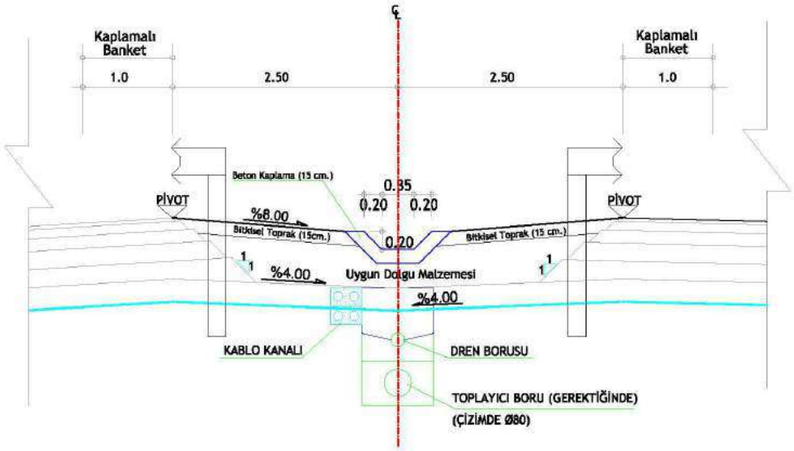
Annex-2. Drawing and Maps

Annex-2.1. Typical Cross-sections for the Motorway

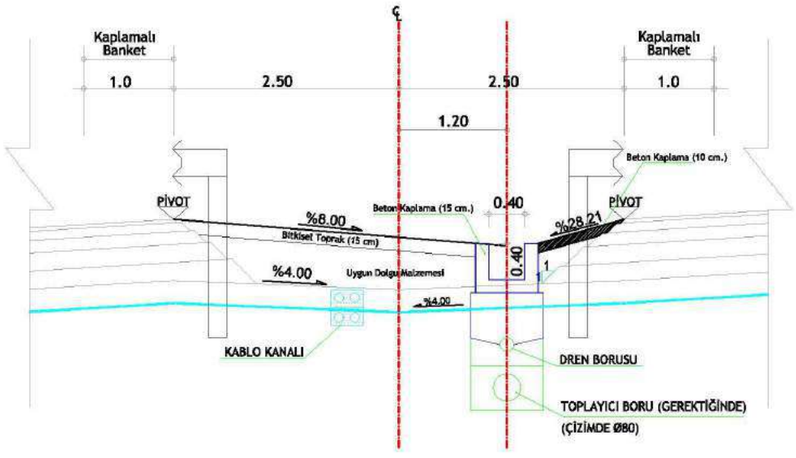


Annex-2.2. Typical Cross-sections for the Central Reserve of the Motorway

Detay-B
NORMAL ENİNE EĞİMLİ OTOYOLDA ORTA REFÜJ DETAYI
(Aydınlatma Direği Yok)
Ölçek:1/25



Detay-E
DEVERLİ OTOYOLDA ORTA REFÜJ DETAYI
Ölçek:1/25



TÜRKİYE CUMHURİYETİ Ulaştırma Denizcilik ve Haberleşme Bakanlığı Karayolları Genel Müdürlüğü 5. Bölge Müdürlüğü
REPUBLIC OF TURKEY Ministry of Transport Maritime Affairs and Communications General Directorate Of Highways 5th Division Directorate

İŞİN ADI: KUZEY MARMARA OTOYOLU (3.BOĞAZ KÖPRÜSÜ DAHİL) PROJESİ KINALI-ODAYERİ (BAĞLANTI YOLLARI DAHİL) KESİM İŞİ KESİM-1, KESİM-2 ve KESİM-7

PROJENİN ADI (PAFTA ADI): OTOYOL ORTA REFÜJ DETAYLARI (2/7) KESİM-1, KESİM-2 ve KESİM-7

KM | TARİH / DATE 06/09/2016

TARİH / DATE	AÇIKLAMA / Explanation

ÖLÇEK / SCALE	PROJE	AŞAMA	BÖLÜM	İMALAT TİPİ	DÖKÜMAN TİPİ	DİLİ	PAFTA NUMARASI
1/25 (A1)							0 0 2

PROJE FİRMASI DESIGNER: NERGİZ GROUP PROJE A.Ş

YAPAN DESIGNER	CAN DÖNGER
KONTROL APPROVED BY	AYA CANKUT (Şirket)
ONAY APPROVED BY	A.YILMAZ AKTAN

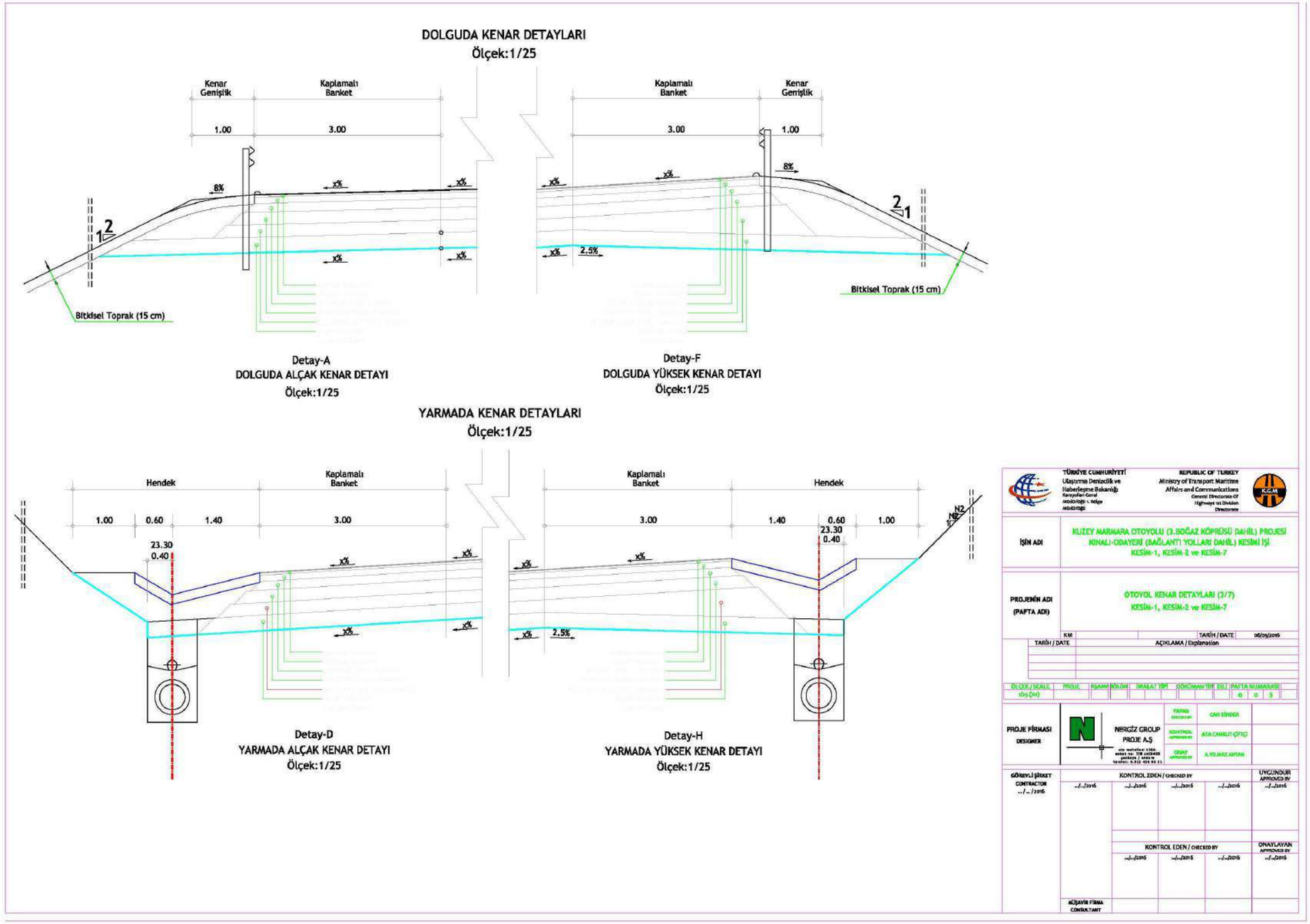
GÖREVLİ ŞİRKET CONTRACTOR ../../2016

KONTROL EDEN / CHECKED BY				UYGUNDUR APPROVED BY
../../2016	../../2016	../../2016	../../2016	../../2016

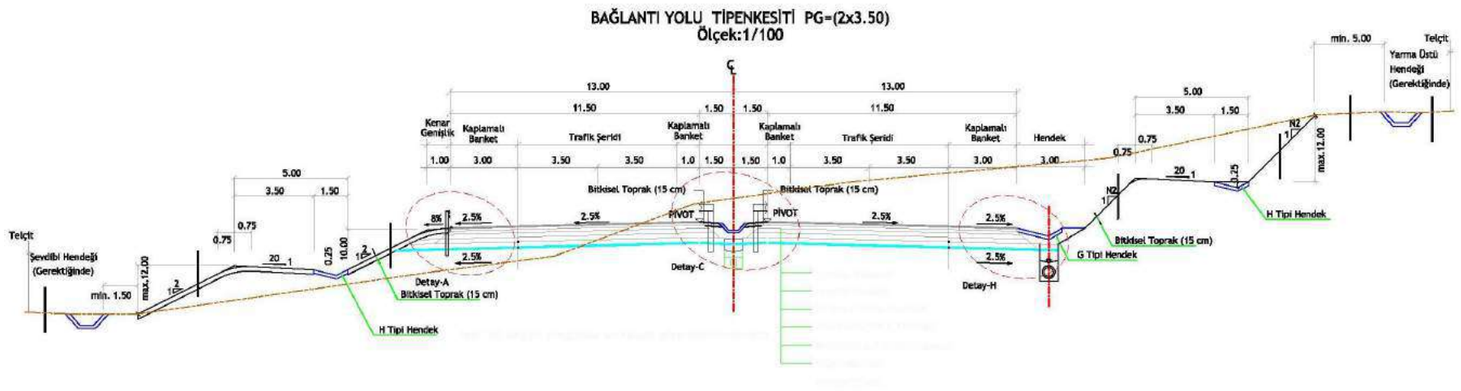
KONTROL EDEN / CHECKED BY			ONAYLAYAN APPROVED BY
../../2016	../../2016	../../2016	../../2016

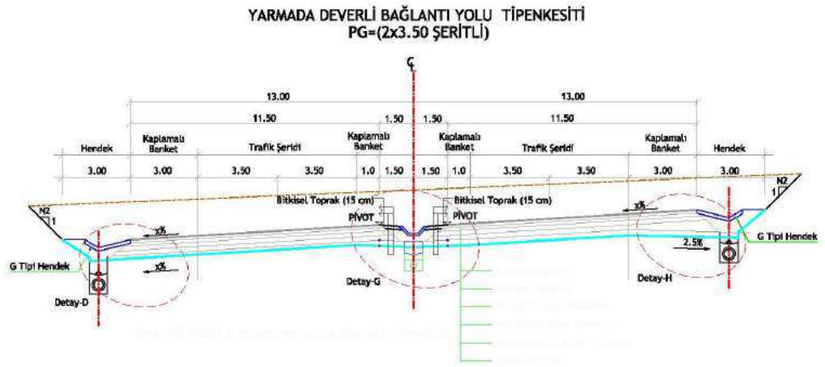
MÜŞAVİR FİRMA CONSULTANT

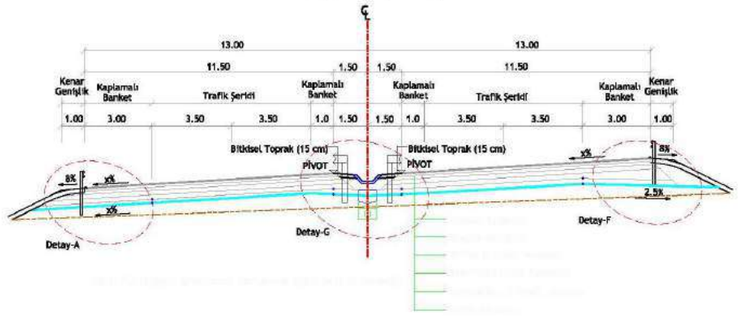
Annex-2.3. Typical Cross-sections for the Motorway Side Slopes

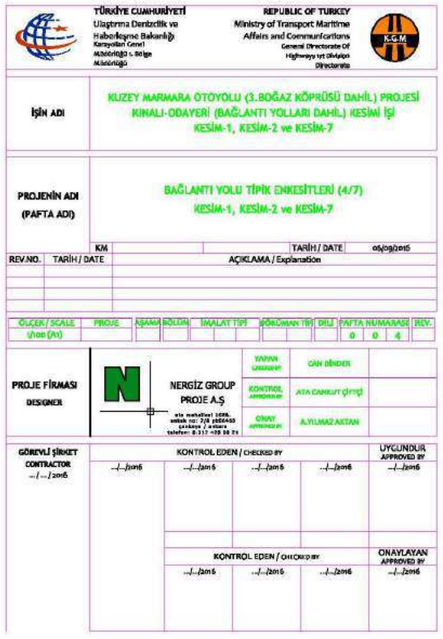


Annex-2.4. Typical Cross-sections for the Access Roads

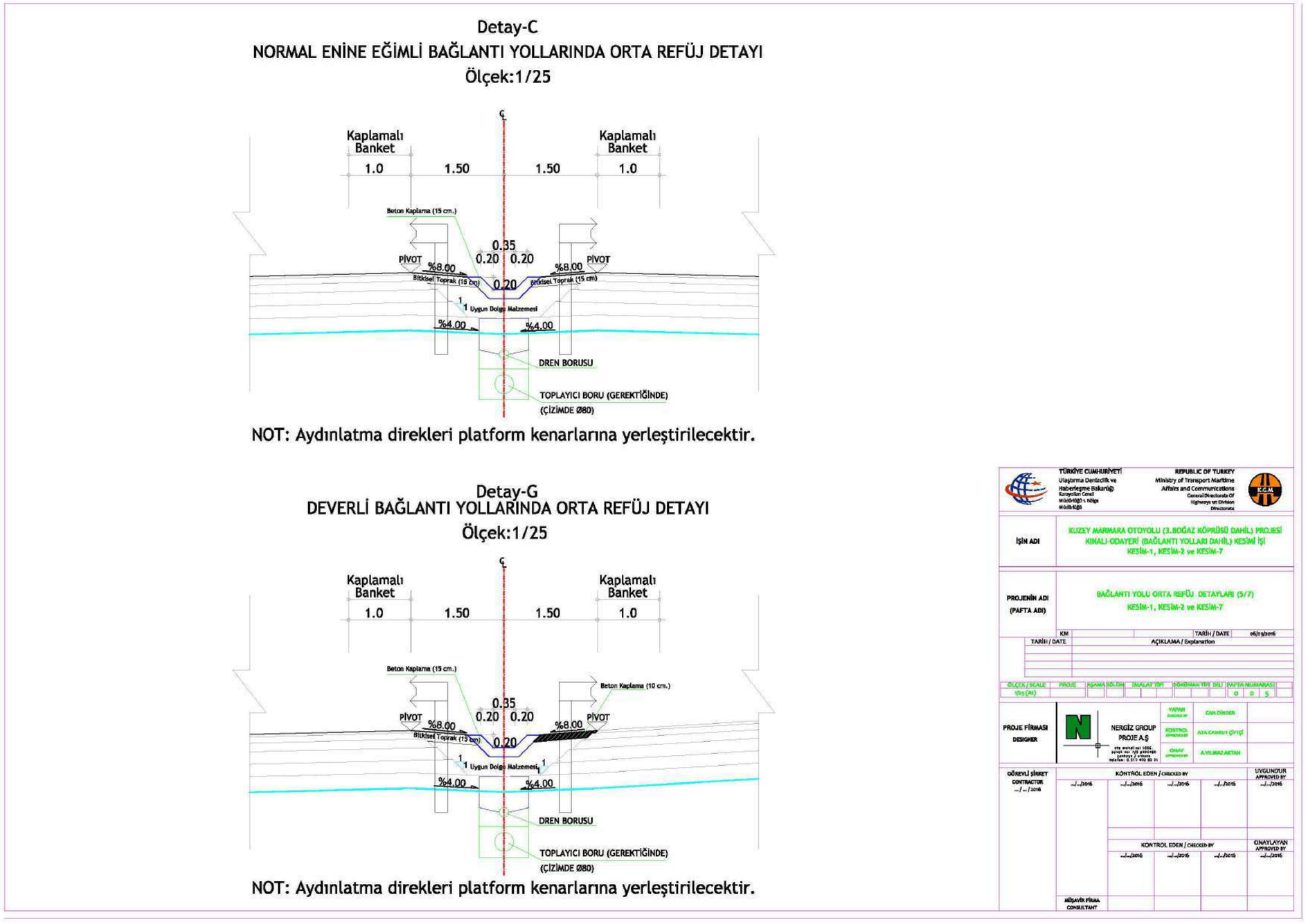






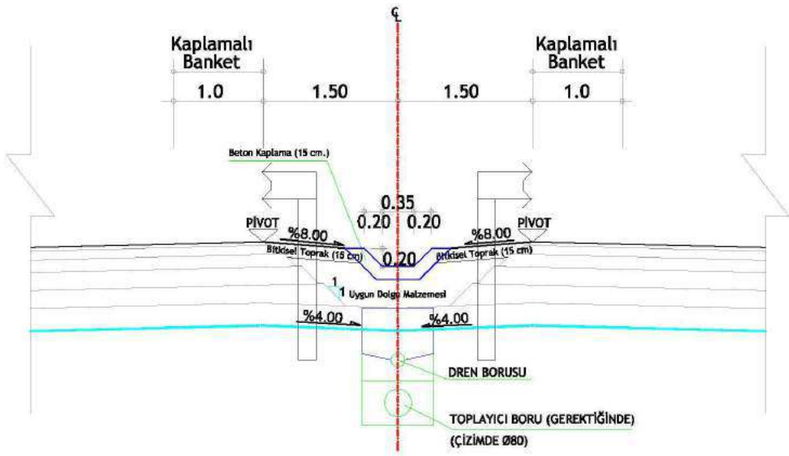


Annex-2.5. Typical Cross-sections for the Central Reserve in Access Roads



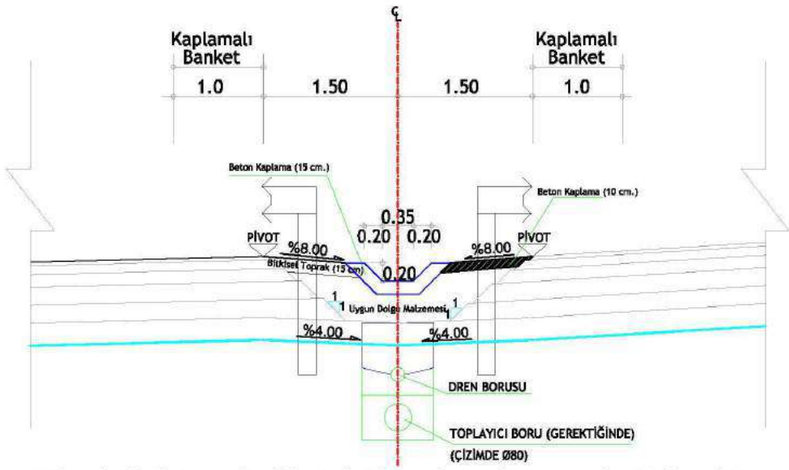
Annex-2.6. Typical Cross-sections for the Interchange Access Roads

Detay-C
NORMAL ENİNE EĞİMLİ BAĞLANTI YOLLARINDA ORTA REFÜJ DETAYI
Ölçek:1/25



NOT: Aydınlatma direkleri platform kenarlarına yerleştirilecektir.

Detay-G
DEVERLİ BAĞLANTI YOLLARINDA ORTA REFÜJ DETAYI
Ölçek:1/25



NOT: Aydınlatma direkleri platform kenarlarına yerleştirilecektir.

TÜRKİYE CUMHURİYETİ
Ulaştırma Denizcilik ve Haberleşme Bakanlığı
Karayolları Genel Müdürlüğü - Köprü Müdürlüğü

REPUBLIC OF TURKEY
Ministry of Transport Maritime Affairs and Communications
General Directorate Of Highways 1st Division Directorate

İŞİN ADI: KUZEY MARMARA OTOYOLU (3.BOĞAZ KÖPRÜSÜ DAHİL) PROJESİ KINALI-ODAYERİ (BAĞLANTI YOLLARI DAHİL) KESİMİ İşi KESİM-1, KESİM-2 ve KESİM-7

PROJENİN ADI (PAFTA ADI): BAĞLANTI YOLU ORTA REFÜJ DETAYLARI (5/7) KESİM-1, KESİM-2 ve KESİM-7

KM | TARİH / DATE: 06/09/2016

TARİH / DATE	AÇIKLAMA / Explanation

ÖLÇEK / SCALE	PROJE	KISMA	BÖLÜM	İMALAT TİPİ	YÖRÜNÜM TİPİ	DİL	PAFTA NUMARASI
1/25 (A1)							0 0 5

PROJE FİRMASI DESIGNER: NERGİZ GROUP PROJE A.Ş
YAPAN CHECKED BY: CAN DİKDER
KONTROL APPROVED BY: ATA CANKUS ÇİFTÇİ
ONAY APPROVED BY: A.YILMAZ AKTAN

GÖREVLİ ŞİRKET CONTRACTOR ../../2016

KONTROL EDEN / CHECKED BY				UYGUNDUR APPROVED BY
../../2016	../../2016	../../2016	../../2016	../../2016

KONTROL EDEN / CHECKED BY			ONAYLAYAN APPROVED BY
../../2016	../../2016	../../2016	../../2016

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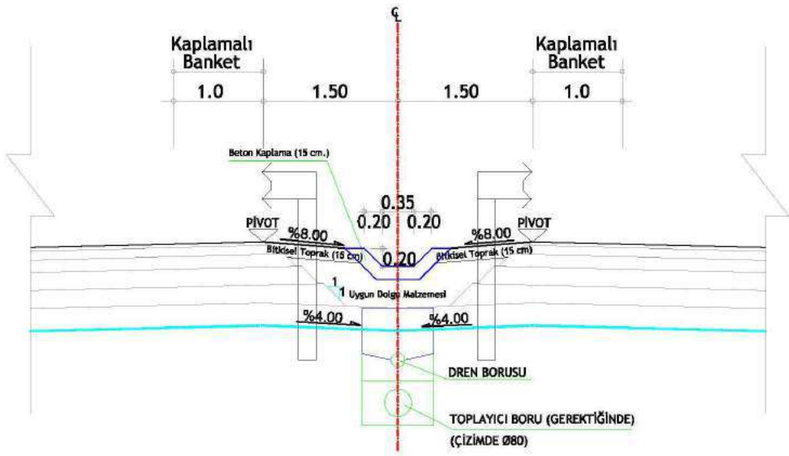
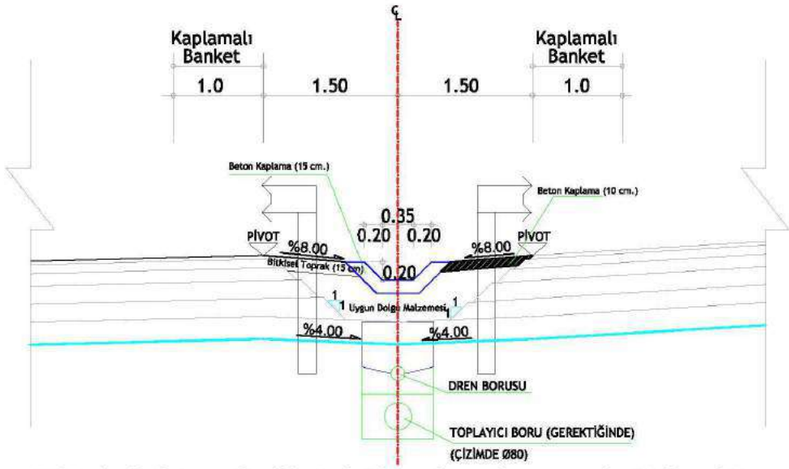
Annex-2.7. Typical Cross-sections for the Interchange Arms

Detay-C
NORMAL ENİNE EĞİMLİ BAĞLANTI YOLLARINDA ORTA REFÜJ DETAYI
Ölçek:1/25



NOT: Aydınlatma direkleri platform kenarlarına yerleştirilecektir.

Detay-G
DEVERLİ BAĞLANTI YOLLARINDA ORTA REFÜJ DETAYI
Ölçek:1/25



NOT: Aydınlatma direkleri platform kenarlarına yerleştirilecektir.

TÜRKİYE CUMHURİYETİ
Ulaştırma Denizcilik ve Haberleşme Bakanlığı
Karayolları Genel Müdürlüğü - Köprü Müdürlüğü

REPUBLIC OF TURKEY
Ministry of Transport Maritime Affairs and Communications
General Directorate Of Highways 1st Division Directorate

İŞİN ADI: KUZEY MARMARA OTOYOLU (3.BOĞAZ KÖPRÜSÜ DAHİL) PROJESİ KINALI-ODAYERİ (BAĞLANTI YOLLARI DAHİL) KESİMİ İşi KESİM-1, KESİM-2 ve KESİM-7

PROJENİN ADI (PAFTA ADI): BAĞLANTI YOLU ORTA REFÜJ DETAYLARI (5/7) KESİM-1, KESİM-2 ve KESİM-7

KM | TARİH / DATE: 06/09/2016

TARİH / DATE	AÇIKLAMA / Explanation

ÖLÇEK / SCALE	PROJE	KISMA	BÖLÜM	İMALAT TİPİ	YÖRÜNÜM TİPİ	DİL	PAFTA NUMARASI
1/25 (A1)							0 0 5

PROJE FİRMASI DESIGNER: NERGİZ GROUP PROJE A.Ş. Yeşilyurt Mah. Ataköy 1. Kısım Mah. 2. Cad. No: 7/B Bakırköy / İstanbul Tel/Fax: 0 212 465 00 31

YAPAN CHECKED BY	CAN DİKDER
KONTROL APPROVED BY	ASLA CANKUS ÇİFTÇİ
ONAY APPROVED BY	A.YILMAZ AKTAN

GÖREVLİ ŞİRKET CONTRACTOR ... / ... / 2016

KONTROL EDEN / CHECKED BY: .../.../2016 | .../.../2016 | .../.../2016 | .../.../2016

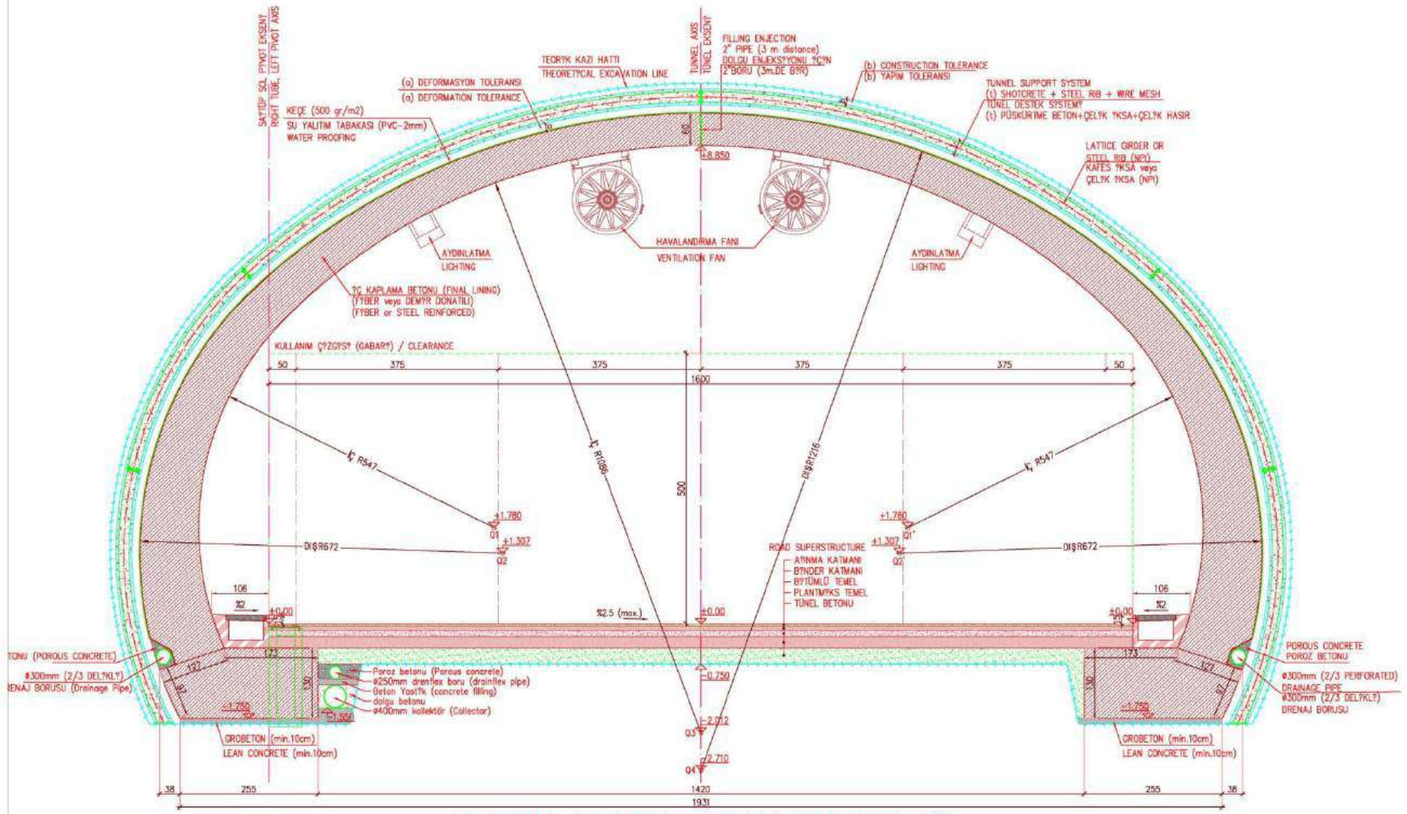
UYGUNDUR APPROVED BY: .../.../2016

KONTROL EDEN / CHECKED BY: .../.../2016 | .../.../2016 | .../.../2016

ONAYLAYAN APPROVED BY: .../.../2016

MÜŞAVİR FİRMA CONSULTANT

Annex-2.8. Typical Cross-section for Tunnel (1/3)



MALZEME / MATERIAL:

1 – NPI/KAFES	NPI / STEEL GIRDER	:st 37
2 – PÜSKÜRTME BETON	SHOTCRETE	:C25/30
3 – ÇELİK HASIR	WIRE MESH	:Q589/378
4 – NİHAİ BETON	FINAL CONRETE	
İÇ KAPLAMA BETONU	INNER LINING	:C30/37
TEMEL KİRİŞİ BETONU	FUNDAMENT BEAM CONRETE	:C30/37
KANAL BETONU	CHANNEL CONCRETE	:C30/37
5 – BETON DOLGU	CONCRETE FILLING	:C16/20
6 – POROZ BETON	POROUS CONCRETE	:C16/20
7 – GROBETON	LEAN CONCRETE	:C16/20

NOTLAR / NOTES:

1 – GÜZERGAHTAKİ ONAYLI ÜSTYAPI KALINLIKLARI KULLANILACAKTIR.
Approved superstructe thikness shall be used

2 – DEVER OLAN YERLERDE TÜNEL PİVOT EKSENİ ±0.00 NOKTASINDAN DÖNDÜRÜLECEKTİR.
Tunnel will be rotated at superelevation points from 0.00 tunnel pivot axis

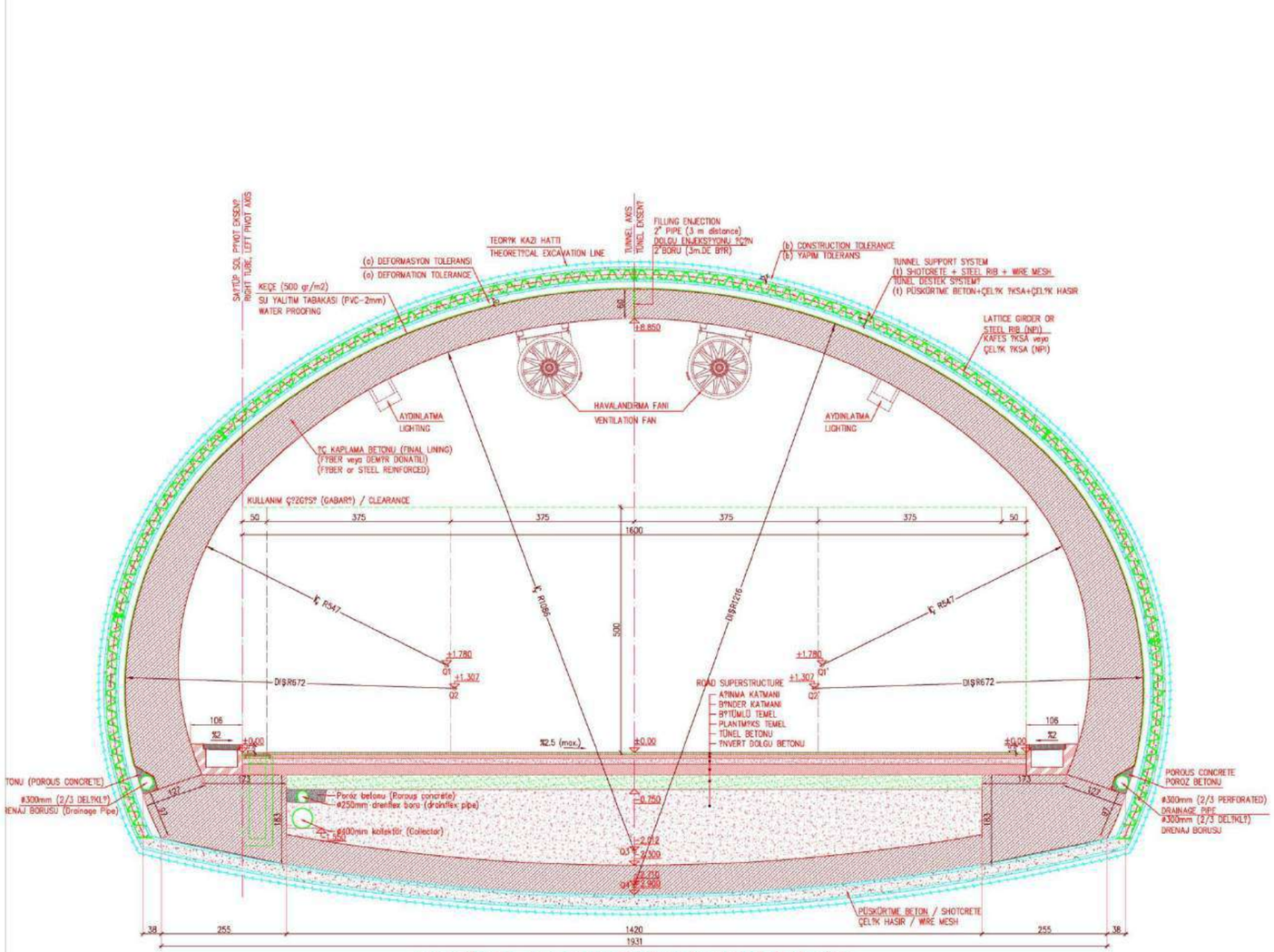
t: PÜSKÜRTME BETON KALINLIĞI / Shotcrete Thickness
a: DEFORMASYON TOLERANSI / Deformation tolerance
b: YAPIM TOLERANSI / Construction tolerance

NOKTA KOORDİNATLARI TABLOSU
POINT COORDINATE LIST

NOKTA NO	X	Y
Q1	4.166	1.780
Q1'	11.834	1.780
Q2	4.326	1.307
Q2'	11.674	1.307
Q3	8.000	−2.012
Q4	8.000	−2.710

B3 TÜNEL (TABAN KEMERSİZ) TİPKESİTİ 1/40
NATM B3 CLASS TUNNEL CROSS SECTION (without invert) 1/40

Annex-2.8. Typical Cross-section for Tunnel (2/3)



B3 TÜNEL (TABAN KEMERLİ) TİPKESİTİ 1/40

NATM B3 CLASS TUNNEL CROSS SECTION (with invert) 1/40

MALZEME / MATERIAL:

1 – NPI/KAFES	NPI / STEEL GIRDER	: st 37
2 – PÜSKÜRTME BETON	SHOTCRETE	: C25/30
3 – ÇELİK HASIR	WIRE MESH	: Q589/378
4 – NİHAİ BETON	FINAL CONRETE	
İÇ KAPLAMA BETONU	INNER LINING	: C30/37
TEMEL KİRİŞİ BETONU	FUNDAMENT BEAM CONRETE	: C30/37
KANAL BETONU	CHANNEL CONCRETE	: C30/37
5 – BETON DOLGU	CONCRETE FILLING	: C16/20
6 – POROZ BETON	POROUS CONCRETE	: C16/20
7 – GROBETON	LEAN CONCRETE	: C16/20

NOTLAR / NOTES:

1 – GÜZERGAHTAKİ ONAYLI ÜSTYAPI KALINLIKLARI KULLANILACAKTIR.
Approved superstructe thikness shalll be used

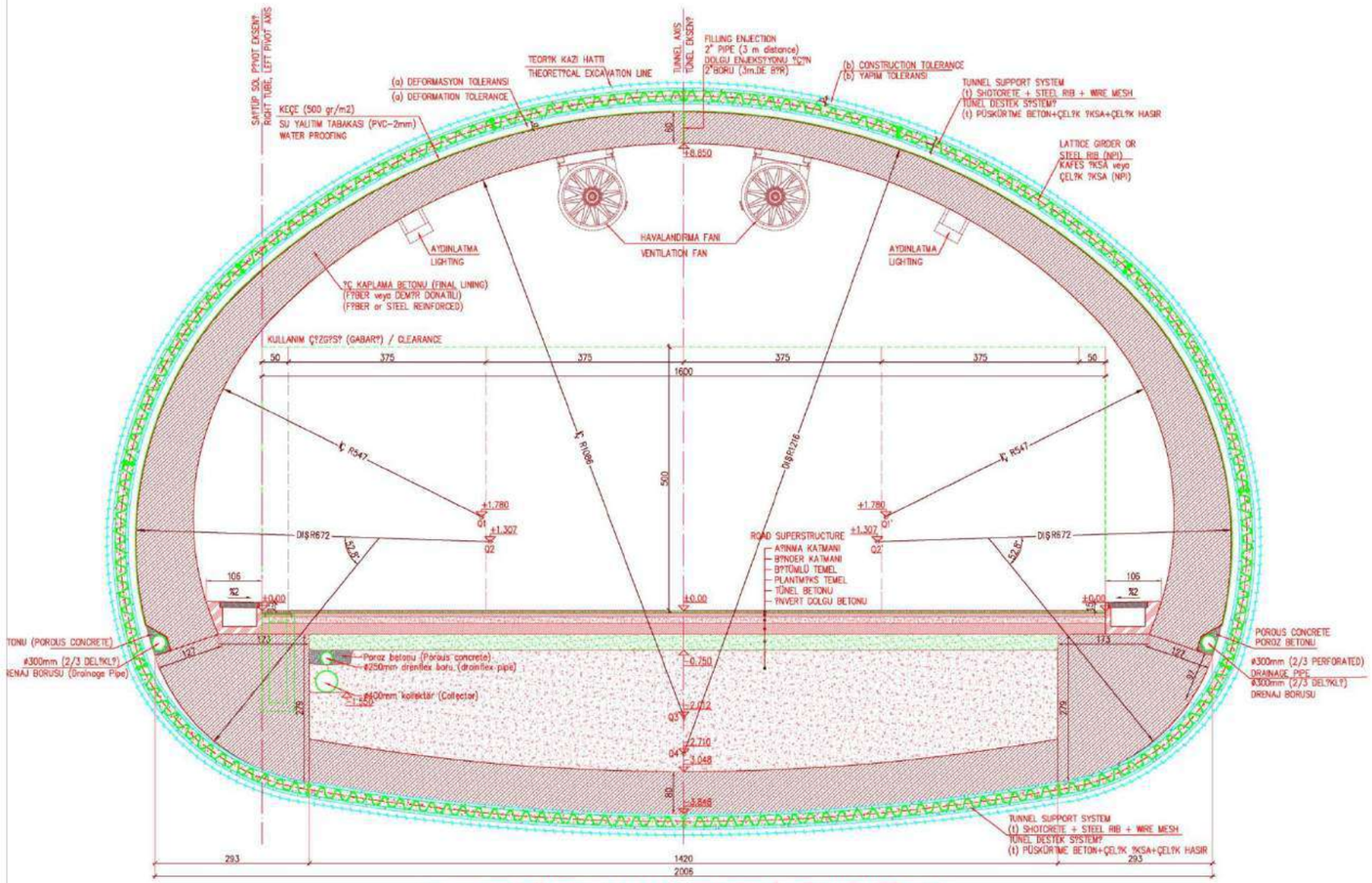
2 – DEVER OLAN YERLERDE TÜNEL PİVOT EKSENİ ±0.00 NOKTASINDAN DÖNDÜRÜLECEKTİR.
Tunnel will be rotated at superelevation points from 0.00 tunnel pivot axis

t: PÜSKÜRTME BETON KALINLIĞI / Shotcrete Thickness
a: DEFORMASYON TOLERANSI / Deformation tolerance
b: YAPIM TOLERANSI / Construction tolerance

NOKTA KOORDİNATLARI TABLOSU
POINT COORDINATE LIST

NOKTA NO	X	Y
Q1	4.166	1.780
Q1'	11.834	1.780
Q2	4.326	1.307
Q2'	11.674	1.307
Q3	8.000	−2.012
Q4	8.000	−2.710

Annex-2.8. Typical Cross-section for Tunnel (3/3)



C2 ve C3 TÜNEL (TABAN KEMERLİ) TİPKESİTİ 1/40

NATM C2 and C3 CLASS TUNNEL CROSS SECTION (with invert) 1/40

MALZEME / MATERIAL:

1 – NPI/KAFES	NPI / STEEL GIRDER	:st 37
2 – PÜSKÜRTME BETON	SHOTCRETE	:C25/30
3 – ÇELİK HASIR	WIRE MESH	:Q589/378
4 – NİHAİ BETON	FINAL CONRETE	
İÇ KAPLAMA BETONU	INNER LINING	:C30/37
TEMEL KİRİŞİ BETONU	FUNDAMENT BEAM CONRETE	:C30/37
KANAL BETONU	CHANNEL CONCRETE	:C30/37
5 – BETON DOLGU	CONCRETE FILLING	:C16/20
6 – POROZ BETON	POROUS CONCRETE	:C16/20
7 – GROBETON	LEAN CONCRETE	:C16/20

NOTLAR / NOTES:

1 – GÜZERGAHTAKİ ONAYLI ÜSTYAPI KALINLIKLARI KULLANILACAKTIR.
Approved superstructe thikness shall be used

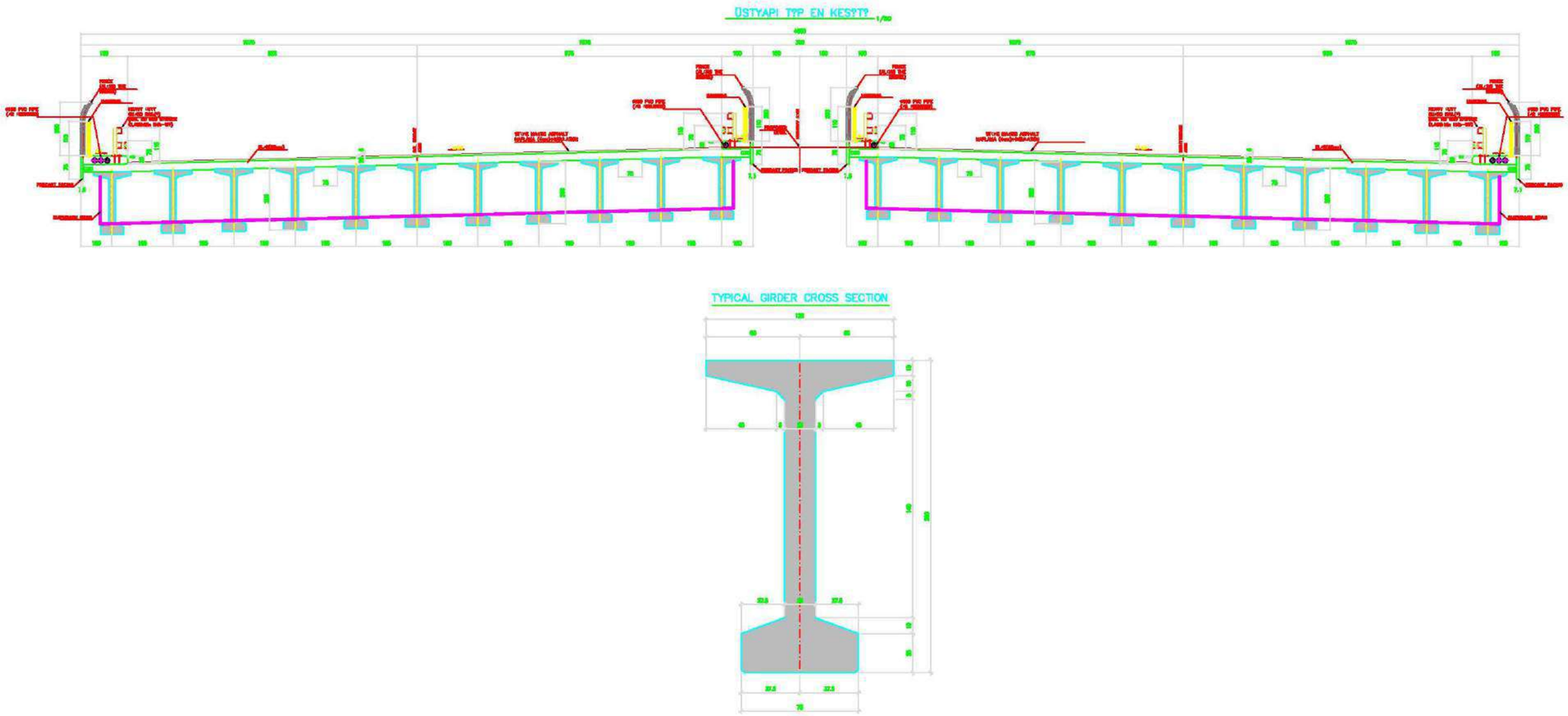
2 – DEVER OLAN YERLERDE TÜNEL PİVOT EKSENİ ±0.00 NOKTASINDAN DÖNDÜRÜLECEKTİR.
Tunnel will be rotated at superelevation points from 0.00 tunnel pivot axis

t: PÜSKÜRTME BETON KALINLIĞI / Shotcrete Thickness
a: DEFORMASYON TOLERANSI / Deformation tolerance
b: YAPIM TOLERANSI / Construction tolerance

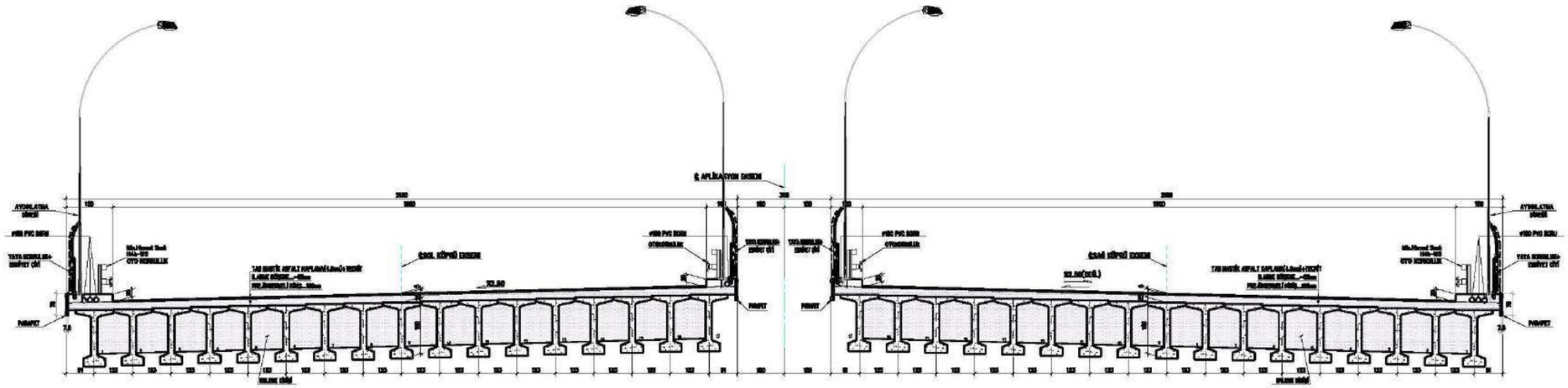
NOKTA KOORDİNATLARI TABLOSU
POINT COORDINATE LIST

NOKTA NO	X	Y
Q1	4.166	1.780
Q1'	11.834	1.780
Q2	4.326	1.307
Q2'	11.674	1.307
Q3	8.000	−2.012
Q4	8.000	−2.710

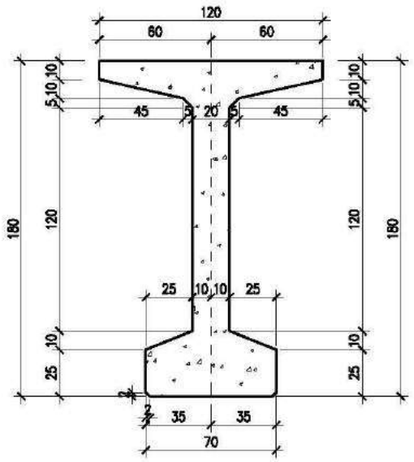
Annex-2.9. Typical Girder Cross-section (Closely Spaced) (1/4)



Annex-2.9. Typical Girder Cross-section (Adjacent) (2/4)

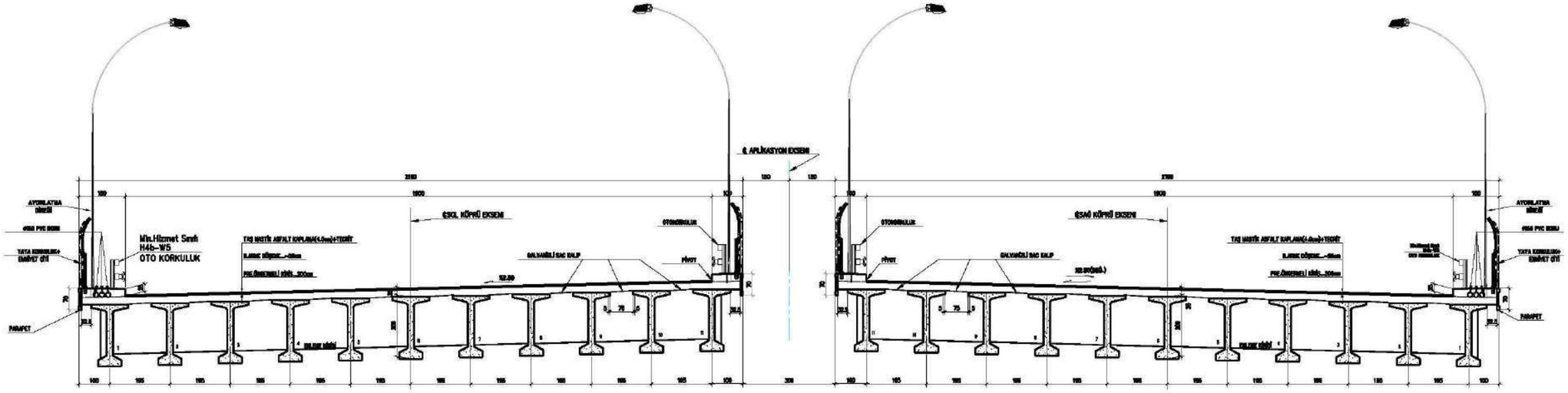


DÖŞEME TİP EN KESİTİ

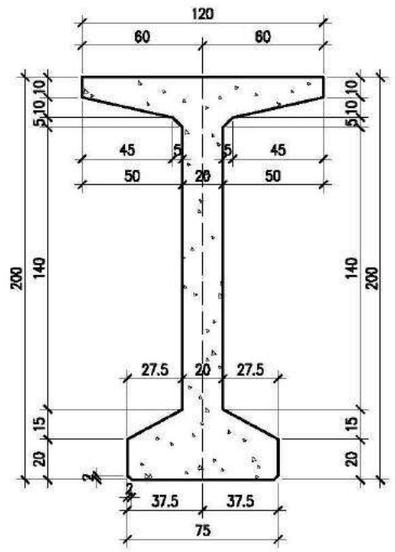


PREFABRİK KİRİŞ TİP EN KESİTİ

Annex-2.9. Typical Girder Cross-section (Separated) (3/4)

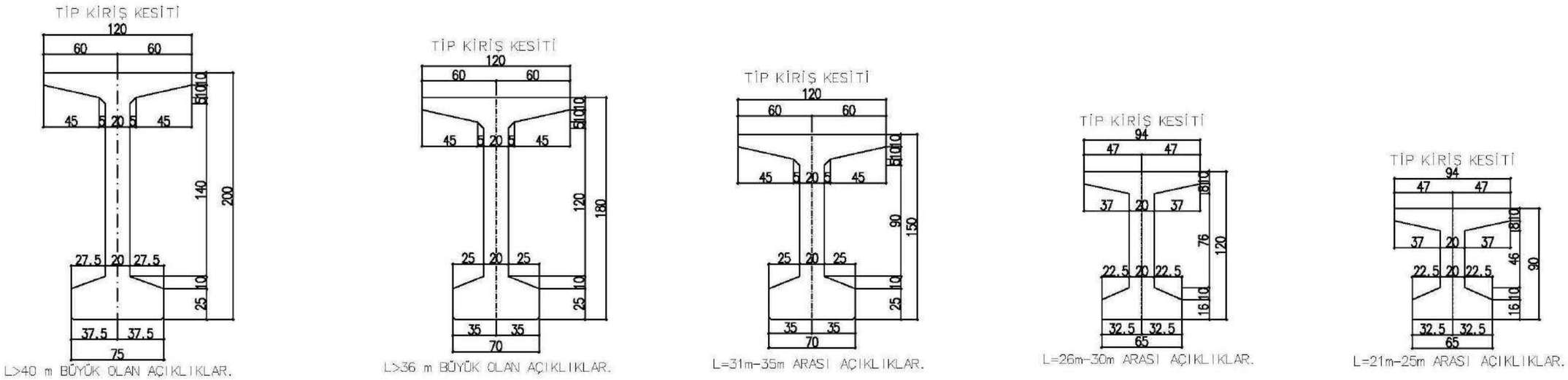


DÖŞEME TİP EN KESİTİ

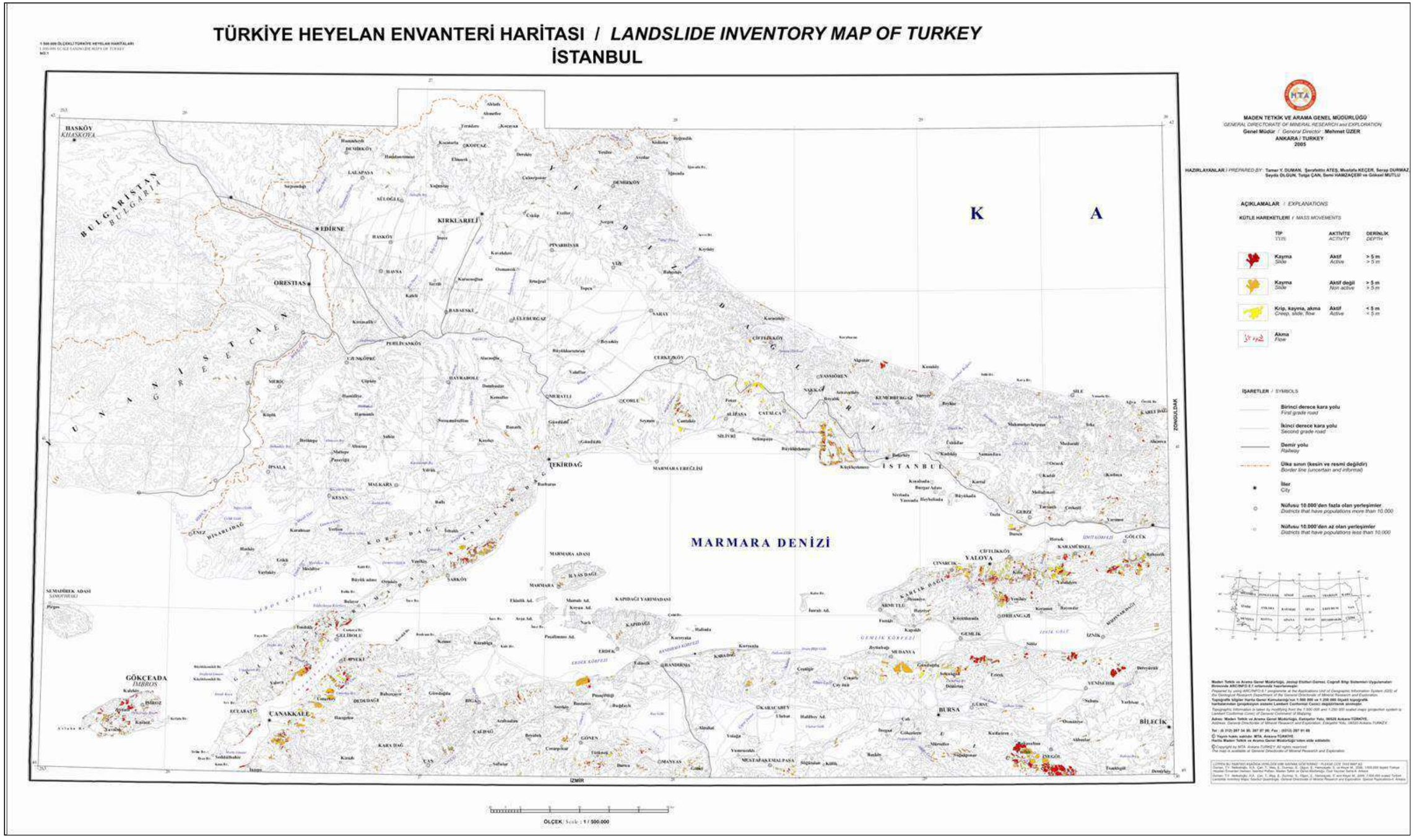


PREFABRİK KİRİŞ TİP EN KESİTİ

Annex-2.9. Typical Girder Cross-section (Separated) (4/4)



Annex-2.10. 1/500.000 scale MTA Landslide Risk Map



ANNEX-3

EMERGENCY PREPAREDNESS AND RESPONSE PLAN

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ABBREVIATIONS

BOT	Build, Operate and Transfer
CCTV	Closed Circuit Television System
EHS	Environmental, Health & Safety
EPR	Emergency Preparedness and Response
EPRC	Emergency Preparedness and Response Coordinator
EPRP	Emergency Preparedness and Response Policy
ERC	Emergency Response Centers
ERP	Emergency Response Procedures
ERT	Emergency Response Teams
ESIA	Environmental and Social Impact Assessment
EU	European Union
MOJV	Marmara Otoyolu Joint Venture
MoTMAC	Ministry of Transport, Maritime Affairs ad Communications
MTS	Traffic Direction Matrices
NGO	Nongovernmental Organisation
SPV	Special Purpose Entities
VMS	Variable Message Signs
VTS	Traffic Velocity Matrices

1. INTRODUCTION

Ministry of Transport, Maritime Affairs and Communications (MoTMAC), General Directorate of Highways ("KGM" or "the Administration"), as the owner of the North Marmara Motorway Project, has tendered for a contract in May 2016 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). As a result of this tender, KGM has commissioned two different special purpose entities (SPV) for the implementation of the European and Asian sections of the 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 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 sections of the Project. These two entities together form the Marmara Otoyolu Joint Venture (MOJV) and referred as "Project Sponsors" in the scope this Emergency Preparedness and Response Policy.

Emergency preparedness and response can be defined as the organization, coordination and implementation of a range of measures to prevent, mitigate, respond to, overcome and recover from the consequences of emergency events affecting the community, its assets and the environment. Emergency preparedness is an integrated part of the planning and implementation process for the Project. It starts from proper planning and design and extends to safe construction and operation including further considerations regarding emergency response.

Emergency planning requires identification and assessment of the hazards likely to cause an emergency. In this regard risk assessment and management will be carried out in line with related Turkish legislation and international standards. EPRP focuses on reducing the risks that would end up as emergencies and at the same time being prepared for the unavoidable emergency events. The first part is more related to proper environmental, health and safety management, while the second part is concentrating on the means of response to emergencies (including sufficient care, trained staff, tools and equipments, etc.). Thus, this Emergency Preparedness and Response Policy (EPRP) establishes the targets and framework regarding the means for dealing with possible emergency situations during construction and operation.

2. PROJECT SPONSORS EMERGENCY PREPAREDNESS AND RESPONSE POLICY (EPRP)

2.1. Objectives

Project Sponsors and their nominated contractors will respond to and manage emergency events in accordance with statutory requirements, best practice procedures and the requirements of this EPRP. Project Sponsors will implement this policy with a continuous improvement approach by monitoring and further developing/refining the relevant emergency response measures.

The main objective of the EPRP of Project Sponsors is to establish strategies and procedures for managing all aspects of emergency situations associated with project components. In this regard the EPRP consists of targets and procedures regarding the following aspects of emergency management:

- Prevention and preparation measures (actions to be taken before emergency)
- Response measures (actions to be taken during emergency)
- Damage assessment and recovery measures (actions to be taken after emergency)

2.2. Principles

The basic principles that Project Sponsors have adopted, which provide a basis for the policies and practices provided in the upcoming sections are as follows:

- Providing a safe working environment for the workers in line with Occupational Health and Safety Management policies.
- Providing safe transportation infrastructure for all users in line with Community Health and Safety Management policies.
- Maintaining the integrity of the motorway system (including all infrastructure, tunnels, bridges, etc.) through proper operation, maintenance and repair as necessary.
- Managing the Project in an environmentally responsible and sustainable manner in line with Environmental Management policies.
- Providing road corridors and user facilities with appropriate amenity.
- Developing, implementing and maintaining emergency preparedness and response plans and practices for emergency events specific to the Project components.
- Ensuring that there will be sufficient number of trained and capable staff and relevant tools and equipments, at all times, to manage emergency events.
- Monitoring and reviewing the EPRP regularly and making improvements as necessary.
- Involving subcontractors and suppliers in the adoption of the same commitments taken on in the matter of EPRP.

2.3. Institutional/Organizational Arrangements

2.3.1. Framework for Emergency Preparedness and Response

The framework for EPR is outlined by the relevant Turkish laws and regulations and international industry/sector good practices for motorways. The minimum requirements are established by the provisions in relevant legislation, including provisions for the occupational and public health and safety integrated with the environmental protection in the case of accidental cases or disastrous events. This legal and regulatory framework comprises the following:

- Environmental Law No: 2872
- Occupational Health and Safety Law No: 6331
- Labor Law No: 4857
- Social Insurance and General Health Insurance Law No: 5510
- Public Health Law No: 1593
- Law of Precautions and Aids in Case of Disasters Affecting Public No: 7269
- Law on Forests No: 6831
- Law on Special Provincial Administration No: 5302
- Regulation on Occupational Health and Safety
- Regulation on Safety and Health Signs
- Regulation on Health and Safety Provisions in Use of Work Equipment
- Regulation Concerning Health and Safety Measures for Works Involving Chemical Substances
- Regulation Concerning Protection of Workers from the Dangers of Explosive Environments
- Regulation on First Aid
- Regulation on Procedures and Principles of Occupational Health and Safety Trainings of Employees
- Regulation Concerning Use of Personal Protective Equipment at Workplaces
- Regulation on Protection of Buildings from Fire
- Regulation Concerning Buildings to be Built at Earthquake Zones
- Regulation Concerning Buildings to be Built at Disaster Zones
- Regulation on Environmental Impact Assessment
- Regulation on Protection of Workers From Risks of Vibration
- Regulation on Protection of Workers From Risks of Noise
- Regulation on Prevention and Mitigation of Impacts of Large-Scale Industrial Accidents
- Regulation Regarding Hazardous Substances Transportation via Motorway Waste Oil Control Regulation
- Environmental, Health, and Safety Guidelines for Toll Roads (IFC, 2007)
- Environmental Health and Safety General Guidelines (IFC, 2007)

Some emergency categories are defined with regard to the significance scale of the emergency occasions. With this regard 4 categories are defined from least significant (Category 1) to most significant (Category 4). Some of the incidences defined under these categories can be summarized below in Figure 1.

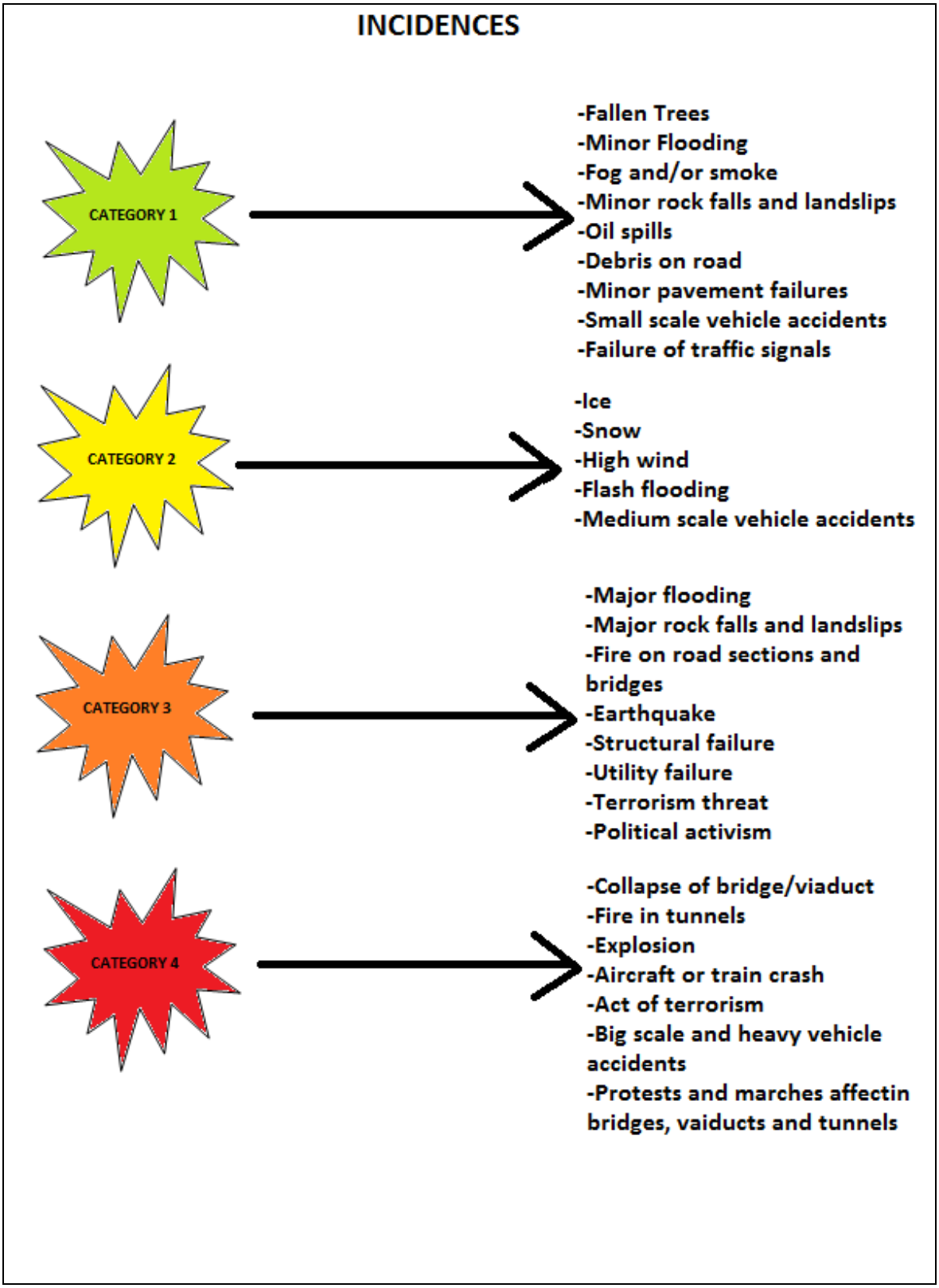

Figure 1. Categories of Incidences

2.3.2. Institutional Arrangements for Emergency Categories 1 and 2

For these emergency categories Project Sponsors, and their contractors, are the main responsible bodies. For traffic control and relevant road closures Turkish Police/Gendarme Force will be responsible. Province/District Fire Departments/Services have the responsibility for management of fire incidents during operation phase. Where Police/Gendarme Force or Fire Departments are involved they act as the Lead Agency and staff of Project Sponsors or its' contractors (e.g. maintenance contractor, etc.) will provide the relevant support.

In this respect, Project Sponsors will assign an Emergency Preparedness and Response Coordinator and establish Emergency Response Teams to act in line with the EPRP. In addition, Emergency Response Centers will be established for control and coordination of emergency response actions. Relevant institutional bodies and information about them are submitted in Table 1 below.

Table 1. Institutional Arrangements and Responsibilities for Emergency Categories 1 and 2

Title	Remark	Responsibilities
Project Sponsors Management	All activities that are performed during construction and operation phases of the project are under the responsibility of the Project Sponsors Project Management	• Selection and assignment of the Emergency Preparedness and Response Coordinator and approval of Emergency Response Teams to be established by the EPR Coordinator. • Providing necessary resources to Emergency Response Centers (e.g. staff, vehicles, equipments etc.). • Annual management review related to EPRP and approval of the recent version of the EPRP and related procedures. • Approval of the major activities, which are not included in this EPRP, to be developed further and taken during an emergency situation. • Evaluation of the incidence reports prepared after any emergency situation.
Emergency Preparedness and Response Coordinator (EPRC)	In general, implementation of the activities developed and specified in the EPRP and improvement of this policy and related procedures are the main responsibilities of the EPRC.	• Establishment of the Emergency Response Teams (ERT). • Training the ERT and the project staff for emergency situations in line with the EPRP. • Making the division of responsibilities between ERT members. • Reviewing and improving, if necessary, the EPRP and related procedures together with the ERT annually. • Controlling functionality and practicality of the EPRP and related procedures by performing exercises in specified intervals. • According to type of emergency situation, determination of the people that will be contacted during emergency response, and keeping contact information of these people in written form in a place that everybody in the ERT can reach. • Keeping the contact information of the ERT and people that will be contacted in emergency situations updated. • Coordinating the ERT in order to successfully implement the EPRP and related procedures in emergency situations. • After the end of emergency, reviewing the situation with the ERT and preparation of the incidence report. • Communication and coordination with the district and provincial emergency management centers and responsible organizations. • Disclosure or relevant information to public and activities for arising awareness.
Emergency Response Teams (ERT)	Emergency Response Teams will be established from the project staff according to their capabilities.	• Attending the training sections and exercises for implementing the EPRP and related procedures. • Reviewing and improving, if necessary, the EPRP and related procedures annually together with the EPRC. • Informing EPRC when an emergency situation occurs. • According to type of emergency situation, implementing the necessary measures in accordance with the EPRP and related procedures. • Notifying the relevant designated contact people and authorities/agencies. • Reviewing the situation with the EPRC after the end of emergency situation, and preparation of the incidence report.
Emergency Response Centers (ERC)	Emergency Response Centers will be established in the construction sites by EPRC during the construction phase. During the operation phase, the centers will be established in operation center(s) as relevant.	• An ambulance will be available on-site for 24 hours for emergency situations. • Vehicles that will directly be involved in any emergency situation will be identified. • The necessary equipments to be utilized in any emergency situation will be identified and placed in the ERC. • Communication infrastructure to act as centers of coordination. • Sufficient staff to manage emergency response activities.

2.3.3. Institutional Arrangements for Emergency Categories 3 and 4

For these emergency categories relevant governmental agencies have the leading role. Project Sponsors, and their contractors, have the responsibility to communicate the situation to relevant authorities and for providing all necessary support during and after emergency incidence. In this regard the General Directorate of Highways (KGM) and its Regional Directorates carry the main responsibilities for severe emergency situations related to the Project, especially during the operation phase, together with relevant local and central governmental agencies. Such severe emergency situations would include occasions such as earthquakes, terrorist attacks, collapse of bridge and viaducts.

The central government and provincial and district authorities have legal responsibility for emergency management nationwide and in their area of authority as they have direct responsibility for the protection of life and property of the public against the effects of natural and human caused disasters. In Turkey, institutions responsible for emergency preparedness and response mainly include the following governmental bodies:

- General Directorate of Disaster Affairs
- Provincial and district governorships (including all relevant local governmental agencies such as fire departments)
- Municipalities
- Red Crescent of Turkey

In addition, various nongovernmental organizations (NGOs), such as Search and Rescue Association (AKUT), take part in emergency situations, as necessary in coordination with the governmental leading agencies. The hierarchy of responsibility for emergency response at national scale is presented in Figure 2.

At provincial level, local directorate of various agencies carry the responsibility of dealing with emergency situations in coordination with the governor's office. These agencies include, but not limited to, Provincial Directorates of Health, Fire Fighting, Environment and Forestry, and Special Provincial Administration. These emergency situations include natural disasters (e.g. earthquakes, major floods, extended fires, explosions, significant accidents, etc.)

In a major emergency event if the capacity of a local authority (agency/center) responsible for managing emergencies is not sufficient to handle the situation, it shall require support from the closest authorities. In addition, all governmental authorities have obligations to provide relevant support and help in the capacity to overcome major emergency situations (e.g. storms, severe weather conditions, major floods, earthquakes, accidents on motorway, public health epidemic, civil disturbance/riot, and terrorism).

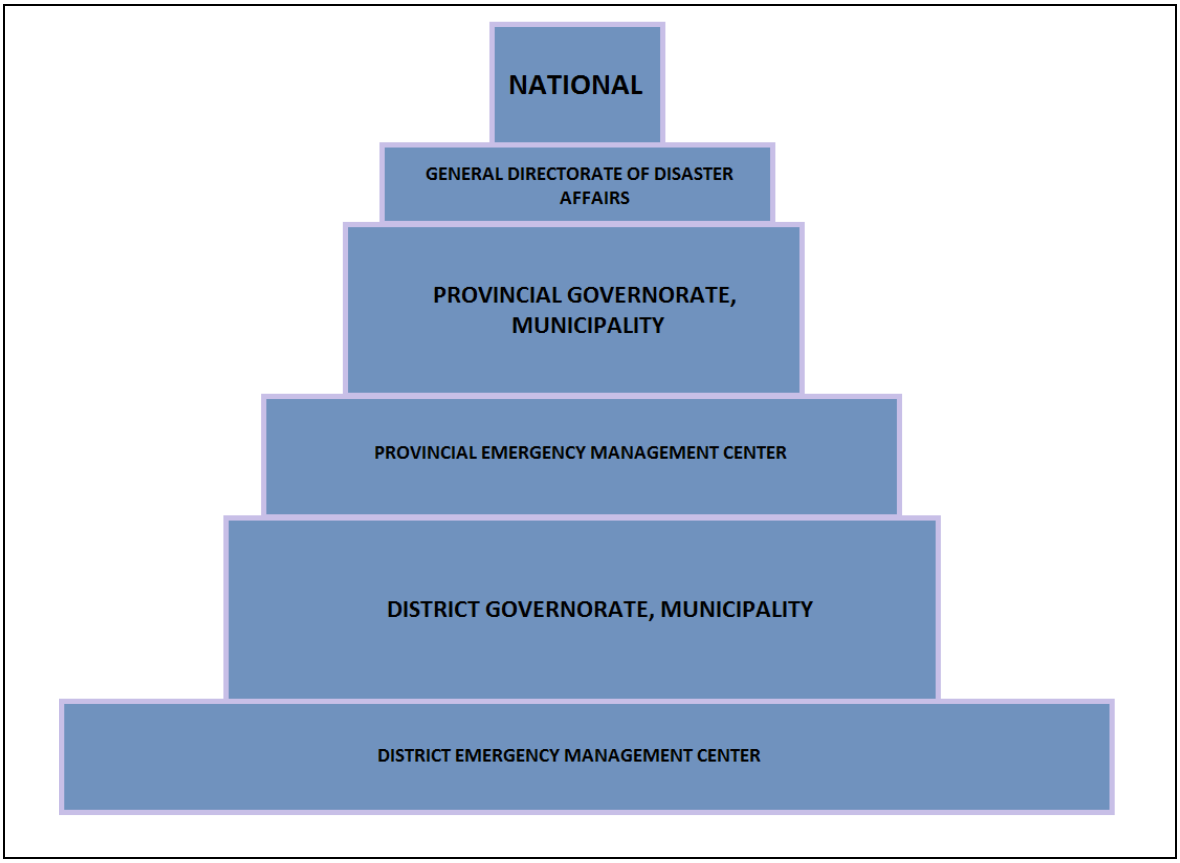

Figure 2. National Scale Emergency Response and Coordination Hierarchy

2.4. Organization Chart

2.4.1. Construction Phase

At the construction phase of North Marmara Motorway Project, there will be two main organizational structures responsible for the construction activities of the Asian and European sections. With respect to emergency preparedness and response the organizational structures to be employed would be the same.

It is planned that the Health and Safety Manager would also act as the Emergency Preparedness and Response Coordinator (EPRC). Thus, emergency preparedness and response would be under the responsibility of the Health and Safety Department. The emergency response teams and centers would be acting under the coordination of the EPRC. Here it should be noted emergency response teams would be composed of staff from all relevant directorates/department.

The responsibilities and functions of the EPRC and ERT and the functions of the ERC are presented in the previous section. The overall organization charts for the construction and operation phases of the project are provided in the EHS and Labor/Employment Policy. Therefore, here only the general organizational structure with regard to EPRP is provided. The general EPRP organization chart for the construction phase is presented in Figure 3.

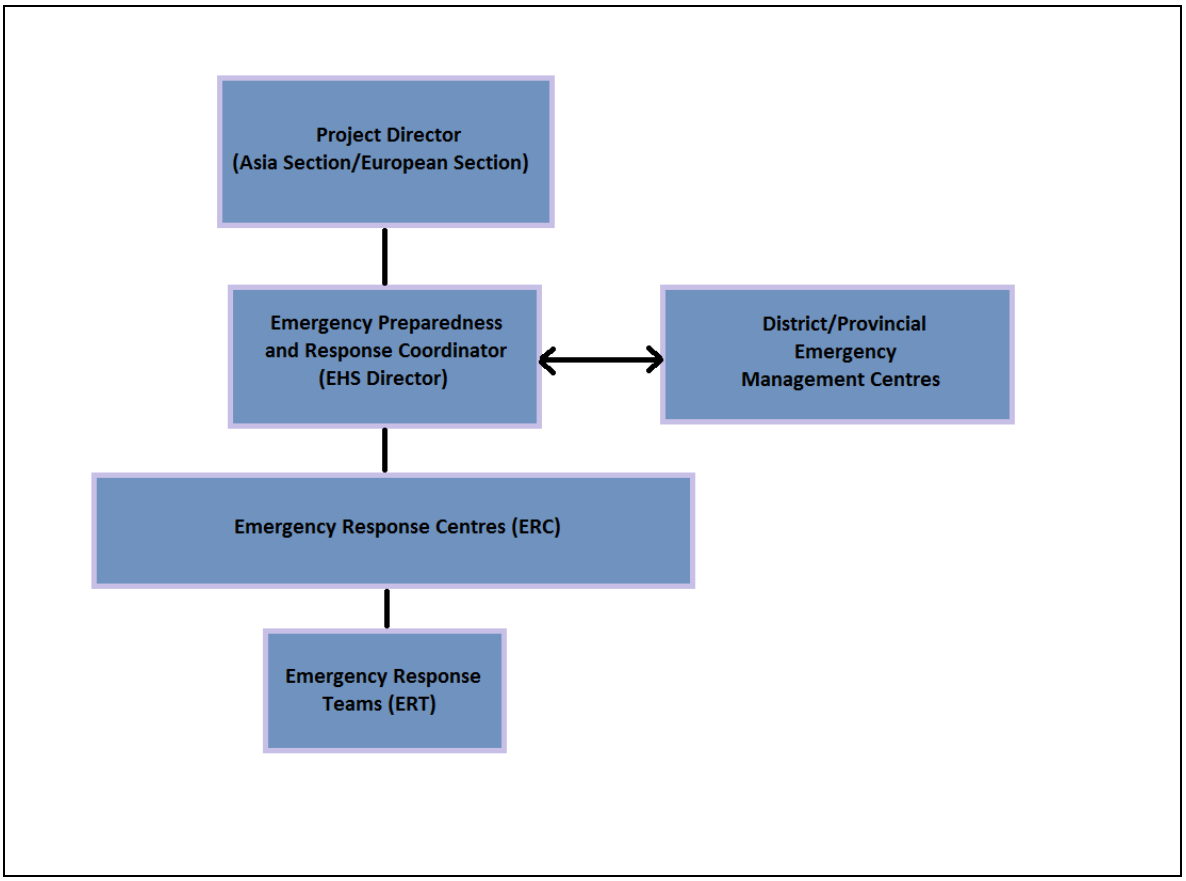

Figure 3. Emergency Preparedness and Response Organization Chart for the Construction Phase

2.4.2. Operation Phase

With the start of the operation period, the organization will be operation-oriented. Roles and responsibilities for Project Coordination, Traffic Management, Safety and Maintenance functions including Traffic and Safety Control and control and maintenance of booth equipment will be assigned.

Similar to the construction phase, the Health and Safety Manager is envisaged to act as the Emergency Preparedness and Response Coordinator (EPRC) during the operation phase as well. Thus, emergency preparedness and response would be under the responsibility of the Health and Safety Department. The emergency response teams (composed of staff from various relevant directorates/departments) and centers would be acting under the coordination of the EPRC.

The responsibilities and functions of the EPRC and ERT and the functions of the ERC are presented in the previous section. Therefore, here only the general organizational structure with regard to EPRP is provided. The general EPRP organization chart for the organization phase is presented in Figure 4.

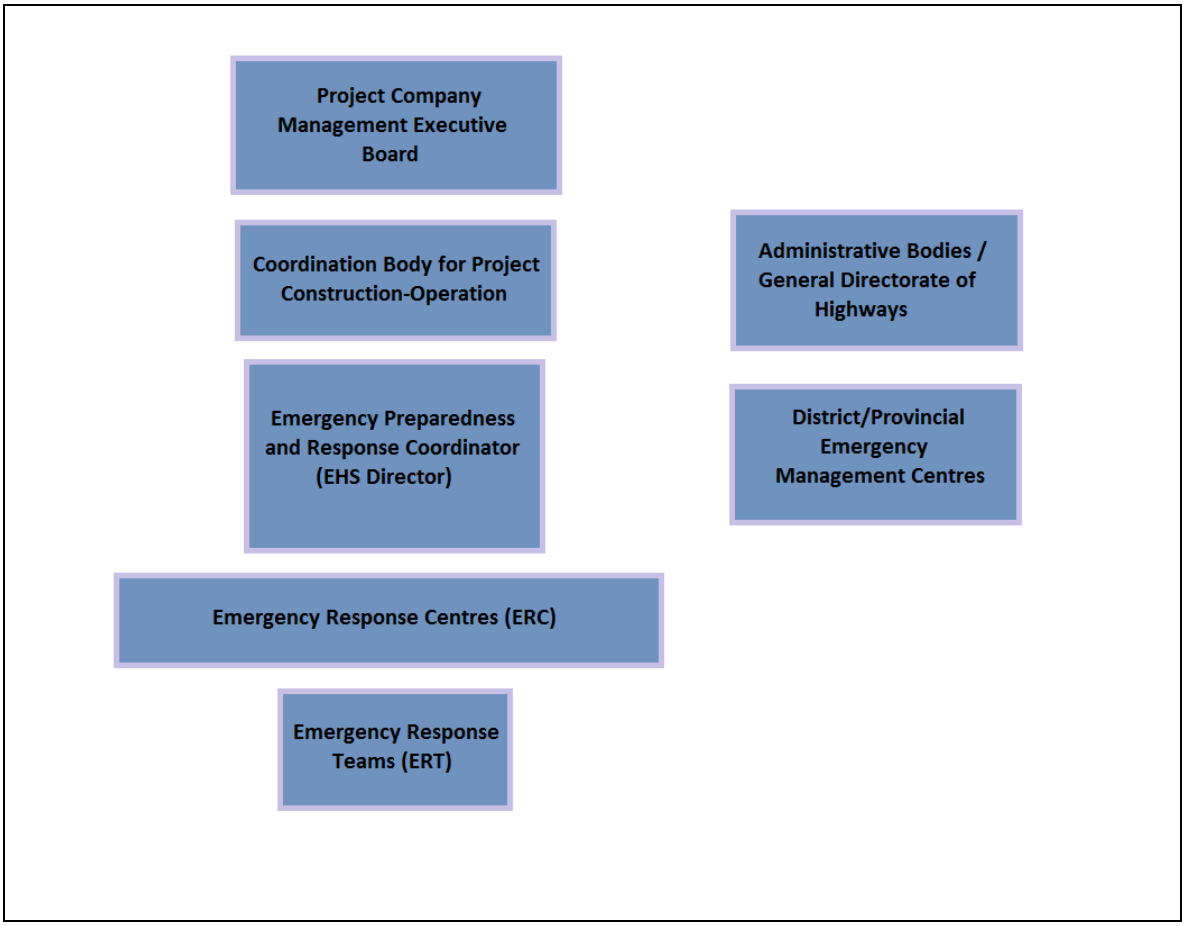

Figure 4. Emergency Preparedness and Response Organization Chart for the Operation Phase

3. PROJECT SAFETY REQUIREMENTS AND EMERGENCY PREPAREDNESS

This section covers the actions to be taken before an emergency situation takes place. These actions are mainly associated with proper planning and design of the project units, construction in accordance with specifications and operation and maintenance in line with project safety requirements. It also includes the actions to be taken for preparing to an emergency such as installation of monitoring and warning systems, communication systems, and carrying out impact studies, training of staff for vigilance, procedures for warning, communication, mobilization of emergency forces and equipment, responsibilities, and evacuation practices.

3.1. Objective and Scope

Project safety requirements aim to develop the Project in a safe manner preventing or minimizing the possible impacts to be caused by the project on human and environmental health and safety during its construction and operation. Planning for emergency preparedness aim to eliminate or reduce the impacts of a potential hazard and increase the resilience of potentially affected communities to recover from the consequences. Thus, emergency preparedness planning is a part of project safety requirements and an integral part of the project planning activities.

Project Sponsors are responsible for developing the Project in compliance with national and international safety standards including necessary means for the prevention of emergencies related to the Project, and where this is not possible minimization of the adverse consequences on humans and the environment. The major emergency preparedness planning actions would include briefly the following:

- Setting, implementing and reviewing the EPRP and related procedures.
- Managing and monitoring the conditions of the Project components.
- Establishing communication mechanisms for close cooperation and coordination with the General and Regional Directorates of Highways, Provincial Governorships and Municipalities across the route of the Project.
- Preparing and updating risk assessment studies, taking into account of any new or emerging risk related to the Project components and adequacy of present control measures.
- Assigning resources (e.g. man power, equipment, funding, etc.) to establish mitigation measures for the identified hazards that have a risk of causing significant adverse impacts.

3.2. Hazard Identification and Analysis and Control of Risks

3.2.1. General Hazards

In this EPRP a number of major hazards have been identified, which might have the potential to affect the integrity of the Project and placing the construction workers, the community residing in the vicinity of the Project route and road users at risk. These hazards, any other that might be identified, and their possible consequences would be studied in further detail during environmental and social impact assessment (ESIA) studies.

The hazards are classified into four main categories that reflect the potential level of significance with respect to mainly the consequences. Category 1 and 2 type incidences might be more frequently seen when compared with Category 3 and 4 type incidences. However, generally the consequences of Category 3 and 4 type incidences would be more significant requiring the involvement of more than Project Sponsors including various governmental agencies and sometimes relevant NGOs.

3.2.2. Analysis of Risks

In line with this EPRP and the further planning studies including design and ESIA, Environmental and Health and Safety Departments, or consultants to be designated, will conduct risk analyses, as necessary, for all major project components (i.e. tunnels, bridge and viaducts, motorway). The results of the risk analysis shall be included in the safety documentation to be submitted to the relevant governmental authorities in line with their reporting requirements.

The risk analysis would take the following factors into consideration:

- All design specifications
- Geographical characteristics (i.e. topography, geology, weather, etc.)
- Forecast for traffic loads (including heavy vehicle traffic)
- Traffic characteristics and type
- Length and geometry of tunnels
- Length and geometry of bridge and viaducts

As a result of these studies a risk/hazard register would be established and would be reviewed and updated, if necessary, on a regular basis (i.e. annually). While forming and updating the register the following issues would be taken into account:

- Project components and any new installations
- Nearby land use and changes with time
- Demography and settlements, as well as community behaviour (e.g. increasing traffic loads on particular sections), and changes with time
- Priorities for risk control
- Opportunities and mechanisms to treat and mitigate risks
- Risk control measures
- Availability of necessary resources and their supply

3.2.3. Risk Control Measures

Based on the results of the risk analysis Project Sponsors aim to reduce the likelihood and adverse consequences of emergency events through risk control measures, which would broadly cover two main areas as follows:

- Physical treatment and measures
- Process and procedural measures

Physical Treatment and Measures

Physical measures include physical safeguards taken, or installed, for prevention and minimization of the occurrences of emergency events. In general these include the following main items:

- Establishment of proper infrastructure and improvements as necessary such as proper maintenance and upgrading of road surfaces, bridges and drainage systems.
- Establishment of standard structural measures such as safety barriers and traffic control devices including signals, warning signs, etc.
- Establishment of maintenance and management units with sufficient resources.

Process and Procedural Measures

These measures mainly cover establishment of systems and procedures that enable effective and efficient emergency response arrangements. In general these measures would cover the following main areas:

- Management of Project components and work programs.
- Training and awareness increasing programs for project staff.
- Establishing adequate risk management and reporting systems
- Establishing procedures for the safety of physical and human assets.
- Participating in the municipal and governorship level emergency management planning and response committees.
- Keeping the emergency management among on one of the important management functions through provision of sufficient resources.

3.3. Project Safety Requirements

In Turkey the safety requirements for motorways are following the European Union (EU) standards based on the fact that Turkey is in the accession period to EU. In fact, in many fields Turkey has been adopting the *EU acquis*. In the following sub-sections the safety requirements are provided for the motorway in general and for tunnels and bridge and viaducts.

3.3.1. General Safety Requirements for the Motorway

In order to secure the proper and safe traffic flow along the motorway some major structures and physical measures will be provided. These measures aim to minimize the potential for accidents and other risky incidences. In addition, they would contribute to make emergency response and management easier and more effective. These can be summarized as follows:

- Service roads and under and over passages
- Big culverts
- Retaining walls
- Maintenance facilities, service and resting/parking areas
- Guard rails
- Traffic signalization plates and lighting
- Horizontal marking

Based on the results of further studies including the risk analysis, further details regarding the physical safety measures for the motorways would be identified and applied as appropriate.

Service Roads

The construction contractor will construct service roads in order not the affect (such as increasing the heavy traffic load) the natural flow on the existing roads and for avoiding the passage of heavy vehicles through residential areas to the extent possible. In addition service roads will be constructed where the traffic will be temporarily diverted. Furthermore, service roads will be used for transportation of the construction machinery, equipments and materials used for Project.

A series of local roads will intersect with the motorway so necessary structures such as under and over passages for these intersections will be built.

Big Culverts and Retaining Walls

The culverts are standard structures of motorways designed generally for the passage of water and some wildlife species. In addition to those, big culverts would be constructed, where necessary, for stream passages and for farm roads.

The retaining walls might be needed at certain sections for achieving soil and slope stability and prevention of rock or stone falling to the road. At such sections retaining walls will be used.

Maintenance Facilities, Service and Resting/parking Areas

Maintaining the motorway surface and structures at best conditions ensured during design and construction is one of the key activities to prevent emergency events. In this regard sufficient maintenance facilities would be established and regular checks of the motorway would be conducted.

Service and resting areas carry importance for the users of the motorway both providing them assistance with their vehicles and providing areas for refreshing, which would in turn contribute to safe driving. Thus, at proper intervals along the motorway route these areas would be established.

Guard Rails

Guard rails planned in line with the work program covers separator and protector guard rails to be placed on all or particular sections of the road upon fabrication in accordance with the project specifications in order to ensure safe flow of traffic on the motorway.

Traffic Signalization Plates

Fabrication and installation of traffic signs, utilization principles and horizontal marking will be carried out in accordance with the principles specified under Traffic Signs Handbook I and II and “Traffic Signalization Standard in Access Controlled Highways” published by Directorate General of Highways. These signs would be installed on the relevant sections of the motorway. In addition to that, during construction of the motorway, principles specified under “Traffic Signs Standards of Road Construction, Maintenance and Repair” will be used.

Proper lighting is an important issue that can prevent accidents especially for the night time. Necessary lighting would be installed at all junctions, fee collection areas, tunnels, service areas, and parking/rest areas.

Horizontal Marking

Horizontal marking will facilitate controlled and safe flow of traffic on the motorway. Thus, horizontal marking would include; drawing of lane and side lines, designation of pedestrian crossings by lines, drawing of arrows that show appropriate choice of lane on junction approaches, painting of bordures of junctions, refuges and islands to improve night visibility, marking of branching and joining lanes, drawing of parking lots, marking of refuge approaches, marking of turn islands approaches and such transverse markings.

3.3.2. Safety Requirements for the Tunnels

Tunnels are among the special and critical structural parts of a motorway. Some of the incidents that can be considered as minor on various motorway sections might have drastic consequences when took place in a tunnel due to various factors associate with tunnels. Thus, design, construction and operation of tunnels will take into consideration such risk factors and proper emergency response. The risk factors can be summarized as types of vehicles and their loads (i.e. use of the tunnels by some vehicles carrying specified dangerous goods can be forbidden), characteristics of the infrastructure, operator's ability to make effective use of the facilities made available, and lastly tunnel-user behavior.

Project tunnels will be designed and constructed in compliance with technical specifications in the contract, which are in line with national legislation and EU standards taking all the risk factors into account. The General Directorate of Highways adopted the EU Directive on Minimum Safety Requirements for Tunnels in the trans-European Road Network in 2005.

In line with the requirements of tunnel geometry necessary emergency exits, power supply, lighting, adequate ventilation ensuring proper air quality, detection, signaling, radio-communication, etc. will be installed both for minimizing risks in any unwanted event such as accidents or fires, and for driving safety and comfort.

To secure a safe and fast traffic flow through the motorway tunnels and to prevent, minimize and manage emergency situations necessary precautions will be designed and implemented. These measures can be summarized as follows:

- Proper operating system in the tunnels.
- Proper functioning of electric and electronic installations.
- Periodical examination and maintenance of the operating systems.

3.3.2.1. Design Considerations for the Tunnels

Safety measures to be implemented in a tunnel shall be based on a systematic consideration of all aspects of the system composed of the infrastructure, operation, users and vehicles. In this regard following parameters need to be taken into account:

- Tunnel length
- Number of tubes
- Number of lanes and lane width
- Cross-sectional geometry
- Vertical and horizontal alignment
- Type of construction
- Uni-directional or bi-directional traffic
- Traffic volume per tube (including its time distribution)
- Risk of congestion (daily or seasonal)
- Access time for the emergency services
- Presence and percentage of heavy vehicles
- Presence, percentage and type of dangerous materials traffic

- Characteristics of the access roads
- Speed considerations
- Geographical and meteorological conditions

Where a tunnel has a special characteristic as regards the aforementioned parameters, a risk analysis will be carried out to establish whether additional safety measures and/or supplementary equipment is necessary to ensure tunnel safety. This risk analysis shall take into consideration possible accidents, which clearly affect the safety of road users in tunnels and which might occur during the operation phase of the Project and the nature and magnitude of their possible consequences. Accordingly, emergency preparedness measures will be designed and constructed.

Escape Routes and Emergency Exits

In tunnels without an emergency lane, emergency walkways, elevated or not, shall be provided for use by tunnel users in the event of a breakdown or an accident. In such a case lay-bys would also be needed. However, when there is an emergency lane these factors would not of concern.

In addition emergency exits will be available in tunnels longer than 500 m. Emergency exits allow tunnel users to leave the tunnel without their vehicles and reach a safe place in the event of an accident or a fire and also provide access on foot to the tunnel for emergency services. Examples of some emergency exits are provided below:

- Direct exits from the tunnel to the outside
- Cross-connections between tunnel tubes
- Exits to an emergency gallery
- Shelters with an escape route separate from the tunnel tube

Emergency exits will be provided in tunnels since the expected traffic volume (as annual average daily traffic) is higher than 2 000 vehicles per lane. The distance between two emergency exits will be 500 m at a minimum. At emergency exits appropriate means, such as doors, will be used to prevent smoke and heat from reaching the escape routes behind the emergency exit. Thus, the tunnel users would safely reach outside and the emergency services can have access to the tunnel.

Access for Emergency Response Services

In twin-tube tunnels where the tubes are at the same or similar levels, cross-connections suitable for the use of emergency services shall be provided at 1,500 m intervals. Where it is geographically possible, crossing of the central reserve (median strip) would be made possible outside each portal of a twin tunnel. This measure will allow emergency services to gain immediate access to either tube.

Drainage

Where the transport of dangerous goods is permitted, the drainage of flammable and toxic liquids might be needed. Therefore, well-designed slot gutters or other measures within the tunnel cross sections will be needed for drainage. In addition, the drainage system would prevent fire and flammable and toxic liquids from spreading inside tubes and between tubes.

Fire Resistance of Structures and Equipment

The main structure of all tunnels will ensure a sufficient level of fire resistance where a local collapse of the structure could have catastrophic consequences such as collapse of nearby structures. The level of fire resistance of tunnel equipment will consider the technological possibilities and aim at maintaining the necessary safety functions in the event of a fire.

Lighting

Normal lighting will be provided to ensure appropriate visibility day and night for drivers in the entrance zone as well as in the interior of the tunnels. Safety lighting will also be provided to allow a minimum visibility for tunnel users to evacuate the tunnel in their vehicles in the event of a breakdown of the power supply. Evacuation lighting (e.g. evacuation markers) will be provided at a height of no more than 1.5 m to guide tunnel users to evacuate the tunnel on foot, in the event of an emergency.

Ventilation

A mechanical ventilation system capable of evacuating smoke in the event of a fire will be installed in tunnels. The design, construction and operation of the ventilation system will take the following into account:

- Control of pollutants emitted by road vehicles under normal and peak traffic flow.
- Control of pollutants emitted by road vehicles where traffic is stopped due to an incident or an accident.
- Control of heat and smoke in the event of a fire.

Emergency Stations

Emergency stations will be provided near the portals and inside at intervals which will not exceed 150 m. These stations are intended to provide various items of safety equipment, in particular emergency telephones and extinguishers, but are not intended to protect road users from the effects of fire. Emergency stations would consist of a box or a recess on the sidewall. These will be equipped with at least an emergency telephone and two fire extinguishers.

Water Supply

Water supply will be by hydrants located near the portals and inside at intervals which will not exceed 250 m.

Road Signs

Specific signs in compliance with the requirements of the General Directorate of Highways (in line with EU standards) will be used for all safety facilities provided for tunnel users.

Monitoring System

Video monitoring systems and a system able to automatically detect traffic incidents (such as stopping vehicles) and/or fires will be installed in the tunnels with a control center. For tunnels without a control center, automatic fire-detection systems will be installed where the operation of mechanical ventilation for smoke control is different from the automatic operation of ventilation for the control of pollutants.

Tunnel-closing Equipment

In the tunnels longer than 1,000 m, traffic signals will be installed before the entrances so that the tunnel can be closed in case of an emergency. Additional means, such as variable message signs and barriers, would also be provided if found necessary.

Inside of tunnel, which are longer than 3,000 m with a control center and a traffic volume higher than 2.000 vehicles per lane, equipments to stop vehicles in the event of an emergency would be installed at intervals of 1,000 m. This equipment would consist of traffic signals and additional means, such as loudspeakers and variable message signs.

Communication Systems

Radio re-broadcasting equipment for emergency services (e.g. fire fighting, ambulance, etc.) use will be installed in the tunnels longer than 1,000 m with a traffic volume higher than 2 000 vehicles per lane. Where there is a control center, it must be possible to interrupt radio re-broadcasting of channels intended for tunnel users in order to give emergency messages. Shelters and other facilities where evacuating tunnel users must wait before they can reach the outside will be equipped with loudspeakers for the provision of information to users.

Power Supply and Electrical Circuits

All tunnels will have an emergency power supply capable of ensuring the operation of safety equipment necessary for evacuation until all users have evacuated the tunnel. Electrical measurement and control circuits will be designed such that a local failure, such as one due to a fire, does not affect unimpaired circuits.

3.3.2.2. Operating System for the Tunnels

Tunnel operation will be organised to ensure the continuity and safety of the traffic through the tunnel. In this regard, the equipments presented in the following paragraphs will be installed in the tunnels to secure proper traffic flow, minimize accident risks and ease to manage any emergency situations. These equipments and the overall system will be monitored and maintained as appropriate.

Fiber Communication Optical Network Structure

The communication of the data inspection signal between the tunnel area and the control center, as well as image transfer from closed circuit television system (CCTV), is provided through the fiber-optic communication infrastructure. During the operation period, the fiber-optic network will be examined, maintained and repaired as necessary.

Closed Circuit Television System (CCTV)

The main components of the closed circuit television system are internal video cameras, external road video cameras, plate reading video cameras, environmental safety cameras, video camera image recording devices and video camera image monitoring devices. Periodical maintenance of the closed circuit television system will be done on monthly and yearly basis. It will also be ensured that the inside, outside and surroundings of the tunnel be monitored via video cameras and the desired images are recorded and saved.

Safety and Protection System

The established safety and protection system will be kept operational during the whole operation period and periodical maintenance of this system would be conducted.

Fire Alarm System

The fire alarm system, composed of linear fire sensing cable and device, smoke detectors, heat detectors and warning buttons, will be constantly audited in addition to periodical maintenance and kept operational at all times.

Fire Fighting System

It will be ensured that fire extinguishers, fire hydrants, fire hoses, water pipes, pumps, valves, water tanks, sprinklers, fire fighting vehicles and the system in general is inspected in addition to periodical maintenance and be kept operational at all times.

Lightning Control System

The lightning control system and its units such as luminance meters inside and outside the tunnel, lightning fixture inside the tunnel, emergency lighting fixture and environmental luminance will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Ventilation System

The ventilation system of the tunnel, composed of devices for the clearance and carbon monoxide pollution within the tunnel, jet fans, positive pressure devices and air conditioners will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Traffic Control Signs

The traffic control system composed of traffic lamps, traffic direction matrices (MTS), traffic velocity matrices (VTS), and variable message signs (VMS) like warning flashers, billboards for road information, and road blocking barriers will be constantly inspected in addition to periodical maintenance to clean traffic control signs, substitute missing parts, or renew them, and kept operational at all times.

Vehicle Counting System

The vehicle counting loops and vehicle counting detectors within the system will be constantly maintained and repaired as necessary to allow the collection of vehicle count data.

Radio Operating System

Composed of a computer and periodical transmission, switching device and devices that release announcements through FM channels into the tunnel, this system will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Communication (SOS) System

This communication system, composed of SOS (Morse Code Distress Signal) telephones within the tunnel, their protective enclosures and external announcement devices, will be constantly inspected in addition to periodical maintenance and kept operational at all times.

Power Supply System

Medium-voltage facilities, low-voltage facilities, generators, UPSs and electric instalment of service facilities within this system will be constantly inspected in addition to periodical maintenance and kept operational at all times to provide power supply to the system without any interruptions.

Control Center Devices

Inspection computers, PLC system devices and power station, incident and status printers and all other electronic and mechanical hardware will be available in the control center, which allows inspection of the whole operating system in the tunnel from a single center. These equipments will be constantly inspected in addition to periodical maintenance and kept operational at all times by updating the hardware and software as required.

3.3.2.3. Transportation of Hazardous Material through Tunnels

The passage of hazardous materials/goods through the tunnel is subject to restrictions as outlined in the Regulation Regarding Hazardous Substances Transportation via Highways (published by Ministry of Transport in Official Gazette dated 24 October, 2013 with No: 28801).

The classes of dangerous goods according to the European Agreement concerning the International Carriage of Dangerous Goods by Road are the following:

Class 1: Explosive substances and articles
Class 2: Gases; compressed, liquefied or refrigerant
Class 3: Flammable liquids
Class 4.1: Flammable solids, self-reactive substances and solid desensitised explosives
Class 4.2: Substances liable to spontaneous combustion
Class 4.3: Substances which in contact with water emit flammable gases
Class 5.1: Oxidising substances
Class 5.2: Organic peroxides
Class 6.1: Toxic substances
Class 6.2: Infectious substances
Class 7: Radioactive material
Class 8: Corrosive substances
Class 9: Miscellaneous dangerous substances and articles

Larger loads and tankers carrying hazardous goods are generally prohibited from road tunnels, but permitted access will depend on the substance being carried. Some will be allowed access under escort. To gain approval for carriage of hazardous goods through the tunnels, the consignor of those goods, substances or articles that are on the list of restrictions must submit a written declaration as to the nature and quantity of such goods to the Operations Team Manager. Similarly for empty petrol or other tankers, a declaration is required as to the nature of the substance last carried if it has not been cleaned since that loaded journey. Permission may be granted for passage through the tunnel at a prescribed off peak time when the tunnel can be closed to the public following notification to the public of the temporary tunnel closure**.**

3.3.3. Safety Requirements for the Bridges and Viaducts

Bridges and viaducts are among the special and critical structural parts of a motorway. Some of the incidents that can be considered as minor on various motorway sections might have significant results when took place on a bridges. Thus, design, construction and operation of the bridges and viaduct structures will take into consideration relevant risk factors and proper emergency response. The risk factors can be summarized as types of vehicles and their loads, characteristics of the infrastructure (length and geometry), and user behavior.

In order to secure the proper and safe traffic through the bridges and viaducts some physical measures will be provided. These measures aim to minimize the potential for accidents and other risky incidences. In addition, they would contribute to make emergency response and management easier and more effective. These can be summarized as follows:

- Traffic signs, communication means and monitoring devices
- Electrical and mechanical installations
- Drainage
- Aircraft alert lights

Traffic Signalization, Communication and Monitoring

Apart from the legislative requirements for the traffic signs (overhead and horizontal), communication and monitoring means, further necessities might be identified for enhancing the proper working of the facilities. The communication means would be mainly telephones and monitoring means will be CCTV cameras.

For the installation of the bedplates of equipment, power units and controller wiring with channels will be provided. The locations to be selected for these bedplates will be suitable to structural lay out, arrangements regarding access and operation of the bridges.

Standard motorway direction signs will be available on the structure. In addition, installation of bedplates and lighting system for these signs will be provided. Where the overhead signs are to be used, they will extend beyond the width of the motorway.

The detector circuit of the automatic incidence detection equipment and the cable connection to canals will be provided. Therefore, a canal grid which consists of longitudinal canals under each shoulder (or access/maintenance road) median and at every 500 m motorway traverse canals connecting to them will be required on the bridges. For the whole installation, suitable entrances will be made into canals and at least two spare canals and tension wires all around the system will be available.

Electrical and Mechanical Installations

All of the electrical and mechanical equipments and their installations will be in compliance with the following regulations and specifications:

- Motorway Technical Specifications
- Regulation on Occupational Health and Safety
- English Standards and Rules or equivalent European Rules related to Electrical / Mechanical Equipment and Installations.

For safe and effective operation and maintenance of the bridges suitable mechanical and electrical equipment and supplementary systems will be used. The capacity of the electric circuits will be capable of providing all needs of the lighting systems, maintenance needs and in addition the power demands of all overhead signs, platforms, toll collection boxes and ventilation installations, marine and aviation supports. Diesel generators will be used to provide uncut power supply.

The power (220 V) connection points will be set at 50 m intervals on the bridges These will be placed at accessible points of the structure; in gap foundations, in middle piers and in pylons for easy maintenance and control. All other external maintenance platforms will be equipped with electric connection points.

To expel water infiltration, pump equipment with suitable catch pits will be provided. Spare pumping equipment will be ready to use in case main water pipe bursts or drainage is blocked.

A lighting system will be provided for the inspection and maintenance works in the inner parts of the structures including the slab, gap foundation, middle piers and pylons. All electric systems will be supported by suitable emergency lighting which has independent power source.

All equipments, conduits, cables, pipes, and the similar will be supported and fixed steadying. The bridge will be equipped with lightning guard system. This will be provided by steel structures in reinforcements system included equipotential steel structure link and concrete structures. Independent power sources for all the electrical equipment and emergency spare systems for the electrical equipment will be provided.

Aircraft Warning Lights

Towers of bridges will be lighted as to provide warning for aircrafts according to requirements of Civil Aviation Authority.

Drainage

A drainage system will be constructed without damaging the bridges' structure to discharge the precipitation falling on the road platform from several points. Drainage canals and other rain water discharge structures will be constructed such that no flooding would take place in the roadside section.

The rain water falling on the bridge will be allowed to flow to the sea. The rain falling on the bridge sections on land will be collected by the drainage system of the motorway sections. Drainage systems will be constructed on all moveable joints and drainage holes will be made in all box beams and protection slabs.

The materials to be used in the drainage system will have a lifetime comparable to that of the bridge structure. Drainage installation components will be replaceable. Material that may be easily damaged in the slab, which may burn by fuel oil, diesel oil or chemical materials or those can be reshaped will not be used.

3.4. Preparedness to Emergency Situations

3.4.1. Planning and Coordination

Preparedness ensures that arrangements and resources are maintained in a state of readiness to be mobilized and deployed for response and recovery to an emergency event. In this regard planning plays a key role together with coordination. The previous sections described some of the studies and measures for identifying the hazards and risks and designing mitigation measures. These are part of the planning activities for any case of emergency. In addition, preparing the staff, relevant resources and activity programs are important for effective emergency response.

Coordination is not only important during an emergency, but it is also vital throughout project implementation and management. In this regard, effective coordination before an emergency event would ensure a more efficient response. Furthermore, good coordination is also a measure of building thrust between parties and developing confidence against emergency situations.

The following is a summary of activities for emergency preparedness to be conducted and coordinated by the EPRC in the scope of planning and coordination:

- Regular review and updating, when necessary, of the Emergency Preparedness and Response Policy, and plans and procedures.
- Ensure all personnel are aware of, and hold sufficient competency to perform, their emergency response/management roles and responsibilities, as detailed in the Emergency Response Procedures.
- Arrange training and education programs for staff, contractors and the community. This includes increasing the awareness of staff and managers regarding their roles and responsibilities across the EPRP or targeted community awareness programs (for example regarding road construction and maintenance activities).
- Planning and conducting exercises to test specific aspects of the EPRP, and its procedures.
- Establishing processes for lessons learned including conducting debriefs and reviews of other emergency events or exercises that are relevant to Project Sponsors.
- Maintaining working relationships for emergency management and refreshing any specific response and recovery support arrangements with municipalities and other agencies.

- Having supporting systems in place for response and recovery (e.g. cost capture, documents and records management).
- Ensure the nominated Emergency Response Centers are adequate, accessible and properly resourced to meet needs during an emergency.
- Continual review, evaluation and auditing of emergency management arrangements, identifying and promoting opportunities for improvement.

These activities will be performed continuously and/or at regular intervals. Some of the above activities would be conducted by the EPRC and ERT, while for some of them staff and management from various directorates/departments would need to participate.

3.4.2. Training

The EPRC will review staff and contractor competency with regard to emergency preparedness and identify training needs for management, staff and/or contractors. The training activities would cover the following:

- Project Sponsors' internal inductions and specific training (EPRP and further plans and procedures)
- Preparation of online or self-training materials and making them available to relevant parties.
- Courses and workshops for the EPRP and emergency event case studies, as well as enquiries and programs of relevant governmental agencies.
- Debriefs and shared learning's with or from other emergency response organizations.
- On the job training through exercises.

The exercises related to the EPRP will be a part of the training activities. The EPRP, and related plans and procedures will be tested or exercised to determine the effectiveness and efficiency of emergency management arrangements, and identify opportunities for improvement. These exercises can cover the following:

- Field exercises; where a scenario is created (e.g. a staged traffic accident or bridge failure) and emergency responders (ERT) approach the scenario as though it were a real situation.
- Desktop exercises; where the scenario is described and participants discuss their roles and can examine various aspects and alternatives. This can include testing a procedure or process.

In determining what aspect of the emergency management process will be exercised, consideration will be given to the issues below:

- Any new or emerging hazard.
- The sections of the EPRP that has not recently been tested.
- If there have been any specific changes for the emergency management roles or the people who can perform them (such as changes in the ERT.
- If a field exercise is being planned independently of other agencies related to emergency response, it is important to inform the local emergency services regarding the exercise details, so the exercise does not disrupt their response to genuine emergency calls.

For big scale field exercises and/or for the ones participation of other agencies is requested, the EPRC will consult the schedule and scope of the exercise with the related parties including the General Directorate of Highways, municipalities, governorships, etc. The EPRC would coordinate the implementation of the exercise and participation of the relevant persons. The results of the exercises would also be evaluated together with the participants to determine their usefulness. In this regard ERT will conduct debriefs following the exercise to identify what worked well and what are the opportunities for improvement.

3.4.3. Resources

The resources required for overall emergency management process would include; in-kind (e.g. equipments, vehicles, etc.), cash and human resources. In this regard, Administrative and Financial Affairs Directorate would cooperate with the EPRC to ensure provision of necessary resources. Accordingly, this directorate/department would be able to follow and record the related expenditures for emergency preparedness and response. This would especially be important for the after emergency actions in terms of determination of damage or losses, and recovery actions.

In order to mobilize the necessary resources administrative arrangements will be made by the EPRC in cooperation with the Project Management and all the active directorates/department during the construction and planning phases. Thus, EPRC would be regularly informing the management units and consulting with them regarding the emergency preparedness and response issues.

4. EMERGENCY RESPONSE

4.1. General

Emergency response is defined as actions taken to minimize the effects of an emergency event, and to limit the threat to life, property and the environment. Some emergency categories are defined with regard to the significance scale of the emergency events. With this regard 4 categories are defined from least significant (Category 1) to most significant (Category 4). In line with this categorization the emergency events in the first two categories are comparatively small scale where the main responsibility generally has to be taken by Project Sponsors. In more severe emergency events (categories 3 and 4) relevant governmental agencies, starting with the local ones, shall act as the lead agency for emergency response. In Turkey the district and provincial governorships are the main bodies under which the local directorates of the central agencies work. Therefore, generally governorships act as the lead coordinating agency together with municipalities.

Emergency response mainly covers the following:

- Initial assessment and reporting of the event, location and identified communication methods.
- On-site management of the situation.
- Coordination of resources (off-site coordination) to support the on-site management.
- Providing advice and reports of the situation to stakeholders.
- Ending response actions when the situation is resolved.

The following emergency response procedures (ERP) define the arrangements for the management of emergencies related to roads, bridges, tunnels, and viaducts, other civil engineering structures and traffic signals and flow. The ERP specifies some of the actions needed for the identified hazards and structures.

Emergency response procedures will be reviewed and elaborated, including addition of further procedures/activities, as found necessary, based on the further studies being undertaken in the scope of project development and on regular review of the risks and hazards. In addition, further measures can be defined or changes on the procedures can be considered based on testing of these through exercises.

4.2. Emergency Response Procedures (ERP) for Motorway, Bridges and Viaducts

The general emergency response procedures cover the whole motorway including bridges and viaducts. For tunnels further specific procedures are presented in the next session. These procedures cover the emergency response activities mainly for the following major hazards:

- Accidents
- Fires
- Earthquakes
- Spills and leakages

4.2.1. Accidents

Potential accidents during construction and operation may cause injuries and even death. In accident events that caused human injury, first aid will be provided by the ERT. Then, for further action assistance will be sought from the closest village clinic and/or the closest hospital. In this regard safe transport of the injured persons to the closest health facility will be the first priority.

In any injury encountered at the construction sites first aid will be the responsibility of the ERT members including the medical doctor available at the main camp facilities. In the meantime, to prevent any further damage other ERT members will ensure environmental safety, investigate any fire possibility, and clean any spilled materials.

As a result of some accidents, fuel, oil, or other hazardous liquids may reach the surface waters. When fuel or other hazardous materials are seen floating in the surface waters, first ERT will intervene, and, if necessary, the closest fire department will be contacted to get assistance. Fuel, oil, and other floating materials will be separated from water via skimming. These skimmed materials will be collected in sealed tanks and disposed in accordance with Waste Oil Control Regulation.

Mission and responsibilities of the ERT in accidents are as follows:

- All of the team members should know the type of injury risk in the work areas and project sections.
- In emergency situations, team members will check for the persons that might be injured in their area of responsibility.
- The ERT member who identifies a person with injury will provide first aid as proper. If he/she decides that the injury is beyond his/her ability for first aid than a more capable, or authorized, person (such as a doctor) will be waited. Any attempt that may worsen the situation of the injured person should be prevented.
- Depending on the type and extent of injury an ambulance may be required. In such a case, a member of the ERT will wait in the road junction (or such) to direct the ambulance to the incident location.
- After the arrival of the ambulance the responsibility passes to the medical personnel that arrived with the ambulance, but ERT member(s) will help first aid activities if needed.
- During the first aid activities, ERT prevents the entrance of irrelevant people to the incident area.
- After the completion of the necessary actions and/or injured person is sent to the hospital, the incident record is prepared.
- If there is no injured person in an accident, ERT secures the incident area and reports to the EPRC.

4.2.2. Fires

Fire possibilities will be minimized in the construction sites and camp facilities by taking necessary preventive measures. In addition, in working areas fire extinguishing equipments will be kept at proper places for emergency action. Furthermore, no fires are allowed in the forest areas and all precautions will be taken in the construction sites to prevent fire.

Fire events that might be of concern during the operation of the project would be mainly associated with accidents. Thus, emergency response actions for such fires would follow the procedures both given below and specified for accidents.

Mission and responsibilities of the ERT in case of fire are as follows:

- All of the team members should know the fire risk in each work area. They have to know how to extinguish different types of fires as well.
- In emergency situations, team members will check for any fire in their area of responsibility.
- If any fire is determined or emergency situation is a fire, ERT takes the necessary actions for extinguishing without panic under the control of a team leader.
- Depending on the type and extent of fire a fire engine may be required. In such a case, a member of the ERT will wait in the road junction (or such) to direct the fire engine to the incident location.
- After fire engine arrives, team members help extinguishing activities if needed.
- During the fire fighting, ERT prevents the entrance of irrelevant people to the area.
- If any fire is not determined after emergency situation, team members are counted, and present under the head of team leader collectively.
- Ambulance will be called in case there are injuries or smoke poisoning.

4.2.3. Earthquakes

Trainings will be provided to all workers related to actions to be taken during an earthquake for their safety. If an earthquake with a scale of more than 4.5 on Richter scale is determined in the area, and workers on duty feel earth tremor or are exposed to specified earthquake consequences (feeling of the earthquake by everybody, moving/falling of objects in the shelves, moving/falling down of furniture, fracturing of some plasters and walls, quaking of trees and shrubs), the steps given below will be followed and implemented:

- General visual check of the Project components (motorway sections, tunnels, bridges and viaducts and associated structures) after the earthquake.
- After completion of the relevant controls and audits, findings will be communicated to the relevant authorities.
- If the structures are collapsing or had such a damage that may cause the collapse of the structure, the users will be informed through signalization and radios. In addition, at a relevant distance from the structural damage the area or the road section would be closed to users by barriers. Furthermore, the closest settlement(s) located in the area will be informed immediately.
- If the structures have a damage, which is not as serious to cause a collapse, necessary observations and collapse risk assessment will be made immediately. Then, the assessment will be communicated with relevant local and national authorities and the instructions of the technical specifications and that would come from these authorities will be followed.

4.2.4. Spills and Leakages

Oil, fuel, dye etc. may spill on the construction sites and/or roads that are used for transportation. The activities that shall be performed immediately following these spills are important in terms of prevention of contamination. The actions to be taken in case of leakage and/or spill after an accident are as follows:

- Leakage source will be determined and if possible, leakage will be stopped.
- Trucks, construction equipment etc. that had an accident on the roads will be brought into their normal position as fast as possible, and by this way more leakage and/or spill will be prevented.
- In order to prevent spreading of leakage sandbags will be placed around the leakage source.
- In case of big leakages, depending on the slope of the land, a small canal will be opened in the downstream part of the leakage, and this canal will be filled with absorbent material to collect leakage in this canal and prevent mixing with groundwater.
- Pollutant, polluted absorbent material, and soil will be put into bags that have proper size and durability, and these bags will be labeled properly.
- In case of a big leakage and/or spill, the incident will be reported to the construction site director/manager (during construction phase) and the operation director/manager (during the operation phase) immediately. Relevant local authorities will also be informed about the incident as necessary.

In case of leakage of oil, fuel or other chemicals to water resources, absorbent barges will be used to prevent the dispersion of the spill and to keep the surface area of the spill as small as possible. Inner part of the absorbent barges will be filled with absorbent fibrous material. When required, based on the extent of leakage and flow of water, more than one barge can be used. Following these actions the water quality will be monitored at relevant locations in the downstream and upstream of the leakage point.

A kit will be ready at each site and operation center with fuel and chemical leak risks and the emergency response team will be ready to act as soon as possible. The minimum extent of equipments such a kit will contain is summarized below:

- Fuel/Chemical absorbents (covers, sand etc.)
- Manuel pump
- Electrical pump
- Drainage tanks
- Chemical resistant gloves, clothes, tall boots, face covers and other personal protective equipment
- Equipment to disperse chemical gases
- Sand (sand is a good material that absorbs pollutants on roads and soil)
- Sawdust: Sawdust is one of the materials used to prevent dispersion of liquid material spilled to the roads and soil.
- In the leakages originating from damaged tins, barrel or such, the material in these packages will be transferred safe packages immediately.
- Absorbent barges.
- Absorbent bolster.
- Barrels resistant to chemical material.
- Firm plastic bags
- Warning signs

4.3. Emergency Response Procedures for Tunnel

The tunnel emergency response procedures cover the emergency events that can take place in and close to tunnels. Main hazards of concern are traffic accidents, vehicle breakdowns and fire events. The response procedures for emergency events related to tunnels include the following:

- Intervention procedures
- Incident management procedures
- Evacuation procedures

4.3.1. Major Hazards

Breakdowns

As per normal practice in long tunnels, recovery vehicles are located at each side of the tunnel adjacent to the portal and once the incident is detected, a recovery vehicle is dispatched to the traffic incident. The driver of the broken down vehicle is instructed via radio or public announcement to remain in their vehicle pending recovery. Traffic in the tunnel should be able to flow without serious congestion behind.

Traffic Accidents

A minor accident is managed in the same way as a breakdown, however in this instance two or more recovery vehicles may need to be dispatched to deal with the stricken vehicles. In the event of a serious accident where debris blocks the tunnel and traffic backs up behind the incident, a recovery vehicle from the opposite end of the tunnel can use an available vehicle cross over to enter the incident tunnel. The emergency services enter in a similar manner. Variable Message Signs (VMS) and lane closure indicators are activated to warn tunnel users about an incident and if necessary, the incident tunnel is closed and alternative traffic management plans are implemented. These could include the introduction of a temporary contra-flow system in the non-incident tube or complete diversion elsewhere on the trunk road network in this instance.

Fire

In case of fire in the tunnels access for the emergency services is provided in number of ways depending on the circumstances. They can drive down the affected tube directly to the incident if there is no traffic blocking the route. Alternatively, if the route is blocked, the non-affected tunnel can be closed to traffic and the emergency services can use available crossovers to access the non-affected tunnel. If vehicular access is not possible or preferable, emergency access points will be used for access on foot via stairs and lifts.

In addition to abovementioned major hazards, there are some cases specialized for tunnel and may generate major hazards. These cases should be considered when noticed and relevant precautions should be taken, which are listed at above Table 2.

4.3.2. Intervention Procedures

Access for the emergency services will be provided in number of ways depending on the circumstances. The first option is that they can drive down the affected tube directly to the incident if there is no traffic blocking the route. Alternatively, if the traffic is stopped behind the incident and the route is blocked, the non-affected tube can be closed to traffic and the emergency services can use the crossovers to access the non-affected tube. From here the emergency vehicle can stop at the nearest pedestrian cross passage to the incident and proceed on foot.

If vehicular access is not possible or preferable, emergency access points will be used for access on foot via stairs and lifts. The emergency personnel can then continue on foot down the affected tunnel directly to the incident. Alternatively they can proceed down the non-affected tunnel and access the incident via the nearest pedestrian cross passage. Initially the traffic may still be running in the non-incident tube. The walkways are provided on sides of the carriageway and a wheeled trolley bed can easily continue into the cross passage through the walkways.

Table 2. Some Cases Specialized for Tunnel Emergency

Case	Things to Do
Stationary Vehicle in Tunnel	• The lane on which the stationary vehicle is present shall be marked with traffic signs in the fastest manner possible. • Drivers shall be warned through VMS. • If any announcement or SOS system is present in the tunnel, drivers shall be warned using them and communication with the driver of the stationary vehicle shall be established through these systems if possible. • The reason for the vehicle to stop in the tunnel shall be investigated and the vehicle shall securely be towed out of the tunnel with towing vehicles if possible.
Vehicles Carrying Haul without Canvas Roof	• Vehicles without canvas roof shall be stopped at the entrance of the tunnel and authorized personnel shall be notified for penal action. • If the vehicle has already entered the tunnel, its photos or videos shall be recorded and kept. The license plate must be legible in the photo.
Tall Vehicle Near Tunnel	• The personnel in charge shall be immediately notified and sent to the direction the tall vehicle is approaching from. • Alarm beacons under VMS shall be checked to see if they are working as expected. • The tall vehicle shall be turned away from the tunnel and its driver shall be notified of the illegal situation. If the driver resists, armed forces shall be notified about the situation. (with the exception of vehicles which have been provided a road permission document by KGM). • Relevant VMS shall be checked for the delivery of " Your vehicle is tall" message after controlling computer of the tunnel supervision system has been alarmed • Tall vehicles passing through the tunnel shall be monitored with cameras till the vehicle leaves the tunnel and the tunnel shall be checked for possible damage by the tall vehicle. If damage is detected, a crew shall be sent to the tunnel for checking the extent of the damage. • Licence plate of the infringing vehicle shall be identified and handed off to authorised personnel for fines. • Tollbooth stations and traffic police control points along the direction of the tall vehicle passing through the tunnel shall be notified about the situation. • If the vehicle does not approach the tunnel despite the warning from remote clearance height sensors, parking lots shall be checked. • The possibility of multiple successive tall vehicles shall be taken into consideration and other vehicles coming after a tall vehicle shall be checked as well. • After removing the tall vehicle alarm from the controlling computers, VMS shall be checked to verify that tall vehicle warnings have been removed from them and have been replaced with the normal messages.
Wide Vehicles	• Wide vehicles shall be stopped before entering the tunnel. • Wide vehicles without permission to use motorways will not be permitted to pass through the tunnel. • Wide vehicles with permission to use motorways shall pass through the tunnel on right lane. Permission of the wide vehicle shall be photocopied and archived. • If the drivers of wide vehicles without permissions insist on passing through the tunnel, armed forces shall be notified about the situation.
Suspicious Events, Objects or Vehicles	• In case a suspicious vehicle is detected, it shall be followed by the cameras to make sure if it really is suspicious. • The suspicious vehicle will be observed using cameras to check if it drops a suspicious object or package in the tunnel. • In the event a suspicious package or object is dropped, the area of incident shall be watched using cameras and armed forces shall be notified. Also, the electricity of the GSM stations within the tunnel shall be cut off immediately.
Convoys	• If is known in advance that the convoy is approaching, lanes closed due to maintenance shall be opened for incoming traffic. Also, jet fans will be manually engaged for operation due to high level of in-tunnel pollution that will be generated by the convoy.
Electrical Room Door Open	• If the electrical room door is opened by authorized personnel, then the alarm shall be cancelled. • If the identity of the person who has opened the door is unknown, the area shall be checked with cameras and the phone in the room shall be called. • If the reason why the alarm has triggered cannot be determined, a crew shall be sent to the incident area for checking the door. • If it is found out that the door has been opened by an unknown person, armed forces shall be notified immediately against the possibility of theft or sabotage.
Intense Pollution within the Tunnel	• If a high level of air pollution is observed in the tunnel, CO (carbon monoxide) and VIS (visibility) values will be checked. • If CO and VIS have high values, other fans shall be manually engaged in addition to the ones that are already running.

4.3.3. Incident Management Procedures

The management of an incident in the tunnel is controlled by the Operation Teams which are reporting to Project Operation Coordinator. The operation team/center is responsible for monitoring the tunnel at all times, traffic management, traffic information communication and signal control. The automatic incident detection system (i.e. CCTV Alert) is used to feed information to the operator identifying the nature, cause and severity of incidents that occur. CCTV Alert can automatically detect a vehicle stopping in the tunnel in the event of a breakdown or accident and it also detects fire. Typical response time should be approximately five minutes but will depend upon its location within the tunnel.

4.3.4. Evacuation Procedures

Evacuation of tunnel users in an emergency will be carried out via the pedestrian cross passages and emergency exits with fire proof doors. Emergency walkways will be raised above the carriageway such that a wheelchair can easily climb the curb and continue into the cross passage. The evacuation can be to the non-affected tube or directly to open air. Consequently offside walkways will be provided in the tunnels so that people can safely continue along the non-affected tunnel away from the incident and prevent a back up of people through the cross passages.

Emergency exits will be located on each shoreline, if possible. Stairs and lifts will be provided so that a suitable escape route is available for mobility impaired people.

Requirements for the ventilation system are such that ventilation will be provided in the cross passages and that positive pressure or other means of excluding smoke from the cross passages and non-affected tube will be provided. The ventilation system also shall provide a means of extracting smoke in the event of a fire, so movement of smoke and fire gases in the tunnel near the incident should be minimized or eliminated by the ventilation system allowing clear unrestricted means of escape for users in the vicinity of the incident.

4.4. Incident Command

During an emergency incident the effective management and control of the emergency response actions might keep the adverse consequences of the incident at rather low levels. Therefore, for efficient coordination and cooperation during an emergency management roles and communication channels carry importance. Accordingly, two command systems for simple and complex incidents can be foreseen.

For the simple incidents, which would have small and local adverse consequences, EPRC will be in command and ERT will manage the emergency situation. In the mean time cooperation with the directors/directorates of construction site administrative and financial affairs will be achieved during construction phase. During he operation phase operation teams and the coodination body for operation will cooperate with the EPRC as necessary. Following the end of emergency incident, post emergency

report will be prepared and relevant information will be provided to top management and relevant departments.

In a complex emergecy incident, which would have significant and extended consequences, while EPRC will have the firsthand incident command for Project Sponsors, during construction phase directors/managers would assume command if necessary. Similarly, during the operation phase the operation coordination body might be the decision-maker for Project Sponsors, as necessary. In addition, in such incidents generally the leading agency that carries the authırity would be relevant governmental agency, such as the provincial governorship.

4.5. Activation Triggers

In the scope of further detailed planning for emergency management Environment, Health and Safety Directorate (i.e. EPRC) would prepare an Emergency Response Time Schedule (ERTS) in consultation with the other units of management for both construction and operation phase. This schedule will take the dedicated resources (staff, tools and equipment) for emergency response and the location and number of emergency response centers as key variables. The response times for emergency incidents would be based on the severity of the incident, thus the emergency categories as defined previously.

4.6. Environment, Health & Safety (Occupational and Community)

The policies and procedures related to EHS and Labor/Workforce will be the leading documents for personnel who will be involved in the emergency situations directly or indirectly. These policies and procedures are in fact the key documents for prevention of emergency events if they are implemented sufficiently.

4.7. Communication and Information Disclosure

Communication about the emergency preparedness and response activities would be governed by the following principles:

- Only nominated Project Sponsors' spokesperson(s) shall make public comment about the response or recovery efforts.
- Project Sponsors' comments would be made following consultation with the General and Regional Directorates of Highways, and the other lead agency, if any, for the emergency incident.
- Project Sponsors' spokesperson(s) would take care to restrict their comments to factual information that is relevant to Project Sponsors' activities and especially to avoid commenting on other agencies actions.
- Project Sponsors' spokesperson(s) would make themselves available for media enquiries, as appropriate, and give relevant messages to promote community safety and limit possible disruptions caused by emergency events.

4.8. Emergency Contacts

Emergency Contacts including the key internal and external persons, contact means and information (i.e. cellular and stationary phones, radio, pager, etc.) will be managed by the ERT and the EPRC. This information would be kept updated in its most recent form. In addition, it will be posted to relevant places and at least be available to all relevant staff taking a role in emergency preparedness and response.

4.9. Reports from Contractors and Incident Debriefs

The assigned ERT member(s) would ensure that the reporting of responses to incidents attended by contractors follows appropriate procedures and those opportunities for improvement are acted upon.

The EPRC will ensure that all Project Sponsors' staff and contractors are debriefed and/or attend debriefs organized by the lead agency following a major incident. It will be ensured that the lessons learned are considered in the management of future emergency arrangements. This would include any revisions or updated in the EPRP and associated procedures, equipments, staffing, etc.

Project Sponsors' personnel may be involved in traumatic incidents as part of the emergency response activities they had been involved. The Directorate of Administrative Affairs and Human Resources will be responsible for managing the critical incident stress debriefing process.

5. END OF EMERGENCY SITUATION, FURTHER ACTIONS AND RECOVERY

5.1. After Emergency Actions

When the emergency conditions end, EPRC approves the safety of the project/incidence area, and relevant units and authorities are informed related to the incidence. ERT makes a general assessment together with the EPRC and prepares the report regarding the emergency incidence (event), the damage caused (consequences), and the status of the incidence area and project structures. This report would be shared by the General and Regional Directorates of the Highways as well and would serve for the improvement of the future studies and providing information for further planning

The activities taken during the emergency will be assessed and any necessary adjustments and/or improvements shall be made in the emergency preparedness and response procedures and measures. If the emergency incidence is an unforeseen case, the precaution measures to prevent this type of emergency incidences and the action plan for such emergencies will be developed and integrated into the EPRP.

In case of a significant emergency incidence, General Directorate of Highways (KGM) or the relevant governorship will establish a committee for identification of the damages and losses due to the event. This committee might be formed from the representatives of various local governmental agencies, where the presence of KGM representatives is obligatory. This committee prepares a report to be submitted to the Ministry of Interior and KGM.

5.2. Recovery Management

Recovery is defined as measures which support emergency affected individuals and communities in the reconstruction of physical infrastructure and restoration of emotional, economic, and physical well –being.

Project Sponsors' would be managing all the relevant recovery operations and needs in the construction sites during the construction phase. This would also cover the recovery issues for Project Sponsors' staff in line with the national legislation and Project Sponsors' Labour/Employment Policy.

During operation Project Sponsors would typically manage the following road and infrastructure operations:

- Damage assessment and categorization.
- Management of the demolition process.
- Provision of temporary services.
- Reinstatement of traffic signals.
- Structural repairs.
- Maintenance of environmental and workplace standards.

Recovery efforts associated with significant emergency events (i.e. categories 3 and 4) may be coordinated by General and Regional Directorates of Highways, local authorities (i.e. governorship or municipality) and other relevant agencies and institutions.

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ANNEX-4

AFFORESTATION PLAN

MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

KMO ANADOLU
OTOYOL İŞLETME A.Ş.

NORTH MARMARA MOTORWAY PROJECT

(ASIAN PART: KURTKOY-AKYAZI SECTION)

ANNEX-4 AFFORESTATION PLAN (ASIAN)

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY

encon

ENCON ENVIRONMENTAL CONSULTANCY CO.

MARCH 2018

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ANNEX-4 AFFORESTATİON PLAN

1. INTRODUCTION

The Afforestation Plan provides an insight into international requirements in terms of mitigating loss of forests and identifies the strategy for actions. Overall, it is prepared in order to determine the type and characteristics of the forest areas in the Project Area, potential loss of forests and the options (including estimates for the number of trees to be replanted and size of land needed for afforestation) for mitigation of the adverse impacts. The mitigation and compensation options will be in accordance with relevant Turkish legislation and international practices.

This Afforestation Plan has been prepared in relation to the national requirements to compensate the loss of forests due to Asian Part of the North Marmara Motorway Project which starts at Kinali toll plaza in Silivri district of Istanbul province, crosses the city of Kocaeli and ends at Akyazi 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 well as summarising the process for compensation (replanting of trees at alternative sites).

KMO Anadolu Otoyol Isletme A.S. (Anadolu OIAS) has been awarded with a BOT Contract for the implementation of the Asian part. There are three Sections in Asian part of the Motorway, Section 4 (Kurtkoy-Liman), Section 5 (Liman-Izmit) and Section 6 (Izmit-Akyazi). The Motorway will be a dual carriageway of 4 lanes (2 x 4) in each direction. According to the current design and total length of the Asian sections (including the main carriageway and the access roads) of the Project will be 186,9 km (as of end of March 2016).

General information about each section described as follow:

- Section 4 of the Motorway has a length of 21,9 km plus access roads of 21,7 km. Around 14 km of the access roads is included in the Liman Access Road section, which diverges from the Motorway at KM 150+500 towards Izmit Bay and is the longest access road in the Project. Main carriageway of the Motorway runs through agricultural fields and locally through forest vegetation, while the Liman Access Road crosses forest lands in the northern part (150+500; 0+000-10+500) and industrial sites in the southern part (150+500; 10+500-13+500).

- Section 5 of the Motorway has a length of 36,8 km plus access roads of 20,2 km. First 15 kilometers of Section 5 (between KM 151+000 and 166+000) runs through forest areas mostly far from settlements. In this section viaducts and over/underpasses are included in the design. Several viaducts located between KM 159 and 176 are designed to cross forestry areas and serve for ecological passage functions. Similarly, subsequent tunnels will be constructed between KM 178 and KM 188 for the passage of forest mountains. At KM 160, an additional ecological bridge will be constructed in line with the requirements of related forestry directorates. Between KM 167 and KM 176 (location of Toylar Interchange), the Motorway and the access roads passes through the agricultural fields of the nearby settlements including Sevindikli, Kutluca, Karayakuplu and Toylar neighborhoods. At KM 171-172, the route continues in the south of Sipahiler Pond and passes the residential area with a viaduct of 770 m at KM 171-172. Around KM 172, a few structures/buildings of Sipahiler neighborhood are

located within the expropriation corridor. At around KM 176, land use character dominated by forest vegetation starts and continues until KM 188 where the section ends with a tunnel.

- Section 6 is the Motorway section, which has highest interaction with the surrounding settlements. At the beginning of this section, a Viaduct located at Km 188 near Hacioglu Hamlet of Cayirkoy Neigborhood crosses over a recreational walking trail and several greenhouses. From KM 188 up until the end of the Section at KM 196, mainly agricultural fields and locally forest lands are crossed. Between KM 195-200, Section 6 passes through the agricultural lands of Durhasan, Eseler and Bayraktar neighborhoods. Near Bayraktar and Biberoglu neighborhoods, located in the south and north of KM 199-200 respectively, several stud farms and greenhouses are observed besides the agricultural fields. Motorway passes from 500 m south of Bayraktar Pond at KM 199+500. In this area, there are a few greenhouses and buildings located within the expropriation corridor. At around KM 200, the Motorway enters a route dominated by forest vegetation, with local agricultural fields near Sapakpinar, Karabadulbaki and Suleymaniye neighborhoods, up until KM 210. Around KM 209, several buildings of Suleymaniye fall within the expropriation corridor. From KM 211 in the south of Akmese neighborhood, the route passes through agricultural fields until KM 215+500. In the south of Korucuk, which is a settlement understood to be urbanized after the 1999 Marmara Earthquake, forest lands redominate the route between KM 216 and 218+500. Starting from KM 221 until the end of Section 6, the route of the Motorway is located almost completely on agricultural lands, where it passes between several settlements in Sakarya province. North of KM 226+500, where the Construction Camp Site for Section 6 will be located near Taskisigi neigborhood, hosts several industrial facilities including ENKA Natural Gas Combined Cycle Power Plant, Nuh Concrete Plant, quarries, etc. Around KM 229 near Camyolu neighborhood, a few buildings are crossed by the Motorway route. Sakarya River is crossed by the Motorway route at KM 233.

Within the scope of this afforestation plan report is mainly based on the following information and studies:

- Forest management plans (official data of General Directorate of Forestry), management plan data and maps provided by Project Sponsors.
- Forest data serving as a basis for the forestry permit.
- The Project Master Plan.
- Information and data obtained from the visits to General Directorate of Forestry and Regional Directorates of Forestry.
- Data collected during the ESIA field surveys on biodiversity/ecology especially vegetation cover, flora and habitats.

2. BASELINE CONDITIONS

2.1. General

For the Asian part, North Marmara Motorway Project falls within the jurisdiction of four different Forestry Management Directorates (Kanlica, Izmit, Adapazari and Akyazi) under Istanbul and Sakarya Regional Directorates of Forestry as summarized in Table 1. The boundaries of these directorates are presented in Figure 1.

Table 1. Relevant Forestry Directorates for the Project (Asian Part)

Section	Regional Directorate	Forestry Management Directorate	Management Sub-directorate
Section 4	Istanbul Regional Directorate of Forestry	Kanlica Forestry Management Directorate	Sultanbeyli Forestry Management Sub-directorate
			Kartal Forestry Management Sub-directorate
	Sakarya Regional Directorate of Forestry	Izmit Forestry Management Directorate	Derince Forestry Management Sub-directorate
			Dilovasi Forestry Management Sub-directorate
			Gebze Forestry Management Sub-directorate
			Hereke Forestry Management Sub-directorate
			Izmit Forestry Management Sub-directorate
			Kargali Forestry Management Sub-directorate
			Korfez Forestry Management Sub-directorate
			Taskopru Forestry Management Sub-directorate
			Uzuntarla Forestry Management Sub-directorate
Section 5	Sakarya Regional Directorate of Forestry	Adapazari Forestry Management Directorate	Adapazari Forestry Management Sub-directorate
Section 6	Sakarya Regional Directorate of Forestry	Akyazi Forestry Management Directorate	Akyazi Forestry Management Sub-directorate

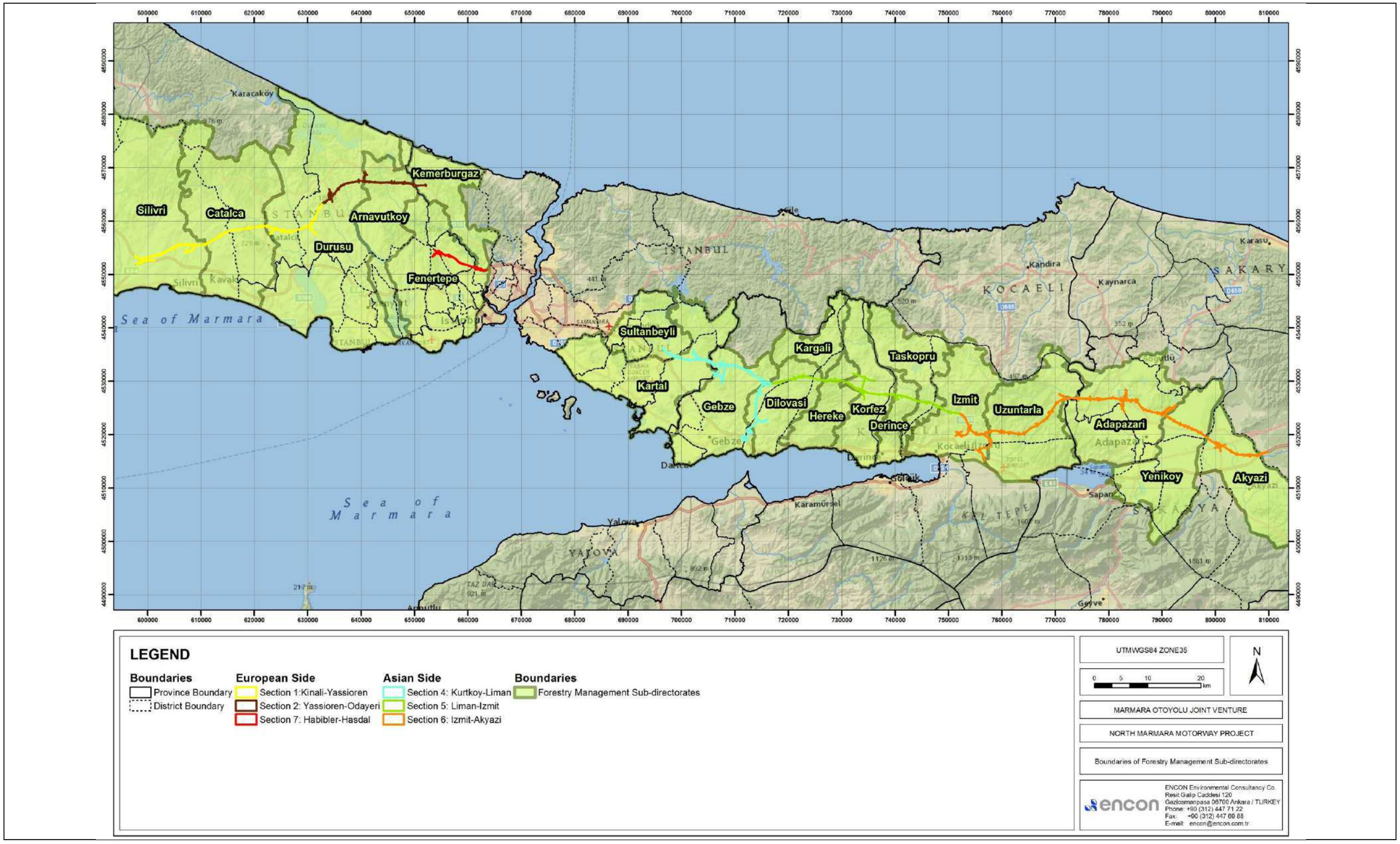

Figure 1. Boundaries of Forestry Management Sub-directorates

2.2. Land Use Characteristics within the Study Corridor

The entire study corridor for the Asian part covers an area of 9.068,8 ha (for a width of 400 meter along the total length of the route in the Asian part except the length of tunnels and viaducts, see Chapter 5 for details). The results of the land use analyses (land use type and land use capability) done for the study corridor (9.068,8 ha; for a width of 400 meter along the total length of the route in the Asian part except the length of tunnels and viaducts as discussed previously) based on the Turkish General Directorate for Rural Services database are provided in Table 2. As it can bee seen in the Table, a considerable part (67,4%; 6.113,8 ha) of the entire study corridor is covered by agricultural areas and farmlands. Forest areas cover 10,5% (950,1 ha) of the entire study corridor.

Table 2. Land Use Characteristics within the Study Corridor for Asian Sections (*according to Turkish General Directorate for Rural Services, 1987, 1991 and 1995)*

Land Use Type	**Data Source**	
	GDRS (1987)	
	Area (ha)	**Percent (%)**
Agriculture/Farmlands	6.113,8	67,4
Forestry	950,1	10,5
Shrubbery	1.124,8	12,4
Pastures, Meadows, etc.	820,9	9,0
Others (Settlements/Urban Fabric, Mineral Extraction Sites, Transport Networks, etc.)	59,2	0,7
Total	**9.068,8**	**100,0**

Within the study corridor, there is no forest specified as “coppice forest”, and thus all of the actual forests are categorized as high forests having different canopy covers. The key findings of the analyses done based on the relevant Forest Management Plans of the study area are summarized below (see Chapter 5 for details):

- According to the Forest Management Plans, 28,1% (2.552,1 ha) of the entire study corridor is covered by actual forests. Almost 80% of the actual forests are productive, where the canopy cover level changes between 10-100%, while the remainder 20% (539,8 ha) correspond to degraded forests where the canopy cover level is less than 10%.

- Regarding the forest functions, 64,3% (1.641,4 ha) of the all actual forests serve for social and cultural function, while the remaining 20,3% (518,4 ha) serves for ecological and 14,2% (362 ha) serves for economic functions. Private afforestation cover 1,2% (30,3 ha) of actual forests, which correspond to Section 4 and Section 6.

- In Section 4, actual forests (productive and degraded) cover an area of 1.060 ha. Half of the actual forests (50%; 530 ha) in Section 4 serves for economic function. 25,7% of the actual forests in this section serve for ecological function.

- In Section 5, actual forests (productive and degraded) cover an area of 838,8 ha. A considerable portion of the actual forests (64,5%; 540,7 ha) in Section 5 serves for economic function. Only 5,6% of the actual forests in this section serve for ecological function.

- In Section 6, actual forests (productive and degraded) cover an area of 653,4 ha. A considerable portion of the actual forests (87,3%; 570,5 ha) in Section 6 serves for economic function. Only 5,6% of the actual forests in this section serve for ecological function.

2.3. Forest Types and Tree Species

When the forest stand types are considered (based on the findings of the ecological surveys conducted); *Pyrus elaeagnifolia* Pallas subsp. *Elaeagnifolia, Salix alba L., Quercus frainetto Ten., Quercus cerris L. var. cerris, and Quercus petraea (Mattuschka) Liebl. Var. iberica (Steven ex Bieb.) Krassiln* stand out the common types that will be affected in each section. None of the species identified has is classified as Vulnerable (VU) or Endangered (EN) by the International Union for Conservation of Nature (IUCN). On the other hand, it has been understood during the Public Consultation Meetings, poplar trees (*Populus*) are attached with particular importance by the local people because of their economic activities. Ficus carica L. and Juglans regia L. would also of economic importance. Tree species to be removed are given in Table 3.

Table 3. Tree Species to be removed in the Project Area

Species Name	Turkish Name	Presence			Ecological/ Socio-economic Value
		Section 4	Section 5	Section 6	
Pinus pinaster Ait.	Sahil çamı	x	x		
Cupressus sempervirens L.	Servi	x			
Juniperus oxycedrus L. subsp. *oxycedrus*	Ardıç	x	x		
Papaver rhoeas L.	Gelincik	x			
Robinia pseudoacacia L.	Akasya	x	x		
Pyrus elaeagnifolia Pallas subsp. *elaeagnifolia*	Ahlat	x	x	x	
Malus sylvestris Mill. subsp. *orientalis* (Uglitzk.) Browicz var. *orientalis*	Elma	x			
Arbutus unedo L.	Kocayemiş	x		x	
Salix alba L.	Ak söğüt	x	x	x	
Quercus frainetto Ten.	Macar meşesi	x	x	x	
Quercus cerris L. var. *cerris*	Saçlımeşe	x	x	x	
Quercus petraea (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.) Krassiln	Sapsız meşe	x	x	x	
Pinus nigra J.F. Arnold	Karaçam		x		
Tilia argentea Desf. ex DC	Gümüşi ıhlamur		x		
Acer campestre L.			x		
Crataegus monogyna Jacq. Subsp. *monogyna*	Alıç		x		
Prunus spinosa L. subsp. *dasyphylla* (Schur) Domin	Erik		x		
Cornus mas L.	Kızılcık		x	x	
Fraxinus angustifolia Vahl subsp. oxycarpa (Bieb. ex Willd.) Franco & Rocha Afonso	–		x		
Carpinus betulus L.	Gürgen		x	x	
Ulmus minor Miller. subsp. *minor*	Kara ağaç		x	x	
Quercus infectoria Olivier			x	x	
Quercus coccifera L.			x	x	
Fagus orientalis Lipsky	Kayın ağacı		x	x	
Cornus sanguinea L. *subsp. sanguinea*				x	
Fraxinus angustifolia Vahl subsp. oxycarpa (Bieb. ex Willd.) Franco & Rocha Afonso	–			x	
Corylus avellana L. var. *avellana*	Fındık			x	
Populus alba L.	Ak kavak			x	Economic
Populus canadensis Moench	Kavak			x	Economic
Ficus carica L.	İncir			x	
Juglans regia L.	Ceviz			x	Economic

3. POTENTIAL IMPACTS ASSOCIATED WITH THE PROJECT

The potential impacts on forestry associated with the North Marmara Motorway Project are expected to be primarily related to the land take requirements of the Project and will occur during the earthworks and construction phases (including mobilisation and preparatory works). Therefore, the potential impacts on forestry are considered under the following main issues in this section:

- Loss of forest land and assets; and
- Loss of carbon capture capacity.

3.1. Loss of Trees

Trees corresponding to the permitted road construction areas (road footprint and embankment and fill zones) will be removed and appraised by the relevant Regional Directorate of Forestry in coordination with the KGM and Project Sponsors. In this scope, exact number of trees to be removed is determined by the Regional Directorate after examination of current management plans and field studies. Accordingly, number of trees to be removed in the scope of the Project has been estimated by relevant forestry directorates for each section of the Project and is summarized in Table 4. The figures given in this table has been calculated to cover the trees to be removed from the footprint of the Motorway construction areas including the embankment and fill zone. As can be seen from Table 4, number of trees to be lost is 864.099.

Table 4. Estimated Number of Trees to be Removed (Camp sites, quarries, storage areas and service roads are also included)

District/Sub-District Directorates of Forestry	Number of Trees Removed
Kanlıca District Directorate of Forestry	
Kartal Sub-District Directorate of Forestry	11.919
Sultanbeyli Sub-District Directorate of Forestry	5.408
İzmit District Directorate of Forestry	
Derince Sub-District Directorate of Forestry	62.493
Dilovasi Sub-District Directorate of Forestry	346.018
Gebze Sub-District Directorate of Forestry	139.246
Hereke Sub-District Directorate of Forestry	95.091
Izmit Sub-District Directorate of Forestry	40.367
Kargali Sub-District Directorate of Forestry	2.165
Korfez Sub-District Directorate of Forestry	31.377
Taskopru Sub-District Directorate of Forestry	19.348
Uzuntarla Sub-District Directorate of Forestry	49.233
Adapazari District Directorate of Forestry	
Adapazari Sub-District Directorate of Forestry	52.536
Akyazi District Directorate of Forestry	
Akyazi Sub-District Directorate of Forestry	8.895
Total	**864.099**

When the forest stand types are considered Sessile Oak (*Quercus petraea*), Turkish Oak (*Quercus cerris*), Hungarian Oak (*Quercus frainetto*), Black Pine (*Pinus nigra*), Beech (*Fagus orientalis*) and Hornbeam (*Carpinus betulus*) stand out the most common types of species that will be affected from the Project. In consideration of all species, Radiata Pine (*Pinus radiate*) is classified as Endangered (EN) and Cedar is classified as Vulnerable (VU) by the International Union for Conservation of Nature (IUCN). In addition, it has been understood during the Public Consultation Meetings, poplar trees are attached with particular importance by the local people because of their economic activities.

3.2. Loss of Carbon Capture Capacity

Carbon is retained in biomass, decomposing organic matter and soil in terrestrial ecological systems. Carbon stock in terrestrial ecological systems plays an important role in the global carbon cycle. Carbon is exchanged between ecological systems and the atmosphere through natural processes such as photosynthesis, respiration, decomposition and combustion. Human activities change the carbon stocks in ecological systems and alter the exchanges between the carbon pools and the atmosphere through land use and land use change. (IPCC, 2000)

North Marmara Motorway Project is considered to have a potential impact on regional carbon stocks through removal of forests for motorway construction. In this section, the loss in carbon capture oxygen generation capacities due to deforestation activities are estimated. Loss of carbon capture capacity is based on a comparative analysis of this capacity with regard to the official data held by the District and Sub-District Directorates of Forestry regarding the capacity that has been calculated to exist in the region of responsibility of each directorate. The region of responsibility is the geographical area/region where the directorate is responsible for managing all the forest areas and assets in this region (including provision of permits in the forest areas, reforestation/afforestation activities, tree planting and removing). As a result of this evaluation, the significance assessment has been made based on the calculated availability of carbon capture capacity and the forest area to be lost.

Carbon capture and oxygen generation capacities of the forest areas around the Motorway Route are detailed in Chapter 10 (Air Quality and Climate Change). According to the assessment, approximately %1,9 of the total carbon capture and oxygen generation capacities will be lost in the forests of District and Sub-District Directorates of Forestry.

4. LEGAL STATUS AND COMPENSATORY REQUIREMENTS

4.1. Relevant Turkish Legislation and Procedures for Projects on Forest Land

The legislation related to forest areas, their protection and utilization for public benefit is composed of laws and regulations that are based on the constitution of Turkey. The central administrative authority is the Ministry of Forestry and Water Affairs (MFWA). The relevant agency within MFWA is the General Directorate of Forestry, which itself has Regional Directorates in the country and Operational Directorates and Sections in those regions. These Directorates are responsible for protecting forestry and forestry resources against negative impacts, and developing and managing forestry and forestry resources in a sustainable way.

Laws and regulations for realization of various types of projects on state owned forest land and regulation of afforestation and other related measures on these areas can be summarized as follows:

- Forest Law (Law No. 6831, Official Gazette date 8.9.1956, No. 9402)
- Implementing Regulation of 16th Article of the Forest Law (Official Gazette dated 18.04.2014, No. 28976)

- Implementing Regulation of 17th/3 and 18th Articles of the Forest Law (Official Gazette dated 18.04.2014, No. 28976)
- Regulation on Permits to be Granted in Areas Considered as Forest
- Regulation on Afforestation (Official Gazette dated 23.08.2012, No. 28390)

Ministry of Transport, Maritime Affairs and Communications (MoTMAC), General Directorate of Highways ("KGM" or "the Administration"), as the owner of the North Marmara Motorway Project, has commissioned two different special purpose entities (SPV) for the implementation of the European and Asian sections of the Project under the related Build, Operate and Transfer (BOT) contracts. The Project Area contains forest areas under the authority of the Ministry of Forestry and Water Affairs, General Directorate of Forestry. Article 4 of "Implementing Regulation of 17th/3 and 18th Articles of the Forest Law," and Section 10 of "Regulation on Permits to be Granted in Areas Considered as Forest" state that a permit application must be made for motorways (amongst other construction types listed in this article) that are to be built in forest land. Therefore, it will be necessary for project protocols to be established between the two relevant ministries. An application by Ministry of Transportation, Maritime Affairs and Communications must be made to the Ministry of Water Affairs and Forestry in order to proceed with the project construction.

Following documents are required for this application (note that these documents are required for infrastructure projects and this list excludes additional documents needed for mine projects):

a. Operation license
b. Map or sketch with 1/25.000 scale
c. Stand map
d. Layout plan 1/1.000 or appropriate scale
e. Coordinate lists
f. Forest cadastral map
g. Tree relievo plan with 1/1.000 or appropriate scale
h. Local zoning plan with 1/1.000 scale
i. EIA permit license
j. Bill of quantities of the facilities that will be built in the requested area and summary of estimates prepared according to proforma invoices or current year unit prices which will be determined by the Ministry of Environment and Urbanization and the relevant state authorities or public institutions and organizations.

The Ministry of Transportation, Maritime Affairs and Communications should commission an authorized company to prepare the aforementioned documents. Where the application paperwork is complete and accurate, a delegation from the Regional Directorate explores the land and prepares a preliminary, or final, permit report. This report includes consideration of whether the project is in the public interest. In the event the final permit report is given, permission for up to 49 years (extendable up to 100 years) is given. Within one month following the permit issuance, relevant fees and assurance are taken from the Ministry of Transportation, Maritime Affairs and Communications by the General Directorate of Forestry.

The General Directorate of Forestry and its Regional Directorate perform all the works (including tree marking, felling, logging, chipping and removal) on the area during the period between permit issuance and delivery of the land to the Ministry of Transportation, Maritime Affairs and Communications.

The above documentation is required for final permitting and by preparing the documents mentioned in items (a), (b), (c), (d), (e) and (f), an application for pre-approval may be made to the regional directorate. A pre-approval application generally serves as a permit to prepare the documents and information needed to apply for the final permit. Thus, preparatory studies could be done for permitting in this period (which is generally 24 months), but construction is not allowed.

Fees required to be paid for the application are; afforestation fee, land permit fee, forest-village relations fee (Orkoy fee), erosion fee and storage fee. However, here it should be noted that state institutions and organizations are not required to pay these fees for pre-approval application. Therefore, The Ministry of Transportation, Maritime Affairs and Communications relieved from payment of any such fee in connection with the North Marmara Motorway Project.

A raw material production permit is required for activities concerning the production of construction raw materials, by state institutions and organizations, in forest areas. Based on this permit, allowance of all operations and constructions for this purpose is regulated by Implementing Regulation of 16th Article of the Forest Law and Implementing Regulation of 17/3 and 18th Articles of the Forest Law.

The documents for permitting are being prepared by the The Ministry of Transportation, Maritime Affairs and Communications through a consultant authorized (by the Ministry of Forestry and Water Affairs) to prepare those documents. The data used in this plan are also mainly based on the data of the authorized forestry consultant. For the forestry lands, treasury lands and other state-owned lands, necessary permits, land use permits and/or easement rights will be obtained by KGM from the related authorities in the scope of applicable legislation.

4.2. Further Compensatory Actions with regard to International Requirements

Starting with the United Nations (UN) Conference on Environment and Development (UNCED), international conferences like the UN Convention on Biological Diversity, the UN Convention to Combat Desertification (UNCCD) and the UN Framework Convention on Climate Change (UNFCCC) are some of the many conventions which have given forests an increasingly important role in the context of sustainable development and environmental conservation. UN Forum on Forests (UNFF) and its supporting institution Collaborative Partnership on Forests (CPF) are currently responsible of international arrangements on forests. Although these conventions and institutions did not manage a consensus for a single legally binding document, they each contributed to the terms and conditions regarding subjects like sustainable forestry, reforestation and afforestation (*Eurostat, 2001; European Communities (EC), 2003; UNCCD, 2012; UNCED, 1992*).

Since international finance is widely used for large scale projects, standards and guidelines regarding environmental and social issues associated with the projects that are supported by such finance, have been developed by worldwide financing institutions. Among these institutions, the World Bank Group has a specifically important role, having established multiple documents covering almost every environmental and social aspect related to various project types. International Finance Corporation (IFC), which serves the private sector projects in the World Bank Group, has established well developed performance standards and guidance regarding environmental and social issues including forestry and biodiversity.

IFC lists key initiatives and practices for forestry sector in its web based “Guide to Biodiversity for the Private Sector” (IFC, 2006). Among these key initiatives the following two, which have comparatively more importance, are defined as follows:

- The World Bank/WWF Forest Alliance: The Alliance works with governments, the private sector and civil society to create new protected areas of forest, improve the management of existing protected areas and promote independent certification of the world's production forests.

- The Forest Stewardship Council (FSC): The FSC is a global multi-stakeholder standard setter for sustainable forest management certification, promoting “environmentally appropriate, socially beneficial, and economically viable management of the world's forests.”

As stated in Section 4.1, the General Directorate of Forestry and its Regional Directorate are responsible for establishing and maintaining new forest areas, as compensation for the losses caused by the relevant project. The project sponsor is only responsible for paying an amount required for compensation. No international requirements regarding compensation in form of afforestation are given in this section, since only the Directorate is responsible for such forest works.

Furthermore, IFC Performance Standard 6 (PS6) - Biodiversity Conservation and Sustainable Management of Living Natural Resources, categorises habitats as modified, natural and critical. Critical habitats are a subset of modified or natural habitats, which also includes forest areas. The main requirements contained in PS6 are summarised as follows:

- The risk and impact identification process, as set out in Performance Standard 1 (PS1), should consider direct and indirect project-related impacts on biodiversity and ecosystem services and identify any significant residual impacts. This process will consider relevant threats to biodiversity and ecosystem services, especially focussing on habitat loss, degradation and fragmentation, invasive alien species, overexploitation, hydrological changes, nutrient loading, and pollution;

- As a matter of priority, the client should seek to avoid impacts on biodiversity and ecosystem services. When avoidance of impacts is not possible, measures to minimise impacts and restore biodiversity and ecosystem services should be implemented; and

- Where paragraphs 13–15 (the paragraphs which concern natural habitats) are applicable, the client will retain competent professionals to assist in conducting the

risks and impacts identification process. Where paragraphs 16–19 (the paragraphs which concern critical habitats) are applicable, the client should retain external experts with appropriate regional experience to assist in the development of a mitigation hierarchy that complies with PS6 and to verify the implementation of those measures (*IFC, 2006; Forest Stewardship Council, 2013; IFC, 2012*).

In the scope of the Project, these international requirements and guidance have been and will be taken into account during planning (including ESIA and design), construction and operation activities. Relevant measures are developed during the planning phase in the context of the ESIA, especially in the scope of the assessment made on ecology, and master plan/design studies for mitigating and, where necessary, compensating the adverse impacts on forests and forest habitats. These mitigation and compensation measures are explained in detail in the following sections.

5. AFFORESTATİON PLANNING AS MITIGATION AND SITES TO BE PROTECTED

The impacts on forests will take place during the pre-construction/construction period and relevant mitigation measures are presented in this section. It should be noted that some of the mitigation actions, mainly afforestation, will be implemented through both the construction and operational phases of the Project. This topic is also addressed in the following section.

The main measures that will be implemented for the mitigation of impacts on forestry in the Project Area are as follows:

- Protecting the existing forests in the Project Area to the extent possible;
- Replacing the forests at alternative off-site locations (afforestation/reforestation) and on site;
- Establishment of similar habitats at alternative sites; and
- Compensation through payment of fees to the General Directorate of Forestry.

5.1. General Provisions

According to relevant regulations, the General Directorate of Forestry is the authority that manages the forests in Turkey. In this regard, this Directorate is responsible for plantation works and maintenance of trees, cutting and/or translocation of trees, identification of species and locations for afforestation. Project owners are only required to pay the fees that are determined by this Directorate.

In order to compensate for the loss of forest assets in the Project Area, Project Sponsors committed to invest/pay for planting of five times the number of trees to be removed from the Project Area. The afforestation will be done by the General Directorate of Forestry and Istanbul Regional Directorate of Forestry in accordance with Turkish legislation. However, volunteer company/organization can perform afforestation works in cooperation with Forestry administrations. Planning of the afforestation works will be outlined in protocol between Project Sponsor and Forestry administration. Since afforestation area to compensate the losses would be rather large as estimated below, the time needed for afforestation is expected to take many years and details are provided below.

5.2. Replacing the Forests/Afforestation at Alternative Sites and On Site, and Translocation Potential

Afforestation at Alternative Sites (Off Site)

For permit applications regarding projects on forest areas, no fee is required for state property forests (i.e. forests that are not established by third parties through private plantation work) if the applicant is a government body. In case private forests or plantation areas are present, the project owner pays the necessary fees regardless of it being a governmental organisation, for this type of forests. Therefore, Ministry of Transport, Maritime Affairs and Communications acquired the necessary preliminary permit by only paying the fees needed for plantation areas.

According to Turkish Legislation, afforestation for compensation is not required by the law, when the project owner is a government body. For privately owned projects, total area of afforestation is determined by General Directorate of Forestry and this area is always equal to the total forest area loss caused by the related private sector project. For the North Marmara Motorway Project, the government is responsible for taking clearance for the whole Project Area and later on, will handover the land to the appointed project sponsor to build and operate the Project. Therefore, for the Project, there is no legal requirement of compensation afforestation. However, the Project Sponsors voluntarily committed to compensate for the loss of all forest assets by afforestation. This commitment involves the number of trees for new plantations to be five times the loss caused by the Project.

Ministry of Forestry and Water Affairs Department of Permission and Easements states that for individual afforestation applications, as it is the case with Project Sponsors, afforestation can be done in any region of Turkey. However, Project Sponsors plan to compensate for the forest habitat losses specific to Marmara region, so the new plantation areas would be in this region. For each region, specific tree species for plantations are determined by the related regional forestry directorate, depending on the forest habitats and economic requirements of that region. These requirements are determined yearly and are specified on that year's afforestation plans of the Regional Directorate. Since it is local specie, *Pinus pinea* (Stone Pine) is one of suitable species for Marmara Region. Other suitable species are *Pinus pinaster* (Maritime Pine), *Quercus cerris* (Turkish Oak), *Quercus frainetto* Ten. (Hungarian Oak) and *Quercus petraea* (Sessile Oak) for Marmara Region. However, *Pinus pinea* is most recommended afforestation plant specie by expert botanists for the Region.

In this context, the area to be afforested for compensating the loss due to the Project would be determined in coordination and cooperation of Project Sponsor with related Directorate/Directorates. In worst case scenario, where all of the trees in the entire permit area of the Project are removed, a total of 864.099 trees would be lost. For compensation afforestation planning, Istanbul Regional Directorate of Forestry and/or Sakarya Regional Directorate of Forestry will determine the total area for planned plantations depending on the total forest assets that will be lost and the total annual increase this asset creates.

Considering the number of trees that will be lost is 864.099, the number of trees for compensation will be around 4.320.495 Plantations will be made elsewhere in the region and based on the availability of land outside the Project Area. The Project Sponsor will sign a protocol with relevant Regional Forestry Directorates. The number of saplings for plantation will be determined based on the area and tree species/types. Stated numbers of saplings that can be planted per hectare, by the Istanbul Regional Forestry Directorate, for different tree types, are as follows: 1.600 maritime pine saplings; 500 stone pine; 1.100 deciduous trees and 3.000 oak saplings. Therefore, maximum afforestation area will be approximately 8.641 ha in case only stone pine saplings used for afforestation and minimum afforestation area will be 1.440 hectare in case only oak saplings used for afforestation. When considered afforestation will be implemented at unwooded forest soils (OT stand code) and degraded forest areas (%0-10 canopy cover) there is a need for this type of areas to implement afforestation. Amount of these areas in each forestry management sub-directorate is presented in Table 5.

Table 5. Unwooded Forest Soils and Degraded Forest Areas in each Relevant Management Sub-Directorate for the Project (Asian Part)

Management Sub-directorate	Unwooded Forest Soils (OT)	Degraded Forest Areas (%0-10 Canopy Cover)
Akyazi Forestry Management Sub-directorate	346	261,3
Adapazari Forestry Management Sub-directorate	192,5	372
Uzuntarla Forestry Management Sub-directorate	141	261,8
Taskopru Forestry Management Sub-directorate	176,6	376,2
Korfez Forestry Management Sub-directorate	343,1	2.331,2
Kargali Forestry Management Sub-directorate	285,8	1.713,8
Izmit Forestry Management Sub-directorate	213,3	1.251,5
Hereke Forestry Management Sub-directorate	170,6	2.426,1
Gebze Forestry Management Sub-directorate	521,7	748,3
Dilovasi Forestry Management Sub-directorate	121,9	4.612,5
Derince Forestry Management Sub-directorate	84,8	261,2
Kartal Forestry Management Sub-directorate	658,5	593,8
Sultanbeyli Forestry Management Sub-directorate	311,6	-
Sub-total	**3.576,4**	**15.209,7**
Total		**18.786,1**

According to stand data of relevant forest sub-district directorates, there are approximately 3.576 hectares of unwooded forest soils and approximately 15.209,7 hectares of degraded (%0-10 canopy cover) forest areas around the Project 1Area. Therefore, needed area for afforestation is exists around the Project Area. Map of unwooded forest soils and degraded forest areas around the Project Area is presented in Figure 2.

Under Turkish law, there is no legal requirement for payment of any fees for compensation as discussed above, due to the nature of the Project (designed as a build, operate, transfer project). However, Project Sponsors will implement afforestation activities to replace the lost forest assets at relevant locations to be showed by the Forestry Directorates. In this regard, costs associated with the afforestation activities will be paid by Project Sponsors.

The time required for exact compensation for the loss of forest assets depends on various interacting factors regarding forest conditions of the Project Area and conditions of afforestation. Some of these factors are as follows:

- Factors regarding species that will be lost and that will be planted such as growth rate
- Proportion of different age stands of different species that will be lost
- Proportion of different species that will be planted
- Proportion of trees that will be planted each year
- Site specific conditions like average precipitation and soil productivity of the selected afforestation areas

Planting as well as growing of the forests to maturation will take a rather long time and this will be an unavoidable consequence of the Project. Thus, compensating the impacts on forests would be achieved in medium to long term (including maturation of the forests to be planted).

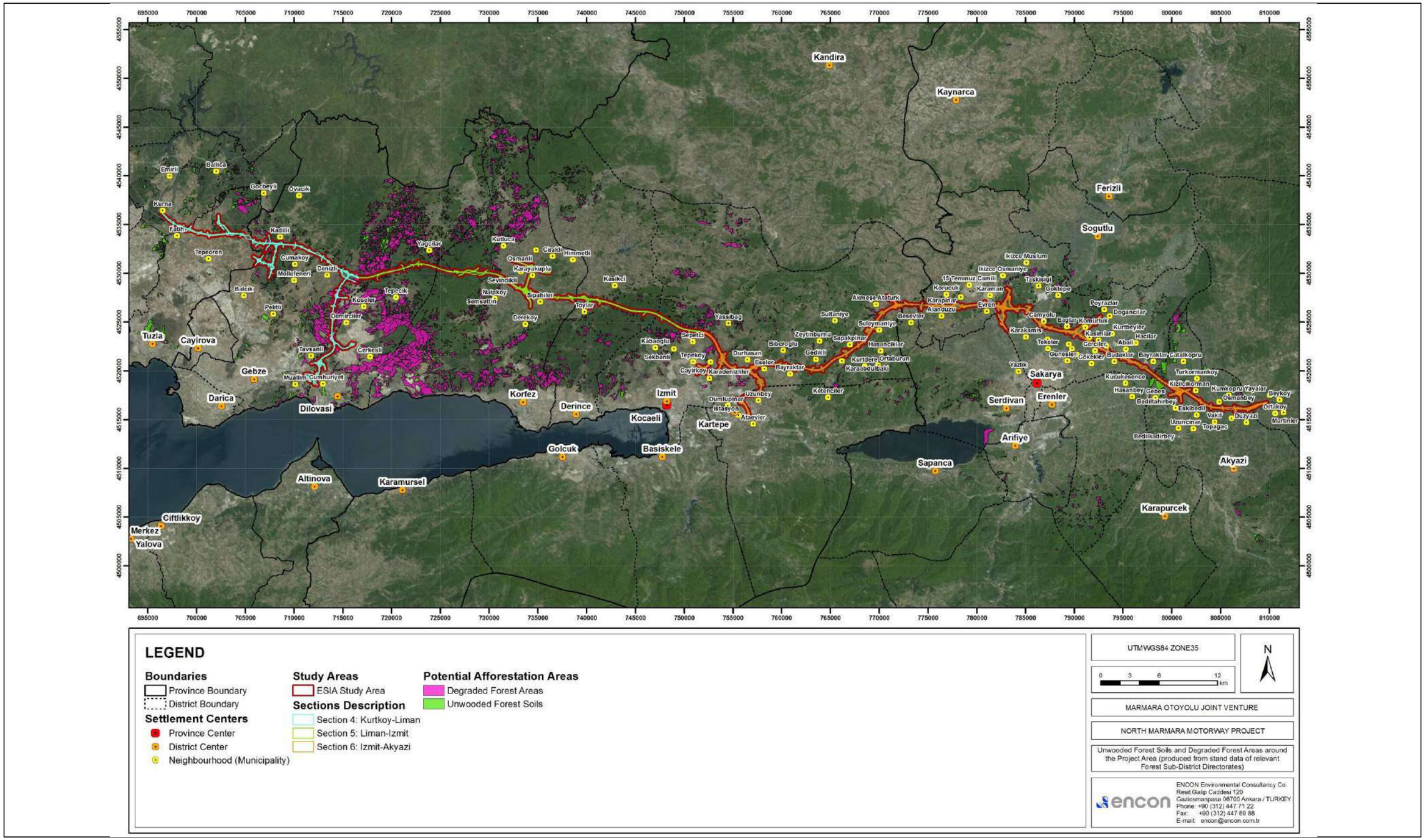

Figure 2. Map of Unwooded Forest Soils and Degraded Forest Areas around the Project Area

Translocation Potential

In the Project Area, some species such as maritime pine (*Pinus pinaster Aiton)* that have rapid growth rates and low landscape and economic value, cutting and selling of all-age stands of these species is acceptable by the General Directorate of Forestry and that all timber cutting and selling would be conducted by the General Directorate of Forestry C-age (20 35.9 cm in diameter) larch and red pine stands are likely to be cut and a market assessment provided by the General Directorate of Forestry since they have a greater commercial value.

Translocation of a-age seedling stands of oaks (*Quercus sp*.) and hornbeams (*Carpinus betulus*) like MDya, Ma and Ma3's is not economicaly feasible due to low rate of translocation success, and also because their landscape value is low, these stands' translocation is considered infeasible. It is not possible to translocate c-age (20-35.9 cm in diameter) and d-age (36-51.9 cm in diameter) tree species, however, they have economic value and therefore it is appropriate that the Administration cut the c-age trees and provide them to market.

A-age genus and species, such as *Pinus pinea* (Stone pine), *Robinia* (Black locust), *Pinus nigra* (Black pine), *Cedrus* (Cedar), *Tilia* (Linden), *Acer* (Maple) and *Fraxinus* (Ash) have landscape and economic importance and c-age (8-19.9 cm in diameter) *Pinus brutia* (Red pine), *Pinus nigra* (Black pine), *Pinus pinea* (Stone pine), *Tilia* (Linden), *Acer* (Maple), *Robinia* (Black locust), *Cedrus* (Cedar) , *Fraxinus* (Ash) have landscape value. Of these genera, only Robinia is not present in the Project Area. Other species are present in the Project Area, with age groups suitable for translocation, however translocation of these species is not considered a viable option since both are plantation trees and not representative of the natural habitats of the area.

Afforestation on Site

General Directorate of State Highways (KGM) has technical specifications for landscaping works and a motorway maintenance handbook. These specifications cover project design, implementation and operation/maintenance phases. Therefore, all mitigation measures about landscaping have been provided in the technical attachments of the contract and Project Sponsors are responsible to implement and keep these measures. According to these attachments, landscaping works around highways include hereinbelow;

- Urban Crossings
  - Side Slopes
  - Central Reserves
  - Intersections
  - Engineering Structures (Underpass/Overpass, Viaducts, Tunnels and Retaining Wall
  - Motorway Service Facilities
  - Toll Plazas and Maintenance Services
  - Special Areas
    - (Areas between expropriation borders and side slopes)
    - Expropriation borders
    - Material Borrow Sites and Quarries
- Rural Crossings

According to KGM handbook, side slopes that wider than three meters should be afforested. In case side slope is narrower than three meters, side slope should be planted with groundcover species, shrub and tree clubmoss. Similarly, central reserves that wider than three meters should be planted with shrub and three species. When afforestation at these two large components of the Motorway is considered, compensation on tree assets will be much more, regardless the voluntary afferostation of the Project Sponsors.

5.3. Sites to be protected

Several tunnels and viaducts have been included in the Project design to overcome geotechnical and/or topographic challenges along the route as well as to protect environmental and/or social resources/receptors such as forest areas, important water bodies, residential areas and/or cultural heritage sites corresponding to those sites. Detailed information on route changes, integration of engineering structures such as tunnels, viaducts to protect forest areas and other sensitive areas is provided in Chapter 18-Alternatives.

ANNEX-5

LABORATORY RESULT FORMS

SOIL QUALITY

TÜRKAK
Test
TS EN ISO IEC 17025
AB-0168-T
AB-0168-T
LR.17.0240
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0240	**NUMUNE KAYIT NO**	NUM.17.0240
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Toprak T5-1 Akfırat
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 kg, Mühürlü, Poşet,	**NUMUNE ALMA / KABUL TARİHİ**	14.02.2017 15.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Yağışlı	**ANALİZİN YAPILDIĞI TARİH**	15.02.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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10.03.2017

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ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	58.59	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:	10 Mart 2017	**İMZA / KAŞE:**	10 Mart 2017
TARİH:		**TARİH:**	

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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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LR.17.0200
10.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0200	**NUMUNE KAYIT NO**	NUM.17.0200
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Toprak TS-2 Akfırat
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 kg, Mühürsüz, Poşet,	**NUMUNE ALMA / KABUL TARİHİ**	05.02.2017 06.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	06.02.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	65.13	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:	10 Temmuz 2017	**İMZA / KAŞE:**	10 Temmuz 2017
TARİH:		**TARİH:**	

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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0178	**NUMUNE KAYIT NO**	NUM.17.0178
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Toprak T4-2 Demirciler
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 kg, Mühürlü, Poşet,	**NUMUNE ALMA / KABUL TARİHİ**	01.02.2017 02.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	02.02.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	119.60	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hüseyin Tekin
İMZA:	10 Mart 2017	İMZA / KAŞE:	10 Mart 2017
TARİH:		TARİH:	

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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0177	**NUMUNE KAYIT NO**	NUM.17.0177
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Toprak T4-1 Yağcılar
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 kg, Mühürlü, Poşet,	**NUMUNE ALMA / KABUL TARİHİ**	01.02.2017 02.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	02.02.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	86.42	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hikayu Tarı
İMZA:	10 Mart 2017	İMZA / KAŞE:	10 Mart 2017
TARİH:		TARİH:	

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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	10.03.2017 / LR.17.0086	NUMUNE KAYIT NO	NUM.17.0086
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	NUMUNE TÜRÜ / NUMUNE İŞARETİ	Toprak T6-1 Taşkığı
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	---	NUMUNEYİ ALAN	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	2.0 kg, Mühürlü, Poşet,	NUMUNE ALMA / KABUL TARİHİ	13.01.2017 14.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	ANALİZİN YAPILDIĞI TARİH	14.01.2017 - 08.03.2017

Toprak numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
BTEX (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot
Toplam Petrol Hidrokarbonlar (TPH)	mg/kg	62.97	TS EN 14039
VOC (*)	mg/kg	<0.01	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hüseyin Tekin
İMZA:	10 Mart 2017	İMZA / KAŞE:	10 Mart
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Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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WATER QUALITY

(Surface Water – Table 2)

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ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0170	**NUMUNE KAYIT NO**	NUM.17.0170
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-1 Tepeören(KM: 135+600)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	31.01.2017 01.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	31.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eg. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0170
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.8288	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.21	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	55.1	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	565.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	5.78	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	210.947	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	2.506	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.097	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	6.85	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.04	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	3.763	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.108	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.232	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.101	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 10 Mart 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 4416 Ticaret Sic.No:373087 Mersis No: 4292-5658-6859-2616 www.enconlab.com.tr
TARİH:	**TARİH:** 10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

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ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0671
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0671/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0671		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.0170
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.0170 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0671

02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0671/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,101	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

AB-0375-T

DÇ-20116

09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0170 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20116	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20116	AMBER CAM ŞİŞE x 1	01.02.2017	-	01.02.2017	01.02.2017	09.02.2017

NUM.17.0170 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI olarak saat 17:00'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 G.O.P. / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20116
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0170 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20116

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükeşat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0174
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0174	**NUMUNE KAYIT NO**	NUM.17.0174
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-2 Kadiili (KM:141+500)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	01.02.2017 02.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	01.02.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
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TS EN ISO IEC 17025
AB-0168-T

AB-0168-T
LR.17.0174
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.952	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.76	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	125.1	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	347.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	5.97	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	14.62	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	1.449	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.071	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.75	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	0.68 <0.37 0.16	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	2.717	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.081	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.204	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.158	ALS Laboratory Method

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:		**İMZA / KAŞE:**	ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 064 3432 Tic.Sic.No:373087 Mersis No: 4282-5858-6850-2528 www.enconlab.com.tr
TARİH:	10 Mart 2017	**TARİH:**	10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0674
02.17

ANALİZ RAPORU

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www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0674/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0674		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.0174
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.0174 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞMANLIK TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0674
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0674/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,158	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

AB-0375-T
DÇ-20155
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.174 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20155	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ						
Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20155	AMBER CAM ŞİŞE x 1	02.02.2017	-	02.02.2017	02.02.2017	09.02.2017

NUM 17.174 KODLU SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 16:29'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi

ECE KIZILKAYA

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Çankaya/ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20155
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.174 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20155

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0171
09.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0171	**NUMUNE KAYIT NO**	NUM.17.0171
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-3 Cumaköy (KM: 146+100)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	31.01.2017 01.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	31.01.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0171
09.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.7168	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.26	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	41.4	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	320.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	8.16	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	66.31	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.314	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.044	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.28	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	0.80 <0.37 0.12	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	1.329	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.041	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.008	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.062	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3616 Ticaret Sic.No:373087 Mersis No: 4230-5635-8291-1121 www.enconlab.com.tr
TARİH: 10 Nisan 2017	**TARİH:** 10 Nisan 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0672

02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0672/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0672		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.0171
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.0171 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0672
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.02.0672/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,062	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20117
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0171 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20117	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20117	AMBER CAM ŞİŞE x 1	01.02.2017	-	01.02.2017	01.02.2017	09.02.2017

NUM.17.0171 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI olarak saat 17:00'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 G.O.P. Kaptanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20117
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0171 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20117

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0241
09.03.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0241	**NUMUNE KAYIT NO**	NUM.17.0241
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-5 Denizli(KM:149+800)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	15.02.2017 16.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Kapalı**	**ANALİZİN YAPILDIĞI TARİH**	15.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 68 88** www.enconlab.com.tr

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Tesl
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AB-0168-T

AB-0168-T
LR.17.0241
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.52	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.94	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	48.3	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	285.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	11.87	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	24.22	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.19	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.032	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.65	S.M. 4500-H+B
Renk	**m^{-1}**	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	0.78 <0.37 0.1	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	2.128	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.057	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.932	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.21	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 394 054 3437 Sic.No:37300 Mersis No: 4282-5658-6859-2626 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

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TÜRKAK Test TS EN ISO/IEC 17025 AB 0375-T

AB-0375-T
DÇ-20364
08.03.2017

ANALİZ RAPORU

ÖRNEK : 241 KODLU S4-5 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20364	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20364	AMBER CAM ŞİŞE x 1	16.02.2017	-	16.02.2017	17.02.2017	08.03.2017

241 KODLU S4-5 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.02804) olarak saat 17:43'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. İEYT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Çankaya/ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20364
08.03.2017

ANALİZ RAPORU

ÖRNEK : 241 KODLU S4-5 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20364

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0841
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0841/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0841		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0242 GW5-1
Örneği Alan	Encon	**Örnek Alınma Tarihi**	16.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0242 GW5-1 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-
17.02.0841
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0841/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC A

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0175
09.03.2017

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0175	**NUMUNE KAYIT NO**	NUM.17.0175
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-6 Köseler (KM:150+150 1+100)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl	**NUMUNE ALMA / KABUL TARİHİ**	01.02.2017 02.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	01.02.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
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AB-0168-T

AB-0168-T
LR.17.0176
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	11.87	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	53.4	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	720.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	<3.00	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	11.44	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	1.001	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.29	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	0.84 0.70 0.64	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	1.396	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	<0.500	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.05	ALS Laboratory Method

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:		**İMZA / KAŞE:**	encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.OSMANPAŞA / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 054 054 3472 Ticaret Sic.No:373087 Mersis No: 4282-5658-5859-2628 www.enconlab.com.tr
TARİH:	16 Mart 2017	**TARİH:**	16 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0669

02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
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www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0669/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0669		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.17.0175
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0175 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞ.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.- 17.02.0669
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.02.0669/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,05	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20156
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.175 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20156	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20156	AMBER CAM ŞİŞE x 1	02.02.2017	-	02.02.2017	02.02.2017	09.02.2017

NUM 17.175 KODLU SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 16:29'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi

EÇE KIZILKAYA

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VETERİNER SAĞLIK HİZM. EĞİT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa/ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013885170001-4

KYF 510-1

AB-0375-T
DÇ-20156
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.175 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20156

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0176
09.03.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0176	**NUMUNE KAYIT NO**	NUM.17.0176
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S4-7 Çerkeşli(KM:150+500, 5+000)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	01.02.2017 02.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	01.02.2017 - 22.02.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 86** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0176
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kaliteci Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.35	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	57.1	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	808.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	<3.00	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	11.48	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	3.825	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.105	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.23	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.14	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	4.702	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.094	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	0.840	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.05	ALS Laboratory Method

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:	10 Mart 2017	**İMZA / KAŞE:**	10 Mart 2017 ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No 120 06700 G.O.P / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 7432 Tic.Sic.No:373087 Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr
TARİH:		**TARİH:**	

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0673

02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0673/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0673		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.0176
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.0176 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0673
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0673/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,05	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

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TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20157
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.176 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20157	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20157	AMBER CAM ŞİŞE x 1	02.02.2017	-	02.02.2017	02.02.2017	09.02.2017

NUM 17.176 KODLU SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KORUMASIZ olarak saat 16:29'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi

ECE KIZILKAYA

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20157
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.176 KODLU SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20157

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0166-T
AB-0166-T
LR.17.0244
09.03.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0244	**NUMUNE KAYIT NO**	NUM.17.0244
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S5-1 Şemsettin(KM: 165+400)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	15.02.2017 16.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	15.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0244
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/g	>8.0	6.0	3.0	<3.0	12.95	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	47.3	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	325.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	6.75	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	16.17	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.151	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.73	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 <0.016	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	12.02	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	11.872	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hüseyin Tekin
İMZA:	10 Mart 2017	İMZA / KAŞE:	10 Mart 2017 ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 6418 Ticaret Sic.No:373067 Mersis No: 4282-5658-6659-2016 www.enconlab.com.tr
TARİH:		TARİH:	

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20367
08.03.2017

ANALİZ RAPORU

ÖRNEK : 244 KODLU S5-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20367	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20367	AMBER CAM ŞİŞE x 1	16.02.2017	-	16.02.2017	17.02.2017	08.03.2017

244 KODLU S5-1 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.02827) olarak saat 17:43'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 G.O.P. ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20367
08.03.2017

ANALİZ RAPORU

ÖRNEK : 244 KODLU S5-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20367

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0243
09.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0243	**NUMUNE KAYIT NO**	NUM.17.0243
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S5-2 Sevindikli(KM: 169+400)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; , Mühürsüz,	**NUMUNE ALMA / KABUL TARİHİ**	15.02.2017 16.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	15.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Sg. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0243
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	5.04	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.03	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	115.7	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	448.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	11.03	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	15.23	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.389	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.60	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.04	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	5.181	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	4.788	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:	10 Mart 2017	**İMZA / KAŞE:**	ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 Gaziosmanpaşa / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 0412 Tic.Sic.No:37300 Mersis No: 4262-6666-6868-2023 www.enconlab.com.tr
TARİH:		**TARİH:**	10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaplanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

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TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20366
08.03.2017

ANALİZ RAPORU

ÖRNEK : 243 KODLU S5-2 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20366	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20366	AMBER CAM ŞİŞE x 1	16.02.2017	-	16.02.2017	17.02.2017	08.03.2017

243 KODLU S5-2 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.02878) olarak saat 17:43'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaplanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20366
08.03.2017

ANALİZ RAPORU

ÖRNEK : 243 KODLU S5-2 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20366

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0843
02.17
03.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0843/13.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0843		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0244 s5-1
Örneği Alan	Encon	**Örnek Alınma Tarihi**	16.02.2017
Örneğin Alınma Şekli	Anlık	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 8.03.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen,Num.17.0244 s5-1 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞMANLIK HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0843
02.17
03.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.02.0843/13.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 1(bir) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0233
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0233	**NUMUNE KAYIT NO**	NUM.17.0233
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S5-3 Sipahiler(KM:173+000)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	**Anlık Numune**	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	**14.02.2017** **15.02.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Kapalı**	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0233
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	2.878	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	3.16	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.56	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	125.8	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	608.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	8.21	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	<10.0	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.469	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.45	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.12	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	3.579	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	3.108	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:		**ONAYLAYAN:**	
ADI / SOYADI:	Hakan Yılmaz	**ADI / SOYADI:**	Hüseyin Tekin
İMZA:		**İMZA / KAŞE:**	
TARİH:	10 Mart 2017	**TARİH:**	10 Mart 2017

ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet Mah. 334 054 042 Tic.Sic.No:373087
Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20352
08.03.2017

ANALİZ RAPORU

ÖRNEK : 233 KODLU S5-3 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20352	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20352	AMBER CAM ŞİŞE x 1	15.02.2017	SİPAHİLER	15.02.2017	15.02.2017	08.03.2017

233 KODLU S5-3 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01551) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Kalite Yöneticisi

ECE KIZILKAYA

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa / ANKARA Cumhuriyet V.D. 320 013 8517 Tic. Sic. No: 151830 Mersis No: 0320138517000014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20352
08.03.2017

ANALİZ RAPORU

ÖRNEK : 233 KODLU S5-3 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20352

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0838
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0838/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0838		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0234
Örneği Alan	Encon	**Örnek Alınma Tarihi**	15.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0234 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0838
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0838/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.v

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0234
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0234	**NUMUNE KAYIT NO**	NUM.17.0234
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S5-4 Sepetçi (KM:188+600)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma+H_2SO_4; 500.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 250.0 mL, Mühürsüz, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	14.02.2017 15.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Kapalı**	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0234
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.336	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.96	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	95.4	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	522.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	6.67	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	<10.0	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.913	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.79	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.1	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	2.735	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.820	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 10 Mart 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 059 2432 Tic.Sic.No:373087 Mersis No: 4282-5658-6859-2428 www.enconlab.com.tr
TARİH:	**TARİH:** 10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20353
08.03.2017

ANALİZ RAPORU

ÖRNEK : 234 KODLU S5-4 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20353	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20353	AMBER CAM ŞİŞE x 1	15.02.2017	SEPETÇİ	15.02.2017	15.02.2017	08.03.2017

234 KODLU S5-4 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01517) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Çankaya/ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20353
08.03.2017

ANALİZ RAPORU

ÖRNEK : 234 KODLU S5-4 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20353

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0840
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0840/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0840		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0235
Örneği Alan	Encon	**Örnek Alınma Tarihi**	15.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0235 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖL. VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0840
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0840/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC A Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0232
09.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0232	**NUMUNE KAYIT NO**	NUM.17.0232
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S5-5 Yassıbağı(KM: 191+700)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	14.02.2017 15.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 86** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0232
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.57	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	141.8	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	629.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	8.69	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	77.32	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.866	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.64	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.04	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	2.438	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.568	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 034 054 3432 Tic.Sic.No:373069 Mersis No: 4282-5658-6859-2648 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş., Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gazioosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

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TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20351
08.03.2017

ANALİZ RAPORU

ÖRNEK : 232 KODLU S5-5 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20351	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20351	AMBER CAM ŞİŞE x 1	15.02.2017	YAASIBAĞ	15.02.2017	15.02.2017	08.03.2017

232 KODLU S5-5 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01558) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA Y.	KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞİT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Çankaya/ANKARA Çankaya VD 323 013 8517 Tic. Sic. No 151830 Mersis No 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20351
08.03.2017

ANALİZ RAPORU

ÖRNEK : 232 KODLU S5-5 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20351

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0835
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0835/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0835		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0232
Örneği Alan	Encon	**Örnek Alınma Tarihi**	15.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0232 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞMANLIK HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0835
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0835/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞMANLIK TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0235
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0235	**NUMUNE KAYIT NO**	NUM.17.0235
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-1 Eseler (KM:195+400)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl	**NUMUNE ALMA / KABUL TARİHİ**	14.02.2017 15.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

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TS EN ISO/IEC 17025
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AB-0168-T
LR.17.0235
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.51	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	202.7	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	778.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	7.42	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	87.77	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	2.682	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.45	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.06	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	3.724	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.036	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 10 Mart 2017	**İMZA / KAŞE:** 10 Mart 2017
TARİH:	**TARİH:**

encon
ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet T.D. 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5658-6850-2628 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

AB-0375-T

DÇ-20354

08.03.2017

ANALİZ RAPORU

ÖRNEK : 235 KODLU S6-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20354	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20354	AMBER CAM ŞİŞE x 1	15.02.2017	ESELER	15.02.2017	15.02.2017	08.03.2017

235 KODLU S6-1 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01527) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No. 2/1-2-4 06700 G.O.P. Çankaya / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No. 151830 Mersis No. 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20354
08.03.2017

ANALİZ RAPORU

ÖRNEK : 235 KODLU S6-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20354

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0842
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0842/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0842		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0236
Örneği Alan	Encon	**Örnek Alınma Tarihi**	16.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen,Num.17.0236 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0842
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0842/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0236
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0236	**NUMUNE KAYIT NO**	NUM.17.0236
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-2 Bayraktar(KM:199000)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Cam Şişe, Soğuk Koruma+HCl; 500.0 mL, Mühürsüz, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl	**NUMUNE ALMA / KABUL TARİHİ**	14.02.2017 15.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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TÜRKAK
Test
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AB-0168-T
LR.17.0236
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.36	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.43	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	114.8	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	516.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	12.02	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	81.17	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	1.472	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.031	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.44	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.08	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	3.888	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.041	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	2.408	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

encon
ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06100 G.O.P. / ANKARA
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Cumhuriyet V.D. 334 054 3416 Tic.Sic.No:373087
Mersis No: 4202-5658-6858-0015 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetkinlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

AB-0375-T

DÇ-20355

08.03.2017

ANALİZ RAPORU

ÖRNEK : 236 KODLU S6-2 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20355	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20355	AMBER CAM ŞİŞE x 1	15.02.2017	BAYRAKTAR	15.02.2017	15.02.2017	08.03.2017

236 KODLU S6-2 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01538) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA Y.	KORAY TEMEL
	DÜZEN - NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. SAT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 G.O.P. Çankaya / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20355
08.03.2017

ANALİZ RAPORU

ÖRNEK : 236 KODLU S6-2 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20355

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0839
02.17

ANALİZ RAPORU

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www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0839/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0839		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0237
Örneği Alan	Encon	**Örnek Alınma Tarihi**	15.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0237 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0839
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0839/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0237
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0237	**NUMUNE KAYIT NO**	NUM.17.0237
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-4 Akmeşe Atatürk(KM: 213+500)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürsüz, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürsüz, Cam Şişe, Soğuk Koruma+HCl; 500.0 mL, Mühürsüz, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı; 250.0 mL, Mühürsüz, Plastik Şişe, Soğuk koruma+HNO3; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl	**NUMUNE ALMA / KABUL TARİHİ**	**14.02.2017** **15.02.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Kapalı**	**ANALİZİN YAPILDIĞI TARİH**	14.02.2017 - 08.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0237
09.03.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	13.32	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	116.5	S.M. 4110-B
İletkenlik	µg/L	<400.0	1000.0	3000.0	>3000.0	572.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	8.73	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	64.49	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.807	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.027	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.61	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: <0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.1	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	8.687	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.031	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	7.868	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 10 Mart 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 594 054 1432 Ticaret Sic.No:372087 Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr
TARİH:	**TARİH:** 10 Mart 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20356
08.03.2017

ANALİZ RAPORU

ÖRNEK : 237 KODLU S6-4 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20356	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20356	AMBER CAM ŞİŞE x 1	15.02.2017	AKMEŞE ATATÜRK	15.02.2017	15.02.2017	08.03.2017

237 KODLU S6-4 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.01502) olarak saat 17:55'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No. 2/1-2-4 06700 Çankaya/ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No. 151830 Mersis No. 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20356
08.03.2017

ANALİZ RAPORU

ÖRNEK : 237 KODLU S6-4 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-20356

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0836
02.17

ANALİZ RAPORU

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Rapor No / Tarihi	ART.AL.17.02.0836/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0836		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0241
Örneği Alan	Encon	**Örnek Alınma Tarihi**	16.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0241 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0836
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0836/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0.21	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC A S

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0080
21.02.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0080	**NUMUNE KAYIT NO**	NUM.17.0080
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-5 Korucuk(KM:216+500)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	13.01.2017 14.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	13.01.2017 - 31.01.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetkinlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0080
21.02.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	0.448	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	10.44	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	11.23	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	73.7	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	428.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	34.08	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	52.94	EPA 200.7
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	2.626	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.55	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.87	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	1.52 0.48 0.2	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	6.037	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.773	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	3.388	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.25	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet Üniv. 0384 054 3432 Vergi Dai.No:3720387 Mersis No: 4282-5658-6869-2625 www.enconlab.com.tr
TARİH: 2 2 Şubat 2017	**TARİH:** 2 2 Şubat 2017

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.01.0268

01.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0268/02.02.2017		
Talep Eden	ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.		
Talep Edenin Adresi	Reşit Galip Cad. No:120 06700 ANKARA		
Örnek Kayıt No	AL.17.01.0268		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0080 - Korucuk(S6-5)
Örneği Alan	Firma	**Örnek Alınma Tarihi**	14.01.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.01.2017 - 13:35
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.01.2017 - 27.01.2017

Firma yetkilileri tarafından alınarak kargo ile laboratuvarımıza ulaştırılan atıksu numunesinde gerçekleştirilen analiz sonuçları, analiz metodları ile birlikte aşağıda belirtilmiştir.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN HİZ TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014

REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.01.0268

01.17

Firma Adı : ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.
Rapor No/Tarihi : ART.AL.17.01.0268/02.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,25	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-19939
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0080 S6-5 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-19939	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-19939	AMBER CAM ŞİŞE x 1	16.01.2017	KORUCUK	16.01.2017	16.01.2017	26.01.2017

NUM 17.0080 S6-5 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 17:44'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞİT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-19939
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0080 S6-5 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-19939

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0071
22.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	22.02.2017 / LR.17.0071	**NUMUNE KAYIT NO**	NUM.17.0071
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yeraltı Suyu S6-6 Evrenköy(KM: 221+600)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürsüz, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	**12.01.2017** **13.01.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı**	**ANALİZİN YAPILDIĞI TARİH**	12.01.2017 - 31.01.2017

Yeraltı Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetertilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş., Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0071
22.02.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.30	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	9.2	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	80.6	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	462.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	16.00	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	87.52	EPA 200.7
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.972	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.288	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	7.66	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.06	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	5.178	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.595	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	4.172	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3432 Tic. Sic. No: 273087 Mersis No: 4282-5658-6859-2028 www.enconlab.com.tr 22 Şubat 2017
TARİH: 22 Şubat 2017	**TARİH:**

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.01.0266
01.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0266/02.02.2017		
Talep Eden	ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.		
Talep Edenin Adresi	Reşit Galip Cad. No:120 06700 ANKARA		
Örnek Kayıt No	AL.17.01.0266		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0071 - Evrenköy(S6-6)
Örneği Alan	Firma	**Örnek Alınma Tarihi**	13.01.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.01.2017 - 13:35
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.01.2017 - 27.01.2017

Firma yetkilileri tarafından alınarak kargo ile laboratuvarımıza ulaştırılan atıksu numunesinde gerçekleştirilen analiz sonuçları, analiz metodları ile birlikte aşağıda belirtilmiştir.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞ. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.01.0266
01.17

Firma Adı : ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.
Rapor No/Tarihi: ART.AL.17.01.0266/02.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC A Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

AB-0375-T

DÇ-19942

26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0071 S6-6 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-19942	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-19942	AMBER CAM ŞİŞE x 1	16.01.2017	EVRENKÖY	16.01.2017	16.01.2017	26.01.2017

NUM 17.0071 S6-6 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 17:44'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST
ÇEVRE GIDA VE VETERİNER SAĞLIK
HİZM. EĞT. DAN. TİC. A.Ş.
Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4
06700 G.O.P. / ANKARA
Cumhuriyet V.D. 323 013 8517
Tic. Sic. No: 151830
Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-19942
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0071 S6-6 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-19942

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0081
21.02.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0081	**NUMUNE KAYIT NO**	NUM.17.0081
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-8 Doğancılar(KM: 232+000)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	**13.01.2017** **14.01.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Açık**	**ANALİZİN YAPILDIĞI TARİH**	13.01.2017 - 31.01.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetkililik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Muh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş., Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO IEC 17025
AB-0168-T

AB-0168-T
LR.17.0081
21.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.64	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.35	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	83.0	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	193.2	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	13.40	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	<40.0	EPA 200.7
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	<0.1	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.021	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.81	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.04	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	4.314	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.034	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	4.228	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.5	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 22 Şubat 2017	**İMZA / KAŞE:** 22 Şubat 2017 ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3032 Tic.Sic.No:372087 Mersis No: 4262-5658-6859-2626 www.enconlab.com.tr
TARİH:	**TARİH:**

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.01.0265

01.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0265/02.02.2017		
Talep Eden	ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.		
Talep Edenin Adresi	Reşit Galip Cad. No:120 06700 ANKARA		
Örnek Kayıt No	AL.17.01.0265		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0081 - Doğancılar(S6-8)
Örneği Alan	Firma	**Örnek Alınma Tarihi**	14.01.2017 - 08:40
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.01.2017 - 13:35
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.01.2017 - 27.01.2017

Firma yetkilileri tarafından alınarak kargo ile laboratuvarımıza ulaştırılan atıksu numunesinde gerçekleştirilen analiz sonuçları, analiz metodları ile birlikte aşağıda belirtilmiştir.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DANIŞMANLIK HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.01.0265

01.17

Firma Adı : ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.
Rapor No/Tarihi: ART.AL.17.01.0265/02.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0.5	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

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TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-19940
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0081 S6-8 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-19940	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-19940	AMBER CAM ŞİŞE x 1	16.01.2017	DOĞANCILAR	16.01.2017	16.01.2017	26.01.2017

NUM 17.0081 S6-8 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 17:44'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa/ANKARA Cumhuriyet V.D. 326 013 8517 Ticaret Sic. No: 151830 Mersis No: 0326013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-19940
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0081 S6-8 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-19940

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0082
21.02.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0082	**NUMUNE KAYIT NO**	NUM.17.0082
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-9 Küçükesence (KM: 241+400)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	**13.01.2017** **14.01.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Açık**	**ANALİZİN YAPILDIĞI TARİH**	13.01.2017 - 31.01.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetertlik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Tesl
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
L.R.17.0082
21.02.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	4.84	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.12	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	102.1	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	530.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	11.12	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	117.2	EPA 200.7
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	1.63	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.122	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.67	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.04	**TS EN ISO 7887 B**
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	7.249	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.273	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	5.600	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 22 Şubat 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (312) 447 71 22 Fax: (312) 447 69 88 Cumhuriyet V.D. 334 054 3432 Ticaret Sic.No:373087 Mersis No: 4232-5668-0859-2028 www.enconlab.com.tr 22 Şubat 2017
TARİH:	**TARİH:**

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-
17.01.0267

01.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0267/02.02.2017		
Talep Eden	ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.		
Talep Edenin Adresi	Reşit Galip Cad. No:120 06700 ANKARA		
Örnek Kayıt No	AL.17.01.0267		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0082 - Küçükesence(S6-9)
Örneği Alan	Firma	**Örnek Alınma Tarihi**	14.01.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.01.2017 - 13:35
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.01.2017 - 27.01.2017

Firma yetkilileri tarafından alınarak kargo ile laboratuvarımıza ulaştırılan atıksu numunesinde gerçekleştirilen analiz sonuçları, analiz metodları ile birlikte aşağıda belirtilmiştir.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN. HİZ. TİC. A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014

REV. NO: 0
REV. TAR.: -

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.01.0267
01.17

Firma Adı : ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.
Rapor No/Tarihi : ART.AL.17.01.0267/02.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK

Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T

DÇ-19941

26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0082 S6-9 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-19941	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-19941	AMBER CAM ŞİŞE x 1	16.01.2017	KÜÇÜKESENCE	16.01.2017	16.01.2017	26.01.2017

NUM 17.0082 S6-9 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 17:44'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)

(1) MDL, Metod Dedeksiyon Limiti

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN - NORWEST
ÇEVRE GIDA VE VETERİNER SAĞLIK
HİZM. İTH. İHR. DAN. TİC. A.Ş.
Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4
06700 G.O.P. ÇANKAYA/ANKARA
Cumhuriyet V.D. 323 013 8517
Tic. Sic. No: 151830
Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-19941
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0082 S6-9 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-19941

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

WATER QUALITY

(Surface Water – Table 5)

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0245
17.03.2017

encon

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	17.03.2017 / LR.17.0245	**NUMUNE KAYIT NO**	NUM.17.0245
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yüzey Suyu S6-7 Kömürlük(KM: 232+600)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma; 500.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+H_2SO_4	**NUMUNE ALMA / KABUL TARİHİ**	15.02.2017 16.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	16.02.2017 - 16.03.2017

Yüzey Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti.,Çevre Referans Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
1,2 Dikloretan (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Aclonifen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Alachlor	µg/L	<0.25	EPA 3510 C, EPA 3620 C, EPA 8081 B
Anthracene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Atrazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Benzen (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Benzo(a)pyrene	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (b) fluoranthene	µg/L	<0.1300	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (g,h,i) perylene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Benzo (k) fluoranthene	µg/L	<0.1100	EPA 3510 C, EPA 3620 C, EPA 8270 D
Bifenox (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Bromludifenileter (**)	mg/L	<0.02	İşletme İçi Metot N-13
C10-13 Kloroalkanlar (**)	µg/L	<1.0	ISO 12010
Chlorfenvinphos (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Civa ve Bileşikleri (*)	µg/L	<0.05	EPA 6020 B
Cybutryn (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Di(2-etilhekzil) fitalat (DEHP) (**)	µg/L	<0.13	İşletme İçi Metot N-15
Dichlorvos (*)	µg/L	<0.1	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Dicofol (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Diklorometan (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Dioksinler ve Dioksin Benzeri Bileşikler (**)	pg-TEQ/L	48.922	EPA 1613B:1994
Diuron (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti.,Çevre Referans Laboratuvarı tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Diuron (*)	µg/L	<0.05	Agilent Application Notes
Endosulfan	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Fluoranthene	µg/L	<0.1000	EPA 3510 C, EPA 3620 C, EPA 8270 D
Hekzabromo - siklododekanlar (HBCDD) (**)	ng/L	<0.8	İşletme İçi Metot N-15
Hekzaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Hekzakloro-bütadien	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Hekzakloro - siklohekzan (*)	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Heptachlor	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Heptachlor epoxide	µg/L	<0.1	EPA 3510 C, EPA 3620 C, EPA 8081 B
Indeno (1,2,3-cd) pyrene	µg/L	<0.1200	EPA 3510 C, EPA 3620 C, EPA 8270 D
Isoproturon (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Kadmiyum ve Bileşikleri (*)	µg/L	0.386	EPA 6020 B
Klorpyrifos	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B EPA 8141 B
Kurşun ve Bileşikleri (*)	µg/L	1.225	EPA 6020 B
Naphthalene	µg/L	0.1244	EPA 3510 C, EPA 3620 C, EPA 8270 D
Nikel ve Bileşikleri (*)	µg/L	13.52	EPA 6020 B
Nonilfenoller (4-Nonilfenol) (**)	µg/L	<1.0	ASTM D7065-11
Oktilfenol ((4-(1,1',3,3' -tetrametilbütil) - fenol)) (**)	µg/L	<1.0	ASTM D7065-11
Pentaklorobenzen	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Pentaklorofenol	mg/L	<0.0125	EPA 528, EPA 8041 A
Perflorooktan sülfonik asit ve türevleri (PFOS) (**)	ng/L	<0.13	İşletme İçi Metot N-15
Polisiklik Aromatik Hidrokarbonlar	µg/L	<0.15	EPA 3510 C, EPA 3620 C, EPA 8270 D
Quinoxyfen (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Simazine (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Sipermetrin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti.,Çevre Referans Laboratuvarı tarafından yapılmıştır.

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TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0245
17.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

Parametreler	Birim	Analiz Sonucu	Metotlar
Terbutryn (*)	µg/L	<0.05	İşletme İçi Metot (EPA 538), ENC.LABTL.LCP.176, 5990-4253EN Agilent Application Notes
Tributilkalay bileşikleri (Tributilkalay-katyonu) (**)	ng/L	<10.0	ISO 17353
Trifluarilin	µg/L	<0.1	EPA 3510 C EPA 3620 C EPA 8081 B
Trikloro-benzenler (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot
Triklorometan (*)	µg/L	<0.1	EPA 5030 C-EPA 8260 C GC MS Metot

KONTROL EDEN:		ONAYLAYAN:	
ADI / SOYADI:	Hakan Yılmaz	ADI / SOYADI:	Hüseyin Tekin
İMZA:		İMZA / KAŞE:	
TARİH:	17 MART 2017	TARİH:	17 Mart 2017

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Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet V.D. 334 055 2032 Tic.Sic.No:272067
Mersis No: 4282-5658-6859-2026 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip NEN Müh. ve Lab. Hiz. İnş. Tic. Ltd. Şti.,Çevre Referans Laboratuvarı tarafından yapılmıştır.

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y-06/091/2013

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.
Kızılcaşar Mh. Barış Cd. 2674 Sk. No:5 İncek-ANKARA
İncek Tel. 0(312) 446 64 01-02 Merkez Tel. 0(312) 437 30 71-72
Lab. Faks 0(312) 446 64 03 Ofis Faks 0(312) 437 30 73

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0023-T
AB-0023-T
G- 2017-1084
03-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1084	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş.		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNİZADE MAH. KISIKLI CAD. NO:37 İSTANBUL		
Numunenin Alındığı Nokta	S6-7-Kömürlük		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	M.EREN ŞEVRAN	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	15.02.2017
Numunenin Miktarı	3 L	**Numune Kayıt Tarihi**	17.02.2017
Numune Kayıt No	17-00303	**Analiz Tarihi**	17.02.2017 - 01.03.2017
Numunenin Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlaveli		
Numune Mühür No	ENCON17-02883,ENCON17-02884,ENCON17-02836		
Rapor Tarihi	02.03.2017	**Rapor Nüsha Sayısı**	3 Orijinal Nüsha

İlgili Mevzuat Belirtilmemiştir

Parametre	Birim	Anlık Limit Değer	Ölçülen Değer	Kullanılan Analiz Metodu
Halojenli Hidrokarbonlar (C10-C13)	µg/L	-	<1	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L	-	<0,13	İnhouse Method
Dibutyltin (DBT)	ng/L	-	<10	ISO 17353
Tributyltin (TBT)	ng/L	-	<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L	-	<1	ASTM D7065-11
4-tert-Octylphenol	µg/L	-	<1	ASTM D7065-11
PBDE	mg/L	-	<0,02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
α-HBCDD	ng/L	-	<0,8	Inhouse Method
β-HBCDD	ng/L	-	<0,8	Inhouse Method
γ-HBCDD	ng/L	-	<0,8	Inhouse Method
PFOS	ng/L	-	<0,13	Inhouse Method
PFOS-K	ng/L	-	<0,13	Inhouse Method
PFOS-A	ng/L	-	<0,13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

02.03.2017
Kubilay YILMAZ
Laboratuvar Sorumlusu

02.03.2017
Nuri ARDIÇ
Laboratuvar Müdürü

- Bu analiz raporu Laboratuvara gelen numuneyi temsil eder.
- Bu rapor ve sonuçları NEN ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LABORATUVARI'nın yazılı izni olmadan ticari veya reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- Rapor Numarasının başında yer alan (G veya R) harfi raporun güncelliğini belirtir.
- Analiz yapılan numunede, numunenin alınmasından Laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerinin belirlenmesinde teknik ve hukuki sorumluluk numuneyi almaya aittir.
- İmzasız ve mühürsüz analiz sonuç raporları geçersizdir.
- Numuneler türüne uygun muhafaza kuralları çerçevesinde 10 gün süre ile saklanır. Bu süre sonunda bertaraf edilir.

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

Yeterlilik Belge No
Y-06/091/2013

NEN

NEN MÜHENDİSLİK VE LABORATUVAR HİZ. İNŞ. TİC. LTD. ŞTİ.
Kızılcaşar Mh. Barış Cd. 2674 Sk. No:5 İncek-ANKARA
İncek Lab. Tel. 0(312) 446 64 01-02 Faks 0(312) 446 64 03
Merkez Ofis Tel. 0(312) 437 30 71-72 Faks 0(312) 437 30 73

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0023-T
AB-0023-T
G- 2017-1084
03-17

ANALİZ RAPORU
Testing Report

Rapor No	G - 2017-1084	**Analiz Talep No**	T-17/1010-D01
Müşterinin Adı	ENCON LABORATUVARLARI A.Ş.		
Numunenin Alındığı Yerin Adı	MARMARA OTOYOLU JOINT VENTURE		
Numunenin Alındığı Yerin Adresi	ALTUNİZADE MAH. KISIKLI CAD. NO:37 İSTANBUL		
Numunenin Alındığı Nokta	S6-7-Kömürlük		
Numuneyi Alan Kurum	ENCON LABORATUVAR A.Ş.		
Numuneyi Alan Kişi	M.EREN ŞEVRAN	**Numune Alma Yöntemi**	Anlık
Numunenin Cinsi	Yüzey Suyu	**Numune Alma Tarihi**	15.02.2017
Numunenin Miktarı	3 L	**Numune Kayıt Tarihi**	17.02.2017
Numune Kayıt No	17-00303	**Analiz Tarihi**	17.02.2017 - 01.03.2017
Numunenin Kabul Durumu	Cam - Soğuk ve Karanlık Ortamda Koruyucu İlaveli		
Numune Mühür No	ENCON17-02883,ENCON17-02884,ENCON17-02836		
Rapor Tarihi	02.03.2017	**Rapor Nüsha Sayısı**	3 Orijinal Nüsha

İlgili Mevzuat	Belirtilmemiştir			
Parametre	**Birim**	**Anlık Limit Değer**	**Ölçülen Değer**	**Kullanılan Analiz Metodu**
Halojenli Hidrokarbonlar (C10-C13)	µg/L	-	<1	ISO 12010
Bis(2-ethylhexyl)phthalate	µg/L	-	<0,13	Inhouse Method
Dibutyltin (DBT)	ng/L	-	<10	ISO 17353
Tributyltin (TBT)	ng/L	-	<10	ISO 17353
Triphenyltin (TPhT)	ng/L	-	<10	ISO 17353
Nonylphenol (NP)	µg/L	-	<1	ASTM D7065-11
4-tert-Octylphenol	µg/L	-	<1	ASTM D7065-11
PBDE	mg/L	-	<0,02	İşletme İçi Metot (N-13/Rev.00/EPA 1614)
α-HBCDD	ng/L	-	<0,8	Inhouse Method
β-HBCDD	ng/L	-	<0,8	Inhouse Method
γ-HBCDD	ng/L	-	<0,8	Inhouse Method
PFOS	ng/L	-	<0,13	Inhouse Method
PFOS-K	ng/L	-	<0,13	Inhouse Method
PFOS-A	ng/L	-	<0,13	Inhouse Method

AÇIKLAMALAR: Analiz sonuçları yukarıdaki tabloda belirtilmiştir.

02.03.2017
Kubilay YILMAZ
Laboratuvar Sorumlusu

02.03.2017
Murat ARDIÇ
Laboratuvar Müdürü

- Bu analiz raporu Laboratuvara gelen numuneyi temsil eder.
- Bu rapor ve sonuçları NEN ÇEVRE KİRLİLİĞİ TESPİT VE ÖLÇÜM LABORATUVARI'nın yazılı izni olmadan ticari veya reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- Rapor Numarasının başında yer alan (G veya R) harfi raporun güncelliğini belirtir.
- Analiz yapılan numunede, numunenin alınmasından Laboratuvarımıza teslimine kadar olan proseddürlerin ve bakılması istenen grup ve parametrelerinin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
- Imzasız ve mühürsüz analiz sonuç raporları geçersizdir.
- Numuneler tevne uygun muhafaza kuralları çerçevesinde 10 gün süre ile saklanır. Bu süre sonunda bertaraf edilir.

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SN/110
16.03.2017

Rapor No	:	17/SN/110
Rapor Tarihi	:	16.03.2017
Numuneyi Alan Kurum/Kişi	:	Encon Laboratuvarı A.Ş.
Numunenin Cinsi	:	Yüzey Suyu
Numune Alınan Yerin Adı ve Adresi	:	Marmara Otoyolu Joint Venture
Numunenin Alındığı Nokta	:	Kömürlük S6-7
Numune Alma Yöntemi	:	Anlık
Numune Alınış Tarihi	:	15.02.2017 16:30
Numunenin Miktarı ve Kabul Durumu	:	Su numunesi 1 lt cam şişe içinde soğutmalı (+ 4 C) ve mühürlü olarak elden teslim alınmıştır.
Numunenin Laboratuvara Ulaşma Tarihi	:	17.02.2017 16:07
Analiz Tarihleri	:	17.02.2017-16.03.2017

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PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contribution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	0.140	0.0140	0.0140	3.67	3.80
1,2,3,7,8-PeCDF	0.05	0.03	0.112	0.0056	0.0034	1.47	0.91
2,3,4,7,8-PeCDF	0.5	0.3	0.198	0.0990	0.0594	25.93	16.11
1,2,3,4,7,8-HxCDF	0.1	0.1	0.201	0.0201	0.0201	5.26	5.45
1,2,3,6,7,8-HxCDF	0.1	0.1	0.161	0.0161	0.0161	4.22	4.37
1,2,3,7,8,9-HxCDF	0.1	0.1	0.228	0.0228	0.0228	5.97	6.18
2,3,4,6,7,8-HxCDF	0.1	0.1	0.249	0.0249	0.0249	6.52	6.75
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.168	0.0017	0.0017	0.44	0.46
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.211	0.0021	0.0021	0.55	0.57
OCDF	0.001	0.0003	0.350	0.0004	0.0001	0.09	0.03
2,3,7,8-TCDD	1	1	0.098	0.0980	0.0980	25.67	26.58
1,2,3,7,8 PeCDD	0.5	1	0.059	0.0293	0.0586	7.67	15.89
1,2,3,4,7,8-HxCDD	0.1	0.1	0.137	0.0137	0.0137	3.59	3.72
1,2,3,6,7,8-HxCDD	0.1	0.1	0.105	0.0105	0.0105	2.75	2.85
1,2,3,7,8,9-HxCDD	0.1	0.1	0.211	0.0211	0.0211	5.53	5.72
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.218	0.0022	0.0022	0.57	0.59
OCDD	0.001	0.0003	0.388	0.0004	0.0001	0.10	0.03
Toplam PCDD/F (pg)			**3.2336**				
Toplam PCDF (pg)			**1.2156**				
Toplam PCDD (pg)			**2.0180**				
Toplam TEQ (pg)				**0.3818**	**0.3688**		
Toplam TEQ (ng)				**0.0004**	**0.0004**		
Toplam (pg-TEQ/L)				**0.7636**	**0.7375**		

500 mL örnek üzerinde çalışılmıştır.

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
-Raporda (*) işaretli analizler akredite parametrelerdir.
Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede, numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 50 Faks: (0 312) 498 21 66
e-posta: laboratuvar@csb.gov.tr Elektronik Ağ: www.csb.gov.tr

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI
KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SN/110
16.03.2017

110

PCDD/F	I-TEF	WHO TEF	Amount (pg)	I-TEQ (pg)	WHO TEQ (pg)	% Contribution to Total PCDD/F TEQ	
						NATO	WHO
2,3,7,8-TCDF	0.1	0.1	4.600	0.4600	0.4600	1.85	1.69
1,2,3,7,8-PeCDF	0.05	0.03	11.800	0.5900	0.3540	2.37	1.30
2,3,4,7,8-PeCDF	0.5	0.3	14.100	7.0500	4.2300	28.38	15.58
1,2,3,4,7,8-HxCDF	0.1	0.1	10.100	1.0100	1.0100	4.07	3.72
1,2,3,6,7,8-HxCDF	0.1	0.1	10.300	1.0300	1.0300	4.15	3.79
1,2,3,7,8,9-HxCDF	0.1	0.1	14.100	1.4100	1.4100	5.68	5.19
2,3,4,6,7,8-HxCDF	0.1	0.1	11.000	1.1000	1.1000	4.43	4.05
1,2,3,4,6,7,8-HpCDF	0.01	0.01	11.600	0.1160	0.1160	0.47	0.43
1,2,3,4,7,8,9-HpCDF	0.01	0.01	10.300	0.1030	0.1030	0.41	0.38
OCDF	0.001	0.0003	20.700	0.0207	0.0062	0.08	0.02
2,3,7,8-TCDD	1	1	3.300	3.3000	3.3000	13.28	12.15
1,2,3,7,8-PeCDD	0.5	1	10.800	5.4000	10.8000	21.74	39.77
1,2,3,4,7,8-HxCDD	0.1	0.1	10.000	1.0000	1.0000	4.03	3.68
1,2,3,6,7,8-HxCDD	0.1	0.1	9.600	0.9600	0.9600	3.86	3.54
1,2,3,7,8,9-HxCDD	0.1	0.1	11.600	1.1600	1.1600	4.67	4.27
1,2,3,4,6,7,8-HpCDD	0.01	0.01	10.900	0.1090	0.1090	0.44	0.40
OCDD	0.001	0.0003	24.400	0.0244	0.0073	0.10	0.03
Toplam PCDD/F (pg)			**199.2000**				
Toplam PCDF (pg)			**80.6000**				
Toplam PCDD (pg)			**118.6000**				
Toplam TEQ (pg)				**24.8431**	**27.1555**		
Toplam TEQ (ng)				**0.0248**	**0.0272**		
Toplam (pg-TEQ/L)				**49.6862**	**54.3111**		

500 mL örnek üzerinde çalışılmıştır.

49,6862 - 0,7636

48,922

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz .
-Raporda (*) işaretli analizler akredite parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede; numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 50 **Faks: (0 312) 498 21 66**
e-posta: laboratuvar@csb.gov.tr **Elektronik Ağ: www.csb.gov.tr**

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI

T.C.
ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI
Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğü
Laboratuvar,Ölçüm ve İzleme Dairesi Başkanlığı

ÇEVRE REFERANS LABORATUVARI

KİMYA LABORATUVARI ANALİZ RAPORU

AB-0262-T
17/SN/110
16.03.2017

Extraction Geri Kazanım Sonucları

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1. Ölçüm
^{13}C-2378-TCDF	30-130	40.6	47.9
^{13}C-23478-PeCDF	30-130	55	71.5
^{13}C-123678-HxCDF	30-130	54.0	87.8
^{13}C-1234678-HpCDF	30-130	76.8	86.2
^{13}C-2378-TCDD	30-130	41.2	50.1
^{13}C-12378-PeCDD	30-130	56.7	77.4
^{13}C-123678-HxCDD	30-130	61.7	87.4
^{13}C-1234678-HpCDD	30-130	83.1	97.6
^{13}C-OCDD	30-130	70	87.3

Clean-up Geri Kazanım Sonucları

Analyte(IS)	QC limits(%)	% Recovery Blank	% Recovery 1. Ölçüm
^{37}Cl-2,3,7,8-TCDD	30-130	67.1	40.5

AÇIKLAMALAR :

Metod: EPA 1613B: 1994
I-TEF: NATO Uluslararası Toksik Eşdeğerlik Faktörü
WHO TEF: Dünya Sağlık Örgütü Toksik Eşdeğerlik Faktörü,
TEF : Toksik Eşdeğerlik Faktoru,
TEQ : Toksik Eşdeğerlikler,
*Cleanup $^{37}C_4$ IS: 800 pg Uygulandı
*Extraction $^{13}C_{12}$ IS: 1000-2000 pg Uygulandı

KONTROL EDEN
16../03/2017

Ümit Güven ULUSOY
Çevre Ref. Lab. Şube Müdürü

ONAYLAYAN
16../03/2017

Soner OLGUN
Daire Başkanı

-Bu analiz raporu laboratuvara gelen numuneyi temsil eder.
-Bu rapor ve sonuçları Çevresel Etki Değerlendirmesi İzin ve Denetim Genel Müdürlüğünün izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz .
-Raporda (*) işaretli analizler akredite parametrelerdir.
-Rapor numarasının başında yer alan (G) harfi raporun güncellendiğini belirtir.
-Analiz yapılan numunede; numune alımından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenilen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi alana aittir.
-İmzasız ve mühürsüz Analiz Sonuç Raporları geçersizdir

Haymana Yolu 5. Km Gölbaşı ANKARA
Telefon: (0 312) 498 21 50 **Faks: (0 312) 498 21 66**
e-posta: laboratuvar@csb.gov.tr **Elektronik Ağ: www.csb.gov.tr**

WATER QUALITY

(Groundwater)

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0172
09.03.2017

encon

ENCON LABORATUVARI A.Ş.

ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0172	**NUMUNE KAYIT NO**	NUM.17.0172
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yeraltı Suyu GW4-1 Demirciler(KM: 150+150,5+000(
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.Eren Şevran
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 100.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	31.01.2017 01.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Açık	**ANALİZİN YAPILDIĞI TARİH**	31.01.2017 - 22.02.2017

Yeraltı Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yetkililik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Arlek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0172
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	7.0	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	66.3	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	841.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	3.08	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	142.2	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	2.44	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.166	S.M. 4500-P B S.M. 4500 P-E
pH	—	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	7.44	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 0.08	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	3.388	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.165	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	0.924	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	0.057	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 10 Mart 2017	**TARİH:** 10 Mart 2017

encon
ENCON LABORATUVARI A.Ş.
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-
17.02.0670

02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0670/24.02.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0670		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	Num.17.0172
Örneği Alan	Firma	**Örnek Alınma Tarihi**	-
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	08.02.2017 - 08:40
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	08.02.2017 - 20.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen, Num.17.0172 kodlu Atık Su numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0670
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi : ART.AL.17.02.0670/24.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	0,057	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü
ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

FORM NO: FR.510.01-03
YAYIN TARİHİ: 20.08.2014
REV. NO: 0
REV. TAR.: -

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20118
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0172 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20118	Rapor Tarihi :	09.02.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20118	AMBER CAM ŞİŞE x 1	01.02.2017	-	01.02.2017	01.02.2017	09.02.2017

NUM.17.0172 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI olarak saat 17:00'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi	Sorumlu ve Teknik Yönetici Yrd.
ECE KIZILKAYA	KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No 2/1-2 06700 Gaziosmanpaşa/ANKARA Cumhuriyet VD 323 013 8517 Tic Sic No 151630 Mersis No 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20118
09.02.2017

ANALİZ RAPORU

ÖRNEK : NUM.17.0172 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20118

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür	İyon Kromatografik Metot	İşletme İçi Metot (KYTÇ 504-87) (Journal of Chromatography A, 1023 (2004) 105-112)

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
LR.17.0242
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	09.03.2017 / LR.17.0242	**NUMUNE KAYIT NO**	NUM.17.0242
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yeraltı Suyu GW5-1 Kutluca(KM: 166+000)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	Mehmet Eren ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3; 500.0 mL, Mühürlü, Cam Şişe, Soğuk Koruma+Çinko Asetat Korumalı	**NUMUNE ALMA / KABUL TARİHİ**	**15.02.2017** **16.02.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Kapalı**	**ANALİZİN YAPILDIĞI TARİH**	15.02.2017 - 08.03.2017

Yeraltı Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.Ş.

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TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0242
09.03.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	12.54	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	60.8	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	561.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	4.25	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	<10.0	EPA 6020 B
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	0.46	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	<0.02	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	8.20	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<0.45 <0.37 <0.016	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	1.721	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	<0.017	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	1.260	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 10 Mart 2017	**İMZA / KAŞE:** 10 Mart 2017
TARİH:	**TARİH:**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 1340 003 3432 Tic.Sic.No:373081 Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.01.0264

01.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.01.0264/02.02.2017		
Talep Eden	ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.		
Talep Edenin Adresi	Reşit Galip Cad. No:120 06700 ANKARA		
Örnek Kayıt No	AL.17.01.0264		
Örnek / Durum	Atık Su / Sıvı	**Örneğin Alındığı Yer**	NUM.17.0072 - Taşkısığı(6W6-1)
Örneği Alan	Firma	**Örnek Alınma Tarihi**	13.01.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.01.2017 - 13:35
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.01.2017 - 27.01.2017

Firma yetkilileri tarafından alınarak kargo ile laboratuvarımıza ulaştırılan atıksu numunesinde gerçekleştirilen analiz sonuçları, analiz metodları ile birlikte aşağıda belirtilmiştir.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.01.0264
01.17

Firma Adı : ENCON ÇEVRE DANIŞMANLIK LTD. ŞTİ.
Rapor No/Tarihi : ART.AL.17.01.0264/02.02.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0,2	ALS Laboratory Method

Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-20365
08.03.2017

ANALİZ RAPORU

ÖRNEK : 242 KODLU GW5-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-20365	Rapor Tarihi :	08.03.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-20365	AMBER CAM ŞİŞE x 1	16.02.2017	-	16.02.2017	17.02.2017	08.03.2017

242 KODLU GW5-1 YERÜSTÜ SU NUMUNESİ; ilgili kişi tarafından örneklendirilmiş ve KİMYASAL KORUMALI (Mühür No1: 17.02840) olarak saat 17:43'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Kalite Yöneticisi

ECE KIZILKAYA Y.

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA ve VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mah. Kaptanpaşa Sk. No: 2/1-2-4 06700 Gaziosmanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No 151630 Mersis No 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-20365
08.03.2017

ANALİZ RAPORU

ÖRNEK : 242 KODLU GW5-1 YERÜSTÜ SU NUMUNESİ(*) (KİMYASAL ANALİZ)
RAPOR NO: DÇ-20365

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz. 3. İmzasız ve kaşesiz deney raporları geçersizdir.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

TÜRKAK
Test
TS EN ISO IEC 17025
AB-0168-T
AB-0168-T
LR.17.0072
21.02.2017

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ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0072	**NUMUNE KAYIT NO**	NUM.17.0072
NUMUNE ALINAN YER	Kuzey Marmara Otoyol Projesi,	**NUMUNE TÜRÜ / NUMUNE İŞARETİ**	Yeraltı Suyu 6W6-1Taşkısığı(KM: 226+500)
NUMUNE ALMA ŞEKLİ / YÖNTEMİ	Anlık Numune	**NUMUNEYİ ALAN**	M.EREN ŞEVRAN
NUMUNEYE UYGULANAN İŞLEMLER / GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma; 1.0 L, Mühürlü, Plastik Şişe, Soğuk Koruma+H_2SO_4; 1.0 L, Mühürlü, Cam Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk Koruma+HCl; 250.0 mL, Mühürlü, Plastik Şişe, Soğuk koruma+HNO3	**NUMUNE ALMA / KABUL TARİHİ**	**12.01.2017** **13.01.2017**
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	Kapalı	**ANALİZİN YAPILDIĞI TARİH**	12.01.2017 - 31.01.2017

Yeraltı Suyu numunesi ENCON personeli tarafından ENC-LABPR-NUM-13 Nolu Numune Alma Prosedürü 'ne göre alınmıştır.

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
LR.17.0072
21.02.2017

ENCON LABORATUVARI A.Ş.
ANALİZ RAPORU

		TABLO ADI / SINIR DEĞER Yerüstü Su Kalitesi Yönetmeliği TABLO 2					
Parametreler	**Birim**	**I**	**II**	**III**	**IV**	**Analiz Sonucu**	**Metotlar**
Amonyum Azotu (NH_4-N)	mg/L	<0.2	1.0	2.0	>2.0	<0.2	S.M. 4500-NH3 B S.M. 4500-NH3 C
Biyolojik Oksijen İhtiyacı	mg/L	<4.0	8.0	20.0	>20.0	<3.00	S.M. 5210- B
Çözünmüş oksijen	mg/L	>8.0	6.0	3.0	<3.0	3.14	S.M. 4500-O_G
Florür	µg/L	≤1000.0	1500.0	2000.0	>2000.0	78.6	S.M. 4110-B
İletkenlik	µS/cm	<400.0	1000.0	3000.0	>3000.0	807.0	S.M. 2510_B
Kimyasal Oksijen İhtiyacı	mg/L	<25.0	50.0	70.0	>70.0	4.72	SM 5220 B
Mangan	µg/L	≤100.0	500.0	3000.0	>3000.0	<40.0	EPA 200.7
Nitrat Azotu	mg/L	<3.0	10.0	20.0	>20.0	4.34	EPA Metot:352.1
Orto Fosfat Fosforu	mg/L	<0.05	0.16	0.65	>0.65	0.058	S.M. 4500-P B S.M. 4500 P-E
pH	---	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0	7.50	S.M. 4500-H+B
Renk	m^{-1}	RES 436 nm:≤1.5 RES 525 nm: ≤1.2 RES 620 nm: ≤0.8	RES 436 nm:3.0 RES 525 nm:2.4 RES 620 nm:1.7	RES 436 nm:4.3 RES 525 nm:3.7 RES 620 nm:2.5	RES 436 nm:>4.3 RES 525 nm: >3.7 RES 620 nm: >2.5	<045 <0.37 0.04	TS EN ISO 7887 B
Selenyum	µg/L	≤10.0	15.0	20.0	>20.0	<10.0	EPA 6020 B
Sülfür (S^{-2}) (**)	µg/L	≤2.0	5.0	10.0	>10.0	<2.00	Journal of Chromatography A, 1023 (2004) 105-112
Toplam Azot	mg/L	<3.5	11.5	25.0	>25.0	5.323	EPA Metod:352.1 S.M. 4500-NO2-B S.M. 4500-Norg-B
Toplam Fosfor	mg/L	<0.08	0.2	0.8	>0.8	0.071	S.M. 4500-P B S.M. 4500 P-E
Toplam Kjeldahl Azotu	mg/L	<0.5	1.5	5.0	>5.0	0.980	SM 4500-Norg B
Yağ Gres (**)	mg/L	<0.2	0.3	0.5	>0.5	<0.2	ALS Laboratory Method

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 22 Şubat 2017	**TARİH:** 22 Şubat 2017

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ENCON LABORATUVARI A.Ş.
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Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282 6086 0000 2020 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.

- İmzasız ve kaşesiz analiz raporları geçersizdir.
- Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
- Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) İşaretli parametreler akredite olmayan parametrelerdir.
- (ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip Artek Müh. Çevre Ölçüm Ve Dan. Hiz. Tic. A.Ş.,Düzen-Norwest Çevre, Gıda ve Vet. Sağ. Hiz. Eğ. Dan. A.ş.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI
ANALİZ RAPORU

ART.AL.-17.02.0844
02.17

Firma Adı : ENCON LABORATUVARI A.Ş.
Rapor No/Tarihi: ART.AL.17.02.0844/03.03.2017

Yapılan Analizler	Analiz Sonucu	Analiz Metodu
Yağ ve Gres (mg/L)	<0.2	ALS Laboratory Method

Açıklamalar : Bu rapor 2 (iki) nüsha halinde hazırlanıp, müşteriye gönderilmiştir. Bu rapor laboratuvarımız tarafından elektronik ortamda arşivlenmektedir.
Tüm parametrelerin analizi ALS Laboratory Group tarafından gerçekleştirilmiştir.

Sorumlu İmzalar:

Özlem GÜLER
Laboratuvar Birim Yöneticisi

Melahat AYDIN
Laboratuvar Müdürü

ARTEK MÜHENDİSLİK
ÇEVRE ÖLÇÜM VE DAN HİZ TİC A.Ş

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

ARTEK MÜHENDİSLİK
Çevre Ölçüm ve Danışmanlık Hiz. Tic. A.Ş.
ÇEVRE LABORATUVARI

ART.AL.-17.02.0844
02.17

ANALİZ RAPORU

Mehmet Akif Mah. Elalmış Cad. Tarık Buğra Sok. No: 15 - Ümraniye / İSTANBUL
Tel: 0216 499 0 249 (Pbx) Faks: 0216 499 28 68
www.artekcevre.com.tr

Rapor No / Tarihi	ART.AL.17.02.0844/03.03.2017		
Talep Eden	ENCON LABORATUVARI A.Ş.		
Talep Edenin Adresi	Reşit Galip Caddesi No:120 GOP/ANKARA		
Örnek Kayıt No	AL.17.02.0844		
Örnek / Durum	Yüzey Suyu / Sıvı	**Örneğin Alındığı Yer**	Num.17.0243 s5-2
Örneği Alan	Encon	**Örnek Alınma Tarihi**	16.02.2017
Örneğin Alınma Şekli	-	**Örneğe Uyg.İşlemler**	Soğuk Zincir - Kimyasal Koruma
Örneğin Getirilişi	Kargo İle Teslim	**Lab.Kabul Tarihi**	17.02.2017 - 12:00
Örnek Sayısı/Ambalajı	1 Adet / 1000 mL / Cam şişe	**Analiz Tarihi**	17.02.2017 - 24.02.2017

ENCON LABORATUVARI A.Ş. tarafından alınarak kargo ile laboratuvarımıza gönderilen,Num.17.0243 s5-2 kodlu Yüzey Suyu numunesine ilişkin analiz sonuçları, analiz metotları ile birlikte aşağıda sunulmuştur.

Metot No: Tarih	Metot Adı
ALS Laboratory Method	ALS Laboratory Method

ARTEK MÜHENDİSLİK ÇEVRE ÖLÇÜM VE DAN.HİZ.TİC.A.Ş.

İmzasız ve kaşesiz raporlar geçersizdir. Raporda yer alan sonuçlar sadece incelenen numuneye aittir. Analiz yapılan numunede, numunenin alınışından laboratuvarımıza teslimine kadar olan prosedürlerin ve bakılması istenen grup ve parametrelerin belirlenmesinde teknik ve hukuki sorumluluk numuneyi, örneklemeyi alana aittir. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz. Bu rapor laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

DÜZEN NORWEST

ÇEVRE, GIDA VE VETERİNER SAĞLIK HİZMETLERİ EĞİTİM DANIŞMANLIK TİCARET A.Ş.

Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2 06700 G.O.P. - ANKARA

Tel: 0312. 447 29 99 Faks: 0312. 447 86 66 • www.duzennorwest.com.tr

TÜRKAK Test TS EN ISO/IEC 17025 AB-0375-T

AB-0375-T
DÇ-19943
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0072 6W6-1 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

MÜŞTERİ BİLGİLERİ			
Rapor No :	DÇ-19943	Rapor Tarihi :	26.01.2017
Müşteri Adı :	ENCON LABORATUVARI A.Ş.	Müşteri Adresi :	REŞİT GALİP CADDESİ, NO:120 G.O.P. ÇANKAYA/ANKARA
İlgili Kişi :		Tel / Fax :	(0312) 447 71 22 / (0312) 447 69 88

NUMUNE BİLGİLERİ

Kayıt No	Ambalaj	Alındığı Tarih	Alındığı Yer	Geliş Tarihi	Analiz Tarihi	Bitiş Tarihi
DÇ-19943	AMBER CAM ŞİŞE x 1	16.01.2017	TAŞKISIĞI	16.01.2017	16.01.2017	26.01.2017

NUM 17.0072 6W6-1 KODLU SU NUMUNESİ ; ilgili kişi tarafından örneklendirilmiş ve ISI KORUMALI olarak saat 17:44'de laboratuvara ulaştırılmıştır. Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır.

(*) Numune tanımı müşteri beyanı esas alınarak yapılmıştır.

PARAMETRE	BİRİM	ANALİZ SONUCU
Sülfür (S)	µg/L	< 2 (1)
(1) MDL, Metod Dedeksiyon Limiti		

Sorumlu ve Teknik Yönetici Yrd.

KORAY TEMEL

DÜZEN NORWEST ÇEVRE GIDA VE VETERİNER SAĞLIK HİZM. EĞT. DAN. TİC. A.Ş. Büyükesat Mh. Kaptanpaşa Sk. No: 2/1-2-4 06700 G.O.P. Kaptanpaşa / ANKARA Cumhuriyet V.D. 323 013 8517 Tic. Sic. No: 151830 Mersis No: 0323013851700014

KYF 510-1

Bu rapor toplam 2 sayfadan oluşmuştur.

AB-0375-T
DÇ-19943
26.01.2017

ANALİZ RAPORU

ÖRNEK : NUM 17.0072 6W6-1 KODLU SU NUMUNESİ (*) (KİMYASAL ANALİZ)

RAPOR NO: DÇ-19943

Kullanılan Metodlar:

Parametre	Metod	Referans
Sülfür (S)	Ion Chromatography Method	Journal of Chromatography A, 1023 (2004) 105-112

NOT:	1. Test sonuçları sadece test edilen numuneler ile ilgilidir. 2. Rapor laboratuvarın izni olmadan kısmi olarak çoğaltılamaz, kullanılamaz.
Analizin Yapıldığı Yer:	Adres: Düzen Norwest Laboratuvarı, Büyükesat Mah. Kaptanpaşa Sok. No:2/2-4 Gaziosmanpaşa / ANKARA E-mail: duzennorwest@duzen.com.tr

Taşeron Laboratuvar:	Bu testler için taşeron laboratuvar kullanılmamıştır.

AIR QUALITY

(PM-10)

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
NUM.17.0194
21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0194	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0194	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Kurnaköya A4-1	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMQ200 Toz Örnekleme Sistemi (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
696759-4536269	0.12647	0.12721	31.01.2017	01.02.2017	23.39	31.64

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
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Cumhuriyet V.D. 334 1034 3432 Tic.Sic.No:373087
Mersin No: 4282-5658-6858-2628 www.enconlab.com.tr

Açıklamalar: Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
NUM.17.0195
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0195	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0195	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Kadiili Köyü A4-2	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
708555-4533696	0.12850	0.12944	30.01.2017	31.01.2017	45.19	20.80

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Takin
İMZA: 21 Subat 2017	**İMZA / KAŞE:** 21 Subat 2017
TARİH:	**TARİH:**

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Cumhuriyet Ver. 334 654 3432 Tic.Sic.No:373087
Marsis No: 4202-565[illegible]-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
NUM.17.0193
21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0193	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0193	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Demirciler A4-3	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
715178-4525026	0.12645	0.12765	30.01.2017	31.01.2017	51.27	23.41

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Cumhuriyet V.D. 324 054 3432 Tic.Sic.No:373087
Mersis No: 0312-5656-5959-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** **www.enconlab.com.tr**

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TS EN ISO/IEC 17025
AB-0168-T

AB-0168-T
NUM.17.0196
21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0196	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0196	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Tepecik A5-1	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
720798-4530037	0.13266	0.13463	31.01.2017	01.02.2017	54.28	36.29

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 21 Subat 2017	**İMZA / KAŞE:** 21 Subat 2017
TARİH:	**TARİH:**

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Gümüştepe V.D. 131 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5653-3559-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
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AB-0168-T
NUM.17.0197
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0197	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0197	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / A5-2	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
730867-4530849	0.13130	0.13265	31.01.2017	01.02.2017	53.16	25.40

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
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Cumhuriyet V.D. 334 [illegible] 3432 Tic.Sic.No:373087
Vergisi No: 4282-5658-[illegible]-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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AB-0168-T
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NUM.17.0198
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0198	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0198	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Sipahiler A5-4	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMQ200 Toz Örnekleme Sistemi (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
737056-4527669	0.13129	0.13167	03.02.2017	04.02.2017	22.36	16.99

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0199
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0199	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0199	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Çakırköy A5-5	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
247102-4521917	0.13036	0.13210	03.02.2017	04.02.2017	51.23	33.96

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 21 Subat 2017	**İMZA / KAŞE:** 21 Subat 2017
TARİH:	**TARİH:**

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Mersis No: 4282-5[illegible]859-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0192
21.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0192	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0192	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Durhasan A5-6	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	**TS EN 12341**	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	06.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	29.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	15.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
250110-4520309	0.13164	0.13593	03.02.2017	04.02.2017	53.19	80.65

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Mersis No: 0262-5652-6819-2620 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0239
27.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0239	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0239	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Karaabdülbaki A6-1	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Yağışlı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	15.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	03.02.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	23.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
259732-4520490	0.12684	0.12761	13.02.2017	14.02.2017	55.04	13.99

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 27 Subat 2017	**İMZA / KAŞE:**
TARİH:	**TARİH:** 27 Subat 2017

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Mersis No: 4282-5...-0659-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0238
27.02.2017

ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	27.02.2017 / LR.17.0238	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0238	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Sülemaniye A6-2	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Yağışlı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	15.02.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	03.02.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	23.02.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMQ200 Toz Örnekleme Sistemi (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
263438-4523179	0.12965	0.12980	13.02.2017	14.02.2017	23.64	6.35

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 27 Şubat 2017	**İMZA / KAŞE:** 27 Şubat 2017
TARİH:	**TARİH:**

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Mersis No: 4282-0558-6859-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0107	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0107	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Korucuk A6-3	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	17.01.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	09.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	17.01.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
269824-4525426	0.12905	0.13004	12.01.2017	13.01.2017	50.12	19.75

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 21 Şubat 2017	**İMZA / KAŞE:** 21 Şubat 2017
TARİH:	**TARİH:**

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Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0109
14.04.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	14.04.2017 / LR.17.0109	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0109	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Evrenköy A6-4	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	17.01.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	09.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	17.01.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
274920-4524949	0.12929	0.13184	12.01.2017	13.01.2017	51.15	49.85

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 17 Mart 2017	**İMZA / KAŞE:** 17 Mart 2017
TARİH:	**TARİH:**

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Cumhuriyet Mh. 234 054 3432 Tic.Sic.No:378087
Mersis No: 4282-6653-6650-2928 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0108	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0108	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Taşkısığı A6-5	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Rüzgarlı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	EPA 40 CFR Part 50	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	17.01.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	09.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	17.01.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	PMQ200 Toz Örnekleme Sistemi (PM10)	BGI	2451
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
280806-4525988	0.12809	0.12905	12.01.2017	13.01.2017	23.77	40.39

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 21 Subat 2017	**İMZA / KAŞE:** 21 Subat 2017
TARİH:	**TARİH:**

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Mersis No: 4282-56[illegible] www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0111	**NUMUNE TÜRÜ**	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0111	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Budaklar A6-6	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Yağışlı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	**DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT**	17.01.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	09.01.2017 12:00	**DOLU FİLTRENİN TARTILDIĞI TARİH**	17.01.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	PM10 Örnekleme Cihazı	GmbH MCZ/LVS-1	1203-085

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
2878381-4518759	0.12770	0.12875	11.01.2017	12.01.2017	53.46	19.64

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 21 Subat 2017	**İMZA / KAŞE:** 21 Subat 2017
TARİH:	**TARİH:**

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Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5658-5659-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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21.02.2017

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ENCON LABORATUVARI A.Ş.
İMİSYON ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	21.02.2017 / LR.17.0110	NUMUNE TÜRÜ	PM10
NUMUNE KAYIT NUMARASI	NUM.17.0110	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Osmanbey A6-7	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Kapalı
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS EN 12341	DOLU FİLTRENİN LABORATUVARA GELDİĞİ TARİH / SAAT	17.01.2017 12:00
BOŞ FİLTRENİN TARTILDIĞI TARİH	09.01.2017 12:00	DOLU FİLTRENİN TARTILDIĞI TARİH	17.01.2017 12:00
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	PM10 Örnekleme Cihazı	Leckel / LVS3	2796105
	GC Model Tartım Cihazı	Sartorius/GC	18805603
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542

Ölçümün Yapıldığı Yerin Koordinatları	Filtrenin Boş Ağırlığı (g)	Filtrenin Dolu Ağırlığı (g)	Filtrenin Takılma Tarihi	Filtrenin Çıkarılma Tarihi	Geçen Hava Miktarı (m^3)	PM 10 Sonuç ($\mu g/m^3$)
298475-4513142	0.12927	0.13021	11.01.2017	12.01.2017	54.20	17.34

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 21 Şubat 2017	**TARİH:** 21 Şubat 2017

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Mersis No: 4282-5055-0859-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0291
06.03.2017

ENCON LABORATUVARI A.Ş.
ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0291	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM.17.0291	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Kurna	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS 2342		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m^2.gün)
696679-4536243	26.01.2017	22.02.2017	10.5

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 06 Mart 2017	**İMZA / KAŞE:**
TARİH:	**TARİH:** 06 Mart 2017

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Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5969-6659-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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NUM.17.0292
06.03.2017

ENCON LABORATUVARI A.Ş.
ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	**Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA**		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0292	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM.17.0292	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Demirciler	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	**Açık**
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	**TS 2342**		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m^2.gün)
715130-4524928	26.01.2017	22.02.2017	20.8

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:**
TARİH: 06 Mart 2017	**TARİH:** 06 Mart 2017

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Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

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06.03.2017

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ENCON LABORATUVARI A.Ş.
ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0287	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM.17.0287	**ÖLÇÜM YÖNTEMİ**	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Durhasan	**ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI**	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS 2342		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m^2.gün)
250519-4520361	23.01.2017	20.02.2017	14.6

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA:	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 834 054 3432 Tic.Sic.No:373037 Mersis No: 0834054343200001 / 0312 426 26 53-6869-2628 www.enconlab.com.tr
TARİH: 06 Mart 2017	**TARİH:** 06 Mart 2017

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

TÜRKAK
Test
TS EN ISO/IEC 17025
AB-0168-T
AB-0168-T
NUM.17.0286
06.03.2017

ENCON LABORATUVARI A.Ş.
ÇÖKEN TOZ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH / NUMARASI	06.03.2017 / LR.17.0286	NUMUNE TÜRÜ	Çöken Toz
NUMUNE KAYIT NUMARASI	NUM.17.0286	ÖLÇÜM YÖNTEMİ	Gravimetrik Metot
PROJE ADI / CİHAZ KURULUM NOKTASI	Kuzey Marmara Otoyolu Projesi / Korucuk	ÖLÇÜM YAPILDIĞINDA ÇEVRE ŞARTLARI	Açık
ÖLÇÜMDE UYGULANACAK STANDART VE KAYNAKLAR	TS 2342		
DENEYDE KULLANILACAK CİHAZLAR VE MALZEME BİLGİLERİ	**CİHAZ ADI**	**MARKA / MODEL**	**SERİ NO**
	Sıcaklık ve Nem Veri Toplayıcı Cihazı	CEM (DT-172 Model)	9115542
	Çöken Toz Cihazı		-

Ölçümün Yapıldığı Yerin Koordinatları	Ölçüm Başlangıç Tarihi	Ölçüm Bitiş Tarihi	Sonuç (mg/m^2.gün)
2699815-4525425	23.01.2017	20.02.2017	85.6

KONTROL EDEN:	**ONAYLAYAN:**
ADI / SOYADI: Hakan Yılmaz	**ADI / SOYADI:** Hüseyin Tekin
İMZA: 06 Mart 2017	**İMZA / KAŞE:** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Çankaya V.D. 004 054 3432 Tic.Sic.No:373087 Mersis No: 4250-0668-6859-2628 www.enconlab.com.tr 06 Mart 2017
TARİH:	**TARİH:**

Açıklamalar: Müsteri talebi üzerine özel istek numunesi olarak çalısılmıstır. Bu rapor çevre mevzuatına iliskin resmi islemlerde kullanılamaz

-İmzasız ve kaşesiz analiz raporları geçersizdir.
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvar A.Ş.'nin izni olmadan ticari ve reklam amaçlı tamamem veya kısmen çoğaltılamaz veya yayınlanamaz.
-(*) İşaretli parametreler akredite olmayan parametrelerdir.
-(ç) İşaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlilik Belgesi kapsamı dışındadır.
- (**) İşaretli parametreler ISO 17025 Akreditasyonuna sahip ..... tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No:120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Fax: 0 312 447 69 88** www.enconlab.com.tr

AIR QUALITY

(Heavy Metals in PM-10)

encon

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0194	**NUMUNE KAYIT NO**	LR.17.0194
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Kurnaköy	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** ☐ **Anlık** x	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	31.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	06.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** ☐ **Kapalı** ☐ **Açık** x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	$\mu g/m^3$.gün	0,0034	TS EN 14902 EPA 6020 B
Kadmiyum	$\mu g/m^3$.gün	0,0006	TS EN 14902 EPA 6020 B
Talyum	$\mu g/m^3$.gün	0,0005	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 034 004 2432 Tic.Sic.No:373087 Mersis No: 4282-5669-6659-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş
ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0193	**NUMUNE KAYIT NO**	LR.17.0193
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Demirciler	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** ☐ **Anlık x**	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	30.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	06.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** ☐ **Kapalı** ☐ **Açık x**	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	$\mu g/m^3$.gün	0,0024	TS EN 14902 EPA 6020 B
Kadmiyum	$\mu g/m^3$.gün	0,0003	TS EN 14902 EPA 6020 B
Talyum	$\mu g/m^3$.gün	0,0003	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Gaziosmanpaşa V.D. 334 084 3432 Tic.Sic.No:373087 Mersis No: 4282-5058-6859-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0192	**NUMUNE KAYIT NO**	LR.17.0192
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Durhasan	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık x**	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	03.02.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	06.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık** x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	µg/m^3.gün	0,0124	TS EN 14902 EPA 6020 B
Kadmiyum	µg/m^3.gün	0,0006	TS EN 14902 EPA 6020 B
Talyum	µg/m^3.gün	0,0003	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin BERA
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

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ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Gurunuriyet: 0312 [illegible] 054 3432 Tic.Sic.No:373087
Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

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ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0107	**NUMUNE KAYIT NO**	LR.7.0107
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Korucuk	**NUMUNE TÜRÜ**	PM10
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık x**	**NUMUNEYİ ALAN**	M.Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	12.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	17.01.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık x**	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kurşun	µg/m^3.gün	0,0044	TS EN 14902 EPA 6020 B
Kadmiyum	µg/m^3.gün	0,0003	TS EN 14902 EPA 6020 B
Talyum	µg/m^3.gün	0,0003	TS EN 14902 EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

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ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet Ad. No: 334 054 3432 Tic.Sic.No:373087
Mersis No: 4282-6858-6859-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Faks: 0 312 447 69 88** www.enconlab.com.tr

AIR QUALITY

(Heavy Metals in Settled Dust)

encon

ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0291/1	**NUMUNE KAYIT NO**	LR.17.0291/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Kurna	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık x**	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	26.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık** x	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	$\mu g/m^2$.gün	0,5221	EPA 6020 B
Kurşun	$\mu g/m^2$.gün	6,4600	EPA 6020 B
Talyum	$\mu g/m^2$.gün	0,5252	EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Resit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 634 054 3432 Tic.Sic.No:373087 Mersis No: 4282-8858-3559-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0292/1	**NUMUNE KAYIT NO**	LR.17.0292/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Demirciler	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık x**	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	26.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık x**	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	µg/m^2.gün	1,4449	EPA 6020 B
Kurşun	µg/m^2.gün	3,3015	EPA 6020 B
Talyum	µg/m^2.gün	0,5252	EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

ENCON LABORATUVARI A.Ş.
Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA
Tel: (0312) 447 71 22 Fax: (0312) 447 69 88
Cumhuriyet V.D. 254 354 3432 Tlc.Sic.No:373087
Mersis No: 1252-3568-6659-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0287/1	**NUMUNE KAYIT NO**	LR.17.0287/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Durhasan	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** □ **Anlık x**	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	23.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** □ **Kapalı** □ **Açık x**	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B
Kurşun	$\mu g/m^2$.gün	2,4706	EPA 6020 B
Talyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Buğdaypazarı Vergi Dairesi 054 0 2432 Tic.Sic.No:373087 Mersis No: 4262-0556-0859-7628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LR.17.0286/1	**NUMUNE KAYIT NO**	LR.17.0286/1
NUMUNE ALINAN YER	Kuzey Marmara Otoyolu Projesi/Korucuk	**NUMUNE TÜRÜ**	Çöken Toz
NUMUNE ALMA ŞEKLİ/YÖNTEMİ	**Kompozit** ☐ **Anlık x**	**NUMUNEYİ ALAN**	Mehmet Eren SEVRAN
NUMUNEYE UYGULANAN İŞLEMLER	-	**NUMUNE ALMA TARİHİ**	23.01.2017
NUMUNENİN GELİŞ ŞEKLİ (Mühürlü, Kap Türü, Miktarı vb.)	-	**NUMUNE KABUL TARİHİ**	23.02.2017
NUMUNE ALIMINDA ÇEVRE ŞARTLARI	**Yağışlı** ☐ **Kapalı** ☐ **Açık x**	**ANALİZLERİN YAPILDIĞI TARİH**	03.03.2017

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Kadmiyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B
Kurşun	$\mu g/m^2$.gün	1.5284	EPA 6020 B
Talyum	$\mu g/m^2$.gün	<0,5071	EPA 6020 B

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA :	**İMZA /KAŞE :**
Tarih : 06 Mart 2017	**Tarih :**

encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 154 3432 Tic.Sic.No:373087 Mersis No: 2[illegible]659-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....Laboratuvarı tarafından yapılmıştır.

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AIR QUALITY

(Passive Measurements)

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ENCON LABORATUVARI A.Ş

ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0003	**NUMUNE KAYIT NO**	LPR.17.0003
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Kurna Köy (A4-1)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	696759-4536269	NUMUNEYİ ALAN	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	23.01.2017	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		**BİRİM**	**ÖLÇÜM/ ANALİZ SONUCU**	**KULLANILAN METOT**
NO**		µg/m^3	7,00	İşletme İçi Metod
NO_2**		µg/m^3	34,16	
NO_x**		µg/m^3	41,17	
SO_2**		µg/m^3	4,12	
VOC	Benzene**	µg/m^3	2,6	ISO 16000-6
	Toluene**	µg/m^3	5,1	
	Ethybenzene**	µg/m^3	0,6	
	m/p-Xylene**	µg/m^3	2,1	
	o-Xylene**	µg/m^3	0,7	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	µg/m^3	0,8	
	T.Alifatik Hidrokarbonlar EC6-EC8	µg/m^3	0,5	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	ng	<5*	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m^3	2,0	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	µg/m³	2,6	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	µg/m³	5,1	
	T.Aromatik Hidrokarbonlar EC8-EC10	µg/m³	4,8	
	T.Aromatik Hidrokarbonlar EC10-EC12	µg/m³	1,0	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

***Raporlama limiti altındadır.**

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI / SOYADI : Hüseyin TEKİN
İMZA :	İMZA /KAŞE :
Tarih : 21 Mart 2017	Tarih : 2 Mart 2017

ENCON LABORATUVARI A.Ş.
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Gumpuryet V.D. 334 0547 3932 Tic.Sic.No:373087
Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

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ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0004	**NUMUNE KAYIT NO**	LPR.17.0004
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Demirciler (A4-3)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	715178-4525026	**NUMUNEYİ ALAN**	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	23.01.2017	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		**BİRİM**	**ÖLÇÜM/ ANALİZ SONUCU**	**KULLANILAN METOT**
NO**		µg/m³	-*	İşletme İçi Metod
NO_2**		µg/m³	27,10	
NO_x**		µg/m³	26,52	
SO_2**		µg/m³	7,89	
VOC	Benzene**	µg/m³	2,8	ISO 16000-6
	Toluene**	µg/m³	3,2	
	Ethybenzene**	µg/m³	0,5	
	m/p-Xylene**	µg/m³	1,7	
	o-Xylene**	µg/m³	0,6	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	ng	<5*	
	T.Alifatik Hidrokarbonlar EC6-EC8	ng	<5*	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	ng	<5*	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	1,4	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

**NO_2 değeri NO_x değerinden yüksek çıktığı için NO değeri hesaplanamamıştır.*

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	$\mu g/m^3$	2,8	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	$\mu g/m^3$	3,2	
	T.Aromatik Hidrokarbonlar EC8-EC10	$\mu g/m^3$	3,5	
	T.Aromatik Hidrokarbonlar EC10-EC12	$\mu g/m^3$	1,1	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

Raporlama limiti altındadır.

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin TEKİN
İMZA : 20 Mart 2017	**İMZA /KAŞE :** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 034 3432 Ticaret Sicil No: 42826 Mersis No: 4282-5658-6889-2628 www.enconlab.com.tr
Tarih :	**Tarih :** 20 Mart 2017

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0005	**NUMUNE KAYIT NO**	LPR.17.0005
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Durhasan (A5-6)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	250110-4520309	**NUMUNEYİ ALAN**	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	**23.01.2017**	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		**BİRİM**	**ÖLÇÜM/ ANALİZ SONUCU**	**KULLANILAN METOT**
NO**		µg/m³	6,73	İşletme İçi Metod
NO_2**		µg/m³	21,25	
NO_x**		µg/m³	27,98	
SO_2**		µg/m³	3,74	
VOC	Benzene**	µg/m³	4,0	ISO 16000-6
	Toluene**	µg/m³	3,6	
	Ethybenzene**	µg/m³	0,6	
	m/p-Xylene**	µg/m³	1,7	
	o-Xylene**	µg/m³	0,6	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	µg/m³	0,2	
	T.Alifatik Hidrokarbonlar EC6-EC8	µg/m³	0,5	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	µg/m³	0,6	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	2,3	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 **Faks: 0 312 447 69 88** www.enconlab.com.tr

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ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	$\mu g/m^3$	4,0	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	$\mu g/m^3$	3,6	
	T.Aromatik Hidrokarbonlar EC8-EC10	$\mu g/m^3$	4,2	
	T.Aromatik Hidrokarbonlar EC10-EC12	$\mu g/m^3$	1,6	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

Raporlama limiti altındadır.

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin DEKİN
İMZA : 20 Mart 2017	**İMZA/KAŞE :** ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:272086 Mersis No: 4282-5658-6859-2526 www.enconlab.com.tr
Tarih :	**Tarih :** 20 Mart 2017

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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ANALİZ SONUÇ RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Reşit Galip Cad. No:120 Gaziosmanpaşa ÇANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	20.03.2017/LPR.17.0006	**NUMUNE KAYIT NO**	LPR.17.0006
ÖLÇÜMÜN YAPILDIĞI YER	Kuzey Marmara Otoyolu Projesi/ Korucuk (A6-3)	**NUMUNE TÜRÜ**	Difüzyon Tüpü
ÖLÇÜMÜN YAPILDIĞI YERİN KOORDİNATLARI	269824-4525426	**NUMUNEYİ ALAN**	Uğur ŞAHİN
TÜPLERİN TAKILMA TARİHİ	**23.01.2017**	**TÜPLERİN TOPLANMA TARİHİ**	20.02.2017

PARAMETRE		**BİRİM**	**ÖLÇÜM/ ANALİZ SONUCU**	**KULLANILAN METOT**
NO**		µg/m³	1,99	İşletme İçi Metod
NO_2**		µg/m³	10,42	
NO_x**		µg/m³	12,41	
SO_2**		µg/m³	2,84	
VOC	Benzene**	µg/m³	1,5	ISO 16000-6
	Toluene**	µg/m³	2,0	
	Ethybenzene**	µg/m³	<0,4	
	m/p-Xylene**	µg/m³	0,6	
	o-Xylene**	µg/m³	<0,4	
TPH**	T.Alifatik Hidrokarbonlar EC5-EC6	µg/m³	0,4	
	T.Alifatik Hidrokarbonlar EC6-EC8	ng	<5*	
	T.Alifatik Hidrokarbonlar EC8-EC10	ng	<5*	
	T.Alifatik Hidrokarbonlar EC10-EC12	µg/m³	2,3	
	T.Alifatik Hidrokarbonlar EC12-EC16	µg/m³	8,5	
	T.Alifatik Hidrokarbonlar EC16-EC28	ng	<5*	

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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ANALİZ SONUÇ RAPORU

PARAMETRE		BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
TPH**	T.Aromatik Hidrokarbonlar EC5-EC7	µg/m³	1,5	ISO 16000-6
	T.Aromatik Hidrokarbonlar EC7-EC8	µg/m³	2,0	
	T.Aromatik Hidrokarbonlar EC8-EC10	µg/m³	1,7	
	T.Aromatik Hidrokarbonlar EC10-EC12	ng	<5*	
	T.Aromatik Hidrokarbonlar EC12-EC16	ng	<5*	

Raporlama limiti altındadır.

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI / SOYADI :** Hüseyin DEKİN
İMZA :	**İMZA /KAŞE :**
Tarih : 20 Mart 2017	**Tarih :** 20 Mart 2017

ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373087 Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip Gradko International Ltd. .Laboratuvarı tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.033	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Kurnaköy	**ÖLÇÜMÜN YAPILDIĞI TARİH**	31/01-01/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	696759-4536269

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	64.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	64.5	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	58.1	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA :	İMZA /KAŞE :
Tarih : 08 Mart 2017	Tarih : 08 Mart 2017

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Cumhuriyet Mah. 384 1654 / 3432 Tic.Sic.No:373067
Mersis No: 4292-6966-0652-2026 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.030	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Kadilli	ÖLÇÜMÜN YAPILDIĞI TARİH	30-31/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	708555-4533696

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	62.5	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	55.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	50.0	TS ISO 1996-2

KONTROL EDEN : ADI / SOYADI : Hakan YILMAZ İMZA : 08 Mart 2017 Tarih :	**ONAYLAYAN :** ADI /SOYADI : Hüseyin TEKİN İMZA /KAŞE ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No: 120 Gaziosmanpaşa / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 [illegible] Mersis No: 4282-5658-6859-2025 www.enconlab.com.tr 08 Mart 2017 Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.025	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/iDemirciler	**ÖLÇÜMÜN YAPILDIĞI TARİH**	30-31/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	715178-4525026

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	58.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	56.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	51.8	TS ISO 1996-2

KONTROL EDEN : ADI / SOYADI : Hakan YILMAZ İMZA : Tarih : 06 Mart 2017	**ONAYLAYAN :** ADI/SOYADI : Hüseyin TEKİN İMZA/KAŞE : Tarih :

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Mersis No: 4202-685[illegible] www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.039	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Tepecik	**ÖLÇÜMÜN YAPILDIĞI TARİH**	31-01-01-02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	**Yağışlı** ☐ **Kapalı** x **Açık** ☐	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	720798-4530037

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	**dBA**	**52.6**	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	**dBA**	**51.1**	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	**dBA**	**49.3**	TS ISO 1996-2

KONTROL EDEN : **ADI / SOYADI :** Hakan YILMAZ **İMZA :** 08 Mart 2017 **Tarih :**	**ONAYLAYAN :** **ADI /SOYADI :** Hüseyin TEKİN encon ENCON LABORATUVARI A.Ş. Gaziosmanpaşa Mah. No:120 06700 G.O.P./ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 054 054 3483 Tic.Sic.No:373087 Mersis No: 4232-5608-0859-2628 www.enconlab.com.tr **İMZA /KAŞE :** 08 Mart 2017 **Tarih :**

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.034	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Kutluca	ÖLÇÜMÜN YAPILDIĞI TARİH	31/01-01/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	730867-4530849

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	58.6	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	57.5	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	45.6	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI SOYADI :** Hüseyin TEKİN
İMZA : 08 MART 2017	**İMZA / KAŞE :** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 [illegible] Tic.Sic No:373067 Mersis No: [illegible] www.enconlab.com.tr 08 MART 2017
Tarih :	**Tarih :**

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.036	**ÖLÇÜMÜ YAPAN**	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Sipahiler	**ÖLÇÜMÜN YAPILDIĞI TARİH**	14-15/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	**ÖLÇÜM NOKTALARININ KOORDİNATLARI**	737056-4527669

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	53.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	48.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	46.5	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA :	**İMZA/KASE :**
Tarih : 08 Mart 2017	**Tarih :** 08 Mart 2017

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Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.024	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/iÇayırköy	ÖLÇÜMÜN YAPILDIĞI TARİH	14-15/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	247102-4521917

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	59.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	55.0	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	52.7	TS ISO 1996-2

KONTROL EDEN : ADI / SOYADI : Hakan YILMAZ İMZA : 06 Mart 2017 Tarih :	ONAYLAYAN : ADI /SOYADI : Hüseyin TEKİN İMZA/KAŞE : encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 014 3432 Tic.Sic.No:073087 Mersis No: 4282-5658-6656-2628 www.enconlab.com.tr 06 Mart 2017 Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.026	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/iDurhasan	ÖLÇÜMÜN YAPILDIĞI TARİH	03-04-/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	250110-4520309

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	74.8	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	57.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	54.7	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA : 06 Mart 2017	**İMZA /KAŞE :** 06 Mart 2017
Tarih :	**Tarih :**

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Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.031	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Karaabdülbaki	ÖLÇÜMÜN YAPILDIĞI TARİH	13-14/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	259732-4520490

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	50.6	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	50.7	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	45.4	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA : 08 Mart 2017	**İMZA /KAŞE :** encon ENCON LABORATUVARI A.Ş. No:120 06100 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 8432 Tic.Sic.No:373067 Mersis No: 4262-5658-8859-2628 www.enconlab.com.tr 08 Mart 2017
Tarih :	**Tarih :**

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.037	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Sülemaniye	ÖLÇÜMÜN YAPILDIĞI TARİH	13-14/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	263438-4523179

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	53.4	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	51.6	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	49.9	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA :	İMZA / KAŞE :
Tarih : 08 Mart 2017	Tarih : 08 Mart 2017

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Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Çevre Danışmanlık Ltd. Şti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpaşa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.032	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Korucuk	ÖLÇÜMÜN YAPILDIĞI TARİH	12-13/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	269824-4525426

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	49.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	49.1	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	48.8	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA : 08 Mart 2017	İMZA /KAŞE : encon ENCON LABORATUVARI A.Ş. Resit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 6341 059 0472 Tic.Sic.No:373037 Mersis No: 0341059047200001 www.enconlab.com.tr
Tarih :	Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.027	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/iEvrenköy	ÖLÇÜMÜN YAPILDIĞI TARİH	12-13/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı □ Kapalı x Açık □	ÖLÇÜM NOKTALARININ KOORDİNATLARI	274920-4524949

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	57.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	58.2	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	54.4	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA :	**İMZA /KAŞE :** 06 Mart 2017
Tarih : 06 Mart 2017	**Tarih :**

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Cumhuriyet V.D. 234 354 3432 Tic.Sic.No:373087
Mersis No: 4282-5688-5859-2829 www.enconlab.com.tr

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
Tel: 0 312 447 71 22 Faks: 0 312 447 69 88 www.enconlab.com.tr

ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.038	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Taşkısığı	ÖLÇÜMÜN YAPILDIĞI TARİH	12-13/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	280806-4525988

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	64.9	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	61.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	51.8	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TERİN
İMZA : 08 Mart 2017	**İMZA /KAŞE** encon ENCON LABORATUVARI A.Ş. Reşit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fak: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3433 Tic.Sic.No:373087 Mersis No: 4282-5658-6859-2628 www.enconlab.com.tr
Tarih :	**Tarih :** 10 Mart 2017

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir

-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.

-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.

- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

Adres: Reşit Galip Caddesi No: 120 Gaziosmanpaşa/ANKARA
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ENCON LABORATUVARI A.Ş.

GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	06.03.2017/LGR17.023	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu ProjesiBudaklar	ÖLÇÜMÜN YAPILDIĞI TARİH	11-12/01/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	2878381-4518759

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	54.1	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	49.7	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	47.7	TS ISO 1996-2

KONTROL EDEN :	ONAYLAYAN :
ADI / SOYADI : Hakan YILMAZ	ADI /SOYADI : Hüseyin TEKİN
İMZA : 06 Mart 2017	İMZA /KAŞE : 06 Mart 2017 ENCON LABORATUVARI A.Ş. Resit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 353 095 3432 Tic.Sic.No:373087 Mersis No: 4282-5858-4859-2628 www.enconlab.com.tr
Tarih :	Tarih :

Açıklamalar : Müşteri talebi üzerine özel istek numunesi olarak çalışılmıştır. Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz

-İmzasız ve Kaşesiz Analiz Raporları geçersizdir
-Rapordaki analiz sonuçları analizi yapılan numuneyi temsil eder.
-Bu rapor ve sonuçları ENCON Laboratuvarı A.Ş'nin izni olmadan ticari ve reklam amaçlı tamamen veya kısmen çoğaltılamaz veya yayınlanamaz.
- (*) işaretli parametreler akredite olmayan parametrelerdir.
- (ç) işaretli parametreler Çevre ve Şehircilik Bakanlığı Yeterlik Belgesi kapsamı dışındadır.
-** işaretli parametreler ISO 17025 Akreditasyonuna sahip .....tarafından yapılmıştır.

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GÜRÜLTÜ ÖLÇÜM RAPORU

MÜŞTERİ ADI	Encon Cevre Danısmanlık Ltd. Sti.		
MÜŞTERİ ADRESİ	Resit Galip Cad. No:120 Gaziosmanpasa CANKAYA/ANKARA		
RAPOR TARİH/ NUMARASI	08.03.2017/LGR17.035	ÖLÇÜMÜ YAPAN	M.Eren DEVRAN
ÖLÇÜM YAPILAN YER	Kuzey Marmara Otoyolu Projes/ Osmanbey	ÖLÇÜMÜN YAPILDIĞI TARİH	11-12/02/2017
ÖLÇÜM SIRASINDA ÇEVRE ŞARTLARI	Yağışlı ☐ Kapalı x Açık ☐	ÖLÇÜM NOKTALARININ KOORDİNATLARI	298475-4513142

PARAMETRE	BİRİM	ÖLÇÜM/ ANALİZ SONUCU	KULLANILAN METOT
Eşdeğer Gürültü *L_{Eq} Gündüz (07:00-19:00)	dBA	55.6	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Akşam (19:00-23:00)	dBA	50.3	TS ISO 1996-2
Eşdeğer Gürültü *L_{Eq} Gece (23:00-07:00)	dBA	50.1	TS ISO 1996-2

KONTROL EDEN :	**ONAYLAYAN :**
ADI / SOYADI : Hakan YILMAZ	**ADI /SOYADI :** Hüseyin TEKİN
İMZA : 08 Mart 2017	**İMZA /KAŞE :** encon ENCON LABORATUVARI A.Ş. Resit Galip Cad. No:120 06700 G.O.P. / ANKARA Tel: (0312) 447 71 22 Fax: (0312) 447 69 88 Cumhuriyet V.D. 334 054 3432 Tic.Sic.No:373057 Mersis No: 4282-5058-6859-0020 www.enconlab.com.tr
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ANNEX-6

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR THE NORTH MARMARA MOTORWAY PROJECT

A. ENVIRONMENTAL MANAGEMENT PLAN

A.1. AIR QUALITY AND EMISSIONS MANAGEMENT PROCEDURE

A.1.1. Purpose and Scope

This procedure is prepared in order to identify and present means of management of air emission sources. The procedure will provide mitigation alternatives and an impact monitoring schedule in accordance with Turkish and international regulations and standards. This procedure will cover the activities during construction and operation phases of the project.

The main emission sources on site could be listed as follows:

- Construction Site
- Borrow Sites and facilities (crushing, concrete batching, etc.)
- Administrative and social units (camp facilities)
- Construction machines and activities
- On site and off site access roads (i.e. roads used outside the construction site) construction and traffic on these roads (haulage of materials, etc.).
- Excavation material storage sites
- Operation of the motorway

A.1.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Assessment and Management of Air Quality
- Regulation on the Control of the Air Pollution Sourced by the Industry
- Regulation on Control of Exhaust Gas
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Health Organization (WHO) Ambient Air Quality Guidelines

A.1.3. Air Quality and Emissions Management Approach

Main pollutants emitted from motorway projects are nitrogen oxides (NOx (NO_2 and NO)), particulate matter (PM10), carbon monoxide (CO), hydrocarbons (HC) and carbon dioxide (CO2). PM10 is expected to be emitted mainly during operation phase of the project as a result of material extraction and supply; motorway construction cut and fill operations and storage of excavated material. Particles can vary according to size and composition. PM10 (particulate matter with aerodynamic diameter smaller than 10 µm) standard is set to define the particles that people are likely to inhale and PM10 has become the general measure of particulate matter. In this sense, generally limit values are defined for PM10.

Other potential pollutants are expected to arise from operation of construction machinery and equipments during construction and traffic flow during operation of the motorway.

- Project construction activities are expected to result in dust emissions during land preparation, cut-fill operations and activities of quarries operated in scope of the project. In addition, exhaust emissions such as PM_{10}, NOx, CO, SO_2, VOC, benzene, NH_3 and N_2O. During the construction phase of the project, fuel will be used for construction machinery, transport vehicles and power engines and for heating at the camp facilities. The type of fuel will directly affect the air pollutant emissions. Emissions from transportation and material transfer will emerge during working hours, mainly. Emissions for heating will increase during winter season. Asphalt plants and concrete plants are considered as other emission sources of construction activities.

- Main pollutants expected to be generated during the operation of the motorway will include NO_x, PM_{10}, CO, VOCs and SO_2.

- GHGs will be generated due to project activities during both construction and operation phases of the project.

Impacts of air emissions will be prevented or minimized by ensuring that emissions do not result in pollutant concentrations that reach or exceed ambient quality guidelines and standards by applying Turkish Regulation on Assessment and Management of Air Quality and the current World Health Organization Air Quality Guidelines.

A.1.3.1. Management of Air Emissions

Air quality emissions; sulphur dioxide, oxides of nitrogen, hydrocarbons, and particulate matter would be evaluated through the use of ambient air quality assessments/measurements and monitoring. Based on baseline and other measurements mitigation activities proposed in this procedure will be applied.

A.1.3.2. Management of Greenhouse Gases (GHG)

The six greenhouse gases of concern include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluolorocarbons (PFCs), and sulphur hexafluoride (SF6). Afforestation activities will be carried out through the project in order to enhance carbon capture capacity.

A.1.4. Mitigation Measures for Impacts on Air Quality

The following measures will be implemented throughout the project sites to reduce air pollution due to construction activities:

- Dust will be minimized from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression, bag house filters or cyclones)
- Dust will be minimized from open area sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content
- Speed limitations will be defined and obeyed for construction vehicles.
- Well and adequate maintained vehicles will be used. Regular maintenance of machinery and equipments will be ensured.
- The drop height of potentially dust generating materials will be kept as low as possible.
- Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site.
- Dust suppression methods (i.e. watering with water trucks, applying non-toxic chemicals, speed limits for mobile vehicles, use of well-maintained vehicles/machinery) will be applied at road construction sites, service roads and quarry/material borrow/storage sites to mitigate Project-related dust emissions. In this respect, upper layers of the work sites/materials will be kept at a humidity level of about 10%. Watering will be applied at any time necessary including night time, weekends or off-days by using pressurized distribution or spraying systems that would ensure even distribution of water.
- If there is traffic flow on the existing roads near the work sites, dust suppression measures will be continuously applied to ensure traffic safety. If there is no traffic existing in the local roads, dust suppression measures will be applied only at local residential and business areas.
- All the dust-emitting components of the crushing-screening plants will be put in closed spaces and equipped with dust suppression systems.
- Loading and unloading operations will be performed without throwing/scattering.
- During transportation, excavated materials will be covered with nylon canvas or materials with grain size larger than 10 mm.
- In the supply of construction materials, local licensed quarries (existing or new) will be preferred to reduce transportation distance to minimize associated impacts and costs.
- Wind shields/barriers will be placed at work sites such as material storage areas to prevent dust dispersion where necessary.
- Relevant provisions of the Regulation on Air Pollution Control Sourced from Industry and Regulation on the Assessment and Management of Air Quality will be complied with to minimize air emissions sourced from construction machinery and trucks.
- Blasting operations will be conducted in line with the legislation in force and good industry practices/modern techniques.
- Roads to be used for access to quarry sites will be upgraded by the Project Sponsors to minimize dust emissions during transport. These roads will have sufficient width.
- Driving through settlements will be avoided wherever alternative roads are present.
- Any damage caused by insufficient or lack of dust suppression measures will be compensated.
- Best available techniques will be used for the storage of fuels.

The following measures will be implemented throughout the project sites to reduce air pollution due to operation activities:

- At the service areas, a green buffer strip will be formed between the outer lane of the Motorway and the facilities. This strip will be properly planted (e.g. with shrubs that start growing from the base and are resistant to dust and gaseous emissions) to form a barrier against dust to be sourced from the motorway traffic.
- The application of automatic toll systems along the motorway will contribute to an optimization of traffic flows and thus lower emissions.
- Tunnel ventilation system designed with the objective to remove/dilute vehicle emissions will be installed so that air quality within the tunnel complies with relevant air quality standards.
- In order to ensure appropriate air quality near tunnel portals, need, capacity and type of tunnel ventilation systems, dispersion techniques, air stacks and other technologies will be considered during the design of tunnels.

Above-mentioned measures will reduce emission and dust production considerably. The possible adverse effects on living organisms and their environment will be minimized and environmental pollution will be reduced.

Marmara Otoyolu Joint Venture (MOJV) will be responsible from implementing the mitigating measures against emission and dust production in accordance with the points specified in the Turkish Environment Law and relevant regulations.

This procedure will be implemented throughout the construction phase and it will be continued at the operation phase of the motorway. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

A.1.5. Monitoring of Air Quality and Emissions Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- PM10 will be measured at selected settlements (quarterly or upon complaint) during construction phase and compared with legal limit values/Project standards.
- NOx levels will be monitored at selected settlements (annual) during operation and compared with legal limit values/Project standards.
- Number of water trucks used for dust suppression and frequency of road watering activities will be monitored.

- Grievances received on impacts related with dust/air emissions will be monitored and evaluated to develop corrective actions, as required throughput the Project.
- Presence and validity of environmental permits for concrete plants, asphalt plants, etc. will be checked.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.2. WATER QUALITY, WASTEWATER AND STORMWATER MANAGEMENT PROCEDURE

A.2.1. Purpose and Scope

This procedure is developed in order to provide proper management of the wastewater generated by construction, maintenance, resting areas and toll booth area. The procedure will be based on Turkish and international regulations and standards.

A.2.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Control of Water Pollution
- Regulation on Protection of Water Resources
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.2.3. Water Quality, Wastewater and Stormwater Management Approach

Wastewater will be generated during land preparation and construction activities and also during operation phases of the project. The basic approach will be to reuse the wastewater generated by project activities in activity cycle during construction. This approach will not require any water discharge to environmental media. If reusing will not be an option due to water quality water is to be treated in order to reduce or eliminate the contaminants before being discharged to receiving media. Wastewater management will be carried out in compliance with national and international standards.

Water Quality Management

Treated wastewater and stormwater will be analyzed in order to ensure that the quality and quantity of the wastewater to be discharged will be in compliance with the limit values indicated in national and international regulations. In addition necessary permits will be obtained if required by regulating administrations.

Wastewater Management

Wastewater will be generated during land preparation and construction activities of the project from construction sites and accommodation facilities for workers (camp site, kitchen, cafeteria, etc.). In operation phase rest and maintenance areas and toll booth area will be the sources of wastewater generation. Generated wastewater may contain organic and inorganic pollutants, suspended solids, heavy metals or toxic materials, etc. Wastewater will be either discharged into the local/municipal sewage network or treated prior to discharge to the suitable receiving environment or collected onsite and transported by tanker for disposal at the local sewage treatment works.

Stormwater Management

Stormwater accumulated in construction sites may be contaminated due to run-offs. The water may drag certain pollutants such as; chemicals, debris, sediments, etc. Due to this fact, measures will be taken in order to avoid/minimize stormwater discharge to receiving bodies.

Final structure of a motorway will lead to an increase on impermeable surface area because of its nature. That situation leads increase on the rate of surface water runoff and high storm water flow rates can lead erosion and flooding. During flood times, bridges, culverts and diversion channels may impede flow. This situation cause increase at water level on upstream of relevant structures.

Surface water management

Maintenance activities like using de-icing agents may affect surface water quality but this impact can be classified as temporary.

During operation of the motorway, there may be spills during road accidents and also spillages / leakages from filling stations. These events may lead to high amount of water with hazardous substance discharge to a surface water body. The risk of water pollution is also high within all road sections close to surface water bodies. Even though, this impact can also be classified as temporary as accidents and/or spillages / leakages can be considered as one-time events.

Routine deposits (tyre and brake deposits, hydrocarbons from engines, liquid exhaust emissions etc.) of vehicles travelling on motorway and leakage of road body itself (tar soils) and road marking materials have possibility to impact surface water quality. As these events are continuous, impact can be considered as permanent.

Construction of viaducts, bridges and culverts is likely to change the hydrological regime with potential impacts on the beds and banks of rivers (scour, erosion, deposition etc.). A possible change on hydrological regime is temporary.

In case of an inappropriate design, physical interference of a stream by installation of temporary culverts and roadways has possibility to impact hydrological regime of a stream significantly.

Measures for surface water management will be taken in order to comply with national and international standards.

Groundwater management

Especially on areas with shallow overburden, accidental discharges of hazardous materials to the ground have possibility to contaminate aquifers.

Site clearance, earthwork, spillages/leakages from construction sites and refueling vehicles may contaminate bedrock aquifers.

All wastewater from construction activities (sanitary or industrial) poses a risk to the water environment if not treated before discharge.

Some deeper excavation works may require permanent dewatering of a groundwater component.

During earthworks and other soil-related activities; in sections cut into the bedrock or shallow overburden, any fissure permeability is at risk of blockage by infiltrating sediment/fines.

Drainage and Flooding Management

Final structure of a motorway will lead to an increase on impermeable surface area because of its nature. That situation leads increase on the rate of surface water runoff and high storm water flow rates can lead erosion and flooding.

During flood times, bridges, culverts and diversion channels may impede flow. This situation cause increase at water level on upstream of relevant structures.

A.2.4. Mitigation Measures for Impacts on Water Quality

As some of the impacts would be mitigated during design phase of the Project, the mitigation measures are divided into three phases namely; design, land preparation and construction and operation. This procedure will not involve the mitigation measures to be taken in design phase since it will be implemented starting with the construction activities.

Mitigation measures listed below will be implemented in order to reduce the amount of wastewater, manage stormwater and floods, and enhance the quality of the wastewater;

Land Preparation & Construction

<u>Mitigation Measures for Surface and Groundwater Quality</u>

- Fuelling of equipments and vehicles will not be conducted within excavated areas.
- In the selection of temporary storage sites for oil, fuel and chemicals, location of the water resources will be taken into consideration.
- Waste oils will be stored in tanks/containers located on impervious surfaces.
- Secondary containment will be provided (on concrete surfaces) for all the storage tanks/barrels containing chemicals including diesel fuels or hazardous liquid wastes. Absorbents will be kept available at storage sites, if necessary. Volume of containment structures allocated for the storage of fuel, oil or other chemicals will be sufficiently greater than the volume of contained liquid.
- Hazardous materials will not be stored within excavated areas. Supervision will be used during handling of all hazardous materials. Impervious bunds and other containment techniques will be used where hazardous materials are handled.

- All wastewater discharges from all components of the construction must comply with relevant legal requirements. Treated water will be reused where possible and feasible.
- Wastewater from all construction compounds and associated building will be either discharged into the local/municipal sewage network or treated prior to discharge to the suitable receiving environment or collected onsite and transported by tanker for disposal at the local sewage treatment works.
- Quarry pond dredging activities will be designed and implemented in material quarries to minimize drawdown with consideration of potential impacts to surface and groundwater resource flow and availability.
- When water quality criteria allow, stormwater also will be managed as a resource for meeting water needs of Project whenever feasible.
- Before discharging according to relevant legal requirements, drainage from excavations will be collected and treated to remove contaminants. Perimeter drains will be constructed around all working areas to collect potentially contaminated run-off and direct it to a system of settlement tanks before discharge in accordance with required permits.
- Direct discharge of contaminated run-off from work sites will not be allowed.
- In order to provide direct run-off to the collection system; channels, bunds and sandbag barriers will be used.
- In order to keep roads and other surfaces clear of dust, sweeping will be used rather than washing
- In order to remove asphalt residues, biodegradable cleaning agents will be used.
- In order to ensure proper and efficient construction process, maintenance and inspection of all facilities and structures will be done regularly; especially heavy rainfall. Sediment deposits will be regularly removed and disposed of at either by spreading on site (if uncontaminated) or at a suitably licensed facility.
- High sediment generating activities such as road paving will be avoided and exposed surfaces and stored materials covered if necessary to reduce erosion of sediments into surface waters.
- During construction, Emergency preparedness and Response Plan will be implemented.
- Exposure of areas of open ground will be kept minimum in size and duration.

<u>Mitigation Measures for Surface Water Bodies and Channels</u>

- Whenever and wherever possible; construction of bridges, viaducts, retaining walls and other structures will be carried out during lean water season months.
- Fencing will be used at sensitive areas of rivers and drains for protection.
- Isolation techniques such as beaming or diversion during construction to limit the exposure of disturbed sediments to moving water will be used during in-stream works.
- In order to protect small drains within the construction areas, they will be covered with metal plates which can be passed over by construction machines.
- For Stream crossings the work will be carried out from the banks above the channel and avoiding direct intervention in the watercourse unless the existing bank reinforcement needs to be replaced. The works will be undertook during periods of low flow. Duration of in-stream activities will also be restricted.

- Use of grass turf from adjacent areas to cover the soil surface, use of erosion control blankets or mats and other relevant soil erosion prevention measures will be implemented after the finalization of an earth work.
- Groundwater from dewatering will be drained to a near surface water course.
- The turbidity has to be monitored and if needed a settling tank would be established.

Operation Phase

Mitigation Measures for Surface and Groundwater Quality

- Sealed basement and bunds with a capacity of the 100% of the storage capacity of the largest tank will be used at fuel stores and other harmful substance stores.
- Through the motorway, absorbent materials within spill response kits will be handled. They will be held at secure and clearly signposted locations. Kits will have instructions and relevant personnel will be trained.
- In case of a spillage, hazardous material will be immediately removed from site, including the contaminated soil. It will be sent to suitable treatment and disposal.
- Sand layers as filters in seepage pits (detritus basins in the form of a shallow pit connected to drain trenches), allowing hardly any harmful substances to percolate into deeper soil layers or into the groundwater. However, these findings are not applicable to highly vulnerable ground water systems or alluvial aquifers with high water tables and thin soil coverage.
- Inspection and maintenance of permanent erosion and runoff control features will be done regularly.
- Oil separators will be installed at fuel stations.
- Motorway will be paved in dry weather to prevent runoff of asphalt or cement materials
- In need of deicing, mechanical deicing methods (sweepers and plows) will be used firstly, it will be complemented by chemical means if necessary. In addition to that, anti-icing and deicing agents will selectively applied based on expected pavement temperatures and the use of road weather information systems. Furthermore, employees in the application of anti-icing and deicing agents will be trained to use these at optimum rates and times. Anti-icing and deicing agents will be selected based on the location of environmentally sensitive areas and the potential impacts of the particular agent.

Mitigation Measures for Groundwater Flow Regime

- Measures will be developed to ensure that no indirect impacts on any important groundwater resources occur, where medium to long-term or permanent dewatering is required the water is to be drained to the Motorway drainage system but to a near surface water course.
- In order to supply water to groundwater wells during possible water depletion times, infiltration will be promoted.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be responsible for wastewater management in accordance with the matters indicated in the Environment Law and its relevant regulations.

Wastewater management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to water management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.2.5. Monitoring of Water Quality, Wastewater and Stormwater Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Water quality in selected water resources will be monitored (by means of sampling and analyses to be done by accredited laboratories) at selected settlements (quarterly).
- Sources and amount of water supplied by the Project will be monitored and water supply permits will be checked.
- Environmental permits for package domestic wastewater treatment plant discharges, wastewater disposal agreements/channel connection permits to be done with municipalities and capacity of package domestic wastewater treatment plant will be checked/monitored.
- Discharge/disposal volumes will be monitored.
- Wastewater management practices at concrete plants will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc.. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.3. SOLID WASTE MANAGEMENT PROCEDURE

A.3.1. Purpose and Scope

This procedure is prepared in order to address main solid waste sources and propose minimization or prevention measures for solid waste generation. Procedure sets out the general principles for reuse and recycle during the construction and operation phases of the project.

The main waste sources of the project are:

- Quarries and Material Borrow Sites: In the scope of the North Marmara Motorway Project, a limestone quarry will be used to supply the material requirements (temporary and permanent work site structures, etc.)
- Construction areas
- Administrative and social units (accommodation units, administrative buildings, social facilities, etc.)
- Security units (police stations, security points, etc.)
- Toll collection area and booths
- Rest/service areas
- Maintenance and operation areas
- Storm water drainage systems (including sediment traps and oil/water separation systems)
- Right-of-way maintenance
- Maintenance of bridges and motorway

Residential/domestic waste is the waste arising from the staff that will work at the construction and operation phases. Excavation waste will be created as a result of the excavation and similar activities that are performed during the land arrangement of the motorway structures such as; road base, shoulders, side slope arrangements, etc. and material borrow sites Construction waste will be created during construction of the motorway structures. Packaging waste will be created as a result of the consumption of the materials (construction materials, food, clothes, etc.) that will be used in the project.

A.3.2. References

- Turkish Environmental Legislation
- Environmental Law
- Solid Wastes Control Regulation
- Regulation on Controlling Package and Packaging Wastes
- Excavation, Construction and Demolition Wastes Control Regulation
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.3.3. Solid Waste Management and Recycling Approach

Solid waste to be generated in the construction site will be available for categorization. During construction activities waste is expected to be generated due to material use for construction, accommodation of the workers in the area and daily use of paper/plastic/metal/glass containers, excavation, etc. Waste will be separated according to their types. During operation phase solid waste will be generated in the maintenance/rest areas and toll booth area.

For solid waste management the basic principle is to prevent waste generation and consider reduction/reuse/recycle options where waste generation is inevitable. The solid waste generated on site will be stored and disposed in compliance with the national and international regulations.

Reusing is also an alternative for waste types such as; wood/timber, metals, topsoil, excavation material etc. This alternative will create an opportunity to reduce the waste material to be disposed.

Recycling is another important alternative for solid waste management to for making disposed material useful. Recycling will be applied for paper/plastic/metal/glass materials that are not contaminated with any hazardous materials. Waste tires will also be recycled.

Separate recycling containers will be provided for each of the above group of solids, labeled according to the waste to be disposed, recyclable waste will be collected on a regular basis and taken to permitted/licensed facilities to be recovered/recycled and/or disposed in an environmentally sound manner.

It's important to create awareness on solid waste management. The Project Sponsors will inform workers on site through environmental trainings.

Domestic waste that is not suitable for reuse or recycling will be collected and disposed at a landfill in compliance with related Turkish legislation, which is in line with the European Union (EU) requirements.

A.3.4. Mitigation Measures for Impacts of Solid Waste

Although the main principle for solid waste management is to prevent waste generation; there will be mitigation measures for the solid waste generated during construction and operation activities. These measures are listed below:

- Cooperation will be made with the licensed local service providers (e.g. ISTAC A.S., other private licensed waste transportation/recycling/ recovery firms and written agreements/protocols will be made regarding the regular and sound management/disposal of Project-sourced wastes.
- Amount of wastes to be sent to off-site management will be minimized with the implementation of the Waste Management Plan that relies on the waste management hierarchy.

- Amount of excavated materials to be sent to disposal will be minimized by reusing as fill material in the construction of road base, shoulders, side slope arrangements, etc. to the extent the quality and quantity of materials allows.
- Relevant forestry permits will be obtained from the forestry authorities.
- Sites will not be located on dense forest areas with primary ecological functions.
- Proper temporary waste storage areas will be built.
- Excavated materials will be disposed of at designated storage sites only.
- Waste Management Plan will be implemented.
- Trainings will be provided to Project personnel regarding the proper implementation of waste management procedures in line with the requirements of national legislation and good site practices.

The measures that are taken for solid waste management will ensure the reduction of environmental pollution and the use of natural resources such as energy and raw materials with maximum efficiency by minimizing the negative effects of the created solid wastes on the environment.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be the “owner” of the solid waste that will be created and it will be responsible for the management of it in accordance with the matters indicated in the Environment Law and its relevant regulations.

The solid waste management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to solid waste management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.3.5. Monitoring of Solid Waste Management and Recycling

Solid waste management will be achieved through periodical monitoring activities to be carried out on site. National and international regulations will be applied for setting the basic principles for waste management. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Type (i.e. municipal, packaging, waste oil, etc.) and amount of wastes produced/disposed of will be reviewed
- Waste management/disposal agreements done with licensed companies will be controlled
- Waste Management Plans will be reviewed
- Temporary Waste Storage Areas will be inspected.
- Site practices on waste management (e.g. general housekeeping rules, source separation practice, containers, containment structures, etc.) will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.4. HAZARDOUS WASTE MANAGEMENT PROCEDURE

A.4.1. Purpose and Scope

This procedure is drafted for setting the basic principles for hazardous waste management and disposal rules taking into account national and international regulations. The project will cause hazardous waste generation during both construction and operation phases. The main areas of concern for hazardous waste generation are:

- Construction areas
- Administrative and social units (accommodation units, administrative buildings, social facilities, etc.)
- Rest/service areas
- Maintenance and operation areas
- Storm water drainage systems (including sediment traps and oil/water separation systems)
- Right-of-way maintenance
- Maintenance of bridges and motorway

A.4.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Hazardous Chemicals Hazardous Waste Control
- Regulation on Controlling Waste Oils
- Waste Battery and Accumulator Regulation
- Regulation on Transportation of Dangerous Substances on Highways
- Medical Waste Control Regulation
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.4.3. Hazardous Waste Management Approach

For hazardous waste management the basic principle is to prevent waste generation and when it is unavoidable, hazardous waste will be managed in compliance with the national and international regulations. Hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed.

For North Marmara Motorway Project the main substances that will be considered as hazardous waste will contain at least the following:

- Chemical solutions used for construction and maintenance activities,
- Containers of chemicals,
- Explosives,
- Flammable materials,

- Waste oils; (petroleum derived or vegetable)
- Contaminated soils,
- Asphalt material used for construction of the motorway and also generated from scraping activities during operation phase,
- Any contaminated material used for construction and maintenance activities such as; clothes, personal protection equipment, etc.

Hazardous waste will be stored on site during construction and operation activities. The waste will be stored in such a manner in avoiding any contact of the waste with air, water and soil resources, fauna flora components, on-site personnel and also people who might potentially be affected. Hazardous wastes will be stored in properly labeled impermeable containers separately.

Transportation of the hazardous waste will be carried out preventing any leakages or spills and contact of the personnel handling the waste. Transportation will be done by licensed companies. Proper labeling is important for transportation as well. Transported waste will be disposed by licensed facilities/companies; the disposal methodology will based on waste type.

A procedure for hazardous waste storage, labeling, transportation and disposal will be developed taking into account national requirements and IFC standards.

A.4.4. Mitigation Measures for Impacts of Hazardous Waste

The following measures will be taken within the scope of the Hazardous Waste Management Procedure in order to properly handle, store, transport and dispose hazardous waste that would be generated:

- All necessary measures will be taken to prevent or reduce production of hazardous wastes and to minimize the quantity and environmental impacts of waste produced.
- Hazardous wastes will in no way be disposed of (incinerated, buried, etc.) at the site where they have been produced, and will not be discharged into surface or ground waters or in locations where they would have an adverse impact on the environment
- Oil and oily wastes will be disposed of in an appropriate manner such that they will be collected according to the measures described in this section and selling of these wastes to the facilities, which uses waste oil in their manufacturing processes, will be considered as appropriate. Waste oil for recycling will not be mixed with degreasers, solvents, antifreeze, or brake fluid.
- Proper regular inspection and maintenance of equipment and machinery will be conducted as required for different types of equipments and these actions will hinder pollution of water by these sources.
- Information including Material Safety Data Sheets (MSDS) of the manufacturer with regard to environmental, health and safety risk, safe handling, storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials will be obtained.

- All relevant national Turkish legislation with regard to safe handling, storage, transport, use and disposal of petroleum, chemical, harmful and hazardous substances and materials will be complied with (in particular, Turkish Hazardous Waste Control Regulation (HWCR))
- For wastes in solid or liquid state, types of container and transport suitable for the nature of the waste will be identified and the type, source, quantity and storage date of the waste will be clearly written on the container.
- Hazardous wastes may be transferred to third parties for handling and disposal. Wastes will only be transferred to third parties who have suitably authorized/licensed facilities with the capabilities of management, handling, recovery, recycling and disposal in a safe, reliable manner for the environment.
- Hazardous products will be labeled as required by the national legislation.
- On the hazardous waste containers, there will be descriptive labels showing the content, quantity and storage date of the waste. Such labels will be affixed to a readily visible surface of the container and so as not to fall off. The warning signs and waste labels will be in conformity with the hazardous waste labeling system determined in the current Regulation for the Control of Hazardous Wastes.
- Labels will be secured to prevent falling off.
- During usage or coming into contact with hazardous material personal protective equipment will be used.
- Corrosive liquids will be stored and kept separate from flammable liquids.
- Information posters about the hazardous materials will be hanged on open, conspicuous, and accessible locations.
- Employees and subcontractors will be inspected by the Environmental Department regularly throughout the construction phase of the project to ensure that appropriate practices are being employed.
- The limited amounts of hospital type, medical wastes generated in the infirmary/medical facility will be handled, temporarily stored in sealed, labeled containers in a secured area of the infirmary facility until they are sent to disposal in compliance with Turkish Medical Waste Control Regulation.
- Solid or liquid materials that may contain hazardous substances will be properly handled and stored in a manner that minimizes or eliminates the discharge of these materials to watercourses and natural environment. Such substances can be summarized as; detergents; gypsum plaster; petroleum products such as fuel, oil, and grease; asphalt and concrete related compounds.

A.4.5. Monitoring of Hazardous Waste Management

Hazardous waste management will be achieved through periodical monitoring activities to be carried out on site. National and international regulations will be applied for setting the basic principles for waste management. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- List of hazardous materials/chemicals supplied, stored and used (inc. information on type and amount/volume) will be controlled.
- Hazardous waste management/disposal agreements done with licensed companies will be controlled
- Waste Management Plans will be reviewed
- Hazardous waste compartments of the Temporary Waste Storage Areas will be inspected.
- Site practices on hazardous waste management (e.g. general housekeeping rules, source separation practice, containers, containment structures, etc.) will be monitored.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

The measures taken in hazardous waste management will minimize the adverse environmental impacts of wastes produced and thus ensure that environmental pollution is reduced and that natural resources such as energy and raw materials are used at maximum efficiency.

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be the “owner” of the hazardous waste that will be created and it will be responsible for the management of it in accordance with the matters indicated in the Environment Law and its relevant regulations.

The hazardous waste management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

As mentioned above; hazardous waste management will be important for the operation phase as well. Administrative and social units (accommodation units, administrative buildings, social facilities, etc.), Rest/service areas, Maintenance and operation areas, Storm water drainage systems (including sediment traps and oil/water separation systems), Right-of-way maintenance, maintenance of bridges and motorway will require special attention in order to be in compliance with the national legal requirements relating to waste management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

A.5. NOISE MANAGEMENT PROCEDURE

A.5.1. Purpose and Scope

"Noise Management Procedure" is developed to manage significant sources of noise and its impacts on the receiving environment (including humans and wildlife), as well as monitoring the noise levels generated by project activities. The overall aim is to keep the noise impacts below the accepted limits in accordance with Turkish and international regulations and standards.

A.5.2. References

- Turkish Environmental Legislation
- Environmental Law
- Regulation on Assessment and Management of Environmental Noise
- Regulation on Noise Emissions to the Environment by Equipments Used in Open Areas
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Health Organization (WHO) Ambient Air Quality Guidelines

A.5.3. Noise Management Approach

Land preparation and construction activities within construction phase and motorway operation will cause increases in noise levels in the vicinity of the motorway route. These effects will be temporary for construction phase where during operation the traffic noise will constitute a negative impact. Traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade obstacles

In this context, noise prevention and mitigation measures would be applied at construction sites during the construction phase and at relevant sections of the highway route for the operation phase to keep the noise levels below the acceptable national and international standards at the closest sensitive reception points to the source.

A.5.4. Mitigation Measures for Impacts of Noise

Marmara Otoyolu Joint Venture (MOJV) will be deemed to be responsible for noise and vibration management in accordance with the provisions indicated in the Environment Law and its relevant regulations.

Noise management measures will be implemented throughout the construction and operation phases. The on-site specification, implementation and supervision of measures will be under the responsibility of the Environmental Department.

The project will also be required to be in compliance with the national legal requirements relating to noise management. The Environmental Department will be responsible during the operation phase for fulfilling this need.

Land Preparation and Construction Phase

In order to keep noise levels below acceptable national standards at the closest sensitive receptors to the source of noise, the following mitigation measures will be applied:

- Equipments and machinery with lower sound power levels and sound reduced models will be preferred.
- New vehicles, machinery and equipments will be used.
- Maintenance of construction machinery and equipments will be carried out regularly.
- Silencers will be installed on exhausts of vehicles and other equipment such as mechanical plants
- Portable barriers and acoustic enclosures will be used where appropriate (such as around equipments like generators)
- Speed limitations will be defined and obeyed for construction vehicles, particularly near sensitive use areas
- Traffic through residential areas will be avoided wherever possible and dedicated site access roads will be used to approach camp sites, quarries and storage areas. New access roads will be constructed where required to avoid disturbance in residential areas.
- According to the environmental monitoring plan, noise monitoring will be conducted during the construction phase and the effect of noise in near neighborhoods will be controlled regularly. In case of any inconsistencies with regulation limits, measures will be immediately taken to diminish the noise levels and to satisfy the standards.
- Potentially affected buildings such as hospitals, which are sensitive to night time disturbance, will be identified prior to construction works in the vicinity and night construction works will be limited accordingly.
- Construction vehicles will not be permitted to keep engines running while waiting to enter the site or waiting on-site.
- Ancillary components in camp sites such as generators will be established by taking into account potential noise disturbances
- Motorway alignment will be used for transportation whenever possible
- Roads used during construction of the motorway will be well maintained.
- Site personnel will be trained to undertake construction activities using methods to reduce noise

Operation Phase

- At the service areas, a green buffer strip will be formed between the outer lane of the Motorway and the facilities. This strip will be properly planted (e.g. with shrubs that start growing from the base and are resistant to dust and gaseous emissions as well as noise) to form a barrier against noise to be sourced from the Motorway traffic.

- During design phase of the project advantage will be taken from natural topography as a noise buffer
- Route of motorway through residential areas will be prevented as much as possible
- Application of action plans near suggested locations as a result of noise modeling study will be evaluated during further stages of project development. In addition, noise barrier establishment will be considered according to results of noise monitoring at specified locations as detailed in Environmental and Social Monitoring Plan (see Chapter 20).
- Action plans in accordance with Technical Specifications of KGM will be applied where applicable.
- If any complaint related with noise is received through Project's Grievance and Comment Mechanism, the complaint will be evaluated and where necessary, corrective actions will be planned and implemented.
- Annual noise measurements will be done at critical receptors determined by noise modeling during the whole operation phase and the noise barriers would be provided in case the measurements would approach (2Dba) to the thresholds specified at IFC guidelines. If noise barriers are insufficient for reducing the noise level at those areas additional measures such as landscaping will be implemented. Therefore, noise modeling and critical receptors will be revised based on design changes or other mitigation measures applicable at critical locations.

A.5.5. Monitoring of Noise Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Environmental noise level (dBA) will be measured at selected settlements during construction (quarterly or upon complaint) and operation (annual) phases and compared with legal limit values/Project standards.
- Number of water trucks used for dust suppression and frequency of road watering activities will be monitored.
- Presence and validity of environmental permits for concrete plants, asphalt plants, etc. will be checked.

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

A.6. HABITAT ALTERATION, FRAGMENTATION AND WILDLIFE MANAGEMENT PROCEDURE

A.6.1. Purpose and Scope

This procedure is developed to handle the project activities that are causing habitat alteration and fragmentation in a way that the impact on wildlife habitats and species are minimized in line with national and international standards/requirements.

A.6.2. References

- Turkish Environmental Legislation
- Environmental Law
- Law on National Parks
- Law on Protection of Cultural and Natural Heritage
- Law on Terrestrial Hunting
- Law on Forests
- Law on Fisheries
- By-law on Conservation of Wetlands
- Regulation on Protection and Development of Wildlife Areas
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

A.6.3. Habitat Alteration, Fragmentation and Wildlife Management Approach

The construction and operation of the Motorway Project will involve a wide range of activities that have the potential to affect ecology. Impacts of project activities can be further divided into the target group of biological elements as terrestrial and aquatic. Important impacts of Motorway construction and operation activities on biological environment are mainly habitat fragmentation.

The ecological effects of transportation include disturbance in terms of noise and visual nuisance and pollution, which act to reduce the suitability of adjacent areas for wildlife. The infrastructure itself contributes significantly towards habitat fragmentation by creating barriers to animal movement. This may result in the isolation and extinction of vulnerable species.

The habitats and species of high importance will be identified before project initiation in order to provide habitat and ecology management.

Best practice dictates that project planning and design should aim to avoid ecological damage, especially to protected or sensitive habitats and/or species. The avoidance of fragmentation will be considered before resorting to mitigation measures. Following articles are general principles to consider against the habitat fragmentation:

- The fragmentation of natural habitats by transportation infrastructure is a problem, which can only be solved through acceptance of the issue at a policy level. Only an interdisciplinary approach involving planners, economists, engineers, ecologists and landscape architects etc., can provide the necessary tools for successfully addressing fragmentation. Public involvement is also essential to ensure the success of the chosen solutions.
- Habitat connectivity is a vital property of landscapes and is especially important for sustaining animal movement across the landscape. The preservation of habitat connectivity would be a strategic goal in the environmental policy of the transport sector.
- Avoiding and mitigation will be applied from the start of the planning process.

A.6.4. Mitigation Measures for Habitat Alteration, Fragmentation and Impacts on Wildlife

General mitigation measures will be implemented during the construction phase to protect ecological receptors as follows:

- Study areas will be clearly defined before vegetation clearance where construction activities will be taking place.
- Access roads will be clearly defined before the onset of construction activities in order not to harm flora elements that are outside the construction sites.
- Project construction sites and access roads will be separated from other areas with appropriate signboards, signs and fences. Therefore, staff and vehicle access to the area will be limited to the construction site.
- Vegetation clearance will take place gradually, so fauna elements will be allowed to leave construction sites.
- During vegetation clearance, equipment will be selected so as not to harm plant roots.
- Intrusion of any invasive flora species into the project area and its surroundings will be prevented. For this purpose, especially vehicles used for vegetation clearance and/or plant transfer will be checked beforehand.
- Construction waste generated due to project activities will first be stored at designated storage areas and then disposed. Solid waste will not be allowed to be left at natural habitats,
- Project workers will not be allowed to bring any live animals or plants into the construction site to avoid the risk of pest/invasive species establishing in the Project Area.
- The construction phase will be carried out with biologist to be taken mitigation measure and to interfere for some impacts from construction activities taken where necessary.
- In order to minimize of the critical species' population losses, bulbs and seeds of the endemic plants will be collected and transported to areas that will not be affected by the activity or it will be used on the roadside for landscaping after the activity.
- Animals of interest will also be transported to suitable habitats before the initiation of construction activities.

Mitigation measures for operation phase are listed below:

General structures for creating routes, passages will be built in order to minimize disturbance of animal habitats such as;

- Viaducts: Viaducts are particularly valuable to preserve ecosystems. They are favorable for invertebrates and small vertebrates, which are strongly linked to particular vegetation types and hardly use underpasses without plant cover. 9 viaducts will be established within the scope of the European part of the Motorway Project.
- Culverts: Culverts for animals are primarily constructed as safe crossing points for mammals. They are a suitable solution particularly in hilly areas or where the infrastructure is built on an embankment. Target species are usually mammals. Smaller mammals may readily use these culverts as well.
- Fences: Fences will be erected to prevent the access of animals onto roads only for high risk areas. They are mostly constructed to reduce accidents due to collisions between large mammals and cars, but also to reduce the number of smaller animals killed on the roads.
- Warning signs: Warning signs aim at influencing the behavior of drivers in order to reduce the number and severity of collisions between large mammals and cars.
- Adaptation of the habitat alongside the infrastructure: By avoiding animals moving onto the road or attracting them elsewhere
- Lights: In sensitive areas the need to establish road lights is to be balanced against the consequences for nature. To prevent collisions of insects the use of sodium lights is recommended.

A.6.5. Monitoring of Habitat Alteration, Fragmentation and Wildlife Management

In order to ensure that the Habitat Alteration, Fragmentation and Wildlife Management Procedure is being implemented successfully, key sites within surrounding habitats and species of higher sensitivity will be monitored throughout the construction phase of the project, and afterwards if necessary. Monitoring program will consider the following points:

- Monitoring studies will be carried out to examine the habitats and flora species affected by the operational phase and to examine adaptations determined critical species that will be collected and planted in alternative areas.
- In addition, monitoring studies will be carried out in order to examine adaptation of fauna species with mitigation measures that will be taken and whether mammals and bird species are affected from operation activities.
- The restoration of damaged habitats in the post-construction period will also contribute positively to the amphibian and reptile species in these habitats. In this respect, it will be carried out a monitoring study to obtain data on the population status of critical species.

A.7. QUARRY MANAGEMENT PROCEDURE

A.7.1. Purpose and Scope

This procedure is prepared in order to address necessary environmental compliance implementations in quarry areas. The procedure also identifies the basic rehabilitation implementation to be completed following the closure of the quarries.

A.7.2. References

- Turkish Environmental Legislation
- Environmental Law,
- Forestry Law
- Pasture Law,
- Pastures Regulation
- Regulation Concerning the Rehabilitation of the Lands Disturbed by Mining Activities
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads
- World Business Council for Sustainable Development (WBCSD), December 2011. Guidelines on Quarry Rehabilitation

A.7.3. Quarry Management Approach

Quarries and materials borrow sites will be used in the context of the project.

The main construction activities in quarry areas will be; isolation of the slope line on the terrain, stripping the topsoil material off the underlying rock as required, transportation to the storage area by trucks, drilling and blasting works. During this progress various impacts will be created. Environmental impacts of quarry operation will be involving; air pollution, noise, wastewater generation, risk of accidents, and change in the land use. All these impacts will be minimized by implementing the other environmental management procedures on quarry sites.

All the impacts except land use change will be minimized to a minimal level when the quarries are closed. Rehabilitation activities will be carried out in order to minimize the effects of change in land use pattern.

Management of Quarries

The implementation of quarry management plan will begin at the construction phase, and it will continue until the completion of the extraction of materials from the quarries and the restoration of the quarries to a state that is in harmony with the nature. The specification and supervision of the measures related to quarry operations would be under the responsibility of the Environmental Department.

Rehabilitation Works

The measures, which will be implemented during Quarry operation in order to prevent/reduce the negative effects on the environment, are provided below:

- The post-closure land use needs to be clearly assessed when initiating a quarry rehabilitation plan, even if this can evolve over the lifetime of the quarry. The quarry rehabilitation plan will be based on a clear set of objectives reflecting the legislative requirements (as the highest priority), and encompassing the local social, economic and environmental (including biodiversity) considerations for the future use of the site. The objectives will be technically and financially sustainable

- Legal compliance must be the minimum requirement when establishing each quarry rehabilitation plan. The rehabilitation guidelines will never be in conflict with, but would always complement and go beyond legal compliance

- The rehabilitation plan will ensure the site is left in a safe and stable condition. The safety of the rehabilitated quarry includes the stability of slopes, roads and raw materials piles. Safety will always be considered as paramount for the rehabilitation plan

- Stakeholders will be listened to, and relevant stakeholders will be involved at all stages. The quarry rehabilitation plan must address stakeholder expectations, and be aligned with, or leverage from, the stakeholder view, experience, culture and customs

- An assessment of the baseline conditions will enable identification of the impacts and measurement of the changes that may arise as a result of quarrying activity. The assessment of baseline conditions will include air and water, flora and fauna, site safety, landscape integration, human activities and cultural heritage

- The rehabilitation plan will be developed prior to the commencement of mining for new sites, but will also be developed for operating quarries, where such a plan does not already exist. It will be aligned with the mining plan. Depending on the objectives and priorities set, the development and monitoring of management plans for biodiversity would, at a minimum, be considered as a supplement to the quarry rehabilitation plan, and in other cases, as core parts of the plan

- A monitoring plan and appropriate corrective measures (if necessary) will be included in the rehabilitation plan, thereby ensuring the documentation and measurement of performance against the objectives

Marmara Otoyolu Joint Venture (MOJV) will be responsible for rehabilitation of the quarries in accordance with the points specified in the legislation stated above.

A.7.4. Monitoring of Quarry Management

An independent monitoring program will be implemented for evaluating the efficiency of management strategies and mitigation measures. The proposed scope of the monitoring activities is as follows, which may be revised within the course of the Project as required:

- Operation licenses will be controlled for the sites to be operated.
- Mining method applied, production amounts, slope stabilities, borders of work sites and management of waste rock will be monitored

In addition, daily general site overview would be done by the Environmental Department in order to provide basic information on construction progress, site organization, etc.. Monthly coordination meetings with project management will also be held by the Environmental Department in order to provide feedback on environmental matters and present main findings of the monitoring processes.

In addition to the independent monitoring, the experts who work in various institutions including the Ministry of Environment and Urbanization, Ministry of Health, Ministry of Labor and Social Security and the provincial organizations of these ministries may inspect the activities. The timing and frequency of these inspections would be determined by the relevant institutions.

If non-compliance is found as a result of the monitoring and inspection activities, all the work that is required to eliminate the non-compliance will be carried out by the Project Sponsors.

B. OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN

Procedures under the Occupational Health and Safety Management Plan define the main safety principles to be implemented for employees during the project construction and operation phases. Occupational Health and Safety Procedures are prepared in order to provide guidance on ensuring compliance of materials and equipment used in the context of the project to national and international requirements. The procedures will support creation of a safe working environment for the employees where possible accidents/incidents are reduced to a minimum level.

References

- Occupational Health and Safety Regulation
- Health and Safety Regulations in Construction Works
- Heavy and Dangerous Works Regulation
- Regulation on Measures to be Taken for Works with Flammable, Explosive, Hazardous and Harmful Substances
- Regulation for the Protection of the Workers Against Dangers of Explosive Environments
- Regulation on Labor Health and Work Safety Precautions for Mining and Rock
- Quarry Enterprises and Tunnel Construction
- Regulation on Grounding of Electrical Installations
- Regulation on Occupational Health and Safety for Temporary Works and Certain
- Period Works
- Noise Control Regulation
- Vibration Regulation
- Regulation on Health and Safety Measures for Working with Chemical Materials
- Regulation on Tasks, Authorities, Responsibilities of the Engineers and Technical Staff regarding Labor Safety and Manners and Essentials of Their Works
- Regulation on Health and Safety Conditions in Using Work Equipment
- Regulation on Handling of Personal Protective Equipment in Workplaces
- International Finance Corporation (IFC) Environmental, Health, and Safety General
- Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

B.1. PHYSICAL HAZARDS MANAGEMENT PROCEDURE

B.1.1. Purpose and Scope

This procedure is prepared to define strategies in accordance with national and international regulations/standards to prevent and control potential physical hazards that project personnel may be exposed to.

B.1.2. Physical Hazards Management Approach

Physical hazards represent potential for accident or injury or illness due to repetitive exposure to mechanical action or work activity. Road construction and maintenance personnel may be exposed to physical hazards during the land preparation and construction phase of the Project. These hazards may be due to the operation of heavy construction vehicles during the earthworks, working at height for the construction of bridges, overpasses, viaducts, exposure to severe weather conditions, exposure to high noise levels caused by construction machinery and equipments, etc. Poorly trained or inexperienced drivers would increase risk of accident with other vehicles, pedestrians, and equipment. Additionally, heavy equipment operators have limited fields of view close to their equipment and may not see pedestrians close to the vehicle. These risks would be similar to any large scale infrastructure project and can be managed effectively with good management and implementation of occupational health and safety measures (IFC, April 2007).

Similar to the construction phase, operation, maintenance and landscaping personnel working on the Motorway may be subject to the chemical hazards due to exhaust emissions of the vehicles driving on the road or passing through the toll plazas and tunnels, or due to hazardous dust or asphalt fumes generated during activities such as pavement, painting, vegetation removal, etc.

The main approach in management of physical hazards is prevention. Measures will be taken especially in terms of moving machinery, elevated work places, and fall protection in order to prevent any physical hazard that on-site workers may be exposed to in order to avoid any injury that may occur due to physical hazards.

B.1.3. Mitigation Measures for Impacts of Physical Hazards

Following measures will be taken to ensure safety during the road maintenance or landscaping works:

- For the construction works to be conducted at location where traffic exists, safe work zones will be established by taking relevant measures (closure of roads, diversion of traffic, use of protective barriers, cones, warning lights, etc.)
- The area around which elevated work is taking place will be barricaded to prevent unauthorized access and working under personnel on elevated structures will be avoided.
- Hoisting and lifting equipment will be rated and properly maintained, and operators trained in their use. Elevating platforms will be maintained and operated according to established safety procedures including use of fall protection measures (e.g. railings), equipment movement protocols (e.g. movement only when the lift is in a retracted position), repair by qualified individuals, and installation of locks to avoid unauthorized use by untrained individuals.
- Ladders will be used according to pre-established safety procedures for proper placement, climbing, standing, as well as the use of extensions.
- When working at height, proper fall protection measures will be implemented. Fixtures will be installed on bridge components. Safety belts with proper thickness and of suitable materials ensuring sufficient strength will be used. Rope safety belts will be replaced before signs of aging or fraying of fibers become evident. When operating power tools at height, workers will use a second (backup) safety strap.
- Personnel exposed to high levels of noise will be required to use personal hearing protection devices/equipments that will be provided by the Project Sponsors at no cost.
- Where required for specific works, work rotation programs will be implemented to reduce cumulative exposure.
- Weather forecasts will be monitored for outdoor work to provide advance warning of extreme weather and schedule the work accordingly. Protective clothing will be used where required.
- Safe work zones will be established to separate workers on foot from the traffic by using proper methods/devices (e.g. use of protective barriers, traffic cones, barrels)
- When possible, traffic will be route to alternative roads.
- Proper land closure or traffic diversion measures will be taken in consideration of the width of the road.
- Protective barriers will be used to shield workers where required.
- Traffic flow will be primarily regulated by warning lights and use of flaggers will be avoided where possible.
- Maximum speed limits will be reduced in the work zones.
- Blind spots will be avoided to the maximum extent possible by means of proper design of the work space.

B.2. CHEMICAL HAZARDS MANAGEMENT PROCEDURE

B.2.1. Purpose and Scope

This procedure is prepared in order to prevent chemical hazards to employees within the project site in compliance with Turkish and international regulations/standards.

B.2.2. Chemical Hazards Management Approach

Significant volumes of earthworks and paving activities will be conducted within the long construction corridor of the Project. The dust to be emitted during earthworks, exhaust emissions from large number construction machinery, hazardous materials used for painting and paving operations are among main sources of chemical hazards for construction workforce. Prevention of chemical hazards to employees will require a sequence of steps:

- Proper storage and handling and of hazardous waste in order to avoid human contact, periodical disposal of the waste according to regulations.
- Foreseeing potential accidents in areas where chemicals are stored and handled,
- Setting up emergency response procedures for cases of accidents in order to avoid major injuries and exposure of large populations.
- Periodical trainings on chemical hazards management.

B.2.3. Mitigation Measures for Impacts of Chemical Hazards

Following measures will be enforced for prevention of chemical hazards:

- Identification of dangers posed by certain materials within the project site using MSDS sheets,
- Obtaining MSDS sheets in native language for site employees,
- Training of on-site personnel on the presence, handling, transport and disposal of these materials, and also on emergency response management,
- Pavers with exhaust ventilation systems will be used and proper maintenance of such systems will be ensured to maintain worker exposure to crystalline silica (millers and grinders) and asphalt fumes (pavers) below applicable occupational exposure levels.
- Correct asphalt product will be used for each specific application and application at the correct temperature will be ensured to reduce the fuming of bitumen during normal handling.
- Adequate ventilation will be provided in tunnels and other necessary areas with limited natural air circulation;
- Tollbooths will be equipped with proper ventilation and air filtration systems;
- Protective clothing will be used when working with cutbacks (a mixture of asphalt and solvents for the repair of pavement), diesel fuel, or other solvents.
- Appropriate respiratory protection will be used when removing paints.

B.3. NOISE MANAGEMENT PROCEDURE

B.3.1. Purpose and Scope

This procedure is prepared in order to intended to minimize the impacts of noise that will result from project activities and traffic during operation phase in compliance with national and international regulations/standards.

B.3.2. Noise Management Approach

Noise is considered as a serious physical hazard considering its impacts like hearing loss, stress and effects on performance and behavior. The main approach in noise management is preventing noise at its source. However, considering the nature of the project, it would, for the most part, not be possible to do so. Therefore, measures will be taken in order to control the level of noise and workers' exposure to it.

B.3.3. Mitigation Measures for Impacts of Noise

Measures to be taken in order to reduce and control noise can be listed as the following:

- Personnel exposed to high levels of noise will be required to use personal hearing protection devices/equipments that will be provided by the Project Sponsors at no cost. Where required for specific works, work rotation programs will be implemented to reduce cumulative exposure,
- Project-specific grievance mechanisms established,
- If the measurement results or the grievance mechanism indicate impacts on public's health and welfare at certain locations, effective and feasible corrective measures will be planned and implemented by the Project Sponsors.
- Arranging the construction site layout that processes of higher noise levels are located away from workers.
- Using portable barriers around equipment like generators.
- Medical exams to ensure workers" hearing is not impaired due to their working conditions and to take necessary medical measures to avoid further damage.

B.4. PERSONAL PROTECTIVE EQUIPMENT (PPE) MANAGEMENT PROCEDURE

B.4.1. Purpose and Scope

This procedure underlines how workers at the project site would be protected against hazards described above by using additional protective equipment.

B.4.2. PPE Management Approach

After taking all necessary measures for workers' safety PPE will be considered as an additional protection for workers, in order to avoid major injuries in case of accidents. Appropriate PPE will be determined based on the job to be performed and the kind of hazard that the workers are potentially exposed to.

Trainings on PPE usage will be given to all employees and the employees must be encouraged to use PPE where needed.

Various types and numbers of PPE are used at during construction and operation phases as found necessary in line with Turkish and international standards. IFC Environmental, Health, and Safety (EHS) General Guidelines provides a good summary of PPE according to the potential hazard that would be encountered during various project activities. This summary is provided in Table 1 below. The types of PPE to be used during the construction and operation of the project would include, but not limited to, these PPE provided in Table 1, as necessary.

Table 1. IFC Recommended PPE

Objective	Hazard	PPE
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapor	Safety glasses, protective shades.
Head protection	Falling objects, overhead power cords	Plastic helmets
Hearing protection	Noise	Hearing protectors (ear plugs, ear muffs, etc.)
Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.
Hand protection	Hazardous materials, cuts, and extreme temperatures.	Gloves made of rubber or synthetic materials, leather, steel, insulating materials, etc.
Respiratory protection	Dust, fogs, fumes, gases, smokes, and vapors.	Facemasks with appropriate filters for dust removal.
Body/leg protection	Extreme temperatures, hazardous materials, and cutting.	Insulating clothing, body suits, aprons, etc.

B.5. COMMUNICATION AND TRAINING MANAGEMENT PROCEDURE

B.5.1. Purpose and Scope

In addition to orientation trainings, all the direct and contracted workers will be provided with relevant trainings prior to commencement of new assignments (change of workplace/task, change of working machinery and equipments, introduction of new technologies, etc.). Workers with rescue and first-aid duties will be provided with dedicated training. Through appropriate contract specifications and monitoring, Project sponsors will ensure that service providers, as well as contracted and subcontracted labor, are trained adequately before assignments begin.

A visitor orientation and control program will be established to ensure visitors do not enter hazard areas unescorted. In this respect, relevant checkpoints and record keeping practices will be used for ensuring both safety of the works and the visitors.

This procedure is developed to manage Occupational Health and Safety (OHS) trainings of both the contracted or subcontracted employees and the site visitors, while at the same time it aims to manage on-site communication arrangements specific to North Marmara Motorway Project.

B.5.2. Communication and Training Management Approach

The rate of accidents is highly dependent on the consciousness and cautiousness of the personnel regarding the specific hazards of the construction work they are involved in.

Training of the Project workers and other personnel including the management, supervisors, and even occasional visitors is a key in reducing the number of accidents during the construction phase. Basic occupational health and safety orientation trainings will be provided to all new personnel including direct and contracted workers, management, supervisors and occasional visitors.

An OHS Training Program specific to North Marmara Motorway Project will be developed and implemented in accordance with a specified schedule. These trainings will include specific occupational health and safety subjects that include, but not limited to the following:

- Basic site rules and hazard awareness
- Hygiene requirements
- Potential risks to health
- Site-specific hazards
- Safe work practices
- Knowledge of materials, equipments and tools
- Wearing and use of protective equipment and clothing

- Hazards of working on foot around equipment and vehicles;
- Preventing injury to fellow workers
- Safe practice for work at night and in other low-visibility conditions (e.g. use of high-visibility safety apparel and proper illumination for the work space while controlling glare)
- Emergency procedures (e.g. during fires, natural disasters, etc.)

These trainings will be particularly given in the following situations:

- Prior to the start of work for all new project workers
- When the working place and/or task of a worker is changed
- When working machinery and equipments are changed
- When new technologies are applied at the workplace

As the OHS training aims to provide a safe and healthy work environment for employees, contractors and visitors, "a visitor orientation and control program" will be established to ensure visitors do not enter hazard areas unescorted. In this respect, relevant checkpoints and record keeping practices would be used for ensuring both safety of the works and the visitors.

Basic OHS trainings given both to the contracted and subcontracted employees and to site visitors will adequately cover:

- Knowledge of materials, equipments and tools.
- Known hazards in the operations and how they are controlled.
- Potential risks to health.
- Precautions to prevent exposure.
- Hygiene requirements.
- Wearing and use of protective equipment and clothing.
- Appropriate reasons to operation extremes, incidents and accidents.

Signs and labels, which will be used to mark hazardous areas and/or substances, will be in accordance with international standards and be well known to and easily understood by workers, visitors and the general public.

Copies of this hazard coding system will be posted outside the facility at emergency entrance doors and fire emergency connection systems where they are likely to come to the attention of personnel. Information regarding the types of hazardous materials stored, handled or used at the facility will be shared proactively with emergency services and security personnel to expedite emergency response when needed.

C. COMMUNITY HEALTH AND SAFETY PLAN

The procedures under the Community Health and Safety Plan are developed in order to address possible impacts of the project on human health and safety. The procedure aims to minimize the possible adverse effects on the community residing in close neighborhoods by offering mitigation measures.

References

- Regulation on Measures to be Taken for Works with Flammable, Explosive, Hazardous and Harmful Substances
- Decree on Safety Precautions Regarding Workplaces Which Involve Working with Flammable, Explosive, Dangerous and Harmful Substances
- Health and Safety Regulation in Construction Works
- Heavy and Dangerous Works Regulation
- Preparation, Completion, Cleaning Works Regulation
- Regulations on Indoors Electricity Installation
- Regulations on Grounding of Electrical Installation
- Regulation on Fire Protection For Buildings
- International Finance Corporation (IFC) Environmental, Health, and Safety General Guidelines
- IFC Environmental, Health and Safety Guidelines – Toll Roads

C.1. FIRE MANAGEMENT PROCEDURE

C.1.1. Purpose and Scope

This procedure is developed to prevent, minimize and control risks of fire which may occur due to the activities conducted during the construction phase of North Marmara Motorway Project to the facilities, employees and the environment. Fire prevention measures will also be taken into account in operation phase.

C.1.2. Fire Management Approach

The Project Sponsors will be providing fire prevention measures and foresee the risks of fire in order to ensure safety of employees and community. A Fire Management Plan will be prepared based on the national and international legal requirements and/or standards.

C.1.3. Mitigation Measures for Fire Prevention

Mitigation measures for fire prevention and principles to be applied in the event of fire are detailed below:

- Necessary trainings on fire management will be provided to all employees,
- Fire preparedness and response programs will be developed,
- Fire fighting equipments (i.e. water lagoons, ladders, ventilating devices, fire extinguishers, etc.) will be purchased and kept available, in good working order,
- Firefighting equipment will be labeled / marked according to the regulations and will be placed in locations easy to access.
- Fire extinguishers will be placed close to the areas that poses fire risk such as; welding, chemical handling, etc.
- Hot works will be carried out during the cooler periods of the day using appropriate guards,
- Employees will not be allowed to make interventions to electrical appliances; only responsible personnel will make changes in the electrical installation. When not used electrical appliances will be turned off and unplugged,
- Responsible personnel will be appointed and trained for handling flammable materials, storage, transportation and usage of these materials will be in compliance with national standards.
- Flammable liquid leaks and spills will be repaired and cleaned up immediately.
- Fire exits and exit gates will be built both in temporary and permanent structures the exit doors will not be locked and kept open all the times.
- A smoking area will be designated outside of facilities and a fire extinguisher will be provided for this area.
- Fire drills will be carried out periodically according to health and safety regulations.

C.1.4. Monitoring of Fire Management

Detection and alarm systems will be installed where appropriate to monitor any incidents of fire. These systems will involve all measures, including communication and public address systems needed to detect a fire and alert personnel, emergency response teams, public authorities and public as appropriate.

C.2. TRAFFIC MANAGEMENT PROCEDURE

C.2.1. Purpose and Scope

This procedure is developed to prevent, minimize and control risks and adverse impacts on community health and safety, natural environment, work and workers' safety from traffic accidents, which may occur due to the behavior of the driver or the quality of the vehicle and/or to the road design or construction and maintenance issues.

C.2.2. Traffic Management Approach

Traffic rules will minimize the risk of accidents, emissions and noise due to the traffic during the construction and operation phases. During the construction phase of North Marmara Motorway Project, safety aspects among the drivers and project workers will be emphasized and relevant measures regarding transportation of construction material and equipments will be taken.

During the operation phase, relevant national standards applicable to highways and toll roads would be implemented.

C.2.3. Mitigation Measures for Traffic Safety

Following measures will be taken in accordance with the KGM's Technical Specifications for Motorways and relevant international standards to ensure traffic safety at the construction sites and minimize the risk of accidents:

- Construction works on existing roads will not be started until relevant traffic safety measures (including traffic signing and placement of equipments) are taken on roads serving pedestrian and vehicle traffic. These measures will be designed to ensure the safety of life and property of the local people and the users of the roads.
- In the scope of better working organization, construction traffic routes will be strictly defined and road construction machinery will use only these routes.
- Passage of the routes through the settlements (i.e. neighborhoods) will be avoided where alternative routes are available. Dangerous routes that are to be avoided, if there is any, will be specified and informed. In this scope, construction contractors will construct service roads in order not the affect (such as increasing the heavy traffic load) the natural flow on the existing roads and for avoiding the passage of heavy vehicles through residential areas to the extent possible. In addition service roads will be constructed where the traffic will be temporarily diverted. Furthermore, service roads will be used for transportation of the construction machinery, equipments and materials used for Project.
- Pedestrian interaction with construction vehicles will be minimized by taking appropriate measures in and around the construction corridor.

- Valid licenses will be required for the drivers and operators.
- Drivers and operators will be provided with relevant trainings that emphasize the safety aspects.
- Working hours of the day for the drivers/operators will be specified and informed to relevant personnel.
- Limits will be defined for the working/trip duration for the drivers and operators to avoid overtiredness.
- Speed control devices will be used on trucks.
- All the construction machinery and equipments will be operated in alignment with the direction of the traffic flow.
- Rigid objects will not be used for the purpose of traffic diversion.
- Unused construction materials, equipments or machinery will not be left on the road in an uncontrolled way. They will be put in designated places.
- Construction-related traffic delays will be minimized. Flow of traffic will be allowed in every 30 minutes.
- Road signing for night traffic will be provided with reflectors and flashing signals of sufficient number.
- Relevant dust control measures will be taken at the road construction sites so that safe sight distances could be maintained on the existing roads under service.
- Upon the completion of works, signing equipments will be immediately removed and standard signing will be provided.
- To reduce transportation distances, services and materials required for construction works will be aimed to be primarily supplied from the local sources, wherever possible.

The following general safeguards will be taken during operation to prevent, minimize, and control risks to the community from traffic accidents:

- Horizontal (i.e. shoulder lines, traffic lines, parking lines, etc.) and vertical signing (i.e. traffic signs, plates, etc.) of the Motorway will be in accordance with KGM's technical specifications.
- Rescue vehicles and tow trucks will be kept ready in adequate numbers to promptly respond to probable accidents and slippery vehicles that may cause the closure of the road.
- Pavement structure of the Motorway will be subject to routine maintenance works in order to remove any impairment on the road surface that may risk traffic safety, reduce driving comfort and decrease the structural strength. Large-scale repair and reconstruction works will also be conducted as required to maintain the functionality of the road.
- Wire fences will be installed along the expropriation border of the Motorway to minimize the risk of collisions between animals and vehicles and direct the animals towards crossing structures (i.e. culverts) to be built.
- Wire fences, welded wires, walls to be used to enclose the area to be allocated to the Motorway will be continuously checked to prevent any uncontrolled intrusion of wild animals to the Motorway corridor that may pose risk to traffic safety and damage the landscape components. Any damaged enclosure component will be immediately repaired/maintained.

- Intelligent Traffic System (ITS) will be installed in the scope of the Project. By means of the ITS, real-time warning systems with signage to warn drivers of congestion, accidents, adverse weather road conditions, and other potential hazards ahead will be used.
- Snow and ice removal works will be conducted within the Motorway corridor when the temperature is between 0^0C and -12^0C to ensure safe and secure driving conditions for the vehicles and users of the road (including interchanges, access roads, service areas) during severe winter conditions.
- If necessary, precautionary salt application will be done before the start of snowfall.
- Where required, road deicing will be done by application of a suitable agent in solid or solution forms such as salt (NaCl), calcium chloride ($CaCl_2$), magnesium chloride ($MgCl_2$), etc. directly or blended in proper ratios depending on road and weather temperature.
- In case of continuous snowfall periods, effectiveness of the chemicals applied may become insufficient in removing snow and ice. In such situations, mechanical snow and ice removal works will be conducted by using suitable and adequate vehicles and/or equipments.
- In case of oil spill or spill of other hazardous liquids, road surface will be washed with plenty of water.
- Measures will be taken to prevent parking vehicles at the entrance and exit roads of the services areas.
- Specific precautionary and response measures will be taken to ensure safety in the tunnels.

C.2.4. Monitoring of Traffic Management

Automated systems and communication links will be used for obtaining, recording and reporting for the traffic weather and road conditions, as well as traffic incidents. Any adverse conditions, accidents and/or illegitimate incident will be recorded and monitored by the personnel in charge of traffic management during the construction phase. For the operation phase relevant public authorities are responsible for the monitoring of traffic management.

ANNEX-7

SUPPLEMENTARY DOCUMENTS FOR ECOLOGY AND BIODOVERSITY STUDIES AND ASSESSMENTS

Annex-7/A. List of Flora and Fauna Species Identified in the Project Area

Table 7.1.a. Flora Species List of Section-4
Table 7.1.b. Flora Species List of Section-5
Table 7.1.c. Flora Species List of Section-6
Table 7.2.a. Amphibians and Reptiles Species List of Section-4
Table 7.2.b. Amphibians and Reptiles Species List of Section-5
Table 7.2.c. Amphibians and Reptiles Species List of Section-6
Table 7.3.a. Bird Species List of Section-4
Table 7.3.b. Bird Species List of Section-5
Table 7.3.c. Bird Species List of Section-6
Table 7.4.a. Mammal Species List of Section-4
Table 7.4.b. Mammal Species List of Section-5
Table 7.4.c. Mammal Species List of Section-6
Table 7.5.a. Fish Species List of Section-4
Table 7.5.b. Fish Species List of Section-5
Table 7.5.c. Fish Species List of Section-6

Legend for Flora and Fauna Tables

IUCN (International Union for Conservation of Nature) Red List of Threatened Species)	
2001 (ver. 3.1)	**2009 (ver. 2.0)**
EX: Extinct	**EX:** Extinct
EW: Extinct in the wild	**EW:** Extinct in the wild
CR: Critically endangered	**CR:** Critically endangered
EN: Endangered	**EN:** Endangered
VU: Vulnerable	**VU:** Vulnerable
LR: Lower risk	
cd: conservation dependent	**NT:** Near Threatened
nt: near threatened	**LC:** Least Concern
lc: least concern	
DD: Data deficient	**DD:** Data deficient
NE: Not evaluated	**NE:** Not evaluated

BERN CONVENTION (for flora and fauna species)	
Annex I	**:** Protected Flora Species
Annex II	**:** Strictly Protected Fauna Species
Annex III	**:** Protected Fauna Species

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) (for flora and fauna species)	
Appendix I	**:** Species threatened with extinction. Trade in specimens of these species is permitted only in exceptional circumstances.
Appendix II	**:** Species not necessarily threatened with extinction, but their trade must be controlled to avoid utilization incompatible with their survival.
Appendix III	**:** Species protected in at least one country, and their trading is under control by CITES.

Turkish Red Data Book of Turkish Plants (TRDB; Appim et al., 2000) **Based on IUCN Red List Categories and Criteria (ver. 2.3)**
EX: Extinct
EW: Extinct in the wild
CR: Critically endangered
EN: Endangered
VU: Vulnerable
LR: Lower risk
cd: conservation dependent
nt: near threatened
lc: least concern
DD: Data deficient
NE: Not evaluated

NATIONAL HUNTING STATUS (According to Central Hunting Commission, 20015-2016) (for fauna species)	
APP I	**:** Includes game animals which are protected by the CHC
APP II	**:** Includes game animals which are allowed to be hunted in seasons predefined by CHC

Legend for Flora and Fauna Tables (Continued)

NATIONAL THREAT CATEGORIES (for bird species) (Kiziroğlu,İ., 2009. The Pocket Book for Birds of Türkiye, ISBN: 975-7460-01-X, Ankamat Matbaası, Ankara, 564 s.)Matbaası, Ankara, 564 s.)	
Category A:	
A.1.2.	**(CR)** Critically endangered and breeding species in Turkey
A.2.	**(EN)** Endangered and breeding species in Turkey
A.3.	**(VU)** Vulnerable and breeding species in Turkey
A.3.1.	**(D)** Declining, vulnerable and breeding species in Turkey
A.4.	**(NT)** Near threatened. Breeding species do not face to risk now but are likely to qualify for threatened category in the near future in Turkey
A.5.	**(LC)** Least Concern. Breeding species that are widespread in Turkey
A.6.	**(DD)** Not Evaluated. Breeding species which have not been evaluated in Turkey
A.7.	**(NE)** Critically endangered and non-breeding species in Turkey
Category B:	
B.1.2.	**(CR)** Critically endangered and non-breeding species in Turkey
B.2.	**(EN)** Endangered and non-breeding species in Turkey
B.3.	**(VU)** Vulnerable and non-breeding species in Turkey
B.3.1.	**(D)** Declining, vulnerable and non-breeding species in Turkey
B.4.	**(NT)** Near threatened, non-breeding species do not face to risk now but are likely to qualify for threatened category in the near future in Turkey
B.5.	**(LC)** Least Concern, non-breeding species that are widespread in Turkey
B.6.	**(DD)** Data Deficient, non-breeding species on which there is deficient information in Turkey
B.7.	**(NE)** Not Evaluated, non-breeding species which have not been evaluated in Turkey

SOURCES (for bird species)	**RELATIVE ABUNDANCE** (based on observation)
1: Observation	**1:** Very Rare
2: Trace and Sign	**2:** Rare
3: Literature	**3:** Moderate
4: Habitat suitability	**4:** Abundant
5:Questionnaire	**5:** Very Abundant

ENDEMİZM (for flora species)
R: Regional Endemic
W: Widespread Endemic

HABITATS	
C 1.2	Permanent mesotrophic lakes, ponds and pools
E 3.4	Moist or wet eutrophic and mesotrophic grassland
E 1.3	Mediterranean xerophilous meadow
F 5.2	Maquis
F 5.3	Pseudomaquis
G 1.2	Mixed riparian forests
G 3.F	Highly artificial coniferous plantations
G 1.A	Meso and Eutrophic Mixed Decidiuous Forests
G 1.C	Highly artificial broadleaved deciduous forestry plantations
G 1.5	Broad-leaved acidic marsh forest
I 1.2	Agricultural lands
I 1.5	Roadsides and field sides (ruderal lands)
J 2.3	Rural industrial and commercial sites still in active use

Table 7.1.a. Flora Species List of Section-4

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
PTERIDOPHYTA																							
HYPOLEPIDACEAE	1	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Wide spread											x						x		
GYMNOSPERMAE																							
PINACEAE	2	*Pinus pinaster* Ait.	Sahil çamı	Plantation													**x**						
CUPRESSACEAE	3	*Cupressus sempervirens L.*	Servi	Wide spread													x						**x**
	4	*Juniperus oxycedrus* L. subsp. *oxycedrus*	Ardıç	Wide spread									**x**	x	x						x		
ANGIOSPERMAE																							
DICOTYLEDONES																							
RANUNCULACEAE	5	*Ranunculus arvensis* L.	Dugun cicegi	Mediterranean								x	x							x			
	6	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Wide spread									x								x		
	7	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Wide spread									x		x	x					x		
	8	*Ranunculus repens* L.	_	Wide spread									x		x						x		
BERBERIDACEAE	9	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberia													x					x	
PAPAVERACEAE	10	*Papaver rhoeas* L.	Gelincik	Wide spread									x								x		
CRUCIFERAE	11	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Wide spread								x	x							x			
	12	*Arabis verna* (L.) DC.	–	Mediterranean								x									x		
	13	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Wide spread								x	x				x				x		
CISTACEAE	14	*Cistus creticus* L.	Laden	Wide spread										x	x		x					x	
	15	*Cistus salviifolius* L.	Laden	Wide spread										x	x		x					x	
VIOLACEAE	16	*Viola odorata* L.	kokulu menekşe	Wide spread											x							x	
	17	*Polygala anatolica* Boiss. & Heldr	Süt otu	Wide spread													x				x		
CARYOPHYLLACEAE	18	*Holosteum umbellatum* L. var. *Umbellatum*	–	Wide spread								x	x				x				x		
	19	*Silene vulgaris (Moenc) Garcke var. vulgaris*	Gıvışkan otu	Wide spread								x			x						x		
	20	*Stellaria holostea* L.	_	European-Siberia								x					x				x		
GUTTIFERAE	21	*Hypericum calycinum* L.	Binbirdelik otu	European-Siberia													x				x		
RHAMNACEAE	22	*Paliurus spina-christi Miller*	Karaçalı	Wide spread									x						x		x		
MALVACEAE	23	*Malva sylvestris* L.	Ebegümeci	Wide spread								x	x								x		
SIMAROUBACEAE	24	*Ailanthus altissima* (Miller) Swingle		Wide spread									x						x		x		
ANACARDIACEAE	25	*Pistacia terebinthus* L. subsp. *terebinthus*	Menengiç kahvesi	Mediterranean									x								x		
GERANIACEAE	26	*Erodium cicutarium* (L.) L. Herit subsp. *cicutarium*	Turna gagası	Wide spread								x	x							x			
	27	*Geranium rotundifolium* L.	_	Wide spread										x			x				x		
POLYGONACEAE	28	*Rumex tuberosus* L. subsp. *tuberosus*	Kuzukulağı	Wide spread								x	x			x	x	x		x			
LEGUMINOSAE	29	*Medicago lupulina* L.	_	Wide spread								x	x								x		
	30	*Medicago minima* L. var. *minima*	_	Wide spread								x	x				x				x		
	31	*Chamaecytisus hirsutus* (L.) Link	_	Wide spread													x					x	
	32	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Wide spread													x				x		
	33	*Vicia sativa* L. subsp. *sativa*	Fiğ	Wide spread										x							x		
	34	*Trifolium stellatum* L. var. *stellatum*	Ucgul	Wide spread								x		x			x				x		
	35	*Trifolium campestre* Schreb.	Ucgul	Wide spread								x					x				x		
	36	*Trifolium repens* L. var. *repens*	Yonca	Wide spread								x	x								x		
	37	*Coronilla varia* L. subsp. *varia*	Körigen	Wide spread								x									x		
	38	*Spartium junceum* L.	Katır tırnağı	Mediterranean										x	x						x		
	39	*Robinia pseudoacacia* L.	Akasya	Wide spread													x				x		

Table 7.1.a. Flora Species List of Section-4

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
	40	*Securigera securidaca* (L.) Degen & Da–Rf.		Wide spread										x							x		
	41	*Psoralea bituminosa* L.		Mediterranean									x	x						x			
	42	*Onobrychis armena* Boiss. et Huet.		Wide spread								x							x	x			
ROSACEAE	43	*Pyrus elaeagnifolia* Pallas subsp. *elaeagnifolia*	Ahlat	Wide spread									x		x				x		x		
	44	*Mespilus germanica* L.	Döngel	European-Siberia													x				x		
	45	*Potentilla recta* L.	Dik parmak otu	Wide spread								x					x			x			
	46	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Wide spread															x		x		
	47	*Filipendula vulgaris* Moench.	_	European-Siberia													x				x		
	48	*Pyracantha coccinea* Roemer		Wide spread									x						x	x			
	49	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Wide spread											x		x				x		
	50	*Prunus spinosa* L. subsp. *dasyphylla* (Schur) Domin	Erik	European-Siberia												x	x				x		
	51	*Malus sylvestris* Mill. subsp. *orientalis* (Uglitzk.) Browicz var. *orientalis*	Elma	Wide spread											x						x		
	52	*Rubus sanctus* Schreber	Böğürtlen	Wide spread										x	x		x					x	
	53	*Rosa canina* L.	Kusburnu	Wide spread											x		x			x			
UMBELLIFERAE	54	*Eryngium campestre* L. var. *virens* (Link) Weins	Şekerdikeni	Wide spread								x							x		x		
	55	*Scandix iberica* Bieb.	–	Wide spread								x					x			x			
	56	*Daucus carota* L.	Yabani havuc	Wide spread								x	x	x			x				x		
	57	*Oenanthe silaifolia* Bieb.	_	Wide spread									x									x	
	58	*Conium maculatum L.*		Wide spread									x			x					x		
	59	*Ainsworthia trachycarpa* Boiss.		Mediterranean															x	x			
	60	*Seseli campestre* Besser		Wide spread													x		x		x		
ARALIACEAE	61	*Hedera helix* L.	Duvar sarmaşığı	Wide spread											x		x					x	
CAPRIFOLIACEAE	62	*Lonicera etrusca* Santi var. *etrusca*	_	Mediterranean										x	x				x		x		
CORNACEAE	63	*Cornus mas* L.	Kızılcık	European-Siberia											x						x		
DIPSACACEAE	64	*Scabiosa argentea* L.	–	Wide spread								x									x		
	65	*Dipsacus laciniatus L.*		Wide spread								x	x								x		
COMPOSITAE	66	*Senecio vernalis* Waldst. et Kit	–	Wide spread								x	x								x		
	67	*Tussilago farfara* L.	Kabalak	European-Siberia											x		x				x		
	68	*Doronicum orientale* Hoffm.	–	Wide spread													x				x		
	69	*Cichorium intybus L.*		Wide spread								x		x				x			x		
	70	*Silybum marianum* (L.) Gaertner	Gengel	Mediterranean								x	x								x		
	71	*Cnicus benedictus* L.	Bostan otu	Wide spread								x	x								x		
	72	*Anthemis tinctoria* L.		Wide spread									x				x				x		
	73	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberia								x	x		x		x				x		
	74	*Carduus nutans* L. sensu lato	Kenger	Wide spread								x	x								x		
	75	*Carlina corymbosa* L.		Mediterranean									x								x		
	76	*Logfia arvensis* (L.) Holub.	–	Wide spread								x	x							x			
	77	*Cirsium hypoleucum* DC.	_	European-Siberia								x				x	x				x		
	78	*Cirsium polycephalum* DC.	_	Mediterranean	x		CR						x						x		x		
	79	*Chondrilla juncea* L . var. *juncea*	–	Wide spread									x							x			

Table 7.1.a. Flora Species List of Section-4

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
	80	*Lactuca serriola* L.	–	Wide spread									x							x			
	81	*Crepis sancta* (L.) Babcock	–	Wide spread								x	x							x			
	82	*Pallenis spinosa* (L.) Cass.		Mediterranean								x							x		x		
	83	*Echinops viscosus* DC. subsp. *viscosus*																	x		x		
	84	*Pulicaria dysenterica* (L.) Gaertn.	_	Wide spread									x			x					x		
CAMPANULACEAE	85	*Campanula lyrata* Lam. subsp. *lyrata*				x	LC										x			x			
ERICACEAE	86	*Arbutus unedo* L.	Kocayemiş	Wide spread										x	x		x					x	
	87	*Erica manipuliflora* Salisb.		Mediterranean										x									x
	88	*Erica arborea* L.		Wide spread										x	x		x						x
PRIMULACEAE	89	*Androsace maxima* L.	–	Wide spread								x					x				x		
	90	*Primula vulgaris* Huds. Subsp. *sibthorpii* (Hoffmans) W.W.Sm & Forrest	Çuha çiçeği	European-Siberia											x	x	x					x	
OLEACEAE	91	*Olea europaea* L.		Mediterranean									x								x		
	92	*Jasminum fruticans* L.	Yasemin	Mediterranean									x	x			x				x		
	93	*Phillyrea latifolia* L.	Akkesme	Mediterranean									x	x	x		x				x		
	94	*Ligustrum vulgare* L.		European-Siberia											x						x		
BORAGINACEAE	95	*Myosotis lithospermifolia* (Willd.) Hornem.		Wide spread								x									x		
	96	*Buglossoides arvensis* (L.) Johnston	–	Mediterranean								x					x				x		
SCROPHULARIACEAE	97	*Parentucellia latifolia* (L.) Caruel subsp. *latifolia*	_	Mediterranean									x								x		
	98	*Veronica chamaedrys* L.	_	European-Siberia								x					x				x		
	99	*Verbascum bugulifolium* Lam.	_	European-Siberia										x						x			
CONVOLVULACEAE	100	*Convolvulus arvensis L.*	–	Wide spread								x	x								x		
OROBANCHACEAE	101	*Orobanche anatolica* Boiss. & Reut.	Anadolu canavar otu	Wide spread													x				x		
GLOBULARIACEAE	102	*Globularia trichosantha* Fisch. et Mey. subsp. *trichosantha*		İran-Turan								x									x		
LABIATAE	103	*Lamium purpureum* L. var. *purpureum*	–	Wide spread													x				x		
	104	*Acinos rotundifolius* Pers.	–	Wide spread								x					x				x		
	105	*Ajuga reptans* L.	_	European-Siberia											x		x				x		
	106	*Teucrium chamaedrys L. subsp.* chamaedrys		European-Siberia											x						x		
	107	*Prunella vulgaris* L.	–	European-Siberia									x								x		
	108	*Salvia virgata* Jacq.	Adaçayı	Iran-Turan										x					x		x		
	109	*Salvia glutinosa* L.	_	European-Siberia											x						x		
	110	*Micromeria myrtifolia* Boiss. et Hohen.		Mediterranean															x		x		
	111	*Calamintha nepeta* (L.) Savi subsp. *glandulosa* (Req.) P. W. Ball		Wide spread															x		x		
PLANTAGINACEAE	112	*Plantago lanceolata* L.	Bağa	Wide spread									x		x		x				x		
THYMELAEACEAE	113	*Daphne pontica* L.	Dafne	Euksin											x		x				x		
LAURACEAE	114	*Laurus nobilis* L.		Mediterranean									x									x	
SANTALACEAE	115	*Osyris alba* L.	Süpürge çalısı	Mediterranean										x	x		x				x		
SALICACEAE	116	*Salix alba* L.		European-Siberia												x					x		
URTICACEAE	117	*Urtica dioica* L.	Isırgan	European-Siberia									x		x						x		
FAGACEAE	118	*Quercus frainetto* Ten.	Macar meşesi	European-Siberia										x	x		x						x
	119	*Quercus cerris* L. var. *cerris*	Saçlımeşe	Wide spread											x		x						x
	120	*Quercus petraea* (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.)	Sapsız meşe	Wide spread										x	x								x

Table 7.1.a. Flora Species List of Section-4

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM		T.S.	BERN	CITES			HABITAT							ABUNDANCE				
		Krassiln																					
	121	*Quercus infectoria* Olivier		European-Siberia									x	x							x		
RUBIACEAE	122	*Galium incanum* Sm. subsp. *incanum*	_	Mediterranean								x									x		
	123	*Rubia peregrina* L.	_	Mediterranean									x								x		
MONOCOTYLEDONES																							
LILIACEAE	124	*Ruscus aculeatus* L. subsp. *angustifolius* Boiss.	Tavşanmemesi	Wide spread									x		x		x						x
	125	*Smilax aspera* L.	Silcan	Wide spread									x								x		
	126	*Asparagus acutifolius* L.	Kuşkonmaz	Mediterranean									x	x	x		x				x		
	127	*Scilla bifolia* L.	_	Mediterranean											x		x				x		
AMARYLLIDACEAE	128	*Sternbergia colchiciflora* Waldst.% Kit		Wide spread											x						x		
IRIDACEAE	129	*Crocus biflorus* Miller subsp. *biflorus*		Mediterranean										x	x						x		
	130	*Crocus pestalozzae* Boiss.		Mediterranean	x		VU							x			x				x		
TYPHACEAE	131	*Typha latifolia* L.	Kamış	Wide spread									x			x						x	
JUNCACEAE	132	*Juncus heldreichianus* Marsson ex Parl. subsp. *heldreichianus*	_	East Mediterranean												x						x	
CYPERACEAE	133	*Carex distachya* Desf. var. *distachya*	–	Mediterranean													x				x		
	134	*Carex panicea* L.		European-Siberia									x		x						x		
GRAMINEAE	135	*Poa bulbosa* L.	–	Wide spread								x					x				x		
	136	*Poa trivialis* L.	_	Wide spread								x	x								x		
	137	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Wide spread								x					x				x		
	138	*Stipa bromoides* (L.) Da-Rfler		Mediterranean									x								x		
	139	*Aegilops biuncialis* Vis.	–	Iran-Turan								x					x				x		
	140	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean								x	x				x		x		x		
	141	*Briza minor* L.	–	Mediterranean								x					x				x		
	142	*Hordeum bulbosum* L.	Arpa	Wide spread								x					x				x		
	143	*Brachypodium sylvaticum* (Hudson) P. Beauv.	_	Wide spread											x							x	
	144	*Cynodon dactylon* (L.) Pers. var. *dactylon*	Domuz ayrığı	Wide spread								x	x			x					x		
	145	*Piptatherum miliaceum* (L.) Cosson		Mediterranean										x							x		

Table 7.1.b. Flora Species List of Section-5

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
PTERIDOPHYTA																							
HYPOLEPIDACEAE	1	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Wide spread										x		x				x			
ASPLENIACEAE	2	*Ceterach officinarum* DC.		Wide spread										x					x				
POLYPODIACEAE	3	*Polypodium vulgare* l. subsp. *vulgare*		Wide spread										x						x			
GYMNOSPERMAE																							
PINACEAE	4	*Pinus nigra* J.F. Arnold		Plantation												x					x		
	5	*Pinus pinaster* Ait.	Sahil çamı	Plantation												**x**					**x**		
CUPRESSACEAE	6	*Juniperus oxycedrus* L. subsp. *oxycedrus*	Ardıç	Wide spread										x						x			
ANGIOSPERMAE																							
DICOTYLEDONES																							
RANUNCULACEAE	7	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Wide spread										x	x					x			
	8	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Wide spread										x	x					x			
	9	*Ranunculus repens* L.	_	Wide spread										x						x			
	10	*Helleborus orientalis* Lam.	Çöpleme	Wide spread										x		x				x			
	11	*Clematis vitalba* L.	Akasma	Wide spread											x					x			
	12	*Clematis cirrhosa L.*		Mediterranean											x					x			
BERBERIDACEAE	13	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberia										x		x					x		
PAPAVERACEAE	14	*Papaver rhoeas* L.	Gelincik	Wide spread									x							x			
CRUCIFERAE	15	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Wide spread									x						x				
	16	*Arabis verna* (L.) DC.	–	Mediterranean																x			
	17	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Wide spread									x			x				x			
	18	*Cardamine quinquefolia* (Bieb.) Schmalh.		European-Siberia										x					x				
CISTACEAE	19	*Cistus creticus* L.	Laden	Wide spread										x		x					x		
VIOLACEAE	20	*Viola sieheana* Becker	Menekşe	Wide spread												x					x		
CARYOPHYLLACEAE	21	*Stellaria holostea* L.	_	European-Siberia										x		x			x				
	22	*Silene italica* (L.) Pers.	_	Wide spread										x						x			
GUTTIFERAE	23	*Hypericum calycinum* L.	Binbirdelik otu	European-Siberia										x		x				x			
	24	*Hypericum avicularifolium* Jaub et Spach. subsp. *byzantinum* (Azn.) Robson		Mediterranean	X		VU									x				x			
RHAMNACEAE	25	*Paliurus spina-christi Miller*	Karaçalı	Wide spread									x							x			
ANACARDIACEAE	26	*Pistacia terebinthus* L. subsp. *terebinthus*	Menengiç kahvesi	Mediterranean										x						x			
TILIACEAE	27	*Tilia argentea* Desf. ex DC	Gümüşi ıhlamur	European-Siberia										x					x				
ACERACEAE	28	*Acer campestre* L.		European-Siberia										x					x				
GERANIACEAE	29	*Geranium rotundifolium* L.	_	Wide spread												x				x			
POLYGONACEAE	30	*Rumex tuberosus* L. subsp. *tuberosus*	Kuzukulağı	Wide spread												x			x				
LEGUMINOSAE	31	*Medicago lupulina* L.	_	Wide spread									x							x			
	32	*Chamaecytisus hirsutus* (L.) Link	_	Wide spread												x					x		
	33	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Wide spread												x				x			
	34	*Trifolium campestre* Schreb.	Ucgul	Wide spread												x				x			
	35	*Trifolium repens* L. var. *repens*	Yonca	Wide spread									x							x			
	36	*Coronilla varia* L. subsp. *varia*	Körigen	Wide spread																x			
	37	*Robinia pseudoacacia* L.	Akasya	Wide spread												x				x			
	38	*Securigera securidaca* (L.) Degen & Da–Rf.		Wide spread																x			

Table 7.1.b. Flora Species List of Section-5

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	39	*Dorycnium pentaphyllum* Scop. subsp. *herbaceum* (Vill.) Rouy.	_	Wide spread										x						x			
	40	*Astragalus glycyphyllos* L. subsp. *glycyphyllos*		European-Siberia										x					x				
ROSACEAE	41	*Pyrus elaeagnifolia* Pallas subsp. *elaeagnifolia*	Ahlat	Wide spread									x	x						x			
	42	*Potentilla micrantha* Ramond ex DC.		Wide spread										x					x				
	43	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Wide spread									x			x				x			
	44	*Filipendula vulgaris* Moench.	_	European-Siberia										x						x			
	45	*Pyracantha coccinea* Roemer		Wide spread										x		x			x				
	46	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Wide spread										x	x	x				x			
	47	*Prunus spinosa* L. subsp. *dasyphylla* (Schur) Domin	Erik	European-Siberia											x					x			
	48	*Sorbus torminalis* (L.) Crantz var. *torminalis*		Wide spread												x				x			
	49	*Rubus sanctus* Schreber	Böğürtlen	Wide spread										x		x					x		
	50	*Rubus hirtus* Waldst. & Kit.	_	European-Siberia										x		x				x			
	51	*Rosa canina* L.	Kusburnu	Wide spread										x	x	x			x				
UMBELLIFERAE	52	*Daucus carota* L.	Yabani havuc	Wide spread									x			x				x			
	53	*Oenanthe silaifolia* Bieb.	_	Wide spread										x							x		
	54	*Oenanthe pimpinelloides* L.	_	Wide spread										x		x				x			
	55	*Conium maculatum L.*		Wide spread									x		x					x			
	56	*Chaerophyllum byzantium* Boiss.		Euksin										x	x					x			
	57	*Pastinaca sativa* L. subsp. *urens* (Req. ex Godron) Celak.		Wide spread											x					x			
ARALIACEAE	58	*Hedera helix* L.	Duvar sarmaşığı	Wide spread										x							x		
CRASSULACEAE	59	*Sedum pallidum* Bieb. var. *pallidum*	Damkoruğu	Wide spread												x				x			
CAPRIFOLIACEAE	60	*Lonicera etrusca* Santi var. *etrusca*	_	Mediterranean												x				x			
CORNACEAE	61	*Cornus mas* L.	Kızılcık	European-Siberia										x	x	x				x			
DIPSACACEAE	62	*Scabiosa argentea* L.	–	Wide spread																x			
	63	*Dipsacus laciniatus L.*		Wide spread									x							x			
COMPOSITAE	64	*Senecio vernalis* Waldst. et Kit	–	Wide spread									x							x			
	65	*Tussilago farfara* L.	Kabalak	European-Siberia										x		x				x			
	66	*Doronicum orientale* Hoffm.	–	Wide spread										x						x			
	67	*Cichorium intybus L.*		Wide spread									x							x			
	68	*Cnicus benedictus* L.	Bostan otu	Wide spread									x							x			
	69	*Anthemis tinctoria* L.		Wide spread												x				x			
	70	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberia									x	x		x				x			
	71	*Carduus nutans* L. sensu lato	Kenger	Wide spread									x							x			
	72	*Carlina corymbosa* L.		Mediterranean									x							x			
	73	*Logfia arvensis* (L.) Holub.	–	Wide spread									x						x				
	74	*Cirsium hypoleucum* DC.	_	European-Siberia												x				x			
	75	*Chondrilla juncea* L . var. *juncea*	–	Wide spread									x						x				
	76	*Crepis reuterana* Boiss. subsp. *reuterana*	–	East Mediterranean										x					x				
	77	*Pallenis spinosa* (L.) Cass.		Mediterranean																x			
	78	*Eupatorium cannabinum* L.		European-Siberia											x				x				

Table 7.1.b. Flora Species List of Section-5

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	79	*Arctium minus* (Hill) Bernh.		Wide spread										x					x				
	80	*Pulicaria dysenterica* (L.) Gaertn.	_	Wide spread									x		x					x			
ASCLEPIADACEAE	81	*Periploca graeca* L. var. *graeca*		East Mediterranean											x				x				
ERICACEAE	82	*Arbutus unedo* L.	Kocayemiş	Wide spread										x							x		
	83	*Erica arborea* L.		Wide spread										x		x				x			
	84	*Rhododendron ponticum* L.		Euksin										x						x			
PRIMULACEAE	85	*Androsace maxima* L.	–	Wide spread												x				x			
	86	*Primula vulgaris* Huds. Subsp. *sibthorpii* (Hoffmans) W.W.Sm & Forrest	Çuha çiçeği	European-Siberia										x	x	x					x		
OLEACEAE	87	*Jasminum fruticans* L.	Yasemin	Mediterranean										x		x				x			
	88	*Phillyrea latifolia* L.	Akkesme	Mediterranean										x		x				x			
	89	*Ligustrum vulgare* L.		European-Siberia										x		x				x			
	90	*Fraxinus angustifolia* Vahl subsp. oxycarpa (Bieb. ex Willd.) Franco & Rocha Afonso	–	European-Siberia											x					x			
BORAGINACEAE	97	*Myosotis lithospermifolia* (Willd.) Hornem.		Wide spread										x						x			
	92	*Buglossoides arvensis* (L.) Johnston	–	Mediterranean												x				x			
	93	*Trachystemon orientalis (L.) G. Don*		Euksin										x		x				x			
SCROPHULARIACEAE	94	*Parentucellia latifolia* (L.) Caruel subsp. *latifolia*	_	Mediterranean									x							x			
	95	*Veronica chamaedrys* L.	_	European-Siberia												x				x			
	96	*Lathraea squamaria* L.		European-Siberia										x					x				
CONVOLVULACEAE	97	*Convolvulus arvensis L.*	–	Wide spread									x							x			
OROBANCHACEAE	98	*Orobanche anatolica* Boiss. & Reut.	Anadolu canavar otu	Wide spread												x				x			
GLOBULARIACEAE	99	*Globularia trichosantha* Fisch. et Mey. subsp. *trichosantha*		İran-Turan										x						x			
LABIATAE	100	*Lamium purpureum* L. var. *purpureum*	–	Wide spread											x	x	x	x		x			
	101	*Acinos rotundifolius* Pers.	–	Wide spread												x				x			
	102	*Ajuga reptans* L.	_	European-Siberia										x		x				x			
	103	*Prunella vulgaris* L.	–	European-Siberia									x							x			
	104	*Salvia glutinosa* L.	_	European-Siberia										x						x			
	105	*Micromeria myrtifolia* Boiss. et Hohen.		Mediterranean																x			
	106	*Clinopodium vulgare* L. subsp. *vulgare*	_	Wide spread										x					x				
	107	*Calamintha nepeta* (L.) Savi subsp. *glandulosa* (Req.) P. W. Ball		Wide spread																x			
	108	*Phlomis russelina* (Sims) Beanthan		Euksin										x					x				
	109	*Lycopus europaeus L.*		European-Siberia											x				x				
PLANTAGINACEAE	110	*Plantago lanceolata* L.	Bağa	Wide spread									x	x		x				x			
THYMELAEACEAE	111	*Daphne pontica* L.	Dafne	Euksin										x		x				x			
LAURACEAE	112	*Laurus nobilis* L.		Mediterranean									x							x			
SANTALACEAE	113	*Osyris alba* L.	Süpürge çalısı	Mediterranean										x						x			
EUPHORBIACEAE	114	*Euphorbia amygdaloides* L. subsp. *amygdaloides*	Sütleğen	European-Siberia										x		x				x			
CORYLACEAE	115	*Carpinus betulus* L.	Gürgen	European-Siberia										x		x					x		
	116	*Corylus avellana* L. var. *avellana*		European-Siberia												x				x			

Table 7.1.b. Flora Species List of Section-5

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
SALICACEAE	117	*Salix alba* L.		European-Siberia											x					x			
ULMACEAE	118	*Ulmus minor* Miller. subsp. *minor*	Kara ağaç	East Mediterranean											x					x			
URTICACEAE	119	*Urtica dioica* L.	Isırgan	European-Siberia									x	x						x			
CANNABACEAE	120	*Humulus lupulus* L.		European-Siberia											x				x				
FAGACEAE	121	*Quercus frainetto* Ten.	Macar meşesi	European-Siberia										x		x						x	
	122	*Quercus cerris* L. var. *cerris*	Saçlımeşe	Wide spread										x		x						x	
	123	*Quercus petraea* (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.) Krassiln	Sapsız meşe	Wide spread										x		x						x	
	124	*Quercus infectoria* Olivier		European-Siberia										x								x	
	125	*Quercus coccifera* L.		Mediterranean										x						x			
	126	*Fagus orientalis* Lipsky	Kayın ağacı	European-Siberia										x						x			
RUBIACEAE	127	*Galium incanum* Sm. subsp. *incanum*	_	Mediterranean										x						x			
	128	*Rubia peregrina* L.	_	Mediterranean									x							x			
MONOCOTYLEDONES																							
ARACEAE	129	*Arum italicum* Miller		Wide spread											x					x			
LILIACEAE	130	*Ruscus aculeatus* L. subsp. *angustifolius* Boiss.	Tavşanmemesi	Wide spread										x		x						x	
	131	*Ruscus hypoglossum* L.	Dere kirazı	European-Siberia										x		x				x			
	132	*Smilax aspera* L.	Silcan	Wide spread										x						x			
	133	*Asparagus acutifolius* L.	Kuşkonmaz	Mediterranean										x						x			
	134	*Ornithogalum pascheanum* Speta			x		EN							x					x				
	135	*Scilla bifolia* L.	_	Mediterranean										x						x			
AMARYLLIDACEAE	136	*Galanthus plicatus* Bieb. subsp. *byzantinus* (Baker) D.A. Webb	Kardelen	Euksin	x		VU							x	x				x				
IRIDACEAE	137	*Crocus pestalozzae* Boiss.		Mediterranean	x		VU							x						x			
	138	*Crocus chrysanthus* (Herbert) Herbert		Wide spread										x					x				
JUNCACEAE	139	*Juncus effusus*		Wide spread												x				x			
	140	*Luzula forsteri* (Sm.) DC.		European-Siberia										x						x			
CYPERACEAE	141	*Carex pendula* Hudson	_	European-Siberia											x					x			
GRAMINEAE	142	*Poa bulbosa* L.	–	Wide spread												x				x			
	143	*Poa trivialis* L.	_	Wide spread									x							x			
	144	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Wide spread												x				x			
	145	*Stipa bromoides* (L.) Da-Rfler		Mediterranean									x							x			
	146	*Aegilops biuncialis* Vis.	–	Iran-Turan												x				x			
	147	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean												x				x			
	148	*Briza minor* L.	–	Mediterranean												x				x			
	149	*Hordeum bulbosum* L.	Arpa	Wide spread												x				x			
	150	*Brachypodium sylvaticum* (Hudson) P. Beauv.	_	Wide spread								x	x			x					x		
	151	*Cynodon dactylon* (L.) Pers. var. *dactylon*	Domuz ayrığı	Wide spread								x	x							x			
	152	*Festuca valesiaca* Schleicher ex Gaudin		Wide spread										x						x			
	153	*Agrostis stolonifera* L.		European-Siberia											x		x	x		x			
	154	*Alopecurus arundinaceus Poiret*		European-Siberia								x	x							x			

Table 7.1.c. Flora Species List of Section-6

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
PTERIDOPHYTA																							
EQUISETACEAE	**1**	*Equisetum telmateia* Ehrh.	_	Wide spread								**x**				**x**							**x**
HYPOLEPIDACEAE	2	*Pteridium aquilinum* (L.) Kuhn	Eğrelti	Wide spread											x								x
POLYPODIACEAE	3	*Polypodium vulgare* l. subsp. *vulgare*		Wide spread										x									x
ANGIOSPERMAE																							
DICOTYLEDONES																							
RANUNCULACEAE	4	*Ranunculus ficaria* L. subsp. *ficariiformis* Rouy & Fouc	Düğün çiçeği	Wide spread										x	x								x
	5	*Ranunculus constantinopoliatanus* (DC.) d'Urv.	Düğün çiçeği	Wide spread											x						x		x
	6	*Helleborus orientalis* Lam.	Çöpleme	Wide spread											x								x
BERBERIDACEAE	7	*Epimedium pubigerum*(DC.) Moren & Decaisne	_	European-Siberia											x								
PAPAVERACEAE	8	*Papaver rhoeas* L.	Gelincik	Wide spread									x										x
CRUCIFERAE	9	*Thlaspi perfolatum* L.	Kulakçıklı akça çiçeği	Wide spread									x									x	
	10	*Capsella bursa-pastoris* (L.) Medik.	Cobancantasi	Wide spread									x			x							x
	11	*Cardamine quinquefolia* (Bieb.) Schmalh.		European-Siberia											x							x	
CISTACEAE	12	*Cistus creticus* L.	Laden	Wide spread										x	x	x							
VIOLACEAE	13	*Viola sieheana* Becker	Menekşe	Wide spread											x						x		
CARYOPHYLLACEAE	14	*Stellaria holostea* L.	_	European-Siberia											x							x	
	15	*Silene italica* (L.) Pers.	_	Wide spread										x									x
GUTTIFERAE	16	*Hypericum calycinum* L.	Binbirdelik otu	European-Siberia										x	x								x
RHAMNACEAE	17	*Frangula alnus* Miller subsp. *alnus*	Barut ağacı	European-Siberia																x			x
GERANIACEAE	18	*Geranium rotundifolium* L.	_	Wide spread												x							x
POLYGONACEAE	19	*Rumex tuberosus* L. subsp. *tuberosus*	Kuzukulağı	Wide spread												x						x	
LEGUMINOSAE	20	*Medicago lupulina* L.	_	Wide spread									x										x
	21	*Chamaecytisus hirsutus* (L.) Link	_	Wide spread												x							
	22	*Genista tinctoria* L.	Boyacı katırtırnağı	European-Siberia											x								x
	23	*Vicia cracca* L. subsp. *stenophylla* Vel.	Fiğ	Wide spread												x							x
	24	*Trifolium campestre* Schreb.	Ucgul	Wide spread												x							x
	25	*Trifolium repens* L. var. *repens*	Yonca	Wide spread									x										x
	26	*Coronilla varia* L. subsp. *varia*	Körigen	Wide spread										x									x
	27	*Lathyrus aphaca* L.		Wide spread											x								x
	28	*Dorycnium pentaphyllum* Scop. subsp. *herbaceum* (Vill.) Rouy.	_	Wide spread											x								x
	29	*Astragalus glycyphyllos* L. subsp. *glycyphyllos*		European-Siberia											x							x	
LYTHRACEAE	30	*Lythrum salicaria* L.		European-Siberia												x							x
ROSACEAE	31	*Pyrus amygdaliformis* Vill. Var. *amygdaliformis*	Ahlat	Wide spread															x				x
	32	*Potentilla micrantha* Ramond ex DC.		Wide spread											x							x	
	33	*Sanguisorba minor Scop. Subsp. muricata (Spach)Brig*	Çayırdüğmesi	Wide spread									x			x							x
	34	*Filipendula vulgaris* Moench.	_	European-Siberia										x									x
	35	*Pyracantha coccinea* Roemer		Wide spread											x							x	
	36	*Crataegus monogyna* Jacq. Subsp. *monogyna*	Alıç	Wide spread											x								x
	37	*Mespilus germanica* L.	Döngel	European-Siberia											x							x	
	38	*Prunus divaricata* Ledeb. subsp. *divaricata*	Yabani erik	Wide spread											x	x			x	x	x		x
	39	*Sorbus torminalis* (L.) Crantz var. *torminalis*		Wide spread												x							x
	40	*Rubus sanctus* Schreber	Böğürtlen	Wide spread									x		x	x			x		x		

Table 7.1.c. Flora Species List of Section-6

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	41	*Fragaria vesca* L.	Dağ çileği	Wide spread											x								x
	42	*Agrimonia eupatoria* L.												x							x		
	43	*Rosa canina* L.	Kusburnu	Wide spread											x							x	
UMBELLIFERAE	44	*Daucus carota* L.	Yabani havuc	Wide spread									x			x							x
	45	*Oenanthe silaifolia* Bieb.	–	Wide spread									x										
	46	*Oenanthe pimpinelloides* L.	–	Wide spread											x								x
	47	*Conium maculatum L.*		Wide spread												x		x					x
	48	*Pastinaca sativa* L. subsp. *urens* (Req. ex Godron) Celak.		Wide spread											x								x
	49	*Ainsworthia trachycarpa* Boiss.		Mediterranean										x									x
ARALIACEAE	50	*Hedera helix* L.	Duvar sarmaşığı	Wide spread											x					x	x		
CAPRIFOLIACEAE	51	*Sambucus ebulus L.*	–	European-Siberia								x				x							x
CORNACEAE	52	*Cornus mas* L.	Kızılcık	European-Siberia											x								x
	53	*Cornus sanguinea* L. *subsp. sanguinea*																		x			x
DIPSACACEAE	54	*Scabiosa argentea* L.	–	Wide spread																			x
	55	*Dipsacus laciniatus L.*		Wide spread															x				x
COMPOSITAE	56	*Senecio vernalis* Waldst. et Kit	–	Wide spread									x										x
	57	*Tussilago farfara* L.	Kabalak	European-Siberia											x								x
	58	*Doronicum orientale* Hoffm.	–	Wide spread										x									x
	59	*Cichorium intybus L.*		Wide spread									x										x
	60	*Anthemis tinctoria* L.		Wide spread												x							x
	64	*Bellis perennis* L.	Yoğurt çiçeği	European-Siberia									x	x		x							x
	62	*Carduus nutans* L. sensu lato	Kenger	Wide spread									x										x
	63	*Carlina corymbosa* L.		Mediterranean									x										x
	64	*Logfia arvensis* (L.) Holub.	–	Wide spread									x									x	
	65	*Cirsium hypoleucum* DC.	_	European-Siberia											x								x
	66	*Chondrilla juncea* L . var. *juncea*	–	Wide spread									x									x	
	67	*Crepis reuterana* Boiss. subsp. *reuterana*	–	East Mediterranean										x								x	
	68	*Eupatorium cannabinum* L.		European-Siberia											x							x	
	69	*Pulicaria dysenterica* (L.) Gaertn.	_	Wide spread									x		x								x
CAMPANULACEAE	70	*Campanula lyrata* Lam. subsp. *lyrata*		Wide spread		x	LC							x								x	
ERICACEAE	71	*Arbutus unedo* L.	Kocayemiş	Wide spread										x	x								
	72	*Erica arborea* L.		Wide spread										x	x								x
	73	*Rhododendron ponticum* L.		Euksin											x								x
PRIMULACEAE	74	*Androsace maxima* L.	–	Wide spread												x							x
	75	*Primula vulgaris* Huds. Subsp. *sibthorpii* (Hoffmans) W.W.Sm & Forrest	Çuha çiçeği	European-Siberia											x						x		
	76	*Cyclamen coum* Miller var. coum		Wide spread											x								x
EBENACEAE	77	*Diospyros lotus L.*		Wide spread												x						x	
OLEACEAE	78	*Jasminum fruticans* L.	Yasemin	Mediterranean										x		x							x
	79	*Phillyrea latifolia* L.	Akkesme	Mediterranean										x		x							x
	80	*Ligustrum vulgare* L.		European-Siberia										x		x							x

Table 7.1.c. Flora Species List of Section-6

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
	81	*Fraxinus angustifolia* Vahl subsp. oxycarpa (Bieb. ex Willd.) Franco & Rocha Afonso	_	European-Siberia												x				x	x		x
BORAGINACEAE	82	*Myosotis lithospermifolia* (Willd.) Hornem.		Wide spread										x									x
	83	*Buglossoides arvensis* (L.) Johnston	–	Mediterranean												x							x
	84	*Trachystemon orientalis (L.) G. Don*		Euksin											x								x
SCROPHULARIACEAE	85	*Parentucellia latifolia* (L.) Caruel subsp. *latifolia*	_	Mediterranean									x										x
	86	*Veronica chamaedrys* L.	_	European-Siberia											x								x
CONVOLVULACEAE	87	*Convolvulus arvensis L.*	–	Wide spread									x										x
LABIATAE	88	*Lamium purpureum* L. var. *purpureum*	–	Wide spread								x		x		x	x	x					x
	89	*Acinos rotundifolius* Pers.	–	Wide spread												x							x
	90	*Ajuga reptans* L.	_	European-Siberia										x		x							x
	91	*Prunella vulgaris* L.	–	European-Siberia									x										x
	92	*Salvia glutinosa* L.	_	European-Siberia										x									x
	93	*Micromeria myrtifolia* Boiss. et Hohen.		Mediterranean										x									x
	94	*Clinopodium vulgare* L. subsp. *vulgare*	_	Wide spread											x							x	
	95	*Calamintha nepeta* (L.) Savi subsp. *glandulosa* (Req.) P. W. Ball		Wide spread															x				x
PLANTAGINACEAE	96	*Plantago lanceolata* L.	Bağa	Wide spread									x	x		x							x
THYMELAEACEAE	97	*Daphne pontica* L.	Dafne	Euksin											x								x
LAURACEAE	98	*Laurus nobilis* L.		Mediterranean											x								
SANTALACEAE	99	*Osyris alba* L.	Süpürge çalısı	Mediterranean										x									x
EUPHORBIACEAE	100	*Euphorbia amygdaloides* L. subsp. *amygdaloides*	Sütleğen	European-Siberia											x								x
CORYLACEAE	101	*Carpinus betulus* L.	Gürgen	European-Siberia											x								
	102	*Corylus avellana* L. var. *avellana*		European-Siberia										x	x								x
SALICACEAE	103	*Salix alba* L.		European-Siberia												x		x	x				x
	104	*Populus alba* L.		European-Siberia										x									x
	105	*Populus canadensis* Moench		Wide spread												x	x						x
ULMACEAE	106	*Ulmus minor* Miller. subsp. *minor*	Kara ağaç	East Mediterranean											x								x
URTICACEAE	107	*Urtica dioica* L.	Isırgan	European-Siberia											x	x		x					x
MORACEAE	108	*Ficus carica* L.													x			x				x	
CANNABACEAE	109	*Humulus lupulus* L.		European-Siberia											x			x				x	
JUGLANDACEAE	110	*Juglans regia* L.	Ceviz	Wide spread												x						x	
FAGACEAE	111	*Quercus frainetto* Ten.	Macar meşesi	European-Siberia										x	x								
	112	*Quercus cerris* L. var. *cerris*	Saçlımeşe	Wide spread										x	x								
	113	*Quercus petraea* (Mattuschka) Liebl. Var. *iberica* (Steven ex Bieb.) Krassiln	Sapsız meşe	Wide spread										x	x								
	114	*Quercus infectoria* Olivier		European-Siberia										x	x								
	115	*Quercus coccifera* L.		Mediterranean										x	x								x
	116	*Fagus orientalis* Lipsky	Kayın ağacı	European-Siberia											x								x
RUBIACEAE	117	*Galium incanum* Sm. subsp. *incanum*	_	Mediterranean										x									x
	118	*Rubia peregrina* L.	_	Mediterranean									x										x
MONOCOTYLEDONES																							

Table 7.1.c. Flora Species List of Section-6

FAMILY	NO	SPECIES NAME	TURKISH NAME	PHYTOGEOGRAPHICAL REGİON	ENDEMISM		T.S.	BERN	CITES			HABITAT							RELATIVE ABUNDANCE				
					R	W		Anx1	App1	App2	App3	1	2	3	4	5	6	7	1	2	3	4	5
ARACEAE	119	*Arum italicum* Miller		Wide spread																x	x		x
LILIACEAE	120	*Ruscus aculeatus* L. subsp. *angustifolius* Boiss.	Tavşanmemesi	Wide spread											x								
	121	*Ruscus hypoglossum* L.	Dere kirazı	European-Siberia											x								x
	122	*Smilax aspera* L.	Silcan	Wide spread											x								x
	123	*Ornithogalum pascheanum* Speta		European-Siberia	x		EN														x		x
	124	*Scilla bithynica* Boiss.	_	Euksin											x						x		x
AMARYLLIDACEAE	125	*Leucojum aestivum L.*	Çan çiçeği	European-Siberia												x						x	
IRIDACEAE	126	*Crocus chrysanthus* (Herbert) Herbert		Wide spread											x							x	
	127	*Iris sintenisii* Janka	_	European-Siberia											x							x	
TYPHACEAE	128	*Typha latifolia* L.	Kamış	Wide spread								x				x							x
	129	*Typha angustifolia* L.		Wide spread												x							x
JUNCACEAE	130	*Juncus effusus*		Wide spread								x				x	x						x
	131	*Luzula forsteri* (Sm.) DC.		European-Siberia											x								x
CYPERACEAE	132	*Carex pendula* Hudson	_	European-Siberia								x				x				x			x
GRAMINEAE	133	*Poa bulbosa* L.	–	Wide spread												x							x
	134	*Poa trivialis* L.	_	Wide spread									x										x
	135	*Bromus japonicus* Thunb. subsp. *japonicus*	–	Wide spread												x							x
	136	*Dactylis glomerata* L. subsp. *hispanica* (Roth) Nyman	Parmak otu	Mediterranean									x										x
	137	*Phragmites australis* (Cav.) Trin. ex Steudel	Kamış	European-Siberia															x				x
	138	*Hordeum bulbosum* L.	Arpa	Wide spread												x							x
	139	*Brachypodium sylvaticum* (Hudson) P. Beauv.	_	Wide spread											x								
	140	*Cynodon dactylon* (L.) Pers. var. *dactylon*	Domuz ayrığı	Wide spread									x										x
	141	*Alopecurus arundinaceus Poiret*		European-Siberia								x	x										x

Table 7.2.a. Amphibians and Reptiles Species List of Section-4

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	Relative Abundance
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.2;I1.2;I1.5;E1.3;F5.2;G1.A;G3.F;F5.3	Moderately
Anura	Bufonidae	*Bufo bufo*	Common Toad		LC	App 2	-	G1.A; G1.2	Rare
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.A;G1.2	Rare
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.2;G1.A;G3.F	Abundant
Urodela	Salamandridae	*Triturus karelinii*	Southern Crested Newt		LC	App 2		G1.2;G1.A	Rare
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	I1.2; I1.5; F5.2; F5.3; G1.A; G1.2; G3.F	Moderately
Testudines	Emydidae	*Emys orbicularis*	European Pond Turtle		NT	App 2	-	G1.A;G1.2	Rare
Squamata	Lacertidae	*Lacerta trilineata*	The Balkan green lizard		LC	App 2	-	E1.3; I1.2; I1.5; F5.2; F5.3; G1.A; G1.2	Moderately
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.A; G3.F	Abundant
Squamata	Anguidae	*Pseudopus apodus*	The European legless lizard		LC	App 2	-	F5.3; G1.A; F5.2; I1.5	Rare
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G1.A; G1.2	Moderately
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	F5.3; F5.2; I1.5	Rare
Squamata	Colubridae	*Natrix natrix*	Grass snake		LC	App 3		G3.F; G1.A; G1.2	Moderately
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G1.A; G1.2	Moderately
Squamata	Colubridae	*Platyceps collaris*	Taurus whip snake		LC	App 2	-	G3.F	Rare
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	F5.3; G1.A; F5.2; I1.5; G1.2; I1.2; E1.3	Rare

Table 7.2.b. Amphibians and Reptiles Species List of Section-5

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	Relative Abundance
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.A;G3.F; E3.4; I1.2; G1.2; C1.2	Moderately
Anura	Bufonidae	*Bufo bufo*	Common Toad		LC	App 2	-	G1.A;G3.F; E3.4; C1.2	Rare
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.A;G3.F	Rare
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.A;G3.F; E3.4; I1.2; G1.2; C1.2	Abundant
Anura	Ranidae	*Rana dalmatina*	The agile frog		LC	App 2		G1.A;G3.F; E3.4; I1.2; G1.2; C1.2	Moderately
Anura	Pelobatidae	*Pelobates syriacus*	Eastern Spadefoot		LC	App 2	-	E3.4; C1.2	Rare
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	G1.A;G3.F; I1.2; G1.2	Moderately
Testudines	Emydidae	*Emys orbicularis*	European Pond Turtle		NT	App 2	-	C1.2	Rare
Testudines	Geoemydidae	*Mauremys rivulata*	Western Caspian Turtle		-	-	-	G1.2	Rare
Squamata	Lacertidae	*Lacerta trilineata*	The Balkan green lizard		LC	App 2	-	G1.A;G3.F; I1.2; G1.2	Moderately
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.A;G3.F	Abundant
Squamata	Lacertidae	*Podarcis tauricus*	Balkan wall lizard		LC	App 2	-	G1.A	Rare
Squamata	Lacertidae	*Podarcis muralis*	Common wall lizard		LC	App 2	-	G1.A	Rare
Squamata	Anguidae	*Pseudopus apodus*	The European legless lizard		LC	App 2	-	G1.A;G3.F	Rare
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G1.A;G3.F	Rare
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	G1.A;G3.F	Rare
Squamata	Colubridae	*Natrix natrix*	Grass snake		LC	App 3		G1.A; I1.2; G1.2	Moderately
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G3.F; E3.4; G1.2; C1.2	Moderately
Squamata	Colubridae	*Elaphe sauromates*	East-Four-lined Ratsnake		LC	App 2	-	G1.A;G3.F	Rare
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	G1.A;G3.F; I1.2; G1.2	Moderately
Squamata	Colubridae	*Zamenis longissimus*	Aesculapian Ratsnake		LC	App 2	-	G1.A	Rare
Squamata	Colubridae	*Coronella austriaca*	Smooth snake		LC	App 2		G1.A;G3.F	Rare
Squamata	Colubridae	*Platyceps najadum*	Dahl's whip snake		LC	App 2	-	G1.A	Rare

Table 7.2.c. Amphibians and Reptiles Species List of Section-6

ORDER	FAMILY	TAXON	ENGLISH NAME	END.	T.S.			EUNIS HABITAT CLASS	Relative Abundance
					IUCN	BERN	CITES		
Anura	Bufonidae	*Bufotes variabilis*	Green Toad		DD	App 2	-	G1.A; E3.4; G1.2;C1.2;I1.2;J2.3;G1.C;G1.5;F5.3	Moderately
Anura	Bufonidae	*Bufo bufo*	Common Toad		LC	App 2	-	G1.A; I1.2; G1.C; F5.3	Moderately
Anura	Hylidae	*Hyla orientalis*	The European tree frog		LC	App 2	-	G1.A; G1.2; G1.C	Rare
Anura	Ranidae	*Pelophylax ridibundus*	The marsh frog		LC	App 3	-	G1.A; G1.2; C1.2; I1.2; J2.3; G1.C; G1.5	Moderately
Anura	Ranidae	*Rana dalmatina*	The agile frog		LC	App 2		G1.A; E3.4; F5.3; I1.2; G1.C; G1.5	Moderately
Anura	Discoglossidae	*Bombina bombina*	Fire-belied toad		LC	App 2		C1.2	Rare
Urodela	Salamandridae	*Triturus karelinii*	Southern Crested Newt		LC	App 2		C1.2	Rare
Testudines	Testudinidae	*Testudo graeca*	The spur-thighed tortoise		VU	App 2	App 2	G1.A; I1.2; G1.C	Moderately
Testudines	Geoemydidae	*Mauremys rivulata*	Western Caspian Turtle		-	-	-	G1.2; G1.C; G1.5	Rare
Testudines	Emydidae	*Emys orbicularis*	European Pond Turtle		NT	App 2	-	C1.2	Rare
Squamata	Lacertidae	*Lacerta viridis*	The green lizard		LC	App 2	-	G1.A; G1.2; I1.5; G1.C; G1.5	Moderately
Squamata	Lacertidae	*Lacerta trilineata*	The Balkan green lizard		LC	App 2	-	G1.A; F5.3; I1.2	Moderately
Squamata	Lacertidae	*Podarcis tauricus*	Balkan wall lizard		LC	App 2	-	G1.A; G1.C	Rare
Squamata	Lacertidae	*Podarcis muralis*	Common wall lizard		LC	App 2	-	G1.A; F5.3	Rare
Squamata	Lacertidae	*Podarcis siculus*	Italian wal lizard		LC	App 2	-	G1.2; J2.3	Rare
Squamata	Lacertidae	*Ophisops elegans*	Snake-eyed lizard		LC	App 2	-	I1.2; I1.5	Moderately
Squamata	Anguidae	*Pseudopus apodus*	The European legless lizard		LC	App 2	-	G1.A; F5.3; G1.C; G1.5	Moderately
Squamata	Anguidae	*Anguis fragilis*	The slow-worm		LC	App 3	-	G1.A; E3.4	Rare
Squamata	Scincidae	*Ablepharus kitaibelii*	The European copper skink		LC	App 2	-	G1.A	Rare
Squamata	Colubridae	*Natrix tessellata*	The dice snake		LC	App 2		G1.2;G1.5;G1.C	Moderately
Squamata	Colubridae	*Natrix natrix*	Grass snake		LC	App 3		G1.A; G1.2; C1.2; I1.2	Moderately
Squamata	Colubridae	*Dolichophis caspius*	The Caspian whipsnake		LC	App 2	-	G1.A; G1.2; I1.5; I1.2; G1.C; F5.3	Rare
Squamata	Colubridae	*Eirenis modestus*	Ring-headed dwarf snake		LC	App 3	-	F5.3	Rare
Squamata	Colubridae	*Zamenis longissimus*	Aesculapian Ratsnake		LC	App 2	-	G1.A	Rare
Squamata	Colubridae	*Elaphe sauromates*	East-Four-lined Ratsnake		LC	App 2	-	G1.A; G1.C	Rare

Table 7.3.a. Bird Species List of Section-4

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES								THREATENED CATEGORIES				
														International				National
						F5.3	G1.A	G3.F	G1.A G1.2	F5.3	I1.2 F5.2	I1.2 I1.5 E1.3	F5.2 I1.5					
						4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	IUCN	BERN	CITES	Kiziroglu	CHC
PODICIPEDIFORMES	PODICIPEDIDAE	*Tachybaptus ruficollis* (Pallas, 1764)	Küçük Batağan	Little grebe	1									LC	App -II	App-2	A.2	App-1
PELECANIFORMES	PHALACROCORACIDAE	*Phalacrocorax carbo* (Linnaeus, 1758)	Karabatak	Cormorant	1	1								LC	App -III		A.2	App-3
CICONIIFORMES	ARDEIDAE	*Ardea cinerea* Linnaeus, 1758	Gri Balıkçıl	Grey Heron	5				x-survey					LC	App -III		A.3	App-3
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter nisus* (Linnaeus, 1758)	Atmaca	Eurasian Sparrowhawk	1								14	LC	App -III		A.4	App-1
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo buteo* (Linnaeus, 1758)	Şahin	Commom Buzzard	1-5	1		1	1					LC	App -III		A.3	B.3.1
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo rufinus* (Linnaeus, 1758)	Kızıl Şahin	Eurasian Buzzard	1		5			5				LC	App -III		A.5	App-3
ACCIPITRIFORMES	ACCIPITRIDAE	*Circaetus gallius*	Yılan Kartalı	Short-toed snake eagle	3									LC	LC	APP-III	APP-2	A.4
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	2				1-soun	1				LC	App -III		A.2	App-1
GALLIFORMES	PHASIANIDAE	*Alectoris chukar* (Gray, 1830)	Kınalı Keklik	Chukar	1				1					LC	App-II	App-2	A.2	App-1
GALLIFORMES	PHASIANIDAE	*Coturnix coturnix* (Linnaeus, 1758)	Bıldırcın	Common Quail	1		1		1					LC	App-II		A.2	App-1
CHARADRIIFORMES	LARIDAE	*Larus michahellis* J. F. Naumann, 1840	Gümüş Martı	Yellow-legged Gull	1		2			2				LC	App-II		A.2	App-1
CHARADRIIFORMES	SCOLOPACIDAE	*Gallinago gallinago* (Linnaeus, 1758)	Suçulluğu	Common Snipe	1	1			2					LC	App-II		A.3	App-1
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1	2		2			2			LC	App-II		A.3.1	App-1
CUCULIFORMES	CUCULIDAE	*Cuculus canorus* Linnaeus, 1758	Guguk	Common Cuckoo	1				1					LC	App-II		A.3.1	App-1
STRIGIFORMES	STRIGIDAE	*Athene noctua* (Linnaeus, 1758)	Kulaklı Orman Baykuşu	Northern Long-eared Owl	1	2	2	2	3	1	1	2	1	LC	App-II		A.1.2	App-1
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian Woodpecker	1	1			1					LC	App-II		A.3	App-1
PASSERIFORMES	ALAUDIDAE	*Galerida cristata (Linnaeus, 1758)*	Tepeli Toygar	Crested Lark	1	1								LC	App-II		A.2	App-1
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır İncirkuşu	Meadow Pipit	1	1		1			1	1		LC	App-II		A.3	App-1
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	1	2	2	3	2	3	2	2	2	LC	App-II		A.3	App-1
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1									LC	App-II		A.3	App-3
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	European Robin	1	1	5	2	3	5				LC	App-II		A.3	App-1
PASSERIFORMES	TURDIDAE	*Phoenicurus ochruros* (Gmelin, 1774)	Kara Kızılkuyruk	Black Redstart	1	1			1					LC	App-II		A.3.1	App-1
PASSERIFORMES	TURDIDAE	*Saxicola torquata* (Linnaeus, 1758)	Taşkuşu	Stonechat	1				15					LC	App-II		A.3	App-1
PASSERIFORMES	TURDIDAE	*Oenanthe isabellina* (Temminck, 1829)	Boz Kuyrukkakan	Isabelline Wheatear	1				2		1			LC	App-II		A.2	APP-2
PASSERIFORMES	TURDIDAE	*Turdus merula* Linnaeus, 1758	Karatavuk	Eurasian Blackbird	1	1		1	2					LC	App-II		A.3	App-1
PASSERIFORMES	TURDIDAE	*Turdus pilaris* Linnaeus,	Tarla ardıcı	Field fare	1	5	2	3	5	2	2	1		LC	App-II		A.2	App-1

Table 7.3.a. Bird Species List of Section-4

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES								THREATENED CATEGORIES				
														International				National
						F5.3	G1.A	G3.F	G1.A G1.2	F5.3	I1.2 F5.2	I1.2 I1.5 E1.3	F5.2 I1.5					
						4-1	4-2	4-3	4-4	4-5	4-6	4-7	4-8	IUCN	BERN	CITES	Kiziroglu	CHC
		1758																
PASSERIFORMES	SYLVIIDAE	*Phylloscopus collybita* (Vieillot, 1817)	Çıvgın	Common Chiffchaff	1	2	1	2		2	2	2	1	LC	App -III		A.1.2	App-1
PASSERIFORMES	SYLVIIDAE	*Regulus ignicapilla* (Temminck, 1820)	sürmeli çalı kuşu	Coomon firecrest	1	3		3						LC	-		A.3.1	APP-3
PASSERIFORMES	AEGITHALIDAE	*Aegithalos caudatus* (Linnaeus, 1758)	Uzun Kuyruklu Baştankara	Long-tailed Tit	1		3			1			2	LC	-		A.5	APP-3
PASSERIFORMES	PARIDAE	*Parus ater* Linnaeus, 1758	Çam Baştankarası	Coal Tit	1	1		1			1	2	1	LC	-		A.5	APP-3
PASSERIFORMES	PARIDAE	*Parus caeruleus* Linnaeus, 1758	Mavi Baştankara	Blue Tit	1	25								LC	App -III		A.5	APP-2
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük baştankara	Great Tit	1	5	7			7				LC	-		A.5	APP-2
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1	1	4	2	7	3	5	3	2	LC	App -III		A.3	APP-2
PASSERIFORMES	CORVIDAE	*Pica pica* (Linnaeus, 1758)	Saksağan	Magpie	1		1		2	1				LC	App-II		A.3	App-1
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1	10		25			9	3	7	LC	App-II		A.3	App-1
PASSERIFORMES	CORVIDAE	*Corvus corax* Linnaeus, 1758	Kuzgun	Raven	1	25							2	LC	App-II		A.3	App-1
PASSERIFORMES	STURNIDAE	*Sturnus vulgaris* Linnaeus, 1758	Sığırcık	Starling	1				1					LC	App-II		A.3	App-1
PASSERIFORMES	FRINGILLIDAE	*Passer domesticus* (Linnaeus, 1758)	Ev Serçesi	House Sparrow	1				1					LC	App-II		A.3	App-1
PASSERIFORMES	PASSERIDAE	*Fringilla coelebs* Linnaeus, 1758	İspinoz	Common Finch	1	2		2			1	1	1	LC	App-II		A.4	App-1
PASSERIFORMES	FRINGILLIDAE	*Carduelis chloris* (Linnaeus, 1758)	Florya	Greenfinch	1									LC	App-II	App-2	A.2	App-1
PASSERIFORMES	FRINGILLIDAE	*Carduelis carduelis* (Linnaeus, 1758)	Saka	Goldfinch	1	1								LC	App -III		A.2	APP-3
PASSERIFORMES	FRINGILLIDAE	*Carduelis cannabina* (Linnaeus, 1758)	Ketenkuşu	Linnet	5				x-anket					LC	App -III		A.3	APP-3
PASSERIFORMES	FRINGILLIDAE	*Loxia curvirostra* Linnaeus, 1758	Çaprazgaga	Red Crossbill	1								14	LC	App -III		A.4	App-1
PASSERIFORMES	FRINGILLIDAE	*Coccothraustes coccothraustes* (Linnaeus, 1758)	Kocabaş	Hawfinch	1-5	1		1	1					LC	App -III		A.3	B.3.1
PASSERIFORMES	EMBERIZIDAE	*Miliaria calandra* Linnaeus, 1758	Tarla Kirazkuşu	Corn Bunting	1		5			5				LC	App -III		A.5	APP-3

Table 7.3.b. Bird Species List of Section-5

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES														THREATENED CATEGORIES				
																				Internationally			National	
						G1.A	G1.A	G1.A G3.F	G3.F	G1.A	G3.F	G1.A	G1.A	I1.2 G1.2	I1.2 G1.2 C1.2 E3.4	G1.A	G3.F	G1.A G3.F	G1.A					
						5-1	5-2	5-3	5-4	5-5	Storage area-1	5-6	Quarry / Camp site	5-7	5-8	5-9	5-10	5-11	5-12	IUCN	BERN	CITES	Kiziroglu	CHC
PODICIPEDIFORMES	PODICIPEDIDAE	*Tachybaptus ruficollis* (Pallas, 1764)	Küçük Batağan	Little grebe	1										2					LC	App-II		A.3.1	App-1
CICONIIFORMES	ARDEIDAE	*Egretta garzetta* (Linnaeus, 1766)	Küçük Ak Balıkçıl	Little Egret	1										1					LC	App-II		A.3.1	App-1
CICONIIFORMES	ARDEIDAE	*Ardea cinerea* Linnaeus, 1758	Gri Balıkçıl	Grey Heron	1										2					LC	App-II		A.3	App-1
ANSERIFORMES	ANATIDAE	*Anas platyrynchos*	Yeşilbaş	Mallard	1										7					LC	App-II		A.4	APP-2
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter nisus* (Linnaeus, 1758)	Atmaca	Eurasian Sparrowhawk	1									1						LC	App -III	App -2	A.3	App-1
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo buteo* (Linnaeus, 1758)	Şahin	Eurasian Buzzard	1	1		1	1				1		1	1			1	LC	App -III	App -2	A.3	App-1
ACCIPITRIFORMES	ACCIPITRIDAE	*Circaetus gallius*	Yılan Kartalı	Short-toed snake eagle	3															LC	APP-III	APP -2	A.4	-
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	1	1														LC	App-II	App -2	A.2	App-1
GALLIFORMES	PHASIANIDAE	*Coturnix coturnix* (Linnaeus, 1758)	Bıldırcın	Common Quail	5	x-anket														LC	App -III		A.3	APP-3
CHARADRIIFORMES	SCOLOPACIDAE	*Actitis hypoleucos* Linnaeus, 1758	Dere Düdükçünü	Common Sandpiper	1										2					LC	App-II		A.3	App-1
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1	5	3	5			2		2							LC	App -III		A.5	APP-3
CUCULIFORMES	CUCULIDAE	*Cuculus canorus* Linnaeus, 1758	Guguk	Common Cuckoo	2	1														LC	App -III		A.2	App-1
STRIGIFORMES	STRIGIDAE	*Athene noctua* (Scopoli, 1769)	Kukumav	Little Owl	2	1-pelet								1						LC	App-II	App -2	A.2	App-1
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian Woodpecker	1				1-ses						1					LC	App-II		A.2	App-1
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır İncirkuşu	Meadow Pipit	1	1						1		1			1			LC	App-II		A.3	App-1
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	1		1			1		2			2			1		LC	App-II		A.3.1	App-1
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1		1				1			1						LC	App-II		A.3.1	App-1
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	European Robin	1		2	2	1	1	1	1	1	2		1		1	1	LC	App-II		A.1.2	App-1
PASSERIFORMES	TURDIDAE	*Phoenicurus ochruros* (Gmelin, 1774)	Kara Kızılkuyruk	Black Redstart	1			1					1							LC	App-II		A.3	App-1
PASSERIFORMES	TURDIDAE	*Saxicola torquata* (Linnaeus, 1758)	Taşkuşu	Stonechat	1			1							1					LC	App-II		A.2	App-1
PASSERIFORMES	TURDIDAE	*Oenanthe isabellina* (Temminck, 1829)	Boz Kuyrukkakan	Isabelline Wheatear	1					1			1		1		1			LC	App-II		A.3	App-1
PASSERIFORMES	TURDIDAE	*Turdus merula* Linnaeus, 1758	Karatavuk	Eurasian Blackbird	1	2	1	2	2	1	2	1	2	3	1	1	2	1	2	LC	App-II		A.3	App-1
PASSERIFORMES	SYLVIIDAE	*Phylloscopus collybita* (Vieillot, 1817)	Çıvgın	Common Chiffchaff	1		2		2	3	1	3	1	5	1	1	3	1	2	LC	App-II		A.3	App-1
PASSERIFORMES	SYLVIIDAE	*Regulus ignicapilla* (Temminck, 1820)	sürmeli çalı kuşu	Common firecrest	1															LC	App-II		A.3.1	App-1
PASSERIFORMES	AEGITHALIDAE	*Aegithalos caudatus* (Linnaeus, 1758)	Uzun Kuyruklu Baştankara	Long-tailed Tit	1				1	1		1		2			12			LC	App-II		A.3	App-1
PASSERIFORMES	PARIDAE	*Parus ater* Linnaeus, 1758	Çam Baştankarası	Coal Tit	1	2	1							1						LC	App-II		A.2	APP-2
PASSERIFORMES	PARIDAE	*Parus caeruleus* Linnaeus, 1758	Mavi Baştankara	Blue Tit	1	1					1					1		1		LC	App-II		A.3	App-1
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük baştankara	Great Tit	1	5			3	1	2	1	2	3	1	2	2		21	LC	App-II		A.2	App-1
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1	1	2	1	2	1	1	1	1	2	1	2				LC	App -III		A.1.2	App-1
PASSERIFORMES	CORVIDAE	*Pica pica* (Linnaeus, 1758)	Saksağan	Magpie	1					2			3	4		5		3		LC	-		A.3.1	APP-3

Table 7.3.b. Bird Species List of Section-5

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES														THREATENED CATEGORIES				
																				Internationally			National	
						G1.A	G1.A	G1.A G3.F	G3.F	G1.A	G3.F	G1.A	G1.A	I1.2 G1.2	I1.2 G1.2 C1.2 E3.4	G1.A	G3.F	G1.A G3.F	G1.A					
						5-1	5-2	5-3	5-4	5-5	Storage area-1	5-6	Quarry / Camp site	5-7	5-8	5-9	5-10	5-11	5-12	IUCN	BERN	CITES	Kiziroglu	CHC
PASSERIFORMES	CORVIDAE	*Corvus monedula* Linnaeus, 1758	Küçük Karga	Jackdaw	1						1				2					LC	-		A.5	APP-3
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1					2		2		7		3	5	3	2	LC	-		A.5	APP-3
PASSERIFORMES	CORVIDAE	*Corvus corax* Linnaeus, 1758	Kuzgun	Raven	1				1	1	1	1	1			1			1	LC	-		A.5	APP-3
PASSERIFORMES	PASSERIDAE	*Fringilla coelebs* Linnaeus, 1758	İspinoz	Common Finch	1	2	1	5	2	5	2	5	2	5	3	2	5	2	3	LC	App -III		A.3	APP-2
PASSERIFORMES	FRINGILLIDAE	*Carduelis chloris* (Linnaeus, 1758)	Florya	Greenfinch	1									2						LC	App-II		A.3	App-1
PASSERIFORMES	FRINGILLIDAE	*Carduelis carduelis* (Linnaeus, 1758)	Saka	Goldfinch	1	5	10	20	5			2			9			5		LC	App-II		A.3	App-1
PASSERIFORMES	FRINGILLIDAE	*Loxia curvirostra* Linnaeus, 1758	Çaprazgaga	Red Crossbill	1	1														LC	App-II		A.3	App-1
PASSERIFORMES	FRINGILLIDAE	*Coccothraustes coccothraustes* (Linnaeus, 1758)	Kocabaş	Hawfinch	1	1														LC	App-II		A.3	App-1
PASSERIFORMES	EMBERIZIDAE	*Miliaria calandra* Linnaeus, 1758	Tarla Kirazkuşu	Corn Bunting	1					1								1		LC	App-II		A.4	App-1

Table 7.3.b. Bird Species List of Section-6

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES																THREATENED CATEGORIES				
																						Internationally			National	
						F5.3	G1.A I1.2	G1.A E3.4	G1.A E3.4	G1.A	G1.A	G1.A I1.2	G1.A	G1.A	I1.2 G1.2 C1.2 I2.3	I1.2 G1.2	I1.2	I1.5	G1.C	G1.5	F5.3					
						6-Storage Area/1	6- Storage Area /2	6- Storage Area /3- Camp Site	6-1	6-2	6-2/ Storage Area -1	6-2/ Storage Area -2	6-3	6-3/ Storage Area - Camp Site	6-4	6-5	6-5/ Storage Area -1	6-5/ Storage Area -2	6-6	6-7	6- Storage Area /1	IUCN	BERN	CITES	Kiziroglu	CHC
PODICIPEDIFORMES	PODICIPEDIDAE	*Tachybaptus ruficollis* (Pallas, 1764)	Küçük Batağan	Little grebe	1										1						1	LC	App -III		A.3	APP-2
CICONIIFORMES	ARDEIDAE	*Egretta garzetta* (Linnaeus, 1766)	Küçük Ak Balıkçıl	Little Egret	1										1						1	LC	App-II		A.3.1	APP-1
CICONIIFORMES	ARDEIDAE	*Ardea cinerea* Linnaeus, 1758	Gri Balıkçıl	Grey Heron	1										2						1	LC	App-II		A.3	APP-1
ANSERIFORMES	ANATIDAE	*Anas platyrynchos*	Yeşilbaş	Mallard	1										3						1	LC	App-II		A.4	APP-2
ACCIPITRIFORMES	ACCIPITRIDAE	*Accipiter nisus* (Linnaeus, 1758)	Atmaca	Eurasian Sparrowhawk	1	1				1											1	LC	App -III	App -2	A.3	APP-1
ACCIPITRIFORMES	ACCIPITRIDAE	*Buteo buteo* (Linnaeus, 1758)	Şahin	Eurasian Buzzard	1				1		1				1			1			1	LC	App -III	App -2	A.3	APP-1

Table 7.3.b. Bird Species List of Section-6

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES																THREATENED CATEGORIES				
																						Internationally			National	
						F5.3	G1.A I1.2	G1.A E3.4	G1.A E3.4	G1.A	G1.A	G1.A I1.2	G1.A	G1.A	I1.2 G1.2 C1.2 I2.3	I1.2 G1.2	I1.2	I1.5	G1.C	G1.5	F5.3					
						6-Storage Area/1	6- Storage Area /2	6- Storage Area /3- Camp Site	6-1	6-2	6-2/ Storage Area -1	6-2/ Storage Area -2	6-3	6-3/ Storage Area - Camp Site	6-4	6-5	6-5/ Storage Area -1	6-5/ Storage Area -2	6-6	6-7	6- Storage Area /1	IUCN	BERN	CITES	Kiziroglu	CHC
ACCIPITRIFORMES	ACCIPITRIDAE	*Circaetus gallius*	Yılan Kartalı	Short-toed snake eagle	3																		LC	APP-III	APP-2	A.4
FALCONIFORMES	FALCONIDAE	*Falco tinnunculus* Linnaeus, 1758	Kerkenez	Common Kestrel	1									1		1					1	LC	App -III	App -2	A.3	APP-1
GALLIFORMES	PHASIANIDAE	*Coturnix coturnix* (Linnaeus, 1758)	Bıldırcın	Common Quail	1			1					1					1			1	LC	App-II	App -2	A.2	APP-1
CHARADRIIFORMES	SCOLOPACIDAE	*Actitis hypoleucos* Linnaeus, 1758	Dere Düdükçünü	Common Sandpiper	1										3						1	LC	App -III		A.5	APP-3
COLUMBIFORMES	COLUMBIDAE	*Columba livia* Gmelin, 1789	Kaya Güvercini	Rock Dove	1						3		1		12						1	LC	App -III		A.4	APP-1
CUCULIFORMES	CUCULIDAE	*Cuculus canorus* Linnaeus, 1758	Guguk	Common Cuckoo	1	2				4		3	2			7		2			1	LC	App -III		A.5	APP-3
STRIGIFORMES	STRIGIDAE	*Athene noctua* (Scopoli, 1769)	Kukumav	Little Owl	1					1						3			1		1	LC	App -III		A.5	APP-2
PICIFORMES	PICIDAE	*Dendrocopos syriacus* (Ehrenberg, 1833)	Alaca ağaçkakan	Syrian Woodpecker	1							1									1	LC	App -III		A.2	APP-1
PASSERIFORMES	MOTACILLIDAE	*Anthus pratensis* (Linnaeus, 1758)	Çayır İncirkuşu	Meadow Pipit	1		1									1					1	LC	App-II	App -2	A.2	APP-1
PASSERIFORMES	MOTACILLIDAE	*Motacilla alba alba* Linnaeus, 1758	Ak Kuyruksallayan	White Wagtail	2			x													2	2	App-II	App -2	A.2	APP-1
PASSERIFORMES	TROGLODYTIDAE	*Troglodytes troglodytes* (Linnaeus, 1758)	Çitkuşu	Winter Wren	1	1				1				1				1			1	LC	App-II		A.2	APP-1
PASSERIFORMES	TURDIDAE	*Erithacus rubecula* (Linnaeus, 1758)	Kızılgerdan	European Robin	1		1					2									1	LC	App-II		A.3	APP-1
PASSERIFORMES	TURDIDAE	*Phoenicurus ochruros* (Gmelin, 1774)	Kara Kızılkuyruk	Black Redstart	1				1			3			2		1			1	1	LC	App-II		A.3.1	APP-1
PASSERIFORMES	TURDIDAE	*Saxicola torquata* (Linnaeus, 1758)	Taşkuşu	Stonechat	1			1			1					1					1	LC	App-II		A.1.2	APP-1
PASSERIFORMES	TURDIDAE	*Oenanthe isabellina* (Temminck, 1829)	Boz Kuyrukkakan	Isabelline Wheatear	1			1								1		1			1	LC	App-II		A.3	APP-1
PASSERIFORMES	TURDIDAE	*Turdus merula* Linnaeus, 1758	Karatavuk	Eurasian Blackbird	1			1		1											1	LC	App-II		A.2	APP-1
PASSERIFORMES	SYLVIIDAE	*Phylloscopus collybita* (Vieillot, 1817)	Çıvgın	Common Chiffchaff	1		1				1					1					1	LC	App-II		A.3	APP-1
PASSERIFORMES	SYLVIIDAE	*Regulus ignicapilla* (Temminck, 1820)	sürmeli çalı kuşu	Common firecrest	1	1		1		2	2		2		1		1				1	LC	App-II		A.3	APP-1
PASSERIFORMES	AEGITHALIDAE	*Aegithalos caudatus* (Linnaeus, 1758)	Uzun Kuyruklu Baştankara	Long-tailed Tit	1	5		3						7							1	LC	App-II		A.3	APP-3
PASSERIFORMES	PARIDAE	*Parus ater* Linnaeus, 1758	Çam Baştankarası	Coal Tit	1		5		2		3	1			2		1		1	3	1	LC	App-II		A.3	APP-1
PASSERIFORMES	PARIDAE	*Parus caeruleus* Linnaeus, 1758	Mavi Baştankara	Blue Tit	1		1	2					1					1			1	LC	App-II		A.3.1	APP-1
PASSERIFORMES	PARIDAE	*Parus major* Linnaeus, 1758	Büyük baştankara	Great Tit	1		3			1				5							1	LC	App-II		A.3	APP-1
PASSERIFORMES	CORVIDAE	*Garrulus glandarius* (Linnaeus, 1758)	Alakarga	Eurasian Jay	1						2					1					1	LC	App-II		A.2	APP-2
PASSERIFORMES	CORVIDAE	*Pica pica* (Linnaeus, 1758)	Saksağan	Magpie	1							2		1				1			1	LC	App-II		A.3	APP-1
PASSERIFORMES	CORVIDAE	*Corvus monedula* Linnaeus, 1758	Küçük Karga	Jackdaw	1				4	3			2			3		1			1	LC	App-II		A.2	APP-1
PASSERIFORMES	CORVIDAE	*Corvus corone cornix*Linnaeus, 1758	Gri Leş Kargası	Carrion Crow	1				2	1	2	2	2	3	1		1		1	1	1	LC	App -III		A.1.2	APP-1
PASSERIFORMES	CORVIDAE	*Corvus corax* Linnaeus, 1758	Kuzgun	Raven	1					3					5	1	3				1	LC	-		A.3.1	APP-3
PASSERIFORMES	PASSERIDAE	*Fringilla coelebs* Linnaeus, 1758	İspinoz	Common Finch	1							2			4			1			1	LC	-		A.5	APP-3
PASSERIFORMES	FRINGILLIDAE	*Carduelis chloris* (Linnaeus, 1758)	Florya	Greenfinch	1				6		3	4		2		5			6		1	LC	-		A.5	APP-3

Table 7.3.b. Bird Species List of Section-6

ORDO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	RECORDİNG METHOD	EUNIS HABITAT TYPES																THREATENED CATEGORIES				
																						Internationally			National	
						F5.3	G1.A I1.2	G1.A E3.4	G1.A E3.4	G1.A	G1.A	G1.A I1.2	G1.A	G1.A	I1.2 G1.2 C1.2 I2.3	I1.2 G1.2	I1.2	I1.5	G1.C	G1.5	F5.3					
						6-Storage Area/1	6- Storage Area /2	6- Storage Area /3- Camp Site	6-1	6-2	6-2/ Storage Area -1	6-2/ Storage Area -2	6-3	6-3/ Storage Area - Camp Site	6-4	6-5	6-5/ Storage Area -1	6-5/ Storage Area -2	6-6	6-7	6- Storage Area /1	IUCN	BERN	CITES	Kiziroglu	CHC
PASSERIFORMES	FRINGILLIDAE	*Carduelis carduelis* (Linnaeus, 1758)	Saka	Goldfinch	1					1			1		1			2			1	LC	-		A.5	APP-3
PASSERIFORMES	FRINGILLIDAE	*Loxia curvirostra* Linnaeus, 1758	Çaprazgaga	Red Crossbill	1				2										2		1	LC	App -III		A.5	APP-2
PASSERIFORMES	FRINGILLIDAE	*Coccothraustes coccothraustes* (Linnaeus, 1758)	Kocabaş	Hawfinch	1								2			3					1	LC	-		A.5	APP-2
PASSERIFORMES	EMBERIZIDAE	*Miliaria calandra* Linnaeus, 1758	Tarla Kirazkuşu	Corn Bunting	1				6		4	3	2	2	2	2	5	3	1	1	1	LC	App -III		A.3	APP-2

Table 7.4.a. Mammal Species List of Section-4

SPECIES NAME	TURKISH NAME	THREATENED CATEGORIES				4_1	4_2	4_3	4_4	4_5	4_6	4_7	4_8
		International			National								
		IUCN	BERN	CITES	CHC								
Erinaceus concolor	Kirpi	LC	-	-	-	x	x	x	x	x	x	x	x
Crocidura suaveolens	Küçük Beyazdişli Böcekçil	LC	App-II	-	-			x					x
Talpa levantis	Karadeniz Köstebeği	LC	-	-	-			x	x				
Rhinolophus ferrumequinum	Büyük Nalburunlu Yarasa	LC	App-II	-	-			x	x		x	x	x
Rhinolophus hipposideros	Küçük Nalburunlu Yarasa	LC	App-II	-	-				x				
Myotis myotis	Farekulaklı Büyük Yarasa	LC	App-II	-	-			x	x				x
Pipistrellus pipistrellus	Adi Yarasa	LC	App -III	-	-	x	x			x	x	x	
Miniopterus schreibersii	Uzunkanatlı Yarasa	NT	App-II	-	-			x					
Lepus europaeus	Yaban Tavşanı	LC	-	-	**APP-2**			x	x	x	x	x	
Sciurus anomalus	Anadolu Sincabı	LC	App-II	-	-			x	x				
Myodes glareolus	Kızılsırtı Fare	LC	-	-	-			x	x				
Microtus levis	Tarlafaresi	LC	-	-	-								x
Microtus guentheri	Mediterranean Tarlafaresi	LC	-	-	-		x						x
Apodemus flavicollis	Sarı Boyunlu Ormanfaresi	LC	-	-	-	x	x	x	x	x	x	x	x
Rattus norvegicus	Göçmen Sıçan	LC	-	-	-	x	x				x	x	x
Mus macedonicus	Sarı Evfaresi	LC			-	x	x	x		x	x	x	
Canis aureus	Çakal	LC	-	APP-3	**APP-2**				x	x	x	x	
Vulpes vulpes	Kızıl Tilki	LC	-	APP-3	**APP-2**	x	x	x	x	x	x	x	x
Mustela nivalis	Gelincik	LC	App -III	-	APP-1	x		x	x		x	x	
Martes foina	Kaya Sansarı	LC	App -III	APP-3	**APP-2**	x	x	x	x	x	x	x	x
Meles meles	Porsuk	LC	App -III	-	APP-1					x	x		
Sus scrofa	Yaban Domuzu	LC	App -III	-	**APP-2**	x	x	x	x	x	x	x	
Capreolus capreolus	Karaca	LC	App -III	-	-					x	x		

Table 7.4.b. Mammal Species List of Section-5

SPECIES NAME	TURKISH NAME	THREATENED CATEGORIES				5_1	5_2	5_3	5_4	5_5	5_6	5_7	5_8	5_9	5_10	5_11	5_12	5_Storage Area_1	5_Camp Site_Stone quarry
		International			National														
		IUCN	BERN	CITES	CHC														
Erinaceus concolor	Kirpi	LC	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Crocidura suaveolens	Küçük Beyazdişli Böcekçil	LC	App-II	-	-					x				x		x	x		x
Talpa levantis	Karadeniz Köstebeği	LC	-	-	-						x			x	x	x	x	x	
Rhinolophus ferrumequinum	Büyük Nalburunlu Yarasa	LC	App-II	-	-		x	x		x		x	x	x	x				
Rhinolophus hipposideros	Küçük Nalburunlu Yarasa	LC	App-II	-	-	x	x		x				x	x			x		
Myotis myotis	Farekulaklı Büyük Yarasa	LC	App-II	-	-					x		x	x	x		x			x
Pipistrellus pipistrellus	Adi Yarasa	LC	App-III	-	-	x	x					x							
Miniopterus schreibersii	Uzunkanatlı Yarasa	NT	App-II	-	-									x					
Lepus europaeus	Yaban Tavşanı	LC	-	-	**APP-2**		x	x	x	x	x		x	x	x	x	x	x	x
Sciurus anomalus	Anadolu Sincabı	LC	App-II	-	-		x	x	x	x				x			x	x	
Myodes glareolus	Kızılsırtı Fare	LC	-	-	-	x	x	x	x	x				x	x	x	x	x	x
Microtus subterraneus	Kısakulaklı Fare	LC	-	-	-					x								x	
Microtus levis	Tarlafaresi	LC	-	-	-								x						
Microtus guentheri	Mediterranean Tarlafaresi	LC	-	-	-							x	x						
Nannospalax xanthodon	Anadolu Körfaresi	DD			-							x	x	x					
Apodemus flavicollis	Sarı Boyunlu Ormanfaresi	LC	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Rattus rattus	Ev Sıçanı	LC	-	-	-							x		x					
Rattus norvegicus	Göçmen Sıçan	LC	-	-	-														
Mus macedonicus	Sarı Evfaresi	LC			-	x	x	x	x	x		x	x	x	x	x	x		x
Canis aureus	Çakal	LC	-	APP-3	**APP-2**	x	x	x	x	x	x	x		x	x	x	x	x	x
Vulpes vulpes	Kızıl Tilki	LC	-	APP-3	**APP-2**	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mustela nivalis	Gelincik	LC	App -III	-	APP-1		x	x	x			x		x	x		x		
Martes foina	Kaya Sansarı	LC	App -III	APP-3	**APP-2**	x	x	x	x	x	x	x		x	x	x	x	x	x
Meles meles	Porsuk	LC	App -III	-	APP-1												x		
Felis slivestris	Yaban Kedisi	LC	App-II	APP-2	-	x			x										
Sus scrofa	Yaban Domuzu	LC	App -III	-	**APP-2**	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Capreolus capreolus	Karaca	LC	App -III	-	-			x	x	x					x		x	x	

Table 7.4.c. Mammal Species List of Section-6

SPECIES NAME	TURKISH NAME	THREATENED CATEGORIES				6_1 and Storage Area	6_2	6_2_ Storage Area	6_3	6_4	6_5	6_6	6_7	6_5 and 6_6 Storage Area_1	6_5 and 6_6 Storage Area_2	6_ Storage Area _1	6_ Storage Area _2	6_ Storage Area _3_Camp Site_1	6_ Storage Area	6_Stone quarry	6_Camp Site_2
		International			National																
		IUCN	BERN	CITES	CHC																
Erinaceus concolor	Kirpi	LC	-	-	-	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Crocidura suaveolens	Küçük Beyazdişli Böcekçil	LC	App-II	-	-			x			x	x	x				x	x			
Talpa levantis	Karadeniz Köstebeği	LC	-	-	-				x			x				x		x		x	
Rhinolophus ferrumequinum	Büyük Nalburunlu Yarasa	LC	App-II	-	-	x		x		x		x						x			
Rhinolophus hipposideros	Küçük Nalburunlu Yarasa	LC	App-II	-	-		x			x		x				x		x			
Myotis myotis	Farekulaklı Büyük Yarasa	LC	App-II	-	-			x		x		x	x					x			
Pipistrellus pipistrellus	Adi Yarasa	LC	App -III	-	-		x		x	x	x	x	x	x	x			x	x	x	x
Lepus europaeus	Yaban Tavşanl	LC	-	-	**APP-2**	x	x					x				x		x	x		
Sciurus anomalus	Anadolu Sincabı	LC	App-II	-	-	x						x						x			
Myodes glareolus	Kızılsırtı Fare	LC	-	-	-	x	x											x			
Microtus subterraneus	Kısakulaklı Fare	LC	-	-	-	x															
Microtus guentheri	Gunther Faresi	LC	-	-	-					x	x		x	x							
Nannospalax xanthodon	Anadolu Körfaresi	DD			-					x	x		x								
Apodemus flavicollis	Sarı Boyunlu Ormanfaresi	LC	-	-	-	x	x	x	x	x	x	x	x			x	x	x	x	x	
Rattus rattus	Ev Sıçanı	LC	-	-	-				x	x							x				
Rattus norvegicus	Göçmen Sıçan	LC	-	-	-						x		x								x
Mus macedonicus	Sarı Evfaresi	LC			-		x	x	x	x	x	x		x	x	x	x	x	x	x	x
Canis aureus	Çakal	LC	-	APP-3	**APP-2**	x		x				x						x			
Vulpes vulpes	Kızıl Tilki	LC	-	APP-3	**APP-2**	x	x		x	x	x	x	x	x	x	x	x	x	x	x	
Mustela nivalis	Gelincik	LC	App -III	-	APP-1							x					x	x			
Martes foina	Kaya Sansarı	LC	App -III	APP-3	**APP-2**	x	x	x				x	x			x	x	x	x	x	
Meles meles	Porsuk	LC	App -III	-	APP-1													x			
Felis slivestris	Yaban Kedisi	LC	App-II	APP-2	-													x			
Sus scrofa	Yaban Domuzu	LC	App -III	-	**APP-2**	x	x	x		x	x	x	x			x		x	x	x	
Capreolus capreolus	Karaca	LC	App -III	-	-	x	x	x										x			

Table 7.5.a. Fish Species List of Section-4

NO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	ENDEMISM	IUCN	HABITAT
1	Cyprinidae	*Carassius gibelio*	İsrail Sazanı	Crusian Carp	-	LC	Invasive species. Lakes, large river systems, estuarin, lagoons. Coastal zone that cover with vegetation.
2		*Gobio sp.*	Yağlıca, Dere Kayası	Gudgeon	-	-	From small streams that have low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled and stony bottom structures
3		*Petroleuciscus borysthenicus*	Tatlısu Kefali	Blacksea Chub	-	LC	From small streams that have low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, rocky and stony bottom structures.
4		*Squalius aristotelis*	Tatlısu kefali	Chub	-	LC	From small streams that have low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, rocky and stony bottom structures.
5		*Rhodeus amarus*	Acı Balık	Bitterling	-	LC	From small streams of low flow rate reach up to large river systems, brackish-marine and lakes that linked with marine, coastal zone that cover with rich vegetation.

Table 7.5.b. Fish Species List of Section-5

NO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	ENDEMISM	IUCN	HABITAT
1	Cyprinidae	*Carassius gibelio*	İsrail Sazanı	Crusian Carp	-	LC	It is an invasive species. Lakes, large river systems, estuarine and water system around lagoons. Coastal zone that cover with vegetation.
2		*Squalius aristotelis*	Tatlısu kefali	Chub	Endemic	LC	From small streams of low flow rate reach up to large river systems, lakes that linked with streams, habitats that have graveled, stony and rocky bottom structures.

Table 7.5.c. Fish Species List of Section-6

NO	FAMILY	SPECIES	TURKISH NAME	ENGLISH NAME	ENDEMISM	IUCN	HABITAT
1	Atherinidae	*Atherina boyeri*	Gümüş Balığı	Black Sea Silverside	-	LC	Ecological tolerance is high. It is origin to marine and lives and breed within freshwatersan and brackish-marine. It is distributed pelagically in lakes and ponds.
2	Balitoridae	*Oxynemacheilus angorae* *	Çöpçü Balığı	Sakarya Stone loach	Endemic	LC	Ecological tolerance is high. They live in rivers that flow from fast-flowing waters to slow-flowing waters. Dense vegetated lake areas that have gravel-stony bottom structures.
3		*Oxynemacheilus banarescui*	Çöpçü Balığı	Paphlagonian Sportive Loach	Endemic	NT	Medium-flowing rivers; slow flowing rivers; gravel-stoned habitats
4	Cobitidae	*Cobitis simplicispina*	Kobit	(Galatian Spined Loach)	Endemic	LC	Ecological tolerance is high. Medium-flowing rivers; slow flowing rivers, slack water; lakes-ponds. Bottom structure sandy-clay habitats
5	Cyprinidae	*Alburnoides sp.**	Noktalı İnci Balığı	Spirlin	-	DD	From low flow rate streams reach up to large river systems, habitats that have graveled, rocky and sandy bottom structures.
6		*Alburnus escherichii**	İnci Kefali	Sakarya Bleak	Endemic	LC	Ecological tolerance is high. Freshwater, lekes and ponds. Different sizes of stream systems; Bottom structure sandy-clay, stone-rocky habitats. Migrates to rivers for breeding.
7		*Barbus escherichii**	Bıyıklı Balık	Sakarya Barbel	Endemic	LC	Medium-flowing streams and large river systems that have stony-gravely bttom structures; lake-pond connected to rivers. Migrates to rivers for breeding.
8		*Capoeta sieboldii*	Saçaklı Siraz Balığı Balık	Nipple-lip scraper	Endemic	LC	From low flow rate streams reach up to large river systems, lakes that linked with streams, habitats that have graveled rocky and sandy bottom structures.
9		*Capoeta baliki**	Siraz	Western fourbarbel scraper	Endemic	LC	Ecological tolerance is high From low flow rate streams reach up to large river systems, lakes that linked with streams, habitats that have graveled, rocky and sandy bottom structures, reservoirs and lakes
10		*Carassius gibelio**	İsrail sazanı	Prussian carp	Invader	DD	Ecological tolerance is high. Lakes, ponds, reservoirs, large river systems that have dence vegetation
11		*Chondrostoma angorense*	Kababurun	Blacksea nase	Endemic	LC	Medium-flowing streams and high flowing streams, large river systems and habitats of stony-gravely bottom structures
12		*Cyprinus carpio*	Aynalı-Pullu sazan	Mirror or Wild Common Carp	-	LC	The natural Tuna-fish population is Vulnerable species. Populations in Turkey are consist individuals who are cultured and vaccinated for fishery purposes. Ecological tolerance is high. Lake, pond reservoir, large river system with coastal vegetation intensive
13		*Gobio sp.**	Yağlıca, Dere Kayası	Gudgeon	-	-	From low flow rate streams reach up to large river systems, lakes that linked with streams, habitats that have graveled and sandy bottom structures.

14		*Gobio sakaryaensis**	Sakarya Yağlıcası	Sakarya Gudgeon	Endemic	LC	From low flow rate streams reach up to large river systems, lakes that linked with streams, habitats that have graveled and sandy bottom structures.
15		*Rhodeus amarus**	Acı Balık	Bitterling	-	LC	From small streams of low flow rate reach up to large river systems, brackish-marine and lakes that linked with marine, coastal zone that cover with vegetation.
16		*Squalius aristotelis**	Tuzla Tatlısu kefali	Tuzla Chub	Endemic	LC	From low flow rate streams reach up to large river systems; lakes that linked with marine; stony and rocky bottom structures
17		*Squalius pursakensis**	Sakarya Tatlısu kefali	Sakarya Chub	Endemic	LC	From small streams of low flow rate reach up to large river systems; lakes that linked with streams, habitats that has stony and rocky botto structures.
18		*Phoxinus phoxinus**	Ot Balığı	Minnow	-	LC	Mostly found in streams and rivers that are clean and cold. Sometimes also found in lakes that is clean and cold.
19		*Pseudorasbora parva **	Kum Balığı; Çizgili sazancık	(Topmouth gudgeon)	Invader	LC	Ecological tolerance is high. It can lives in all kind of habitats such as: lakes, pond reservoir, dense vegetated lake areas, from low flow rate streams reach up to large river systems, channels.
20		*Tinca tinca*	Kadife Balığı	Tench	Exotic	LC	Ecological tolerance is high. Lake, pond reservoir, large river system with coastal vegetation intensive.
21		*Vimba vimba*	Eğrez	Zarte	-	LC	Brackish-marine estuarine, from small streams of low flow rate reach up to large river systems; spawning migration towards shallow streams that have high flow rate. They lay eggs to the habitats that have stony and rocky bottom structures**.**
22	Esocidae	*Esox lucius*	Turna	Northern Pike	Exotic	LC	Small and clean lakes, shallow vegetation areas of large stream systems; river that has graveled, stony and rocky bottom structures.
23	Gobiidae	*Neogobius fluviatilis*	Tatlısu Kayabalığı	Freshwater Goby	-	LC	Lakes that linked with marines; brackish-marine estuarine, lagoons, freshwaters, large streams, habitats that have graveled, sandy and stony and rocky bottom structures.
24	Percidae	*Sander lucioperca*	Levrek-Sudak	Pike-perch	Exotic	LC	Large greasy river systems; eutrophic lakes; oligotrophic lakes; mesotrophic lakes; estuarine.
25	Poecilidae	*Gambusia holbrooki **	Sivrisinek Balığı	Eastern Mosquitofish	Invader	LC	Mostly found in shallow water, ponds and swamps. Also found in brackish marines, salty coastal habitats. Mostly unleash to lakes and ponds in order to fight against mosquitos. It damages the population of natural species by eating their eggs.
26	Siluridae	*Silurus glanis*	Yayın	Wels Catfish	Exotic	LC	Lakes/ponds that cover with vegetation; from small streams of low flow rate reach up to large river systems that have graveled and sandy bottom structures.

Annex 7/B. Terrestrial Flora and Fauna Survey Forms

Flora Survey Form

Survey Point Section 4: Station 1	Longitude E 35T 697706	GPS Elevation	Date	Project
	Latitude N 4535313	71	24.02.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pseudo-maquis Formation is generally healthy in the Marmara region. Since the construction works in the project area have not started yet, no deterioration has been observed in the habitat.

Habitat Description:
In the maquis community which is quite healthy and always green, deciduous oak species propagates. The dominant species of habitat are *Arbutus unedo, Cistus creticus, Phillyrea latifolia, Erica manipuliflora, and Erica arborea.* In this area, deciduous *Quercus infectoria* and *Quercus petraea* species mixed with maquis formation are also seen. Dominant species of the area are *Phillyrea latifolia* and *Erica arborea.* The overall coverage of the vegetation in this area is 100% and the height varies from 1-3m. In the lower flora of the formation, *Salvia virgata, Pipatherum milicaeum, Psoralea bituminosa, Crocus biflorus subsp. Biflorus* are distributed.

Characteristic flora:
Trees
Quercus petraea subsp. *iberica*

Shrubs
Phillyrea latifolia
Cistus cretcus
Quercus infectoria
Erica manipuliflora
Erica arborea
Osyris alba
Arbutus unedo
Rubus sanctus
Jasminum fruticans
Lonicera etrusca var. *etrusca*

Maquis

Maquis

Maquis

Survey Point Section 4: Station 1	Longitude E 35T 697706	GPS Elevation	Date	Project
	Latitude N 4535313	71	24.02.2017	**Northern Marmara Highway (Section 4)**

Herbs
Piptatherum miliaceum
Asparagus acutifolius
Psoralea bituminosa
Salvia virgata
Crocus biflorus subsp. *biflorus*
Securigera securidaca

Flora species of interest:

Absent

Ecosystems Services comments:
Arbutus unedo and *Rubus sanctus'* fruits, which are distributed in the area, are eaten by local people. Also, local people gather mushrooms in this habitat to provide a part of their food.

Other Comments:
Such kind of pseudo-maquis formation is common in Marmara region. But due to increasing industry and settlement pressures are forming serious forces on habitats. Therefore, it is beneficial to take some areas representing the habitat to the conservation status.

Crocus biflorus subsp. *biflorus*

Flora Survey Form

Survey Point Section 4: Station 2	Longitude E 35T 702719	GPS Elevation	Date	Project
	Latitude N 4535016	191	24.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate Sensitive Habitat

Reason for assessment:
Deciduous mixed forests form the forests in the characteristic climax phase in the Northern Marmara Region. Deciduous forests in this area are quite healthy. Therefore, it is important to continue the construction without damaging the off site of the route.

Habitat Description:
Quercus farinetto and *Quercus cerris* species predominantly form the tree layer of deciduous mixed forest habitat. Coverage of the tree layer is 80% and the heights vary from 3-6m. In the shrub layer mainly *Erica arborea, Phillyrea latifolia, Arbutus unedo, Cistus salviifolius, Crataegus monogyna, Ligustrum vulgare* species spread. Coverage of the shrub layer is 50% and the heights vary from 1-3m. The habitat is extremely rich in terms of organic matter.

Characteristic flora:
Trees
Quercus frainetto
Quercus cerris
Pyrus elaeagnifolia subsp. *elaeagnifolia*

Shrubs
Phillyrea latifolia
Erica arborea
Cistus salviifolius
Arbutus unedo
Rubus sanctus
Rosa canina
Crataegus monogyna
Osyris alba
Ligustrum vulgare

Deciduous oak forest

Deciduous oak forest

Deciduous oak forest

Survey Point Section 4: Station 2	Longitude E 35T 702719	GPS Elevation	Date	Project
	Latitude N 4535016	191	24.2.2017	**Northern Marmara Highway (Section 4)**

Herbs
Pteridium aquilinum
Carex panicea
Viola odorata
Salvia glutinosa
Teucrium chamaedrys
***S**ternbergia colchiciflora*
Crocus biflorus subsp. *biflorus*

Flora species of interest:

Absent

Ecosystems Services comments:
Arbutus unedo, *Rubus sanctus* and *Crataegus monogya's* fruits, which are distributed in the area, are eaten by local people. Also, this habitat is the area of sheltering and feeding for many fauna elements.

Other Comments:
Since the deciduous forest habitats are local communities in the area, after the road construction completed, the habitats that have been lost are partially compensated if landscape arrangements are made by the local species in afforestation.

Crocus biflorus subsp. *biflorus*

Flora Survey Form

Survey Point Section 4: Station 3	Longitude E 35T 707879	GPS Elevation	Date	Project
	Latitude N 4531626	192	24.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Low sensitive habitat

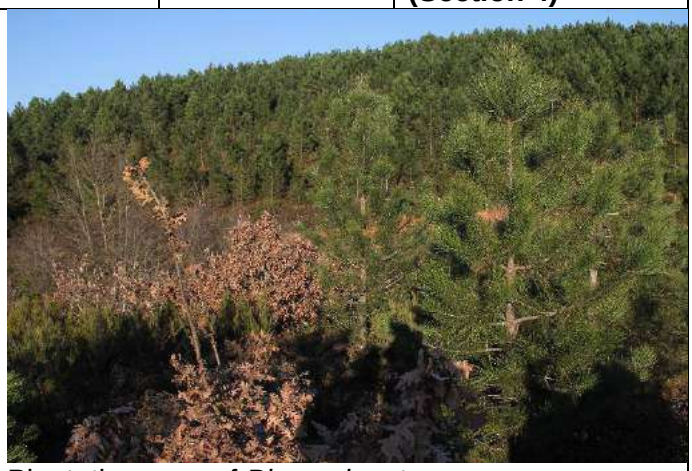
Reason for assessment:
Plantation of Pinus pinaster is widespread in the Marmara Region. These trees, which are 15-20 years old, are planted in deciduous forest habitat.

Habitat Description:
In the plantation area, apart from *Pinus pinaster* mainly *Quercus farinetto, Quercus cerris* and *Arbutus unedo, Cistus salviifolius, Cistus creticus, Crataegus mongyna* which are shrubs are exists commonly. The lower flora is also rich in herbaceous species.

Characteristic flora:
Trees
Pinus pinaster (Plantasyon)
Cupressus sempervirens (Plantsayon)
Robinia pseudoacacia (Plantasyon)
Quercus farinetto
Quercus cerris

Shrubs
Erica arborea
Hypericum calycinum
Arbutus unedo
Crataegus monogyna
Cistus salviifolius
Osyris alba
Cistus creticus
Mespilus germanica
Jasminum fruticans

Herbs
Seseli campestre
Dactylis glomerata
Anthemis tinctoria
Carex distachya var. *distachya*
Campanula lyrata subsp. *lyrata*
Crocus pestalozzae


Plantation area of *Pinus pinaster*

Plantation area of *Pinus pinaster*

Plantation area of *Pinus pinaster*

<table>
<tr><td rowspan="2">Survey Point
Section 4: Station 3</td><td>Longitude E
35T 707879</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4531626</td><td>192</td><td>24.2.2017</td><td>Northern Marmara Highway
(Section 4)</td></tr>
<tr><td colspan="2">Flora species of interest:

Crocus pestalozzae. This species is spread only in the Marmara Region in our country. The category in the IUCN Red List of this species is “VU, Vulnerable”. Campanula lyrata subsp. lyrata. is widely spreading endemic. The category in the IUCN Red List of this species is “LC, Least Concern”.

Ecosystems Services comments:
Mespilus germanica, Crataegus monogyna and Arbutus unedo’s fruits, which are distributed in the area, are eaten by local people. Timber of Pinus pinaster is used in industry. These habitats, which form a cover, also host many fauna elements.

Other Comments:
The work area will be partially destroyed due to highway construction. However, similar habitats that are not affected by highway construction are quite common around the area.</td><td colspan="3">
Crocus pestalozzae</td></tr>
</table>

Flora Survey Form

Survey Point Section 4: Station 4	Longitude E 35T 715048	GPS Elevation	Date	Project
	Latitude N 4530828	230	24.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Highly sensitive habitat

Reason for assessment:
Mixed deciduous forest and riparian habitats along the river exist in the area. Deciduous forests which are spreading in the area generally in the climax phase and healthy. Since the construction works in the project area have not started yet, no deterioration has been observed in the habitat.

Habitat Description:
Quercus farinetto, Quercus petraea subsp. *iberica* and *Quercus cerris* species dominantly forms the tree species of the deciduous mixed forest habitat. These habitats are rich in organic matter and they are also suitable for the development of shrub species. Along the river, especially *Salix alba* is dominant. Coverage of the tree lays is 90% and heights vary between 3-5m. Coverage of the undergrowth shrub formation is 40% and the heights are 1-2m. Coverage of the herbaceous formation in the lower flora is around 20%.

Characteristic flora:
Trees
Quercus farinetto
Quercus petraea subsp. *iberica*
Quercus cerris
Salix alba

Shrubs
Phillyrea latifolia
Junipeus oxycedrus
Erica arborea
Malus sylvestris
Daphne pontica
Cistus creticus
Rubus sanctus
Lonicera etrusca
Crataegus monogyna

Mixed deciduous forest

Mixed deciduous forest

Riparian

<table>
<tr><td rowspan="2">Survey Point
Section 4: Station 4</td><td>Longitude E
35T 715048</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4530828</td><td>230</td><td>24.2.2017</td><td>Northern Marmara Highway
(Section 4)</td></tr>
<tr><td colspan="3">Herbs
Pteridium aquilinum

Flora species of interest:

Absent

Ecosystems Services comments:
Mespilus germanica and Crataegus monogvna's fruits, which are distributed in the area, are eaten by local people. Deciduous forests and riparian habitats in this area which are in the phase of climax, are both feeding and breeding areas for many fauna elements.

Other Comments:
Although deciduous forest habitats are widespread in the region, growing population and industrialization threaten these climax habitats. Therefore in the region, the areas that representing such kind of habitats should be placed in the conservation status.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 4: Station 5	Longitude E 35T 714226	GPS Elevation	Date	Project
	Latitude N 4528016	101	24.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pseudo-maquis Formation is generally healthy in the Marmara region. However, due to the road studies in this area, habitat disintegrations are occurred.

Habitat Description:
In the partially destroyed pseudo-maquis community, *Arbutus unedo, Cistus creticus, Phillyrea latifolia, Quercus infectoria, Erica manipuliflora, Erica arborea* in the form of shrubs spread. In addition to the plants in the form of green shrubs, *Quercus petraea* species in the form of deciduous tree spreads. At the lower flora species like *Verbascum bugulifolium, Crocus pestalozzae* spread.

Characteristic flora:
Trees
Quercus petraea subsp. *iberica*
Quercus frainetto

Shrubs
Phillyrea latifolia
Quercus infectoria
Cistus creticus
Erica manipuliflora
Erica arborea
Juniperus oxycedrus
Arbutus unedo
Cistus salviifolius

Herbs
Verbascum bugulifolium
Crocus pestalozzae

Maquis

Maquis

Maquis

Survey Point Section 4: Station 5	Longitude E 35T 714226	GPS Elevation	Date	Project
	Latitude N 4528016	101	24.2.2017	**Northern Marmara Highway (Section 4)**

Flora species of interest:
Crocus pestalozzae.
Since endemic species, *Crocus pestalozzae* has limited distribution in Turkey, it categorized as "VU, Vulnurable" in the IUCN Red List.

Ecosystems Services comments:
Arbutus unedo's fruits, which are distributed in the area, are eaten by local people. Habitats those are exist in the area also hosting many fauna elements.

Other Comments:
The area under study, under pressure due to the motorway operation. This habitat is suitable for *Crocus pestalozzae* which is an endemic species. Such habitats are important with regards to flora. However at the off site of the route similar habitats exist.

Destroyed areas

Crocus pestalozzae

Flora Survey Form

Survey Point Section 4: Station 6	Longitude E 35T 713848	GPS Elevation	Date	Project
	Latitude N 4524166	204	25.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Study area consists of maquis and dry agricultural areas. Maquis formation is generally quite healthy in the region. Wheat farming is generally carried out in cultivated areas. There are also many industrial facilities around the project area.

Habitat Description:
In the maquis community which is always green, *Phillyrea latifolia, Juniperus oxycedrus, Quercus infectoria, Pistacia terebinthus* species are quite dominant. In the lower flora, endemic *Cirsium polycephalum* species such as *Asparagus acutifolius and Dactylis glomerata* are distributed. Coverage of shrub community is about 70% and heights of them vary between 1-3m. Height of the herb level is 5-80cm and its coverage is about 30%.

Characteristic flora:
Shrubs
Juniperus oxycedrus
Phillyrea latifolia
Pistacia terebinthus
Rubus sanctus
Jasminum fruticans
Quercus infectoria
Olea europaea
Pyracantha coccinea
Ruscus aculeatus
Paliurus spina-christii

Herbs
Cirsium polycephalum
Asparagus acutifolius
Dactylis glomerata
Ranunculus ficaria subsp.

Maquis

Maquis

Dry agricultural area

Survey Point Section 4: Station 6	Longitude E 35T 713848	GPS Elevation	Date	Project
	Latitude N 4524166	204	25.2.2017	**Northern Marmara Highway (Section 4)**

ficariiformis
Stipa bromoides

Flora species of interest:
Cirsium polycephalum. Because of this species is regional endemic, it has very limited distribution area in the Turkey. Therefore in the IUCN Red List it categorized as “CR, Critically Endangered”.

Ecosystems Services comments:
Arbutus unedo and *Rubus sanctus' fruits,* which are distributed in the area, are eaten by local people. Therefore, rhizomes of *Ruscus aculeatus* are used medically, and their bodies are used as ornamental plants. Habitats in the field are also hosting many fauna elements.

Other Comments:
Study area will be destructed due to motorway construction. However, similar habitats that are not affected by motorway construction are observed around the area.

Industrial facility

Cirsium polycephalum

Flora Survey Form

Survey Point Section 4: Station 7	Longitude E 35T 715763	GPS Elevation	Date	Project
	Latitude N 4522577	309	25.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Maquis formation is generally quite healthy in the Marmara region. Therefore maquis formation in the study field is sparse due to the destruction.

Habitat Description:
In the maquis community which is partially sparsed and always green, in the form of shrub, *Quercus coccifera, Quercus infectoria, Juniperus oxycedrus, Phillyrea latifolia* species are dominant. At lower flora endemic *Crisium polycephalum and Asaparagus acutifolius, Eryngium campestre Dactylis golmerata* species spread. Shrub layers coverage is about 80% and height of them varies from 1-3m. Coverage of herb layer is 40% and height is around 5-80cm. Maquis openings consist of steppe and ruderal habitats.

Characteristic flora:

Shrubs
Quercus coccifera
Quercus infectoria
Juniperus oxycedrus
Phillyrea latifolia
Rubus sanctus
Lonicera etrusca var. *etrusca*
Pyracantha coccinea
Ruscus aculeatus
Paliurus spina-christi
Rosa canina
Osyris alba
Cistus creticus
Arbutus unedo

Maquis

Maquis

Maquis openings and ruderal areas

Survey Point Section 4: Station 7	Longitude E 35T 715763	GPS Elevation	Date	Project
	Latitude N 4522577	309	25.2.2017	**Northern Marmara Highway (Section 4)**

Herbs
Cirsium polycephalum
Asparagus acutifolius
Pallenis spinosa
Eryngium campestre
Dactylis glomerata
Globularia trichosantha subsp. *trichosantha*
Galium incanum
Onobrychis armena
Fumana sp.

Flora species of interest:
Cirsium polycephalum. Because of this species is regional endemic, it has very limited distribution area in the Turkey. Therefore in the IUCN Red List it categorized as “CR, Critically Endangered”.

Ecosystems Services comments:
Arbutus unedo and *Rubus sanctus' fruits,* which are distributed in the area, are eaten by local people. Therefore, rhizomes of *Ruscus aculeatus* are used medically, and their bodies are used as ornamental plants. Habitats in the field are also hosting many fauna elements.

Other Comments:
Study area will be destructed due to motorway construction. However, similar habitats that are not affected by motorway construction are observed around the area.

Cirsium polycephalum

Flora Survey Form

Survey Point Section 4: Station 8	Longitude E 35T 711516	GPS Elevation	Date	Project
	Latitude N 4517487	24	25.2.2017	**Northern Marmara Highway (Section 4)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Maquis formation is generally distributed in the Mediterranean and Aegean regions. Marmara region is the area where the maquis and pseudo-maquis habitats intersect. In the southern parts of the Marmara maquis is dominant but at the northern parts pseudo-maquis is dominant. The maquis habitat in this area seems quite healthy.

Habitat Description:
In the maquis community which is always green and quite healthy, in the form of shrub *Qıercus coccifera, Arbutus unedo, Cistus creticus, Phillyrea latifolia* and *Palrius spina-christi* spreads. At lower flora species like *Anthemis tinctoria, Asparagus acutifolius, Oenanthe silaifolia* spreads. Coverage of the plants that forms shrub layers is about 100% and height of them vary between 1-3m. Coverage of species that forms herb layer is 20% and height is in between 5-80cm. Surrounding lands of the maquis vegetation is surrounded by ruderal lands. Dominant plants of the ruderal areas are *Ailanthus altissima, Calamintha nepeta, Ainsworthia trachycarpa, Rosa canina.* In this habitat endemic *Cirsium polycephalum* and species like *Eryngium campestre Salvia virgata Sanguisorba minor* spreads regionally.

Characteristic flora:

Ruderal alanlar
Trees
Ailanthus altissima (plantasyon)
Maquis

Maquis

Maquis

Maquis

Survey Point Section 4: Station 8	Longitude E 35T 711516	GPS Elevation	Date	Project
	Latitude N 4517487	24	25.2.2017	**Northern Marmara Highway (Section 4)**

Shrubs
Quercus coccifera
Quercus infectoria
Pyrus elaeagnifolia subsp. *elaeagnifolia*
Phillyrea latifolia
Ruscus aculeatus
Paliurus spina-christi
Osyris alba
Cistus creticus
Arbutus unedo
Jasminum fruticans
Smilax aspera
Laurus nobilis
Olea europaea
Asparagus acutifolius

Maquis
Herbs
Oenanthe silaifolia
Carlina corymbosa
Prunella vulgaris
Carex panicea
Rubia peregrina
Psoralea bituminosa
Anthemis tinctoria

Ruderal areas
Herbs
Cirsium polycephalum
Eryngium campestre
Salvia virgata
Sanguisorba minor
Micromeria myrtifolia
Dactylis glomerata
Seseli campestre
Calamintha nepeta subsp. glandulosa
Ainsworthia trachycarpa
Echinops viscosus subsp*. viscosus*

Flora species of interest:

Cirsium polycephalum. Because of this species is regional endemic, it has very limited distribution area in the Turkey. Therefore in the IUCN Red List it categorized as “CR, Critically Endangered”.

Ruderal areas

Cirsium polycephalum

<table>
<tr><td rowspan="2">Survey Point
Section 4: Station 8</td><td>Longitude E
35T 711516</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4517487</td><td>24</td><td>25.2.2017</td><td>Northern Marmara Highway
(Section 4)</td></tr>
<tr><td colspan="2">Ecosystems Services comments:
Arbutus unedo and Rubus sanctus' fruits, which are distributed in the area, are eaten by local people. Therefore, rhizomes of Ruscus aculeatus are used medically, and their bodies are used as ornamental plants. Habitats in the field are also hosting many fauna elements.

Other Comments:
Natural maquis habitats are important points for flora. Furthermore, the prescence of endemic Cirsium polycephalum in the area has increased the importance of habitat. This species has also been recorded at different points in the project area. In addition, the presence of similar habitats will minimize the negative impact of motorway operation.</td><td colspan="3"></td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 1	Longitude E 35T 717732	GPS Elevation	Date	Project
	Latitude N 4529687	265	25.2.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed oak forests are forming characteristic climax phased habitat in the Northern Marmara region. This habitat is extremely important for both flora and fauna. When the habitat starts to be destroyed due to anthropogenic impacts, shrub species in the lower flora starts dominating. Also in this area shrub become dominant in this area.

Habitat Description:
Deciduous mixed forest habitat predominantly composed of *Quercus farinetto, Quercus cerris, Quercus petraea subsp. iberica* and *Quercus infectoria* species. Heights of them are about 4-6 m and coverage is about 30%. Shrub formation under lower flora is dominating by the *Phillyrea latifolia, Arbutus unedo, Ruscus aculeatus, Juniperus oxycedrus* and *Cistus creticus*. Coverage of shrub formation which heights vary from 1-3m is 90%. The habitat also rich in herb species.

Characteristic flora:
Trees
Quercus farinetto
Quercus cerris
Quercus petraea subsp. iberica
Quercus infectoria

Shrubs
Phillyrea latifolia
Hedera helix
Ruscus aculeatus
Juniperus oxycedrus
Cistus creticus
Pistacia terebinthus

Deciduous oak forest

Deciduous oak forest

Destructed areas

Survey Point Section 5: Station 1	Longitude E 35T 717732	GPS Elevation	Date	Project
	Latitude N 4529687	265	25.2.2017	**Northern Marmara Highway (Section 5)**

Jasminum fruticans
Arbutus unedo
Rosa canina
Osyris alba

Herbs
Asparagus acutifolius
Doronicum orientale
Potentilla micrantha
Ranunculus ficaria subsp. *ficariiformis*
Oenanthe silaifolia
Filipendula vulgaris
Silene italica
Ceterach officinarum

Flora species of interest:

Absent

Ecosystems Services comments:
Arbutus unedo's fruits which are distributed in the area are eaten by local people. Therefore rhizomes of *Ruscus aculeatus* are used for medical purposes and the body of it is used for ornamental purposes. Deciduous forest habitat in this area is forming feeding and breeding areas for many fauna elements.

Other Comments:
Since the deciduous forest habitats are local communities in the area, after the road construction completed, habitats that have been lost are partially compensated if landscape arrangements are made by the local species in afforestation.

Ranunculus ficaria subsp. ficariiformis

Flora Survey Form

Survey Point Section 5: Station 2	Longitude E 35T 719386	GPS Elevation	Date	Project
	Latitude N 4530164	308	25.2.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forest habitats are generally quite healthy in Northern Marmara region. However the habitat in the project area is partially destructed due to anthropogenic impacts.

Habitat Description:
Deciduous mixed forest habitat is predominantly composed of *Quercus farinetto* and *Quercus cerris* species. *Phillyrea latifolia, Erica arborea* and *Cistus creticus* is dominant in shrub formation. In the lower flora endemic *Crocus pestalozzae* is detected.

Characteristic flora:
Trees
Quercus farinetto
Quercus cerris

Shrubs
Phillyrea latifolia
Erica arborea
Rubus sanctus
Juniperus oxycedrus
Cistus creticus

Herbs
Potentilla micrantha
Crocus pestalozzae

Flora species of interest:
Endemic *Crocus pestalozzae* is categorized as “VU, vulnerable” in IUCN Red List as it has limited spread in Turkey.

Ecosystems Services comments:
Rubus sanctus’ fruits which are distributed in the area are eaten by local people. Deciduous forest habitat in this area is forming feeding

Deciduous oak forest

Deciduous oak forest

Deciduous oak forest

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 2</td><td>Longitude E
35T 719386</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4530164</td><td>308</td><td>25.2.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="2">and breeding areas for many fauna elements in this area.

Other Comments:
Study area will be partially destroyed due to motorway operations. Study area is important as it is a spreading area for endemic species Crocus pestalozzae. However, similar habitats those are not under influence of motorway operations are exist in the surrounding lands.</td><td colspan="3">
Crocus pestalozzae</td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 3	Longitude E 35T 722820	GPS Elevation	Date	Project
	Latitude N 4531033	360	25.2.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Deciduous mixed forest habitat and *Pinus nigra* plantation form characteristic climax phased habitat in Northern Marmara region. They are quite healthy in the project area. However, in this forest habitat local *Pinus nigra* plantation is conducted.

Habitat Description:
Dominant species of deciduous mixed forest habitat are *Quercus petraea subsp. iverica, Quercus frainetto*. Lower flora, especially rich in shrub species. Tree coverage of the habitat is 95% and shrub coverage is 80%. Climax phase deciduous forest habitat afforrestate by *Pinus nigra* trees and lost its habitat characteristic.

Characteristic flora:
Trees
Quercus farinetto
Quercus petraea subsp. *iberica*
Pinus nigra (plantasyon)

Shrubs
Phillyrea latifolia
Erica arborea
Hypericum calycinum
Daphne pontica
Juniperus oxycedrus
Cistus creticus
Cornus mas
Ligustrum vulgare

Herbs
Dorycnicum pentaphyllum subsp. *herbaceum*

Flora species of interest:

Absent

Deciduous oak forest

Pinus nigra plantation

Pinus nigra plantation and destructed area

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 3</td><td>Longitude E
35T 722820</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4531033</td><td>360</td><td>25.2.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="3">Ecosystems Services comments:
Cornus mas' fruits which are distributed in the area are eaten by local people. Deciduous forest habitat in this area is forming feeding and breeding areas for many fauna elements.
Alanda yayılış gösteren *Cornus mas'* ın meyveleri yerel halk tarafından yenir. Bu alandaki yaprak döken orman habitatı birçok fauna elemanı için hem beslenme hem de üreme alanı oluşturur. Timber of *Pinus nigra* is economically used.

Other Comments:
Intense cutting operations are done in the area due to motorway construction. However similar habitats that are not affected by the motorway construction are widespread in surrounding areas.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 4	Longitude E 35T 725614	GPS Elevation	Date	Project
	Latitude N 4530385	444	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
In the Northern Marmara region *Pinus nigra* plantation areas encountered locally. However, destructions and deteriorations in the habitats are occurred due to motorway operations.

Habitat Description:
Apart from *Pinus nigra* predominantly *Quercus petraea subsğ. Iberica* and *Carpinus betulus* in the tree form and in the shrup form *Hypericum calcinum, Erica arborea, Phillyrea lattifolia, Cistus creticus* and *Daphne pontica* spread. Lower flora rich in herbaceous species.

Characteristic flora:
Trees
Pinus nigra (plantasyon)
Quercus petraea subsp. *iberica*
Carpinus betulus

Shrubs
Hypericum calycinum
Erica arborea
Daphne pontica
Phillyrea latifolia
Cistus creticus
Cornus mas
Ruscus hypoglossum
Rosa canina
Rubus hirtus
Lonicera etrusca var. *etrusca*

Herbs
Doronicum orientale
Stellaria holostea
Lamium purpureum
Pteridium aquilinum
Dorycnicum pentaphyllum subsp. *herbaceum*
Brachypodium sylvaticum

Pinus nigra plantation

Pinus nigra plantation

Pinus nigra plantation

Survey Point Section 5: Station 4	Longitude E 35T 725614	GPS Elevation	Date	Project
	Latitude N 4530385	444	09.03.2017	**Northern Marmara Highway (Section 5)**

Viola sieheana
Primula vulgaris
Geranium rotundifolium
Cirsium hypoleucum

Flora species of interest:

Absent

Ecosystems Services comments:
Cornus mas' fruits which are distributed in the area are eaten by local people. Forest habitat in the area is forming feeding and breeding areas for many fauna elements. Timber of *Pinus nigra* is used economically.

Other Comments:
Study area is under severe pressure due to motorway construction. However, similar plantation areas are quite common in the surrounding areas.

Pinus nigra plantation and destructed areas

Pinus nigra plantation and destructed areas

Primula vulgaris

Survey Point Section 5: Station 4	Longitude E 35T 725614	GPS Elevation	Date	Project
	Latitude N 4530385	444	09.03.2017	**Northern Marmara Highway (Section 5)**
		Viola sieheana		

Flora Survey Form

Survey Point Section 5: Station 5	Longitude E 35T 727073	GPS Elevation	Date	Project
	Latitude N 4530038	495	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased habitat in Northern Marmara region. However, partial destructions are occurred due to motorway constructions in the project area.

Habitat Description:
Deciduous mixed forest habitat is predominantly composed of *Fagus orientalis, Quercus petreaea subsp. iberica* and *Carpinus betulus* species. Heights of them vary in between 10-12m and coverage varies from 90 to 95%. Dominant species of shrub formation which coverage is about 10% are *Hypericum calycinum Hedera helix, Daphne pontica*. Lower flora rich in herbaceous species. Coverage of herbaceous formation is 30%.

. Örtüş oranı % 10 civarında olan çalı formasyonunun baskın türleri ise *Hypericum calycinum Hedera helix, Daphne pontica*' dır. Alt flora otsu türler açısından zengindir. Otsu formasyonun örtüş oranı % 30 dur.

Characteristic flora:
Trees
Fagus orientalis
Quercus petraea subsp. *iberica*
Carpinus betulus

Shrubs
Hypericum calycinum
Hedera helix
Crataegus monogyna
Daphne pontica
Cornus mas

Yaprak döken karışık orman

Yaprak döken karışık orman

Yaprak döken karışık orman

Survey Point Section 5: Station 5	Longitude E 35T 727073	GPS Elevation	Date	Project
	Latitude N 4530038	495	09.03.2017	**Northern Marmara Highway (Section 5)**

Herbs

Euphorbia amygdaloides var. *amygdaloides*
Galanthus plicatus subsp. *byzantinus*
Epimedium pubigerum
Cardamine quinquefolia
Cirsium hypoleucum
Doronicum orientale
Ranunculus repens
Pteridium aquilinum
Bellis perennis
Brachypodium sylvaticum
Viola sieheana
Primula vulgaris
Rubus hirtus
Chaerophyllum byzantinum
Lathraea squamaria

Yaprak döken karışık orman ve tahribat

Flora species of interest:

Galanthus plicatus subsp. byzantinus which is an endemic taxon categorized as “VU, vulnerable” in the IUCN Red List as it have limited spreading in Turkey.

Galanthus plicatus subsp. *byzantinus*

Ecosystems Services comments:

Crataegus monogyna and *Cornus mas’* fruits which are distributed in the area are eaten by local people. *Galanthus plicatus subsp. byzantinus* and *Primula vulgaris* species have ornamental plant potential. Deciduous forest habitat in this area is forming feeding and breeding areas for many fauna elements.

Other Comments:

Since the deciduous forest habitats are local communities in the area, after the road construction completed, habitats that have been lost are partially compensated if landscape arrangements are made by the local species in afforestation. This area is important both forming climax phased deciduous forest cover and hosting endemic *Galanthus plicatus subsp. byzantinus*. It is useful to conduct a

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 5</td><td>Longitude E
35T 727073</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4530038</td><td>495</td><td>09.03.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="2">field study in this area again in the period when the vegetation status is best in June.</td><td colspan="3">
Primula vulgaris

Euphorbia amygdaloides var. amygdaloides</td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 6	Longitude E 35T 729622	GPS Elevation	Date	Project
	Latitude N 4530332	405	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Yüksek düzeyde duyarlı habitat

Reason for assessment:
Deciduous mixed forest habitats are generally healthy in Northern Marmara region. However, partial destructions are seen due to motorway operations in the project area.

Habitat Description:
Deciduous mixed forest habitat predominantly composed of *Quercus farinetto, Quercus petraea susbsp. Iberica, Carpinus betulus* and *Fagus orientalis* species. *Pyrus elaegnifolia subsp. elaeagnifolia* is also seen locally. Lower flora rich in especially shrub and herbaceous species.

Characteristic flora:
Trees
Quercus petraea subsp. *iberica*
Quercus frainetto
Carpinus betulus
Fagus orientalis

Shrubs
Hypericum calycinum
Daphne pontica
Phillyrea latifolia
Hedera helix
Crataegus monogyna
Cornus mas
Ruscus hypoglossum
Rubus hirtus

Herbs
Doronicum orientale
Stellaria holostea
Brachypodium sylvaticum
Viola sieheana
Festuca valesica
Trachystemon orientalis
Luzula forsteri
Potentilla micrantha

Deciduous mixed oak forest

Deciduous mixed oak forest

Deciduous mixed oak forest and destruction

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 6</td><td>Longitude E
35T 729622</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4530332</td><td>405</td><td>09.03.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="3">Astragalus glycyphyllos subsp. glycyphyllos

Flora species of interest:

Absent

Ecosystems Services comments:
Crataegus monogyna and Cornus mas' fruits which are distributed in the area are eaten by local people. Deciduous forest habitat in this area is forming feeding and breeding areas for many fauna elements.

Other Comments:
Since the deciduous forest habitats are local communities in the area, after the road construction completed, habitats that have been lost are partially compensated if landscape arrangements are made by the local species in afforestation.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 7	Longitude E 35T 733886	GPS Elevation	Date	Project
	Latitude N 4528029	213	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Riparian forests that are growing along the river have very high sensitivity.

Reason for assessment:
In the study area, there exist some dry farmlands and riparian habitat types. Riparian habitat is represented along the rivers. Other areas consist of dry agricultural areas. Wheat farming is generally carried out in cultivated areas.

Habitat Description:
Dominant tree species of riparian habitat are *Fraxinus angustifolia, Salix alba* and *Ulmus minor*. In addition to them, *Corylus avellana* exists. *Avvelana* and *Prunus spinosa* specises are widespread in the area. Also, herbaceous species which are *Ranunculus constantinopolitanus, Ranunculus ficaria subsp. ficariiformis, Chaerophyllum Byzantium* are quite common. Therefore, in this habitat endemic *Galanthus plicatus subsp. byzantinus* spread in a narrow area.

Characteristic flora:

Trees
Salix alba
Ulmus minor
Fraxinus angustifolia subsp. *syriaca*

Shrubs
Corylus avellana var. *avellana*
Rosa canina
Crataegus monogyna
Prunus spinosa
Clematis vitalba

Herbs
Primula vulgaris
Galanthus plicatus subsp. *byzantinus*
Ranunculus constantinopolitanus

Riparian

Riparian

Agricultural area

Survey Point Section 5: Station 7	Longitude E 35T 733886	GPS Elevation	Date	Project
	Latitude N 4528029	213	09.03.2017	**Northern Marmara Highway (Section 5)**

Ranunculus ficaria subsp. *ficariiformis*
Chaerophyllum byzantium
Lamium purpureum
Carex pendula
Humulus lupulus
Arum italicum
Pastinaca sativa subsp. urens
Eupatorium cannabinum,
Lycopus europaeus
Agrostis stolonifera

Flora species of interest:
Galanthus plicatus subsp. byzantinus which is an endemic taxon categorized as “VU, vulnerable” in the IUCN Red List as it have limited spreading in Turkey.

Ecosystems Services comments:
Crataegus monogyna and *Coryllus avellana’s* fruits which are distributed in the area are eaten by local people. *Galanthus plicatus subsp.byzantinus* species have potential of being ornamental plant. Riparian habitats between fields are extremely important for continuation of water regime. Therefore those habitats are forming feeding and sheltering areas for wild animals. Also, agricultural areas are the areas where wheat is producing, which is the most important source for humankind.

Other Comments:
Agricultural areas and riparian vegetation will be partially influenced due to motorway operations. However, because of the existence of similar habitats around the area, this impact will remain in the minimum level.

Galanthus plicatus subsp. *byzantinus*

Flora Survey Form

Survey Point Section 5: Station 8	Longitude E 35T 736181	GPS Elevation	Date	Project
	Latitude N 4528179	244	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
This section of the project area consists of pond, riparian and meadow habitats and agricultural lands. Such areas are quite common in Northern Marmara region.

Habitat Description:
Riparian vegetation develops along the rivers. This habitat predominantly involves *Salix alba, Fraxinus angustifolia subsp. oxycarpa, Periploca graeca* var *gracea*. Dominant species of meadow habitat are *Cynodon dactylon, Alopecurus arundinaceus, Bellis perennis*. In the agricultural fields generally wheat farming is conducting. Flora at the pond shore is pretty weak.

Characteristic flora:
Trees
Fraxinus angustifolia subsp. *oxycarpa*
Salix alba

Shrubs
Periploca graeca var. *graeca*
Cornus mas

Herbs
Alopecurus arundinaceus
Cynodon dactylon
Bellis perennis
Brachypodium sylvaticum
Cichorium inthybus
Sanguisorba minor

Flora species of interest:

Absent

Ecosystems Services comments:
Cornus mas' fruits which are

Meadow

Agricultural area

Riparian

Survey Point Section 5: Station 8	Longitude E 35T 736181	GPS Elevation	Date	Project
	Latitude N 4528179	244	09.03.2017	**Northern Marmara Highway (Section 5)**

distributed in the area are eaten by local people. Habitats that exist in the area are hosting many fauna elements. River and pond play a role in regulating the water regime as well as meeting the water needs of the area.

Other Comments:
Study area will be destructed partly due to motorway operations. Especially pond and its surroundings are important as these places can form shelter to many fauna elements.

Riparian

Pond

Flora Survey Form

Survey Point Section 5: Station 9	Longitude E 35T 740361	GPS Elevation	Date	Project
	Latitude N 4526745	401	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased habitat in Northern Marmara region and quite healthy in the project area.

Habitat Description:
Dominant oak species of deciduous mixed forest habitat are *Quercus farinetto* and *Quercis cerris*. Therefore these species are accompanied by *acer campestre* and *Carpinus betulus*. Shrub layer of the forest which is at the climax phase are dominated by *Phillyrea lattifolia* and *Daphne pontica* species. Moreover herbaceous flora is quite rich.

Characteristic flora:

Trees
Acer campestre
Quercus frainetto
Quercus cerris
Carpinus betulus

Shrubs
Phillyrea latifolia
Daphne pontica
Epimedium pubigerum
Ruscus aculeatus
Ruscus hypoglossum
Rubus hirtus

Herbs
Polypodium vulgare subsp. *vulgare*
Primula vulgaris
Helleborus orientalis
Euphorbia amygdaloides var. *amygdaloides*
Ranunculus constantinopolitanus
Oenanthe pimpinelloides
Bellis perennis
Scilla bifolia

Deciduous mixed forest

Deciduous mixed forest

Primula vulgaris

Survey Point Section 5: Station 9	Longitude E 35T 740361	GPS Elevation	Date	Project
	Latitude N 4526745	401	09.03.2017	**Northern Marmara Highway (Section 5)**

Stellaria holostea
Phlomis russelina
Doronicum orientale
Ranunculus ficaria subsp. *ficariiformis*
Viola sieheana
Crocus chrysanthus
Astragalus glycyphyllos subsp. *glycyphyllos*
Ornithogalum pascheanum

Flora species of interest:
Ornithogalum pascheanum. This endemic species is spreading at the North Western Anatolia in our country and it categorized as “EN, Endangered” in the IUCN Red List.

Ecosystems Services comments:
Rhizomes of *Ruscus aculeatus* which is spreading in the area are used in medical issues and body of them are used as ornamental plants. *Primula vulgaris* and *Heleborus orientalis* have potential of being ornamental plants. Therefore this habitat hosting many fauna elements.

Other Comments:
Since the deciduous forest habitats are local communities in the area, after the road construction completed, habitats that have been lost are partially compensated if landscape arrangements are made by the local species in afforestation.

Helleborus orientalis

Viola sieheana

Crocus chrysanthus

Flora Survey Form

Survey Point Section 5: Station 10	Longitude E 35T 743394	GPS Elevation	Date	Project
	Latitude N 4526730		09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pinus pinaster plantation area. Such kinds of areas are widespread in Northern Marmara region.

Habitat Description:
Pinus pinaster plantation forests are quite common in the area. Deciduous *Quercus petraea subsp. iberica* and *Sorbus torminalis var. torminalis* trees are spreading in plantation forest openings. Lower flora rich in both shrubs and herbaceous species.

Characteristic flora:
Trees
Pinus pinaster (plantasyon)
Quercus petraea subsp. *iberica*
Sorbus torminalis var. *torminalis*

Shrubs
Erica arborea
Hypericum calycinum
Cistus creticus
Rubus sanctus
Daphne pontica

Herbs
Dorycnicum pentaphyllum subsp. *herbaceum*
Sanguisorba minor
Veronica chamaedrys
Stellaria holostea
Dactylis glomerata
Brachypodium sylvaticum
Oenanthe pimpinelloides
Dactylis glomerata
Viola sieheana

Pinus pinaster plantation

Pinus pinaster plantation

Pinus pinaster plantation

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 10</td><td>Longitude E
35T 743394</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4526730</td><td></td><td>09.03.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="3">Flora species of interest:

Absent

Ecosystems Services comments:
Timbers of Pinus pinaster is used in industry. Therefore this habitat is hosting many fauna elements.

Other Comments:
Although this area is a sensitive area, the effect will remain at minimum level since the road that pass through this area is planned as a tunnel.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 11	Longitude E 35T 745739	GPS Elevation	Date	Project
	Latitude N 4255947	343	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Deciduous forest habitat highly and plantation areas are moderately sensitive habitats.

Reason for assessment:
Deciduous mixed forest habitat and *Pinus pinaster* plantation. Deciduous mixed forests are forming characteristic climax phased habitat in Northern Marmara region and they are quite healthy in the project area. However, *Pinus pinaster* plantation is conducted partially in this forest habitat.

Habitat Description:
Dominant species of mixed forest habitat are *Quercus petraea* subsp. *iberica, Carpinus betulus. Tilia argentea* is observed locally. Lower flora rich in both shrub and herbaceous species.

Characteristic flora:
Trees
Pinus pinaster (plantasyon)
Quercus petraea subsp. *iberica*
Carpinus betulus
Tilia argentea

Shrubs
Corylus avellana var. *avellana*
Cornus mas
Hedera helix
Erica arborea
Hypericum calycinum
Cistus creticus
Rhododendron ponticum

Herbs
Euphorbia amygdaloides var. *amygdaloides*
Trachystemon orientalis
Crepis reuterana subsp. *reuterana*
Arctium minus
Clinopodium vulgare

Pinus pinaster plantation area

Deciduous mixed forest

Deciduous mixed forest

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 11</td><td>Longitude E
35T 745739</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4255947</td><td>343</td><td>09.03.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="2">Pteridium aquilinum
Polypodium vulgare subsp. vulgare
Primula vulgaris
Anthemis tinctoria
Dactylis glomerata
Viola sieheana
Tussilago farfara

Flora species of interest:
Absent

Ecosystems Services comments:
Corylus avellana var. avellana and Cornus mas' fruits which are distributed in the area are eaten by local people. Timbers of Pinus pinaster is used in industry. Therefore this habitat hosting many fauna elements.

Other Comments:
Although this area is a sensitive area, the effect will remain at minimum level since the road that pass through this area is planned as a tunnel.</td><td colspan="3">
Construction area</td></tr>
</table>

Flora Survey Form

Survey Point Section 5: Station 12	Longitude E 35T 750601	GPS Elevation	Date	Project
	Latitude N 4254209	188	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased habitat in the Northern Marmara region. However, in this section of the area road is planned as tunnel, so the effect on the habitat will remain at minimum.

Habitat Description:
Deciduous mixed forest habitat is composed of *Quercus petraea* subsp. *iberica, Quercus cerris* and *Carpinus betulus* species in the form of trees.Lower flora especially rich in shrub and herbaceous species.

Characteristic flora:
Trees
Quercus petraea subsp. *iberica*
Quercus cerris
Carpinus betulus

Shrubs
Quercus coccifera
Phillyrea latifolia
Rubus sanctus
Daphne pontica
Arbutus unedo
Cornus mas
Hedera helix
Erica arborea
Hypericum calycinum
Ligustrum vulgare
Clematis cirrhosa

Herbs
Epimedium pubigerum
Trachystemon orientalis
Primula vulgaris

Flora species of interest:

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

<table>
<tr><td rowspan="2">Survey Point
Section 5: Station 12</td><td>Longitude E
35T 750601</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4254209</td><td>188</td><td>09.03.2017</td><td>Northern Marmara Highway
(Section 5)</td></tr>
<tr><td colspan="2">Absent

Ecosystems Services comments:
Cornus mas' fruits which are distributed in the area are eaten by local people. Therefore this habitat is hosting many fauna elements.

Other Comments:
Although this area is a sensitive area, the effect will remain at minimum level since the road that pass through this area is planned as a tunnel.</td><td colspan="3"></td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 5: Quarry and Construction area	35T 730029			
	Latitude N 4530850	369	25.2.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Deciduous forest habitat has high level of sensitivity.

Reason for assessment:
Deciduous mixed forest are forming characteristic climax phased habitat in Northern Marmara region. However, this area is pretty destructed and habitat deteriorations occurred as it used for quarry.

Habitat Description:
Oak species of the deciduous mixed forest habitat are *Quercus farinetto, Quercus petreaea subsp. iberica, Quercus cerris*. These oak species are accompanied by *Carpinus betulus* and *Fagus orientalis*. In the shrub layer the domination of *Phillyrea latifolia, Quercus coccifera, Cistus creticus* species are seen. Herbaceous flora is also quite rich.

Characteristic flora:

Trees
Quercus farinetto
Quercus petraea subsp. *iberica*
Quercus cerris
Carpinus betulus
Fagus orientalis

Shrubs
Phillyrea latifolia
Quercus coccifera
Hedera helix
Pyracantha coccinea
Daphne pontica
Juniperus oxycedrus
Cistus creticus
Cornus mas
Rosa canina
Smilax aspera
Ligustrum vulgare

Herbs
Epimedium pubigerum

Deciduous mixed forest

Deciduous mixed forest

Destruction

Survey Point Section 5: Quarry and Construction area	Longitude E 35T 730029	GPS Elevation	Date	Project
	Latitude N 4530850	369	25.2.2017	**Northern Marmara Highway (Section 5)**

Scilla bifolia
Filipendula vulgaris
Trachystemon orientalis
Oenanthe pimpinelloides
Helleborus orientalis
Primula vulgaris
Viola sieheana
Cardamine quinquefolia
Euphorbia amygdaloides var. *amygdaloides*

Flora species of interest:

Absent

Ecosystems Services comments:
Cornus mas' fruits which are distributed in the area are eaten by local people. Deciduous forest habitat forms feeding and breeding areas for many fauna element in this area.

Other Comments:
Study area is under severe pressure as it is used as construction site. However, similar habitats that are not under effect of motorway operations are exist in surrounding areas.

Construction area

Helleborus orientalis

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 5: Storage area 1	35T 726933			
	Latitude N 4530650	484	09.03.2017	**Northern Marmara Highway (Section 5)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
In this area both *Pinus pinaster* and *Pinus nigra* plantation is conducted. In northern Marmara region such plantation fields are often encountered. However due to road works in the project area, destruction and habitat deteriorations have occurred.

Habitat Description:
In the plantation site apart from *Pinus pinaster* and *Pinus nigra,* predominantly in the tree form *Quercus petraea subsp. iberica, Carpinus betulus* and *Pyrus elaeagnifolia subsp. elaeagnifolia* spread. Lower flora is also rich in shrub and herb species.

Characteristic flora:
Trees
Pinus pinaster (plantasyon)
Pinus nigra (plantasyon)
Quercus petraea subsp. *iberica*
Pyrus elaeagnifolia subsp. *elaeagnifolia*
Carpinus betulus

Shrubs
Erica arborea
Hypericum calycinum
Cistus creticus
Crataegus monogyna

Herbs
Euphorbia amygdaloides var. *amygdaloides*
Epimedium pubigerum
Brachypodium sylvaticum
Primula vulgaris
Helleborus orientalis
Juncus effusus
Anthemis tinctoria

Plantation area

Plantation area

Construction area

Survey Point Section 5: Storage area 1	Longitude E 35T 726933	GPS Elevation	Date	Project
	Latitude N 4530650	484	09.03.2017	**Northern Marmara Highway (Section 5)**

Hypericum avicularifolium subsp. *byzantinum*
Sedum pallidum var. *pallidum*
Oenanthe pimpinelloides
Dactylis glomerata
Rumex tuberosus subsp. *tuberosus*

Flora species of interest:
Hypericum avicularifolium subsp. *byzantinum.* This taxon which is an endemic, categorized as "VU, vulnerable" in the IUCN Red List because of having limited spread in Turkey.

Ecosystems Services comments:
Crataegus monogyna's fruits, which are distributed in the area, are eaten by local people. *Primula vulgaris* have potential of being ornamental plant. Forest habitat in this area is a feeding and breeding area for many fauna elements.

Other Comments:
Study area is under severe pressure due to the motorway construction operation. However, similar plantation areas that are not under effect of motorway operation, is widespread in the surrounding areas.

Primula vulgaris

Helleborus orientalis

Flora Survey Form

Survey Point	Longitude E	GPS	Date	Project
Section 6: Construction yard 1 and Storage area 3	35T 752587	Elevation		
	Latitude N 4525077	90	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pseudo-maquis formation is generally quite healthy in the Marmara region. Since the construction works have not been started yet in the project area, any deterioration has not observed in the habitat.

Habitat Description:
In addition to pretty healthy and always green maquis community, there are deciduous oak species exist in the area. Dominant species of the habitat are *Quercus coccifera, Arbutus unedo, Cistus creticus, Phillyrea latifolia, Erica arborea*. Deciduous *Quercus infectoria, Quercus petraea* subsp. *iberica, Quercus frainetto* and *Quercus cerris* species are also exist mixed with maquis formation in this area. Coverage of the vegetation is 100% and height of them varies between 2-6m in this area. In the lower flora of the formation some species like *Rubia peregrine, Comnaula lyrata* subsp. *lyrata, Coronilla varia* subsp. *varia, Lamium purpureum, Helleborus orientalis* also spreads.

Characteristic flora:
Trees
Quercus infectoria
Quercus frainetto
Quercus petraea subsp. *iberica*
Quercus cerris
Populus alba

Shrubs
Quercus coccifera
Corylus avellana var. *avellana*
Erica arborea

Maquis and deciduous mixed forest

Maquis and deciduous mixed forest

Maquis and deciduous mixed forest

Survey Point Section 6: Construction yard 1 and Storage area 3	Longitude E 35T 752587	GPS Elevation	Date	Project
	Latitude N 4525077	90	10.03.2017	**Northern Marmara Highway (Section 6)**

Phillyrea latifolia
Ruscus aculeatus
Rosa canina
Cistus creticus
Arbutus unedo
Hypericum calycinum

Herbs
Rubia peregrina
Campanula lyrata subsp. *lyrata*
Coronilla varia subsp. *varia*
Lamium purpureum
Helleborus orientalis
Tordylium sp.

Flora species of interest:
Campanula lyrata subsp. *lyrata* which is a widely spreaded endemic species, categorized as “LC, least concern” in the IUCN Red List.

Ecosystems Services comments:
Corylus avellana var. *avellana, Arbutus unedo*’s fruits which are distributed in the area are eaten by local people. Therefore rhizomes of *Ruscus aculeatus* is used in medical issues and their bodies are used as ornamental plants. Moreover, this habitat is hosting many fauna elements.

Other Comments:
Pseudo-maquis formation is characteristic for Marmara region. However, since similar habitats are widespread in the surrounding area, loss of habitat does not constitute a serious problem.

Flora Survey Form

Survey Point Section 6: Quarry	Longitude E 36T 278476	GPS Elevation	Date	Project
	Latitude N 4526833	55	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Deciduous forest habitat has high sensitivity.

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased habitat in Northern Marmara region. However this area is highly destructed and deteriorations in habitat occurred as the area used as quarry.

Habitat Description:
Dominant oak species of deciduous mixed habitat are *Quercus farinetto, Quercus petraea* subsp. *iberica.* Oaks accompanied by *Carpinus betulus.* In the shrub layer, dominance of *Phillyrea latifolia, Ruscus aculeatus, Rubus sanctus, Daphne pontica* species are observable.

Characteristic flora:

Trees
Quercus frainetto
Quercus petraea subsp. *iberica*
Carpinus betulus

Shrubs
Phillyrea latifolia
Ruscus aculeatus
Prunus divaricata
Daphne pontica
Crataegus monogyna
Cornus mas
Rubus sanctus

Herbs
Helleborus orientalis
Epimedium pubigerum
Primula vulgaris
Ranunculus constantinopolitanus
Scilla bithynica
Cyclamen coum var. *coum*
Tussilago farfara

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

Survey Point Section 6: Quarry	Longitude E 36T 278476	GPS Elevation	Date	Project
	Latitude N 4526833	55	10.03.2017	**Northern Marmara Highway (Section 6)**

Flora species of interest: *Cyclamen coum* var. *coum.* The lamps of this species are included in the CITES Annex II list as they are exported as ornamental plants.

Ecosystems Services comments: *Cornus mas* and *Crataegus monogyna's* fruits which are distributed in the area are eaten by local people. Therefore, rhizomes of *Ruscus aculeatus* used for medical purposes and body of this species are used as ornamental plants. *Primula vulgaris, Scilla bithynica, Heleborus orientalis, Cyclamen coum* var. *coum* species have potential of being ornamental plants. Moreover, this habitat is hosting many fauna elements.

Other Comments:
Study area is under severe pressure due to using it as a quarry. The dust originating from the quarry has adversely affected the entire flora in the area. It would be good to use this area as a quarry for highway construction. Because the area was extremely damaged due to similar activity.

Quarry

Cyclamen coum var. *coum*

Survey Point Section 6: Quarry	Longitude E 36T 278476	GPS Elevation	Date	Project
	Latitude N 4526833	55	10.03.2017	**Northern Marmara Highway (Section 6)**
		Scilla bithynica		

Flora Survey Form

Survey Point Section 6: Station 1 and Storage sites	Longitude E 36T 257989	GPS Elevation	Date	Project
	Latitude N 4519477	126	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Study area consists of deciduous mixed forest and meadow areas. Deciduous forest formation is generally quite healthy in the region.

Habitat Description:
Oak species of the deciduous mixed forest habitat is *Quercus frainetto, Quercus petraea* subsp. *iberica* and *Quercus ceris*. Apart from the oak species *Carpinus betulus* and *Fagus orientalis* is also forming the tree species of this habitat. Lower flora also rich in shrub and herb species.

Characteristic flora:

Trees
Quercus frainetto
Quercus petraea subsp. *iberica*
Quercus cerris
Carpinus betulus
Fagus orientalis

Shrubs
Quercus coccifera
Erica arborea
Ruscus aculeatus
Ruscus hypoglossum
Rosa canina
Cistus creticus
Arbutus unedo
Prunus divaricata
Hedera helix
Daphne pontica
Crataegus monogyna
Cornus mas

Meadow
Rubus sanctus

Herbs
Epimedium pubigerum

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

<table>
<tr><td rowspan="2">Survey Point
Section 6: Station 1 and Storage sites</td><td>Longitude E
36T 257989</td><td>GPS Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4519477</td><td>126</td><td>10.03.2017</td><td>Northern Marmara Highway
(Section 6)</td></tr>
<tr><td colspan="2">Euphorbia amygdaloides var. amygdaloides
Brachypodium sylvaticum
Viola sieheana
Fragaria vesca
Cirsium hypoleucum
Oenanthe pimpinelloides
Luzula forsteri

Meadow
Dactylis glomerata
Oenanthe silaifolia
Prunella vulgaris
Cynodon dactylon

Flora species of interest:
Absent
Ecosystems Services comments:
Arbutus unedo, Fragaria vesca, Cornus mas, Crataegus monogyna, Rubus sanctus’ fruits which are distributed in the area are eaten by local people. Therefore, rhizomes of Ruscus aculeatus are used for medical issues and bodies of them are used for ornamental issues. Many fauna elements are using this habitat as feeding and breeding area.

Other Comments:
Since, deciduous forest habitats exist as local communities after completion of the motorway construction, if afforestation done by local species, lost habitats will be compensated partially.</td><td colspan="3">
Meadow</td></tr>
</table>

Flora Survey Form

Survey Point Section 6: Station 2	Longitude E 36T 261785	GPS Elevation	Date	Project
	Latitude N 4521749	180	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased forests in the Marmara Region. Deciduous forests in this area are quite healthy. Therefore, it is important to continue the construction of the motorway without damaging the outside of the route.

Habitat Description:
Tree layer of deciduous mixed forest habitat predominantly consists of *Quercus frainetto* and *Quercus cerris* species. In the shrub layer *Ruscus aculeatus, Hedera helix, Daphne pontica, Crataegus monogyna, Smilax aspera* is distributed. Habitat extremely rich in organic matter.

Characteristic flora:

Trees
Quercus infectoria
Quercus cerris
Carpinus betulus
Fagus orientalis

Shrubs
Ruscus aculeatus
Hedera helix
Daphne pontica
Crataegus monogyna
Smilax aspera

Herbs
Polystichum aculeatum
Trachystemon orientalis
Epimedium pubigerum
Euphorbia amygdaloides var. *amygdaloides*
Viola sieheana
Fragaria vesca

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

Survey Point Section 6: Station 2	Longitude E 36T 261785	GPS Elevation	Date	Project
	Latitude N 4521749	180	10.03.2017	**Northern Marmara Highway (Section 6)**

Flora species of interest
Absent

Ecosystems Services comments:
Fragaria vesca and *Crataegus monogyna*'s fruits which are distributed in the area are eaten by local people. Therefore, rhizomes of *Ruscus aculeatus* are used for medical issues and body of it is used for ornamental plant. Many fauna elements are using this habitat as feeding and breeding area.

Other Comments:
Since, deciduous forest habitats exist as local communities after completion of the motorway construction, if afforestation done by local species. Lost habitats will be compensated partially. Therefore, this area seems interesting about flora. It is useful to study this area again in June.

Euphorbia amygdaloides var. *amygdaloides*

Trachystemon orientalis

Flora Survey Form

Survey Point Section 6: Station 3	Longitude E 36T 270729	GPS Elevation	Date	Project
	Latitude N 4525278	85	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forests are forming characteristic climax phased forests in the Northern Marmara region. Deciduous forests in this area are quite healthy. Therefore, it is important to continue the construction of the motorway without damaging the outside of the route

Habitat Description:
Tree layer of deciduous mixed forest habitat predominantly consists of *Quercus frainetto* and *Quercus cerris* species. In the shrub layer *Ruscus aculeatus, Hedera helix, Daphne pontica, Crataegus monogyna, Smilax aspera* is distributed. Lower flora quite rich in herbaceous species.

Characteristic flora:
Trees
Quercus frainetto
Quercus petraea subsp. *iberica*
Carpinus betulus

Shrubs
Ruscus aculeatus
Hedera helix
Daphne pontica

Herbs
Epimedium pubigerum
Euphorbia amygdaloides var. *amygdaloides*
Brachypodium sylvaticum
Viola sieheana
Fragaria vesca
Cardamine bulbifera
Primula vulgaris
Clinopodium vulgare
Iris sintenisii

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

Survey Point Section 6: Station 3	Longitude E 36T 270729	GPS Elevation	Date	Project
	Latitude N 4525278	85	10.03.2017	**Northern Marmara Highway (Section 6)**

Dorycnium pentaphyllum
Crocus chrysanthus

Flora species of interest:

Ecosystems Services comments:
Fragaria vesca and *Crataegus monogyna*'s fruits which are distributed in the area are eaten by local people. Therefore, rhizomes of *Ruscus aculeatus* are used for medical issues and body of it is used for ornamental plant. Moreover, *Primula vulgaris* have potential of being ornamental plant. Many fauna elements are using this habitat as feeding and breeding area.

Other Comments:
Study area will be destructed due to motorway operations. However similar habitats that exists partially in surrounding areas. This partly reduces the impact of habitat loss on biodiversity.

Deciduous mixed forest

Primula vulgaris

Survey Point Section 6: Station 3	Longitude E 36T 270729	GPS Elevation	Date	Project
	Latitude N 4525278	85	10.03.2017	**Northern Marmara Highway (Section 6)**
		Crocus chrysanthus		

Flora Survey Form

Survey Point Section 6: Station 4	Longitude E 36T 279582	GPS Elevation	Date	Project
	Latitude N 4523976	23	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
This section of the project area consists of pond, riparian habitats, agricultural lands and industrial areas. Such areas are widespread in the Northern Marmara region.

Habitat Description:
Riparian habitats develop along the rivers. This habitat predominantly involves *Populus Canadensis, Fraxinus angustifolia* subsp. *oxycarpa* species. In lower floras shrub formation *Prunus divaricata, Rubus sanctus* species are distributed. In herbaceous formation, *Equisetum telmateia, Lamium purpureum, Conium maculatum* species area dominant. Along the river *Leucojum aestivum* distribution are seen. In agricultural areas generally wheat farming is conducting. In pond shore *Typha angustifolia* is dominant.

Characteristic flora:
Trees
Populus canadensis (plantasyon)
Fraxinus angustifolia subsp. *oxycarpa*

Shrubs
Prunus divaricata
Rubus sanctus

Herbs
Equisetum telmateia
Lamium purpureum
Sambucus ebulus
Conium maculatum
Juncus effusus
Leucojum aestivum
Urtica dioica
Carex pendula

Riparian

Agricultural area

Pond

Survey Point Section 6: Station 4	Longitude E 36T 279582	GPS Elevation	Date	Project
	Latitude N 4523976	23	10.03.2017	**Northern Marmara Highway (Section 6)**

Typha angustifolia

Flora species of interest:
This species that takes part in CITES II list because of exporting leaves and onions of *Leucoum aestivum* categorized as “VU, vulnerable” in IUCN Red List since it is not endemic.

Ecosystems Services comments:
Leucojum aestivum is using in the ornamental plant industry hence it has economic potential. This habitat is being used as feeding and breeding area by many fauna elements.

Other Comments:
Study area will be destructed partially due to motorway operations. Especially pond and surroundings are important because of having potential of being shelter to many fauna elements.

Facilities

Leucojum aestivum

Flora Survey Form

Survey Point Section 6: Station 5	Longitude E 36T 286920	GPS Elevation	Date	Project
	Latitude N 4523216	23	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Low sensitive habitat

Reason for assessment:
In this study area dry agricultural lands and riparian habitat types are exists. Riparian habitat is represented along the river. Other areas consist of dry agricultural lands. In agricultural areas generally wheat farming is being done.

Habitat Description:
Tree species of riparian habitat are *Fraxinus angustifolia* subsp. *oxycarpa, Juglans regia* and *Diospyros lotus.* In addition to that, *Prunus divaricata* also widespread in the area. From the herbaceous species, *Typha angustifolia, Lythurum salicaria, Conium maculatum, Sambucus ebulus, Urtica dioica, Lamium purpureum* species are common also.

Characteristic flora:
Trees
Fraxinus angustifolia subsp. *oxycarpa*
Diospyros lotus(plantation)
Juglans regia (plantation)

Shrubs
Prunus divaricata

Herbs
Typha angustifolia
Lythrum salicaria
Conium maculatum
Sambucus ebulus
Urtica dioica
Lamium purpureum

Flora species of interest:
Absent

Ecosystems Services comments:

Riparian

Riparian and agricultural lands

Agricultural lands

<table>
<tr><td rowspan="2">Survey Point
Section 6: Station 5</td><td>Longitude E
36T 286920</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4523216</td><td>23</td><td>10.03.2017</td><td>Northern Marmara Highway
(Section 6)</td></tr>
<tr><td colspan="3">Diospyros lotus and Juglans regia those plantations are made, are grown for commercial purposes and household needs. Riparian habitats that are in the agricultural areas are extremely important for continuity of the water regime. Therefore, these habitats are forming feeding and breeding places for wild animals.

Other Comments:
Riparian vegetation and agricultural areas are partly influenced due to motorway construction. Therefore, the area is close to Poyrazlar Nature Park, so it is important to continue the activities that to be done without harming Poyrazlar Pond.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 6: Station 6	Longitude E 36T 292035	GPS Elevation	Date	Project
	Latitude N 4516525	26	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
This area has broad-leafed acidic floodplain plantation forest habitat type. This habitat, which is under water in winter, has plantation forests of *Fraxinus angustifolia* which reach 15-20 meters in length.

Habitat Description:
Tree species of high groundwater levelled the monoculture plantation habitat is *Fraxinus angustifolia* subsp. *oxycarpa* which is also distributed normally in the region. Tree bodies are covered by *Hedera helix*. At lower flora of these trees which are 50-60 years aged and 15-20m tall, *Cornus sanguine, Prunus divaricate, Frangula alnus* in the form of shrub and *Arum italicum* and *Carex pendula* is distributed.

Characteristic flora:
Trees
Fraxinus angustifolia subsp. *oxycarpa* (plantation)

Shrubs
Prunus divaricata
Frangula alnus subsp. *alnus*
Hedfera helix
Cornus sanguinea subsp. *sanguinea*

Herbs
Arum italicum
Carex pendula

Flora species of interest:

Absent

Floodplain forest (plantation)

Floodplain forest (plantation)

Floodplain forest (plantation) and destruction

<table>
<tr><td rowspan="2">Survey Point
Section 6: Station 6</td><td>Longitude E
36T 292035</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4516525</td><td>26</td><td>10.03.2017</td><td>Northern Marmara Highway
(Section 6)</td></tr>
<tr><td colspan="3">Ecosystems Services comments:
Timber of the planted trees is used economically. Therefore such floodplain forests have feature of being a place for feeding, sheltering and breeding especially for birds.
Other Comments:
Necessary precautions to ensure that water circulation can be achieved between the remaining forests on either side of the road even they are plantations. The continuity of these habitats can only be ensured by the presence of groundwater.</td><td colspan="2"></td></tr>
</table>

Flora Survey Form

Survey Point Section 6: Station 7	Longitude E 36T 301685	GPS Elevation	Date	Project
	Latitude N 4512676	33	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
This area has broad-leafed acidic floodplain forest habitat type. This habitat, which is under water in winter, has forests of natural *Fraxinus angustifolia* which reach 15-20 meters in length.

Habitat Description:
High groundwater levelled floodplain forest habitat's dominant tree species is *Fraxinus angustigolia* subsp. *oxycarpa* which distributed naturally in similar habitats in the region. Tree bodies are covered by *Hedera helix.* These forest which are estimated to be 50-100 years old, have suffered considerable damage due to the sensitivity of their habitat. At lower flora of these trees species like *Prunus divaricata, Rubus sanctus* in the form of shrubs and *Arum italicum, Scilla bithynica, Primula vulgaris, Ranunculus constantinopolitanus* in the form of herbs are distributed.

Characteristic flora:
Trees
Fraxinus angustifolia subsp. *oxycarpa*

Shrubs
Prunus divaricata
Hedera helix
Rubus sanctus

Herbs
Agrimonia eupatoria
Primula vulgaris
Scilla bithynica
Arum italicum
Viola sieheana
Ranunculus constantinopolitanus

Floodplain forest

Floodplain forest

Floodplain forest

Survey Point Section 6: Station 7	Longitude E 36T 301685	GPS Elevation	Date	Project
	Latitude N 4512676	33	10.03.2017	**Northern Marmara Highway (Section 6)**

Ornithogalum pascheamum

Flora species of interest: *Ornithogalum pascheanum* which is distributed in the North Western Anatolia categorized as “EN, endangered” in the IUCN Red list.

Ecosystems Services comments: The most important benefit that floodplain forests contribute is balancing the water regime. These areas are also rare habitats where people can rest in the nature. This habitat has the feature of being a place for feeding, breeding and sheltering especially for birds.

Other Comments:
It is undesirable for such critical habitats to be negatively affected by any activity. If the planned activity is vital, then necessary measures must be taken to ensure that the water circulation is maintained between the remaining forests on both side of the road. The continuity of these habitats can only be ensured by the presence of groundwater.

Primula vulgaris

Ornithogalum pascheamum

Survey Point Section 6: Station 7	Longitude E 36T 301685	GPS Elevation	Date	Project
	Latitude N 4512676	33	10.03.2017	**Northern Marmara Highway (Section 6)**
		 Scilla bithynica		

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 6: Storage site 1	35T 751645			
	Latitude N 4524186	165	09.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Pseudo-maquis formation is generally quite healthy in the Northern Marmara region. However, destructions and deteriorations in the habitats are occurred due to motorway operations.

Habitat Description:
In the maquis community which is always green and partially sparsed, some deciduous plants in the tree forms also exist. Decidous trees are *Quercus frainetto* and *Quercus cerris*. Dominant species are *Arbutus unedo, Juniperus oxycedrus* in the form of shrub.

Characteristic flora:
Trees
Quercus frainetto
Quercus cerris

Shrubs
Arbutus unedo
Erica arborea
Juniperus oxycedrus
Phillyrea latifolia
Cistus creticus

Flora species of interest:

Absent

Ecosystems Services comments:
Arbutus unedo's fruits whic are distributed in the area are eaten by local people. Pseudo-maquis formation is forming both feeding and breeding areas for many fauna elements.

Maquis

Maquis

Maquis and destruction

Survey Point Section 6: Storage site 1	Longitude E 35T 751645	GPS Elevation	Date	Project
	Latitude N 4524186	165	09.03.2017	**Northern Marmara Highway (Section 6)**
Other Comments: In the area that will be used as storage site, serious destructions will be occurred. However, similar habitats that do not affect by the motorway operations also seen partially in the surrounding area.		Construction site		

Flora Survey Form

Survey Point Section 6: Storage site II	Longitude E 35T 752520	GPS Elevation	Date	Project
	Latitude N 4523867	68	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Moderate sensitive habitat

Reason for assessment:
Study area consists of deciduous mixed forest and dry agricultural lands.
Deciduous mixed forest habitats are generally quite healthy in Northern Marmara region Wheat farming is generally carried out in dry cultivated areas.

Habitat Description:
Deciduous mixed forest predominantly consists of *Quercus cerris*. Lower flora rich in especially shrub and herbaceous species.

Characteristic flora:

Trees
Quercus cerris
Ficus carica

Shrubs
Crataegus monogyna
Cornus mas
Laurus nobilis
Prunus divaricata
Rubus sanctus

Herbs
Trachystemon orientalis
Helleborus orientalis
Primula vulgaris
Humulus lupulus
Pteridium aquilinum
Pastinaca sativa subsp. *urens*
Urtica dioica

Flora species of interest:

Absent

Ecosystems Services comments:
Ficus carica, Crataegus monogyna and *Cornus mas'* fruits which are distributed in the area are eaten by

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

Survey Point Section 6: Storage site II	Longitude E 35T 752520	GPS Elevation	Date	Project
	Latitude N 4523867	68	10.03.2017	**Northern Marmara Highway (Section 6)**

local people. Therefore, *Primula vulgaris* and *Heleborus orientalis* species have potential of being ornamental plants. Deciduous forest habitats are forming both feeding and breeding areas for many fauna elements in this area.

Other Comments:
Since, deciduous forest habitats exist as local communities after completion of the motorway construction, if afforestation done by local species, lost habitats will be compensated partially.

Tarla

Primula vulgaris

Helleborus orientalis

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 6: Storage site in between station 2-3	36T 263168			
	Latitude N 4522846	247	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Deciduous mixed forest habitat and *Corylus avellana* var. *avellana* gardens. Deciduous mixed forests are forming characteristic forest habitat in Northern Marmara region. It is quite healthy in the project area. However, in surrounding area of this forest *Corylus avellana* var. *avellana* plantation is conducted.

Habitat Description:
Tree layer of deciduous mixed forest habitat predominantly consists of *Quercus farinetto, Quercus petraea* subsp. *iberica* and *Quercus cerris* species. Coverage of tree layer is 90%. In shrub layer *Ruscus aculeatus, Cistus creticus, Daphne ponica* species are distributed dominantly.

Characteristic flora:
Trees
Quercus frainetto
Quercus petraea subsp. *iberica*
Quercus cerris

Shrubs
Ruscus aculeatus
Cistus creticus
Hypericum calycinum
Prunus divaricata
Daphne pontica
Crataegus monogyna
Mespilus germanica
Corylus avellana var. *avellana*

Herbs
Fragaria vesca
Luzula forsteri
Potentilla micrantha
Genista tinctoria

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

Survey Point Section 6: Storage site in between station 2-3	Longitude E 36T 263168	GPS Elevation	Date	Project
	Latitude N 4522846	247	10.03.2017	**Northern Marmara Highway (Section 6)**

Veronica chamaedrys
Lathyrus aphaca
Astragalus glycyphyllos subsp. *glycyphyllos*
Stellaria holostea

Flora species of interest:
Absent
Ecosystems Services comments:
Corylus avellana var. *avellana, Fragaria vesca, Crataegus monogyna, Mespilus germanica's* fruits which are distributed in the area are eaten by local people. Therefore rhizomes of *Ruscus aculeatus* are used for medical issues and their bodies are used as ornamental plants. Many fauna elements used this habitat as feeding and breeding area.

Other Comments:
Natural deciduous mixed forests will be destroyed as well as hazelnut gardens where the local people are getting economic income. If habitat damage is minimized to natural forests during motorway construction, these habitats will be less affected.

Deciduous mixed forest

Corylus avellana var. *avellana*

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 6: Storage site in between station 5-6 I	36T 286945			
	Latitude N 4518805	26	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Low sensitive habitat

Reason for assessment:
In this study area there exist dry and wet agricultural lands. In dry agricultural areas generally wheat farming is being conducted.

Habitat Description:
Around the agricultural lands some trees like *Fraxinus angustifolia* subsp. *oxycarpa* and *Salix alba* present.

Characteristic flora:
Trees
Fraxinus angustifolia subsp. *oxycarpa*
Salix alba

Shrubs

Herbs

Flora species of interest:
Absent

Ecosystems Services comments:
Agricultural lands are also a source of livelihoods especially for local people.

Other Comments:
Agricultural lands will be affected partially because of motorway operation.

Agricultural lands

Agricultural lands

<table>
<tr><td rowspan="2">Survey Point
Section 6: Storage site in between station 5-6 I</td><td>Longitude E
36T 286945</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4518805</td><td>26</td><td>10.03.2017</td><td>Northern Marmara Highway
(Section 6)</td></tr>
<tr><td colspan="2"></td><td colspan="3">Agricultural lands</td></tr>
</table>

Flora Survey Form

Survey Point	Longitude E	GPS Elevation	Date	Project
Section 6: Storage site in between station 5-6 II	36T 290949			
	Latitude N 4517957	19	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
Low sensitive habitat

Reason for assessment:
Study area is a modified area that has used as a construction site and lost its naturalness.

Habitat Description:
In this area that lost its naturalness, *Salix alba* and *Pyrus amygdaliformis* var. *amygdaliformis* in tree form and *Rubus sanctus, Prunus divarica* species in shrub forms are present. *Dipsacus laciniatus* and *Phragmites australis* which are herbaceous species are dominant in the area.

Characteristic flora:
Trees
Salix alba
Pyrus amygdaliformis var. *amygdaliformis*

Shrubs
Prunus divaricata
Rubus sanctus

Herbs
Dipsacus laciniatus
Phragmites australis

Flora species of interest:
Absent

Ecosystems Services comments:

Other Comments:
The work area has completely lost its naturalness as it was used as a construction site in previous construction works in the area.

Modified areas

Modified areas

Modified areas

Survey Point Section 6: Storage site in between station 5-6 II	Longitude E 36T 290949	GPS Elevation	Date	Project
	Latitude N 4517957	19	10.03.2017	**Northern Marmara Highway (Section 6)**
		Modified areas		

Flora Survey Form

Survey Point Section 6: Storage site	Longitude E 36T 261678	GPS Elevation	Date	Project
	Latitude N 4521368	147	10.03.2017	**Northern Marmara Highway (Section 6)**

Field Assessment:
High sensitive habitat

Reason for assessment:
Yaprak döken karışık ormanlar Kuzey Marmara bölgesinin karakteristik klimaks safhada habitatını oluşturur. Proje alanında da oldukça sağlıklıdır.

Habitat Description:
Dominant oak species of deciduous mixed forest habitat are *Quercus farinetto* and *Quercus petraea* subsp. *iberica*. Therefore, this species accompanied by *Fagus orientalis* and *Carpinus betulus.* Coverage of this tree formation which height varies between 6-8 m is 100%. In the shrub layer which is in the climax phase is dominating by *Hedera helix, Ruscus aculeatus, Smilax aspera* species. Moreover herbaceous flora is quite rich.

Characteristic flora:
Trees
Quercus frainetto
Quercus petraea subsp. *iberica*
Carpinus betulus
Fagus orientalis

Shrub
Rhododendron ponticum
Pyracantha coccinea
Ruscus aculeatus
Hedera helix
Crataegus monogyna
Smilax aspera

Herbs
Brachypodium sylvaticum
Viola sieheana

Flora species of interest:

Deciduous mixed forest

Deciduous mixed forest

Deciduous mixed forest

<table>
<tr><td rowspan="2">Survey Point
Section 6: Storage site</td><td>Longitude E
36T 261678</td><td>GPS
Elevation</td><td>Date</td><td>Project</td></tr>
<tr><td>Latitude N
4521368</td><td>147</td><td>10.03.2017</td><td>Northern Marmara Highway
(Section 6)</td></tr>
<tr><td colspan="3">Absent

Ecosystems Services comments:
Rhizomes of Ruscus aculeatus are used for medical issues and body of them are used for ornamental plants. Many fauna elements are using this habitat as breeding and feeding area.

Since, deciduous forest habitats exist as local communities after completion of the motorway construction, if afforestation done by local species. The area where these climax phased forests are located should be reviewed again in June, the period when vegetation in the region is best.</td><td colspan="2"></td></tr>
</table>

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 4/1
GPS Coordinate / Location: Longitude E 35T 697706; Latitude N 4535313 **Elevation**: 71
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Testudo graeca*	6	2	1	1		
2	*Lacerta trilineata*	6	2	1	1		
3	*Pseudopus apodus*	2	2	1	1		
4	*Ablepharus kitaibelii*	3	1	1	1		
5	*Dolichophis caspius*	1	2	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 4/2
GPS Coordinate / Location: Longitude E 35T 702719; Latitude N 4535016 **Elevation**: 191
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	5	1	2		
2	*Testudo graeca*	5	2	1	1		
3	*Lacerta viridis*	7	2	1	1		
4	*Pseudopus apodus*	2	2	1	1		
5	*Dolichophis caspius*	2	2	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 24.02.2017 **Starting Time:** 17:00 **End Time:** 17:30 **Station Number:** 4/3
GPS Coordinate / Location: Longitude E 35T 707893; Latitude N 4531630 **Elevation**: 193
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	9	6	1	2		
2	*Bufotes variabilis*	5	5	1	1		
3	*Testudo graeca*	5	2	1	1		
4	*Lacerta viridis*	8	2	1	1		
5	*Natrix natrix*	4	5	1	1		
6	*Platyceps collaris*	1	2	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 9:00 **End Time:** 9:30 **Station Number:** 4/8
GPS Coordinate / Location: Longitude E 35T 711518; Latitude N 4517485 **Elevation**: 24
Type of Habitat: F5.2; I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Testudo graeca*	5	2	1	1		
2	*Lacerta trilineata*	6	2	1	1		
3	*Pseudopus apodus*	2	1	1	1		
4	*Ablepharus kitaibelii*	2	1	1	1		
5	*Dolichophis caspius*	2	2	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 10:00 **End Time:** 10:30 **Station Number:** 4/4
GPS Coordinate / Location: Longitude E 35T 715046; Latitude N 4530824 **Elevation**: 218
Type of Habitat: G1.A; G1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Triturus karelinii*	2	6	1	2		
2	*Pelophylax ridibundus*	8	5	1	2		
3	*Bufo bufo*	2	5	1	2		
4	*Bufotes variabilis*	6	5	1	2		
5	*Hyla orientalis*	2	5	1	1		
6	*Emys orbicularis*	2	6	1	1		
7	*Testudo graeca*	5	2	1	1		
8	*Lacerta trilineata*	6	2	1	1		
9	*Anguis fragilis*	5	2	1	1		
10	*Dolichophis caspius*	2	2	1	1		
11	*Natrix tessellata*	5	6	1	1		
12	*Natrix natrix*	5	5	1	1		
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 4/5
GPS Coordinate / Location: Longitude E 35T 714226; Latitude N 4528016 **Elevation**: 201
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	6	2	1	1		
2	*Testudo graeca*	6	2	1	1		
3	*Lacerta trilineata*	6	2	1	1		
4	*Dolichophis caspius*	1	2	1	1		
5							
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11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 12:00 **End Time:** 12:30 **Station Number:** 4/6
GPS Coordinate / Location: Longitude E 35T 713849; Latitude N 4524165 **Elevation**: 204
Type of Habitat: F5.2; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	2	1	1		
2	*Testudo graeca*	4	2	1	1		
3	*Lacerta trilineata*	5	1	1	1		
4	*Dolichophis caspius*	1	2	1	1		
5							
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12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 4/7
GPS Coordinate / Location: Longitude E 35T 715763; Latitude N 4522575 **Elevation**: 309
Type of Habitat: E1.3; I1.2; I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	7	5	1	1		
2	*Testudo graeca*	5	2	1	1		
3	*Lacerta trilineata*	5	1	1	1		
4	*Dolichophis caspius*	2	2	1	1		
5							
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10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 5/1
GPS Coordinate / Location: Longitude E 35T 717664; Latitude N 4529667 **Elevation**: 265
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	9	6	1	1		
2	*Bufotes variabilis*	6	2	1	1		
3	*Lacerta trilineata*	5	2	1	1		
4	*Dolichophis caspius*	4	2	1	1		
5	*Natrix natrix*	5	5	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 5/2
GPS Coordinate / Location: Longitude E 35T 719385; Latitude N 4530160 **Elevation**: 314
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	7	5	1	1		
2	*Bufotes variabilis*	6	5	1	2		
3	*Lacerta trilineata*	5	1	1	1		
4	*Dolichophis caspius*	3	2	1	1		
5	*Natrix natrix*	4	5	1	1		
6							
7							
8							
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11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 25.02.2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 5/3
GPS Coordinate / Location: Longitude E 35T 722821; Latitude N 4531033 **Elevation**: 359
Type of Habitat: G1.A; G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	4	5	1	2		
2	*Lacerta trilineata*	4	2	1	1		
3	*Dolichophis caspius*	3	2	1	1		
4	*Coronella austriaca*	1	2	1	1		
5							
6							
7							
8							
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10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 08:30 **End Time:** 09:00 **Station Number:** 5/4
GPS Coordinate / Location: Longitude E 35T 725613; Latitude N 4530379 **Elevation**: 433
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	2		
2	*Pelophylax ridibundus*	7	6	1	2		
3	*Bufotes variabilis*	5	5	1	2		
4	*Testudo graeca*	6	2	1	1		
5	*Lacerta viridis*	8	1	1	1		
6	*Ablepharus kitaibelii*	2	1	1	1		
7	*Anguis fragilis*	2	1	1	1		
8	*Pseudopus apodus*	2	2	1	1		
9	*Natrix tessellata*	5	5	1	1		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 09:30 **End Time:** 10:00 **Station Number:** 5/5
GPS Coordinate / Location: Longitude E 35T 727066; Latitude N 4530056 **Elevation**: 495
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	2	1	1		
2	*Pelophylax ridibundus*	8	5	1	2		
3	*Hyla orientalis*	2	5	1	1		
4	*Lacerta viridis*	7	1	1	1		
5	*Ablepharus kitaibelii*	2	1	1	1		
6	*Pseudopus apodus*	2	2	1	1		
7	*Dolichophis caspius*	3	2	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 10:30 **End Time:** 11:00 **Station Number:** 5/Depo-1
GPS Coordinate / Location: Longitude E 35T 726933; Latitude N 4530646 **Elevation**: 488
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	2	1	1		
2	*Bufotes variabilis*	4	5	1	2		
3	*Lacerta viridis*	9	2	1	1		
4	*Elaphe sauromates*	1	2	1	1		
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 11:30 **End Time:** 12:00 **Station Number:** 5/6
GPS Coordinate / Location: Longitude E 35T 729622; Latitude N 4530331 **Elevation**: 411
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	6	5	1	2		
2	*Testudo graeca*	6	2	1	1		
3	*Lacerta viridis*	8	1	1	1		
4	*Ablepharus kitaibelii*	2	1	1	1		
5	*Pseudopus apodus*	2	2	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 12:30 **End Time:** 13:00 **Station Number:** 5/Taşocağı-Şantiye
GPS Coordinate / Location: Longitude E 35T 730029; Latitude N 4530850 **Elevation**: 369
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	2		
2	*Bufotes variabilis*	5	5	1	1		
3	*Ablepharus kitaibelii*	2	1	1	1		
4	*Anguis fragilis*	3	1	1	1		
5	*Podarcis muralis*	2	1	1	1		
6	*Platyceps najadum*	1	2	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 13:30 **End Time:** 14:00 **Station Number:** 5/7
GPS Coordinate / Location: Longitude E 35T 733890; Latitude N 4258031 **Elevation**: 220
Type of Habitat: G1.2; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	5	1	2		
2	*Pelophylax ridibundus*	7	5	1	2		
3	*Mauremys rivulata*	2	6	1	2		
4	*Testudo graeca*	5	2	1	1		
5	*Lacerta trilineata*	5	2	1	1		
6	*Dolichophis caspius*	4	2	1	1		
7	*Natrix natrix*	4	5	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 14:30 **End Time:** 15:00 **Station Number:** 5/8
GPS Coordinate / Location: Longitude E 35T 736187; Latitude N 4528179 **Elevation**: 246
Type of Habitat: C1.2; E3.4; G1.2; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	1		
2	*Pelophylax ridibundus*	9	5	1	2		
3	*Bufo bufo*	2	5	1	1		
4	*Bufotes variabilis*	6	5	1	1		
5	*Pelobates syriacus*	2	5	1	1		
6	*Emys orbicularis*	2	6	1	1		
7	*Lacerta trilineata*	6	2	1	1		
8	*Natrix tessellata*	5	5	1	1		
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 15:30 **End Time:** 16:00 **Station Number:** 5/9
GPS Coordinate / Location: Longitude E 35T 740366; Latitude N 4526744 **Elevation**: 407
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	3	5	1	1		
2	*Pelophylax ridibundus*	7	5	1	2		
3	*Bufo bufo*	2	5	1	1		
4	*Testudo graeca*	5	2	1	1		
5	*Lacerta viridis*	8	2	1	1		
6	*Anguis fragilis*	2	1	1	1		
7	*Dolichophis caspius*	3	2	1	1		
8	*Natrix natrix*	5	5	1	1		
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 16:30 **End Time:** 17:00 **Station Number:** 5/10
GPS Coordinate / Location: Longitude E 35T 743394; Latitude N 4526730 **Elevation**: 450
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	2	1	1		
2	*Bufo bufo*	2	2	1	1		
3	*Bufotes variabilis*	4	2	1	1		
4	*Testudo graeca*	6	2	1	1		
5	*Lacerta viridis*	9	2	1	1		
6	*Ablepharus kitaibelii*	3	1	1	1		
7	*Anguis fragilis*	2	1	1	1		
8	*Dolichophis caspius*	3	2	1	1		
9	*Coronella austriaca*	1	1	1	1		
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 17:30 **End Time:** 18:00 **Station Number:** 5/11
GPS Coordinate / Location: Longitude E 35T 745739; Latitude N 4525949 **Elevation**: 338
Type of Habitat: G1.A; G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	2		
2	*Hyla orientalis*	2	3	1	1		
3	*Testudo graeca*	4	2	1	1		
4	*Lacerta viridis*	7	2	1	1		
5	*Anguis fragilis*	2	1	1	1		
6	*Zamenis longissimus*	1	1	1	1		
7	*Elaphe sauromates*	1	1	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 09.03.2017 **Starting Time:** 18:30 **End Time:** 19:00 **Station Number:** 5/12
GPS Coordinate / Location: Longitude E 35T 750601; Latitude N 4524216 **Elevation**: 200
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	5	1	2		
2	*Bufo bufo*	1	2	1	1		
3	*Bufotes variabilis*	5	2	1	2		
4	*Ablepharus kitaibelii*	3	1	1	1		
5	*Pseudopus apodus*	2	1	1	1		
6	*Podarcis tauricus*	2	2	1	1		
7	*Natrix natrix*	4	5	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 08:00 **End Time:** 08:30 **Station Number:** 6/Depo-1
GPS Coordinate / Location: Longitude E 35T 751645; Latitude N 4524186 **Elevation**: 165
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	2	1	1		
2	*Lacerta trilineata*	6	2	1	1		
3	*Eirenis modestus*	2	1	1	1		
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 08:30 **End Time:** 09:00 **Station Number:** 6/Depo-2
GPS Coordinate / Location: Longitude E 35T 752520; Latitude N 4523867 **Elevation**: 68
Type of Habitat: G1.A; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	7	5	1	2		
2	*Hyla orientalis*	2	3	1	1		
3	*Testudo graeca*	6	2	1	1		
4	*Natrix natrix*	5	5	1	1		
5	*Zamenis longissimus*	2	1	1	1		
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 09:00 **End Time:** 09:30 **Station Number:** 6/Depo-3,Şantiye
GPS Coordinate / Location: Longitude E 35T 752587; Latitude N 4525077 **Elevation**: 90
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	2	1	1		
2	*Bufo bufo*	4	2	1	1		
3	*Bufotes variabilis*	5	2	1	1		
4	*Lacerta trilineata*	5	2	1	1		
5	*Pseudopus apodus*	4	1	1	1		
6	*Podarcis muralis*	2	1	1	1		
7	*Dolichophis caspius*	1	1	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 09:30 **End Time:** 10:00 **Station Number:** 6/1
GPS Coordinate / Location: Longitude E 36T 257989; Latitude N 4519477 **Elevation**: 126
Type of Habitat: E3.4; G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	6	2	1	1		
2	*Bufotes variabilis*	6	2	1	1		
3	*Podarcis muralis*	2	1	1	1		
4	*Lacerta viridis*	6	2	1	1		
5	*Pseudopus apodus*	3	1	1	1		
6	*Anguis fragilis*	1	1	1	1		
7	*Ophisops elegans*	7	2	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 10:30 **End Time:** 11:00 **Station Number:** 6/2
GPS Coordinate / Location: Longitude E 36T 261786; Latitude N 4521750 **Elevation**: 181
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	2		
2	*Bufo bufo*	4	2	1	1		
3	*Hyla orientalis*	2	3	1	1		
4	*Lacerta trilineata*	4	2	1	1		
5	*Pseudopus apodus*	4	1	1	1		
6	*Podarcis muralis*	3	1	1	1		
7	*Anguis fragilis*	2	1	1	1		
8	*Zamenis longissimus*	1	1	1	1		
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 6/2-Depo-1
GPS Coordinate / Location: Longitude E 36T 261678; Latitude N 4521370 **Elevation**: 149
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	5	1	2		
2	*Bufo bufo*	3	5	1	1		
3	*Hyla orientalis*	1	5	1	1		
4	*Lacerta trilineata*	5	2	1	1		
5	*Pseudopus apodus*	4	1	1	1		
6	*Podarcis muralis*	2	1	1	1		
7	*Anguis fragilis*	2	1	1	1		
8	*Zamenis longissimus*	2	1	1	1		
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 11:30 **End Time:** 12:00 **Station Number:** 6/2-Depo-2
GPS Coordinate / Location: Longitude E 36T 263168; Latitude N 4522846 **Elevation**: 247
Type of Habitat: G1.A; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	3	5	1	2		
2	*Bufo bufo*	4	5	1	2		
3	*Hyla orientalis*	2	5	1	1		
4	*Lacerta trilineata*	4	2	1	1		
5	*Pseudopus apodus*	3	2	1	1		
6	*Podarcis muralis*	2	1	1	1		
7	*Anguis fragilis*	3	1	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 12:30 **End Time:** 13:00 **Station Number:** 6/3
GPS Coordinate / Location: Longitude E 36T 270728; Latitude N 4525271 **Elevation**: 88
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Lacerta trilineata*	6	2	1	1		
2	*Pseudopus apodus*	4	1	1	1		
3	*Podarcis tauricus*	3	1	1	1		
4	*Ablepharus kitaibelii*	2	1	1	1		
5	*Anguis fragilis*	2	1	1	1		
6	*Elaphe sauromates*	2	1	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 6/Taşocağı,Şantiye
GPS Coordinate / Location: Longitude E 36T 278477; Latitude N 4526827 **Elevation**: 59
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	5	2	1	1		
2	*Pseudopus apodus*	2	1	1	1		
3	*Podarcis muralis*	3	1	1	1		
4	*Lacerta viridis*	5	2	1	1		
5	*Natrix natrix*	6	5	1	1		
6	*Dolichophis caspius*	1	2	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 6/4
GPS Coordinate / Location: Longitude E 36T 279581; Latitude N 4523975 **Elevation**: 24
Type of Habitat: C1.2; G1.2; I1.2; J2.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Triturus karelinii*	2	6	1	2		
2	*Pelophylax ridibundus*	7	5	1	1		
3	*Bombina bombina*	2	5	1	2		
4	*Bufotes variabilis*	4	5	1	2		
5	*Emys orbicularis*	2	6	1	2		
6	*Podarcis siculus*	3	2	1	1		
7	*Lacerta viridis*	7	2	1	1		
8	*Natrix natrix*	5	5	1	1		
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 6/5
GPS Coordinate / Location: Longitude E 36T 286920; Latitude N 4523216 **Elevation**: 23
Type of Habitat: G1.2; I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Pelophylax ridibundus*	7	5	1	2		
2	*Hyla orientalis*	2	5	1	2		
3	*Mauremys rivulata*	2	6	1	1		
4	*Lacerta viridis*	4	2	1	1		
5	*Dolichophis caspius*	2	2	1	1		
6	*Natrix tessellata*	4	5	1	1		
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 6/5-Depo-1
GPS Coordinate / Location: Longitude E 36T 286945; Latitude N 4518805 **Elevation**: 26
Type of Habitat: I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Bufotes variabilis*	6	2	1	1		
2	*Testudo graeca*	5	2	1	1		
3	*Ophisops elegans*	7	2	1	1		
4	*Dolichophis caspius*	1	1	1	1		
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 16:30 **End Time:** 17:00 **Station Number:** 6/5-Depo-2
GPS Coordinate / Location: Longitude E 36T 290948; Latitude N 4517957 **Elevation**: 20
Type of Habitat: I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Ophisops elegans*	6	2	1	1		
2	*Lacerta viridis*	6	2	1	1		
3	*Dolichophis caspius*	1	1	1	1		
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 17:30 **End Time:** 18:00 **Station Number:** 6/6
GPS Coordinate / Location: Longitude E 36T 292039; Latitude N 4516525 **Elevation**: 27
Type of Habitat: G1.C

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	5	5	1	2		
2	*Pelophylax ridibundus*	7	5	1	2		
3	*Bufo bufo*	3	5	1	1		
4	*Bufotes variabilis*	5	2	1	1		
5	*Hyla orientalis*	2	3	1	1		
6	*Mauremys rivulata*	2	6	1	1		
7	*Testudo graeca*	6	2	1	1		
8	*Lacerta viridis*	5	2	1	1		
9	*Pseudopus apodus*	5	1	1	1		
10	*Podarcis tauricus*	2	1	1	1		
11	*Dolichophis caspius*	1	1	1	1		
12	*Natrix tessellata*	4	5	1	1		
13	*Elaphe sauromates*	1	1	1	1		
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 2: Fauna (Amphibia-Reptilia) Field Study Form

Date: 10.03.2017 **Starting Time:** 18:30 **End Time:** 19:00 **Station Number:** 6/7
GPS Coordinate / Location: Longitude E 36T 301685; Latitude N 4512676 **Elevation**: 33
Type of Habitat: G1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	*Rana dalmatina*	4	5	1	2		
2	*Pelophylax ridibundus*	7	5	1	2		
3	*Bufotes variabilis*	3	2	1	1		
4	*Mauremys rivulata*	2	6	1	1		
5	*Lacerta viridis*	5	2	1	1		
6	*Pseudopus apodus*	3	2	1	1		
7	*Natrix tessellata*	5	5	1	1		
8							
9							
10							
11							
12							
13							
		Potential Risks:					
		Information About Ecosystem Services:					

*	Substrate:	1. Under Rock	2. Top Soil	3. Tree Bark/surface and beneath	4. Over Rock	5. Waterfront	6. Afloat
**	Recording Method:	1. Observation	2. Sample	3. Trace and Sign	4. Questionnaire		
***	Capturing Method:	1. By Hand	2. Ladle	3. Stick			

Form 1: Fauna (Aves=Birds) Field Study Form

1

Date: 24/02/2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 4/1

GPS Coordinate / Location: 35T 697788 / 4535423 **Elevation:** 30

Type of Habitat: F. 5.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~ 100	Resident
2	Alectoris claudiae	1	1	2	~ 50	"
3	Gallinago gallinago	1	1	1	"	"
4	Anthus pratensis	1	1	1	—	—
5	Motacilla alba alba	2	1	1-2	—	—
6	Erithacus rubecula	1	1	1-2	—	—
7	Phoenicurus ochruros	1	1	1	—	—
8	Saxicola rubetra	1	1	1	—	—
9	Penanthe isabellina	1	1	1	—	—
10	Turdus merula	2	1	1-2	—	—
11	Phylloscopus collybita	1	1	1	—	—
12	Regulus ignicapilla	1	1	1	—	—
13	Parus caeruleus	1	1	1		—
Potential Risks:	Yangun - Kurulukly					
Information About Ecosystem Services:	Yok					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

(2)

Date: 24/02/2017 Starting Time: 15:00 End Time: 15:30 Station Number: 4/1

GPS Coordinate / Location: 35T 702945/4535190 Elevation: 180m

Type of Habitat: F.5.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Parus major	5	1	1-2	~100m	Resident
2	Parvulus glandarius	2	1	1-2	–	–
3	Pica pica	3	1	"	"	–
4	Corvus corax	1	1	1	–	–
5	Sturnus vulgaris	~25	1	1	–	Wintering
6	Passer domesticus	5	1	1	–	Resident
7	Fringilla coelebs	1	1	1	–	–
8	Carduelis carduelis	10	1	1-2	–	–
9	Carduelis cannabina	~25	1	"	–	Wintering
10	Miliaria calandra	2	1	–	–	–
11						
12						
13						
Potential Risks:		Yangın-kurulluk				
Information About Ecosystem Services:		Imam				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 4/2

GPS Coordinate / Location: _____ **Elevation:** _____

Type of Habitat: G.1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	2	1	1	~ 200	Resident
2	Columba livia	5	1	1	"	"
3	Athene noctua	1	1	4	~ 100	"
4	Galerida cristata	2	1	1-2	~ 50	"
5	Erithacus rubecula	2	1	1-2	"	"
6	Turdus merula	2	1	"	"	"
7	Phylloscopus collybita	5	1	"	"	"
8	Parus major	2	1	"	"	"
9	Garrulus glandarius	1	1	1	"	"
10	Corvus corone corone	3	1	1	"	"
11	Passer domesticus	7	1	1-2	"	"
12	Fringilla coelebs	4	1	"	"	"
13	Carduelis chloris	1	1	1	"	"
Potential Risks:	Yangın					
Information About Ecosystem Services:	Ormen ürünleri					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 24/02/2017 **Starting Time:** 17:00 **End Time:** 17:35 **Station Number:** 4/3

GPS Coordinate / Location: 35T 708030/4531590 **Elevation:** 225

Type of Habitat: G.3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Gallinago gallinago	1	1	1	~ 100 m	winting
2	Motacilla alba alba	2	1	1-2	~ 50 m	–
3	Erithacus rubecula	2	1	–	–	–
4	Oenanthe isabellina	1	1	–	–	–
5	Turdus merula	3	1	1-2	–	–
6	Phylloscopus collybita	2	1	–	–	–
7	Parus caeruleus	1	1	–	–	–
8	Parus major	3	1	–	–	–
9	Garrulus glandarius	2	1	–	–	–
10	Pica pica	3	1	–	–	–
11	Corvus corax	1	1	1	–	–
12	Fringilla coelebs	2	1	–	–	–
13	Carduelis carduelis	~ 25	1	1	–	–
Potential Risks:	Yangin					
Information About Ecosystem Services:	Orman [illegible]					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

14. Miliaria calandra	2	1	1-2	–	–	

Form 1: Fauna (Aves=Birds) Field Study Form

(1)

Date: 25/02/2017 **Starting Time:** 10:00 **End Time:** 10:30 **Station Number:** 4/4

GPS Coordinate / Location: 35T715156/4530788 **Elevation:** 220

Type of Habitat: G.1.A — G.1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Tachybaptus ruficollis	2	1	3	~ 200 m	winter } gelet
2	Phalacrocorax carbo	5	1	1	~ 100 m	Resident } gelet
3	Ardea cinerea	1	1	2	—	—
4	Buteo rufinus	1	1	1	—	—
5	Coturnix coturnix	3	5	—	—	—
6	Gallinago gallinago	1	1	2	—	wintering
7	Athene noctua	1	1	1	—	Resident
8	Cuculus canorus	1	1	1	—	—
9	Dendrocopus syriacus	1	1	1	—	—
10	Anthus pratensis	2	1	1–2	—	—
11	Troglodytes troglodytes	1	1	2	—	—
12	Erithacus rubecula	3	1	1–2	—	—
13	Phoenicurus ochruros	1	1	1	—	—
Potential Risks:	Yangın – kurutulu					
Information About Ecosystem Services:	Pokrite – Drumen – Mesine –					

Recording Method: *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 10:00 **End Time:** 10:30 **Station Number:** 4/4

GPS Coordinate / Location: _____ **Elevation:** _____

Type of Habitat: Gl.A – Gl.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Turdus merula	2	1	1–2	~ 100 m	Resident
2	Phylloscopus collybita	3	1	–	–	–
3	Regulus ignicapillus	1	1	–	–	–
4	Aegithalos caudatus	15	1	1–2	–	–
5	Parus ater	2	1	–	–	–
6	Parus caeruleus	–	1	–	–	–
7	Parus major	5	–	–	–	–
8	Fringilla coelebs	7	–	–	–	–
9	Carduelis chloris	2	–	–	–	–
10	Loxia curvirostra	1	–	–	–	–
11	Coccothraustes coccothraustes	1	–	–	–	–
12						
13						
Potential Risks:	Yangen					
Information About Ecosystem Services:	Oman – Pikanik – Masina					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 4/5

GPS Coordinate / Location: 35T 714233 / 4523918 **Elevation:** 180

Type of Habitat: F-5-3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~ 200	Resident
2	Columba livia	5	1	1-2	~ 100	"
3	Cuculus canorus	1	1	2	"	"
4	Galerida cristata	2	"	1-2	~ 50	"
5	Erithacus rubecula	1	—	2	—	—
6	Turdus merula	3	"	1-2	"	—
7	Phylloscopus collybita	5	—	—	—	—
8	Parus major	2	—	—	—	—
9	Sylvia atricapilla	2	—	—	—	—
10	Corvus corone cornix	1	—	1	—	—
11	Passer domesticus	2	"	1-2	"	—
12	Fringilla coelebs	3	—	—	—	—
13	Carduelis chloris	1	—	—	—	—
Potential Risks:		Yangın				
Information About Ecosystem Services:		—				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 12:00 **End Time:** 12:20 **Station Number:** 4/6

GPS Coordinate / Location: 35T 713819 / 4524314 **Elevation:** 210

Type of Habitat: I1.2 – F.5.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Motacilla alba alba	2	1	1-2	~100m	Resident
2	Erithacus rubecula	1	–	2	–	–
3	Oenanthe isabelina	1	–	–	–	–
4	Turdus merula	2	–	–	–	–
5	Parus ater	1	–	–	–	–
6	Parus major	2	–	–	–	–
7	Sorniks glandarius	2	–	–	–	–
8	Corvus corax	1	–	–	–	–
9	Fringilla coelebs	5	–	–	–	–
10	Carduelis carduelis	8	–	–	–	–
11	Miliaria calandra	1	–	–	–	–
12						
13						
Potential Risks:		Yengin				
Information About Ecosystem Services:		–				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 13:00 **End Time:** 13:30 **Station Number:** 4/7

GPS Coordinate / Location: 35 T715706/4522455 **Elevation:** 3000

Type of Habitat: I1.2/I.1.5/E1.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Erithacus rubecula	2	1	1-2	~ 50m	wintering
2	Oenanthe isabellina	1	"	2	"	Breeding
3	Turdus merula	2	"	1-2	"	Resident
4	Parus major	1	"	2	"	"
5	Gerrhus glandarius	2	"	"	"	"
6	Corvus corax	2	"	1	"	"
7	Fringilla coelebs	3	"	1-2	"	"
8	Carduelis carduelis	3	"	"	"	"
9	Miliaria calandra	1	"	"	"	"
10						
11						
12						
13						
Potential Risks:		Yangın				
Information About Ecosystem Services:		Yok				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/07/2017 **Starting Time:** 9:00 **End Time:** 9:30 **Station Number:** 4/8

GPS Coordinate / Location: 35T 711 386/4547322 **Elevation:** 10m

Type of Habitat: F5.2/I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Larus michahellis	14	1	1-2-3	~ 200m	Resident - deniz
2	Erithacus rubecula	1	1	2	~ 50	winting
3	Turdus merula	2	1	1-2	"	Resident
4	Garrulus glandarius	1	"	2	"	"
5	Corvus corone cornix	2	"	1-2	"	"
6	Corvus corax	1	1	1	"	"
7	Fringilla coelebs	2	"	"	"	"
8	Carduelis carduelis	7	1	1-2	"	"
9	Carduelis cannabina	2	1	"	"	"
10	Miliaria calandra	1	"	"	"	"
11						
12						
13						
Potential Risks:		[illegible]				
Information About Ecosystem Services:		[illegible]				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 5/1

GPS Coordinate / Location: 35 T 717643/4529499 **Elevation:** 270

Type of Habitat: G1-A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Xerus ates	2	1	1-2	~ 50m	Resident
2	Parus caeruleus	1	"	2	"	"
3	Parus major	5	"	1-2	"	"
4	Gossulus glandarius	1	"	1	1	"
5	Fringilla coelebs	2	"	"	"	"
6	Carduelis carduelis	5	"	"	"	"
7	Luxia curvirostra	1	"	"	"	"
8	Coccothraustes coccothraustes	1	"	"	"	"
9	Buteo buteo	1	"	1	"	"
10	Falco tinnunculus	1	"	"	"	"
11	Coturnix coturnix	X	anket	"	"	migrant
12	Columba livia	5	1	1	"	resident
13	Cuculus canorus	1	2(ses)	?	"	migrant
Potential Risks:	Yengen					
Information About Ecosystem Services:	Omen vrunleri					

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Athene noctua	–	2(pelet)	–	–	resident
15.	Anthus pratensis	1	2	–	–	resident
16.	Turdus merula	2	1	1-2	–	"

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 25/02/2017 **Starting Time:** 16:00 **End Time:** 16:30 **Station Number:** 5/2

GPS Coordinate / Location: 35T 719314/4530003 **Elevation:** 32m

Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Carduelis carduelis	~10	1	1	~100m	Resident
2	Fringilla coelebs	1	1	1	~20	"
3	Garrulus glandarius	2	1	1-2	"	"
4	Parus ater	1	"	1	"	"
5	Phylloscopus collybita	2	"	"	"	"
6	Turdus merula	1	"	"	"	"
7	Erithacus rubecula	2	"	"	"	"
8	Motacilla alba alba	1	"	"	"	"
9	Columba livia	3	"	"	"	"
10						
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Ormen Orinlari				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 15/02/2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 5/3

GPS Coordinate / Location: 35T 722788/4530911 **Elevation:** 360

Type of Habitat: G1A / G3-F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~200	Resident
2	Columba livia	3+2	1	1-2	"	"
3	Erithacus rubecula	2	1	"	~50	"
4	Turdus merula	2	"	"	"	"
5	Garrulus glandarius	1	"	1	"	"
6	Fringilla coelebs	5	"	"	"	"
7	Carduelis carduelis	~20	"	1-2	"	"
8						
9						
10						
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Orman Sinkari				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 Starting Time: 8:30 End Time: 9:00 Station Number: 5/4

GPS Coordinate / Location: 35T725573/4530387 Elevation: 430~

Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~ 100	Resident
2	Dendrocopos syriacus	1	2 (ses)	2	~ 50	"
3	Erithacus rubecula	1	1	2	"	"
4	Turdus merula	2	1	"	"	"
5	Phylloscopus collybita	2	"	"	"	"
6	Aegithalos caudatus	1	"	"	"	"
7	Parus major	3	"	"	"	"
8	Garrulus glandarius	2	"	"	"	"
9	Corvus corax	1	"	1	"	"
10	Fringilla coelebs	2	"	2	"	"
11	Carduelis carduelis	5	"	"	"	"
12						
13						
Potential Risks:		Yangın				
Information About Ecosystem Services:		Ormen Sürdürü				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 **Starting Time:** 10:30 **End Time:** 11:00 **Station Number:** 5/5-Depo/1

GPS Coordinate / Location: 35T 726933/4530650 **Elevation:** 484m.

Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Columba livia	2	1	1-2	~100	Resident
2	Troglodytes troglodytes	1	1	2	~50	"
3	Erithacus rubecula	1	1	2	"	"
4	Turdus merula	2	"	"	"	"
5	Phyl. collybita	1	"	"	"	"
6	Parus caeruleus	1	"	"	"	"
7	Parus major	2	1	"	"	"
8	Garrulus glandarius	1	1	2	"	"
9	Corvus monedula	1	"	"	"	"
10	Corvus corax	1	"	"	"	"
11	Fringilla coelebs	2	"	"	"	"
12						
13						
Potential Risks:	Yangun					
Information About Ecosystem Services:	Dinamo [illegible]					

***Recording Method:** 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

****Substrate:** 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 **Starting Time:** 9:30 **End Time:** 10:00 **Station Number:** 5/5

GPS Coordinate / Location: 35 T 726976/4530164 **Elevation:** 473 m

Type of Habitat: Gl. A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Motacilla alba alba	1	1	2	~50	Resident
2	Erithacus rubecula	1	1	2	"	"
3	Oenanthe isabellina	1	1	"	"	aliprent
4	Turdus merula	1	"	"	"	Resident
5	Phylloscopus collybita	3	"	"	"	—
6	Aegithalos caudatus	1	"	"	—	"
7	Parus major	1	2 (ses)	"	"	"
8	Cornulus glandarius	1	1	2	"	"
9	Pica pica	2	1	"	"	"
10	Corvus corone cornix	2	"	"	"	—
11	Corvus corax	1	"	"	"	"
12	Fringilla coelebs	5	"	"	"	"
13	Miliaria calandra	1	"	"	"	—
Potential Risks:		Yengen				
Information About Ecosystem Services:						

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 **Starting Time:** 11:30 **End Time:** 12:00 **Station Number:** 5/6

GPS Coordinate / Location: 35T 729 622/4530331 **Elevation:** 411m

Type of Habitat: G.I.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Anthus pratensis	1	1	2	~ 100	Resident
2	Mot. alba alba	2	"	"	"	"
3	Eri. rubecula	1	"	"	"	"
4	Turdus merula	1	"	"	"	"
5	Phy. collybita	3	"	"	"	"
6	Aeg. caudatus	1	"	"	"	"
7	Parus major	1	"	"	"	"
8	Gar. glandarius	1	"	"	"	"
9	Cor. cor. cornix	2	"	"	"	"
10	Cor. corax	1	"	"	"	"
11	Fringilla coelebs	5	"	"	"	"
12	Carduelis carduelis	2	"	"	"	"
13						
Potential Risks:	Yangen					
Information About Ecosystem Services:	Unknown					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 **Starting Time:** 12:30 **End Time:** 13:00 **Station Number:** 5/Taşocağı - Santiye

GPS Coordinate / Location: 35T 730029/4530850 **Elevation:** 369 m

Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~200	Resident
2	Col. livia	2	"	"	"	"
3	Fri. rubecula	1	"	2	"	"
4	Pho. ochruros	1	"	"	"	"
5	Oen. isabelline	1	1	"	"	Migrant
6	Tur. merula	2	1	2	"	Resident
7	Phyl. collybita	1	"	"	"	"
8	Parus major	2	"	"	"	"
9	Ger. glandarius	1	"	"	"	"
10	Pica pica	3	"	"	"	"
11	Corvus corax	1	"	"	"	"
12	Fringilla coelebs	2	"	"	"	"
13						
Potential Risks:	Yangın - Kurakluk					
Information About Ecosystem Services:	Tasvir - Ormanı [illegible]					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 Starting Time: 13:30 End Time: 14:00 Station Number: 5/7

GPS Coordinate / Location: 35T 733786/4528144 Elevation: 225m.

Type of Habitat: I1.2 / G1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Acc. nisus	1	1	1	~ 100	Resident
2	Ath. noctua	1	1	2	"	"
3	Ant. pretensis	1	"	"	"	"
4	Tro. troglodytes	1	"	"	"	"
5	Eri. rubecula	2	"	"	"	"
6	Tur. merula	3	"	"	"	"
7	Phy. collybita	5	"	"	"	"
8	Aeg. caudatus	2	"	"	"	"
9	Par. ates	1	"	"	"	"
10	Par. major	3	"	"	"	"
11	Gar. glandarius	2	"	"	"	"
12	Pic. pica	4	"	"	"	"
13	Cor. cor. cornix	7	"	"	"	"
Potential Risks:	Yangın – Kurululak					
Information About Ecosystem Services:	Tasvir – Pikanik – Panoramik					

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Fri. coelebs	5	"	"	"	"
15.	Car. chloris	2	"	"	"	"

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 Starting Time: 14:30 End Time: 15:00 Station Number: 5/8

GPS Coordinate / Location: 35T 736158 / 4527951 Elevation: 250 m

Type of Habitat: I1.2 / G1.2 / C1.2 / E3-4

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Tac. ruficollis	2	1	3	~ 1000	Wintering
2	Egr. garzetta	1	1	2	"	"
3	Ard. cinerea	2	"	"	"	"
4	Anas plathyrynchos	7	"	3	"	"
5	Buteo buteo	1	1	1	"	Resident
6	Act. hypoleucos	2	1	2	"	"
7	Dend. syriacus	1	1	2	"	"
8	Mot. alba alba	2	"	"	"	"
9	Sax. torquata	1	"	"	"	migrant
10	Den. isabellina	1	"	"	"	"
11	Tur. merula	1	1	2	"	Resident
12	Phy. collybita	"	"	"	"	"
13	Par. major	"	"	"	"	"
Potential Risks:	Yangen - [illegible]					
Information About Ecosystem Services:	Omen - [illegible] - [illegible]					

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Gar. glandarius	1	"	"	"	"
15.	Cor. monedula	2	"	"	"	"
16.	Fri. coelebs	3	"	"	"	"
17.	Cor. carduelis	9	"	"	"	"

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2012 Starting Time: 15:30 End Time: 16:00 Station Number: 5/G

GPS Coordinate / Location: 35T 740307/4526645 Elevation: 400m

Type of Habitat: GI.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~100	Resident
2	Eri. rubecula	1	"	2	~50	"
3	Tur. merula	1	"	"	"	"
4	Phy. collybita	1	"	"	"	"
5	Par. caeruleus	1	"	"	"	"
6	Pour. major	2	"	"	"	"
7	Cor. cor. cornix	3	"	"	"	"
8	Cor. corax	1	"	"	"	"
9	Fri. coelebs	2	"	"	"	"
10						
11						
12						
13						
Potential Risks:		Jengin				
Information About Ecosystem Services:		Ormen ormlari				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 **Starting Time:** 16:30 **End Time:** 17:00 **Station Number:** 5/10

GPS Coordinate / Location: 35T 745394/4526736 **Elevation:** 449~

Type of Habitat: G3F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Ant. pretensis	1	1	2	~100	Resident
2	Den. isabelline	1	"	"	"	Migrant
3	Tur. merula	2	"	"	~50	Resident
4	Phy. collybita	3	"	"	"	"
5	Aeg. caudatus	12	"	1-2	"	"
6	Par. maj.	2	"	2	"	"
7	Cor. cor. cornix	5	"	1-2	~100	"
8	Fri. coelebs	5	"	"	"	"
9						
10						
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Orman Dinlenl				

***Recording Method:** 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

****Substrate:** 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/03/2017 Starting Time: 17.30 End Time: 18.00 Station Number: 5/11

GPS Coordinate / Location: 35T 745738/4255949 Elevation: 338 m

Type of Habitat: Gd.A / G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Motacilla alba alba	1	1	2	~50	Resident
2	Eri. rubecula	1	1	"	"	"
3	Tur. merula	1	"	"	"	"
4	Phy. collybita	1	"	"	"	"
5	Par. caeruleus	1	"	"	"	"
6	Pas. pica	3	"	2	~100	"
7	Cor. cor. corax	3	"	"	"	"
8	Fri. coelebs	2	"	"	"	"
9	Car. carduelis	5	"	"	"	"
10	Mil. calandra	1	"	"	"	"
11						
12						
13						
Potential Risks:		[illegible]				
Information About Ecosystem Services:		Human [illegible]				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 09/02/2017 **Starting Time:** 18:30 **End Time:** 19:00 **Station Number:** 5/12

GPS Coordinate / Location: 35T 751184/4524181 **Elevation:** 270m

Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	But. buteo	1	1	1	~ 100	Resident
2	Eri. rubecula	1	1	2	"	"
3	Tur. merula	2	"	"	"	"
4	Phy. collybita	2	"	"	"	"
5	Par. major	21	"	"	"	"
6	Cor. cor. cornix	2	"	"	"	"
7	Cor. corax	1	"	"	"	"
8	Fri. coelebs	3	"	"	"	"
9						
10						
11						
12						
13						
Potential Risks:		Yangın				
Information About Ecosystem Services:		Orman varlığı				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 08:00 **End Time:** 08:25 **Station Number:** 6-Depe/1

GPS Coordinate / Location: 36T257919/4519431 **Elevation:** 125 m.

Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~200	Migrant
2	Col. livia	2	1	1	~50	Resident
3	Dendrocopus syriacus (?)	1	1	1	~100	"
4	Turdus merula	1	1	1	"	"
5	Turdus pilaris	5	1	1	"	Migrant
6						
7						
8						
9						
10						
11						
12						
13						
Potential Risks:	Yemen					
Information About Ecosystem Services:	Omen [illegible]					

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 8:30 **End Time:** 8:50 **Station Number:** 6_Depo/2

GPS Coordinate / Location: 35T 752520/4529862 **Elevation:** 68 m

Type of Habitat: G.1A / I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Athene noctua	1	1	1	~ 50 m.	Resident
2	Anthus pratensis	1	"	"	"	"
3	Oenanthe isabellina	1			"	"
4	Phyl. collybita	5	1	1-2	"	"
5	Regulus ignicapilla	1	1	2	"	"
6	Aegit. caudatus	3	1	1	"	"
7						
8						
9						
10						
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Inner [illegible]				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 09:00 **End Time:** 9:30 **Station Number:** 6-Depo 3/Santiye

GPS Coordinate / Location: 35T 752587/4525077 **Elevation:** 90 m

Type of Habitat: G1.A / E3.4.

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Falco tinnunculus	1	1	1	~ 100	Resident
2	Asio otus	X	2 (Pelet)	—	"	"
3	Erithacus rubecula	1	1	2	"	"
4	Pho. ochruros	1	"	"	"	"
5	Saxicola torquata	1	1	2	"	Migrant
6	Turdus merula	1	1	2	"	Resident
7	Turdus pilaris	3	1	1	"	Migrant
8	Regulus ignicapilla	2	1	2	"	Resident
9						
10						
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Ima vinleri				

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03 Starting Time: 9:30 End Time: 10:00 Station Number: 6/1

GPS Coordinate / Location: 36T 257989 / 4519477 Elevation: 126m

Type of Habitat: G1A / E.3-4

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~ 200	Resident
2	Motacilla alba alba	1	1	2	~ 50	"
3	Phyl. collybita	2	1	2	"	"
4	Parus major	4	1	1-2	"	"
5	Gassulus glandarius	2	1	"	"	"
6	Corvus corone corona	6	1	"	"	"
7	Sturnus vulgaris	2	1	1	"	wintering
8	Fringilla coelebs	6	1	1-2	"	Resident
9	Miliaria calandra	1	1	2	"	Resident
10						
11						
12						
13						
Potential Risks:		Yangen				
Information About Ecosystem Services:		Oman [illegible]				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 Starting Time: 10:30 End Time: 11:00 Station Number: 6/2

GPS Coordinate / Location: 36T 261786/4521750 Elevation: 181 m.

Type of Habitat: Gl.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Accipiter nisus	1	1	1	~ 100	Migrating
2	Columba livia	4	1	1	"	Resident
3	Streg. decaocto	1	1	1	"	"
4	Dend. syriacus	1	1	"	"	"
5	Saxicola torquata	1	1	"	"	Migrant
6	Turdus merula	2	1	2	~ 50	Resident
7	Aeg. caudatus	1	1	2	"	"
8	Parus major	3	1	1-2	"	"
9	Garrulus glandarius	1	1	2	"	"
10	Pica pica	3	1	1-2	"	"
11	Corvus corone cornix	1	1	1	"	"
12						
13						
Potential Risks:	Yangin					
Information About Ecosystem Services:	Ormen Dinleri					

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 11:00 **End Time:** 11:30 **Station Number:** 6/2-Depo-1

GPS Coordinate / Location: 36T 261678 / 4521368 **Elevation:** 147 m

Type of Habitat: GLA

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~ 200	Resident
2	Larus michahellis	1	1	1	"	"
3	Erit. rubecula	1	1	2	~ 50	"
4	Oen. Bebellina	1	1	1	"	Migrant
5	Turdus merula	2	1	1-2	"	Resident
6	Phy. collybita	3	1	"	"	"
7	Parus ater	2	1	"	"	"
8	Garrulus glandarius	2	1	"	"	"
9	Cor. cor. corax	3	1	1	"	"
10	Fringilla coelebs	4	1	2	"	"
11	Carduelis chloris	1	1	2	"	"
12						
13						

Potential Risks:	Yangun
Information About Ecosystem Services:	Tasm – Omen Omolari

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 Starting Time: 11:30 End Time: 12:00 Station Number: 6/2 - Kepe-2

GPS Coordinate / Location: 36T 263168/4522846 Elevation: 247m

Type of Habitat: G1.A / I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Str. decaocto	3	1	1	~ 50m	Resident
2	Cuculus canorus	1	2	1	"	Migrant
3	Anthus pratensis	2	1	2	"	Resident
4	Mot. alba alba	3	1	2	"	"
5	Phy. collybita	1	"	"	"	"
6	Parus caeruleus	1	1	"	"	"
7	Carduelis glaucus	2	1	"	"	"
8	Cor. corax corax	4	1	"	~ 100	"
9	Fringilla coelebs	3	1	"	"	"
10	Carduelis carduelis	12	1	"	"	"
11	Milvus milvus	1	1	"	"	"
12						
13						
Potential Risks:		Yangın				
Information About Ecosystem Services:		Orman varlığı				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 12:30 **End Time:** 13:00 **Station Number:** 6/3

GPS Coordinate / Location: 36T 270728/4525271 **Elevation:** 88 m.

Type of Habitat: GI-A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Falco tinnunculus	1	1	1	~ 100	Resident
2	Larus michahellis	1	1	1	"	"
3	Columba livia	2	"	"	"	"
4	Turdus merula	2	"	2	"	"
5	Regulus ignicapilla	1	1	2	"	"
6	Parus major	2	1	"	"	"
7	Garrulus glandarius	2	1	"	"	"
8	Corvus corax	1	1	1	"	"
9	Passer domesticus	2	1	2	"	"
10	Fringilla coelebs	2	1	2	"	"
11						
12						
13						
Potential Risks:		Yangun				
Information About Ecosystem Services:		Iman Vinkert				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 13:00 **End Time:** 18:30 **Station Number:** 6/3-Depo-Sentinge

GPS Coordinate / Location: 36T 278477/4626827 **Elevation:** 59 m

Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo rufinus	1	1	1	~ 200 m	Resident
2	Dend. syriacus	1	1	1	~ 100 m	"
3	Turdus pilaris	7	1	1	"	Migrant
4	Phyl. collybita	2	1	2	"	Resident
5	Garrulus glandarius	1	1	2	"	"
6	Cor. cor. cornix	2	1	"	"	"
7	Fringilla coelebs	2	"	"	"	"
8	Carduelis carduelis	1	"	"	"	"
9						
10						
11						
12						
13						
Potential Risks:	Yangın					
Information About Ecosystem Services:	Tarım – Ormanı sınırlar					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 14:00 **End Time:** 14:30 **Station Number:** 6/4

GPS Coordinate / Location: 36T 279582 / 4523976 **Elevation:** 23 m

Type of Habitat: I1.2 / G1.2 / C1.2 / J2.3 /

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Phalacrocorax carbo	1	1	1	~ 100 m	Wintering
2	Egretta garzetta	1	1	2	"	wintering
3	Ardea cinerea	2	1	2	"	"
4	Anas platyrhynchus	3	1	1	"	"
5	Buteo buteo	1	1	1	"	Resident
6	Fulica atra	3	1	3	"	wintering
7	Larus michahellis	12	1	1-3	"	Resident
8	Mot. alba alba	2	1	2	"	"
9	Turdus merula	1	1	2	"	"
10	Phyl. collybita	2	"	"	"	"
11	Garrulus glandarius	1	"	"	"	"
12	Pica pica	5	"	"	"	"
13	Corvus monedula	4	"	"	"	"
Potential Risks:	Yangin					
Information About Ecosystem Services:	Ome irrilari					

***Recording Method:** 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

****Substrate:** 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14.	Corvus corax	1	"	"	"	"
15.	Fringilla coelebs	2	"	"	"	"
16.	Miliaria calandra	1	"	"	"	"

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 15:00 **End Time:** 15:30 **Station Number:** 6/5

GPS Coordinate / Location: 36T 286920/4523217 **Elevation:** 23 m

Type of Habitat: I1.2 / G.1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo rufinus	1	1	1	~200 m	Resident
2	Columba livia	7	1	"	"	"
3	Str. decaocto	3	1	2	~100	"
4	Athene noctua	1	1	2	~50	"
5	Erithacus rubecula	1	1	2	"	"
6	Phoenicurus ochruros	1	1	"	"	"
7	Oenanthe isabellina	1	1	"	"	Migrant
8	Parus ater	1	"	"	"	Resident
9	Parus major	3	"	"	"	"
10	Pica pica	1	"	"	"	"
11	Corvus corone cornix	5	"	"	"	"
12	Passer domesticus	3	"	"	"	"
13	Fringilla coelebs	2	"	"	"	"
Potential Risks:	Yangın - Kurululak					
Information About Ecosystem Services:	Panoramik - Arkadik - Ömer ovaları					

***Recording Method:** 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

****Substrate:** 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

14. Carduelis chloris 1 " " " "

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 Starting Time: 16:00 End Time: 16:30 Station Number: 6/5-Depo 1

GPS Coordinate / Location: 36 T 286945 / 4518805 Elevation: 26 m

Type of Habitat: I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Motacilla alba alba	2	1	2	~50	Resident
2	Turdus merula	1	"	"	"	"
3	Phyl. collybita	1	"	"	"	"
4	Garrulus glandarius	1	"	"	"	"
5	Pica pica	3	"	"	~100	"
6	Fringilla coelebs	5	"	"	"	"
7	Carduelis carduelis	3	"	"	"	"
8						
9						
10						
11						
12						
13						

Potential Risks:	"Yangın
Information About Ecosystem Services:	Tarım-Orman Ürünleri

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 16:30 **End Time:** 17:00 **Station Number:** 6/5-Depo 2

GPS Coordinate / Location: 36T 287220/4519157 **Elevation:** 30m

Type of Habitat: I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Buteo buteo	1	1	1	~ 200	Resident
2	Falco tinnunculus	1	1	1	~ 100	"
3	Columba livia	2	1	2	"	"
4	Dend syriacus	1	"	"	"	"
5	Pho. ochrurus	1	"	"	"	"
6	Regulus ignicapilla	1	"	"	"	"
7	Parus caeruleus	1	"	"	"	"
8	Parus major	1	"	"	"	"
9	Corvus monedula	1	"	"	"	"
10	Corvus corax	2	"	1-2	"	"
11	Fringilla coelebs	3	"	"	"	"
12	Miliaria calandra	1	"	"	"	"
13						
Potential Risks:	Yangin					
Information About Ecosystem Services:	Tasim-Imen Urunleri					

**** Recording Method:*** *1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire*

*****Substrate:*** *1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 **Starting Time:** 17:30 **End Time:** 18:00 **Station Number:** 6/6

GPS Coordinate / Location: 36 T 292034 / 4516525 **Elevation:** 26 m

Type of Habitat: G1.C

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Streptopelia decaocto	1	1	2	~50	Resident
2	Phylloscopus collybita	1	1	"	"	"
3	Garrulus glandarius	1	"	"	"	"
4	Corvus corone corvix	6	"	"	~100	"
5	Sturnus vulgaris	2	1	"	"	Wintering
6	Fringilla coelebs	1	1	"	"	Resident
7	Carduelis chloris	1	"	"	"	"
8						
9						
10						
11						
12						
13						
Potential Risks:	Kunkelstein					
Information About Ecosystem Services:	Tarm					

** Recording Method:* *1. Observation* *2. Trace and Sign* *3. Literature* *4. Habitat Suitability* *5. Questionnaire*

***Substrate:* *1. Flying* *2. Feeding* *3. Swimming* *4. Roosting* *5. Breeding* *6. Migrating*

Form 1: Fauna (Aves=Birds) Field Study Form

Date: 10/03/2017 Starting Time: 18:30 End Time: 19:00 Station Number: 6/7

GPS Coordinate / Location: 36T 301685/4512676 Elevation: 33 m.

Type of Habitat: G1.5.

No	Observed Taxa (Species)	Number of Observed Individuals	* Recording Method	** Substrate	Expanding Range (m)	Comments
1	Motacilla alba alba	1	1	2	~50	Resident
2	Phylloscopus collybita	3	1	"	"	"
3	Sorrulus glandarius	1	"	"	"	"
4	Fringilla coelebs	1	"	"	"	"
5	Carduelis chloris	1	"	"	"	"
6	Carduelis carduelis	5	"	"	"	"
7						
8						
9						
10						
11						
12						
13						
Potential Risks:		Kurekuku				
Information About Ecosystem Services:		Tasma				

** Recording Method:* 1. Observation 2. Trace and Sign 3. Literature 4. Habitat Suitability 5. Questionnaire

***Substrate:* 1. Flying 2. Feeding 3. Swimming 4. Roosting 5. Breeding 6. Migrating

Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 15:00 End Time: 15:30 Station Number: 6-5
GPS Coordinate / Location: 36T 286920 E – 4523216 N Elevation: 23 m
Type of Habitat: G1.2 – I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cro sua			6			
2	Nan xan			2			
3	Apo sp.			2			
4	Rat sp.			2			
5	Vul vul			5			
6	Sus scr			5			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 16:00 End Time: 16:30 Station Number: 6-5-Depo-1
GPS Coordinate / Location: 286940 E - 4518800 N Elevation: 26 m
Type of Habitat: T1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mic gun			6			
2	Mus mac			6			
3	Vul vul			6			
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 16:30 End Time: 17:00 Station Number: 6-5 - Depo 2
GPS Coordinate / Location: 36T 290348 E 4517957 N Elevation: 20 m
Type of Habitat: I.1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri con			6			
2	Mus sp.			6			
3	Vul vul			6			
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10-3-2017 Starting Time: 17:20 End Time: 18:00 Station Number: 6-6
GPS Coordinate / Location: 36T 292046E-1,516525 N Elevation: 27 M
Type of Habitat: G1.C

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			2,3			
2	Mus foi			5			
3	Vul vul			2			
4	Mus mus			5			
5	Sus scr			5			
6	Apo sp			2			
7	Lep eur			5			
8	Sci ona			6			
9	Eri con			6			
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 18:00 End Time: 19:00 Station Number: 6-7
GPS Coordinate / Location: 36T 301685E-4512675N Elevation: 33 m
Type of Habitat: G15

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cro sua			6			
2	Nan nan			2,6			
3	Apo sp.						
4	Mic. pun			2			
5	Rat. sp.			6			
6	Vul vul			5			
7	Nand fai			5			
8	Sus scr			5			
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.2.2017 Starting Time: 14:00 End Time: 14:30 Station Number: G-4
GPS Coordinate / Location: 36T 229580E-4523970N Elevation: 24 m
Type of Habitat: C1.2-G1.2-J2.3-I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sor sor			2			
2	Vul vul			2			
3	Mon mon			2			
4	Rat sp.			1			
5	App fla			4			
6	Eri con			6			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 13:00 End Time: 13:30 Station Number: 6 - Tarapaca ve Sandiye
GPS Coordinate / Location: 36T 278477E - 4526822N Elevation: 59
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Apo sp.			2			
2	Mus sp.			2			
3	Marts fbi			2			
4	Vul vul			5			
5	Sus scr			2			
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 12:30 End Time: 13:00 Station Number: 6-7
GPS Coordinate / Location: 36T 270728 E 4525271 N Elevation: 88 m
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Apo Fle			4			
2	Dat sp			6			
3	Mus sp.			6			
4	Vul vul			5			
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 12.3.2017 Starting Time: 11:30 End Time: 12:00 Station Number: 6-2 - Dep 2
GPS Coordinate / Location: 36T 263168 E - 4522846 N Elevation: 247 m
Type of Habitat: G1.A - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Apo sp			2			
2	Vul vul			2			
3	Rat sp			2			
4	Mus sp			2			
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 11:00 End Time: 11:30 Station Number: G-2 - Depo-1
GPS Coordinate / Location: 36T 261680E - 4521371 N Elevation: 148 m
Type of Habitat: GLA

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cap. cap			5			
2	Sus scr			5			
3	Vul vul			5			
4	Mor foi			5			
5	Cro sua			6			
6	Eri con			1			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 10:20 End Time: 11:00 Station Number: 6-2
GPS Coordinate / Location: 261786E - 4521750D Elevation: 181 m
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Lep. eur			6			
2	Cap cap			2			
3	Sus scr			2			
4	Apo fla			2			
5	Mer fai			5			
6	Vul vul			5			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 9:30 End Time: 10:00 Station Number: 6-1
GPS Coordinate / Location: 36T 257989 E 4519780 N Elevation: 1261 m
Type of Habitat: G1.A - E3.4

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sc. ero			6			
2	Lep eur			2			
3	Myo gla			2			
4	Mic sub			2			
5	Can aur			5			
6	Vol vol			5			
7	Mar foi			5			
8	Cap cap			5-6			
9	Sus scr			5			
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.3.2017 Starting Time: 9:00 End Time: 9:20 Station Number: 6-Apo-3 vc Sandiye
GPS Coordinate / Location: 35T 752587E-4525077N Elevation: 90 m
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			2			
2	Vul vul			2			
3	Mar fai			5			
4	Mel mel			5			
5	Cap cap			5			
6	Sus scr			2			
7	Rat sp			2			
8	Apo pla			2			
9	Eri con			6			
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.7.2017 Starting Time: 8:30 End Time: 9:00 Station Number: 6-Depo-2
GPS Coordinate / Location: 35T 752520E - 4523867N Elevation: 68 m
Type of Habitat: I1.2 - G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Rat sp.			2			
2	Mus sp.			2			
3	Apo fla			2			
4	Mus hiu			2			
5	Vol vol			2			
6	Eri con			6			
7	Cro sod			6			
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 10.07.2017 Starting Time: 8:00 End Time: 8:30 Station Number: 6-Dep-1
GPS Coordinate / Location: 35T 751645E-4524186 Elevation: 165 m
Type of Habitat: F-5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Mar foi			2-5			
3	Vul vul			5			
4	Eri con			2			
5	Apo fla			2			
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 8.7.2017 Starting Time: 18:30 End Time: 19:00 Station Number: 5-12

GPS Coordinate / Location: 35T 750621E-4526216N Elevation: 200 m

Type of Habitat: OLA

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Ga cap			5-6			
2	Mel mel			5-6			
3	Sus scr			2			
4	Can aur			5-6			
5	Vul vul			2			
6	Mus mus			5-6			
7	Mus sp			2			
8	Apo [illegible]			2			
9	Mus [illegible]			2			
10	Sci [illegible]			2			
11	Eri con			2			
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 3.7.2017 Starting Time: 17:30 End Time: 18:00 Station Number: 5-11
GPS Coordinate / Location: 35T 745779 E – 4525819 N Elevation: 338 m
Type of Habitat: G3.F – G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			4-5			
2	Vol vul			4-5			
3	Mus sp.			2			
4	Mar foi			2			
5	Lep eur			2			
6	Myo gla			2			
7	Eri fon			2			
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 8.3.2017 Starting Time: 16:30 End Time: 17:00 Station Number: 5-10
GPS Coordinate / Location: 35T 743384 E - 4526730 N Elevation: 450 m
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mer fai			5			
2	Con aur			5			
3	Mus nin			5			
4	Vbl vul			5			
5	Cap cap			2			
6	Sus scr			1			
7	Myp pla			2			
8	Sci ano			2			
9	Eri con			1			
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.2.2017 Starting Time: 15:30 End Time: 16:00 Station Number: 5-9
GPS Coordinate / Location: 35T 740366E - 4526744 Elevation: 407 m
Type of Habitat: GLA

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Mus nid			2			
3	Mar fos			2			
4	Can aur			2			
5	Mus sp.			2			
6	Lep eur			2			
7	Myo gla			2			
8	Eri con			1			
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.3.2017 Starting Time: 14:30 End Time: 15:00 Station Number: 5-8
GPS Coordinate / Location: 35T 736187E - 4528179 N Elevation: 246 m
Type of Habitat: G1.2 - E3.4 - G1.2 - I1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr.			2-5			
2	Vul vul			2			
3	Mar foi			2			
4	Con aur			2-5			
5	Neon xan			2			
6	Apo fla			2			
7	Rat sp			2			
8	Lep eur			2			
9	Ertr con			2			
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.3.2017 Starting Time: 13:30 End Time: 14:00 Station Number: 5-7
GPS Coordinate / Location: 35T 733890E - 4258091N Elevation: 220 M
Type of Habitat: I1.2 - G1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mic pun			2			
2	Nan xan			2			
3	Fri can			2-6			
4	Sut scr			2			
5	Can aur			2			
6	Vul vul			2			
7	Mor fai			2			
8	Ape fla			2			
9	Mut nv			2			
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 8.3.2017 Starting Time: 12:30 End Time: 13:00 Station Number: 5-Tesopi-Santiye
GPS Coordinate / Location: 35T 730029 E - 4530850 N Elevation: 369 m
Type of Habitat: G1A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			2-5-6			
2	Vbl vul			5			
3	Sus scr			2			
4	Mar fai			2-5			
5	Lep eur			5-6			
6	Apo fla			2			
7	Eri con			2			
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 8.3.2017 Starting Time: 11:30 End Time: 12:00 Station Number: 5-6
GPS Coordinate / Location: 35T 729622 E - 4530331 N Elevation: 411 m
Type of Habitat: G1A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Vul vul			2			
3	Mus mus			2			
4	Can aur			2			
5	Fu can			2			
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.3.2017 Starting Time: 10:30 End Time: 11:00 Station Number: 5-Depo-1
GPS Coordinate / Location: 35T 726933 E- 4530646 N Elevation: 488
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Cap cap			5-6			
2	Sus scr			5-6			
3	Can aur			5-6			
4	Vul vul			2-5-6			
5	Mar fol			2			
6	Myo gla			2			
7	Lep fur			2			
8	Esi can			2			
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.3.2017 Starting Time: 9:30 End Time: 10:20 Station Number: 5-5
GPS Coordinate / Location: 35T 727066 E - 4370056 N Elevation: 495 m
Type of Habitat: GLA

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Eri can			1			
2	Myo pla			4			
3	Can aur			2			
4	Vol vol			2			
5	Cap cap			2			
6	Sur scr			2			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 9.3.2017 Starting Time: 8:30 End Time: 9:00 Station Number: 5-4
GPS Coordinate / Location: 35T 725613E - 4530378N Elevation: 437 m
Type of Habitat: G3.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sc. ano			1-2			
2	Lep eur			2			
3	Fel sly			2-6			
4	Cap cap			5-6			
5	Sus scr			2			
6	Can aur			5-6			
7	Apo fla			2			
8	Vul vul			5-6			
9	Mor fol			5-6			
10	Mus mus			5-6			
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 16'.00 End Time: 16'30 Station Number: 5-3
GPS Coordinate / Location: 35T 722821 E - 4531022 N Elevation: 359 m
Type of Habitat: G3.F - G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mus sp			5-6			
2	Mus dom			2			
3	Can aur			2			
4	Vul vul			2			
5	Cap cap			2-5-6			
6	Sus scr.			5-6			
7	Sci ano			2			
8	Eri con			2			
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 15:20 End Time: 15:30 Station Number: 5-2
GPS Coordinate / Location: 35T 719385 E - 4570160 N Elevation: 714 M
Type of Habitat: G1 A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus ser			2			
2	Sic ano			2			
3	Myo gla			2			
4	Mar fai			2			
5	Can aur			2			
6	Vol vol			2			
7	Mus nid			2			
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 14:00 End Time: 14:30 Station Number: S-1
GPS Coordinate / Location: 35T 717664E - 4529667N Elevation: 265 m
Type of Habitat: GLA

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			5-6			
2	Vul vul			5-6			
3	Mor foi			2			
4	Apo fo			2			
5	Pip pip			6			
6	Sel syl			2-6			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 13:00 End Time: 13:20 Station Number: 4-7
GPS Coordinate / Location: 35T 715763E - 4522575N Elevation: 309m
Type of Habitat: E1.3 - I1.2 - I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Can aur			5			
2	Mer fol			5			
3	Vul vul			2			
4	Sus scr			2			
5	Rat sp.			2			
6	Mus sp.			2			
7	Lep eur			5			
8	Eri con			5-6			
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 12:00 End Time: 12:20 Station Number: 4-6
GPS Coordinate / Location: 35 T 713849 - 4524165 N Elevation: 204 M
Type of Habitat: F5.2 - T1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Bat sp.			2			
2	Mus sp.			2			
3	Martes sp.			5			
4	Vul vul			2-5			
5	Can aur			5			
6	Lep eur			2			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 11:00 End Time: 11:30 Station Number: 4-5
GPS Coordinate / Location: 35T 714226 E - 4528016 N Elevation: 201 m
Type of Habitat: FS-3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Mar foi			2			
2	Vol vul			2			
3	Sus scr			2			
4	Apo fla			2			
5	Ery cor			2			
6	Lep eur			2			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 10:00 End Time: 10:30 Station Number: 4-4
GPS Coordinate / Location: 715046E - 4570824N Elevation: 218 m
Type of Habitat: G1A - G1.2

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Vol vol			2			
2	Can aur			5			
3	Sci ano			2			
4	Eri can			5			
5	Mer foi			2			
6	Sus scr			5			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 25.2.2017 Starting Time: 9:00 End Time: 9:30 Station Number: 4-8
GPS Coordinate / Location: 35T 711518E-4517485 Elevation: 24 m
Type of Habitat: F5.2 - I1.5

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Apo fla			2			
2	Rat spa			2			
3	Mar fla			2			
4	Vul vul			2			
5	Eri con			5			
6	Pip pip			6			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 24.2.2017 Starting Time: 17:00 End Time: 17:30 Station Number: 4-3
GPS Coordinate / Location: 35T 707893 E - 4531630 N Elevation: 193 m
Type of Habitat: G2.F

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Sus scr			2			
2	Myo gla			2			
3	Fir can			5			
4	Cro sua			6			
5	Vul vul			5			
6	Mar fai.			5			
7	Sus sc.			5			
8							
9							
10							
11							
12							
13							
14							
15							
16							

Potential Risks:

Information About Ecosystem Services:

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 24.2.2017 Starting Time: 16:00 End Time: 16:30 Station Number: 4-2
GPS Coordinate / Location: 35T 702719 E - 4535016 N Elevation: 191
Type of Habitat: G1.A

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Pip pip			6			
2	Eri con			2			
3	Vul vul			2			
4	Mer fal			2			
5	Sus scr			2			
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Form 1: Fauna (Mammalia) Field Study Form

Date: 24.2.2017 Starting Time: 15:00 End Time: 15:30 Station Number: 4-1
GPS Coordinate / Location: 35 T 697706 E – 4535213 N Elevation: 71
Type of Habitat: F5.3

No	Observed Taxa (Species)	Number of Observed Individuals	*Substrate	**Recording Method	***Capturing Method	Expanding Range (m)	Comments
1	Rat sp			2			
2	Mus sp.			2			
3	Mer fai			6			
4	Vul vul			2			
5	Mus nu			6			
6	Mic gun			2			
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
		Potential Risks:					
		Information About Ecosystem Services:					

*Recording and Capturing Method: 1. Observation 2. Trace and Sign 3. Camera tap 4. Live Animal Trap 5. Questionnaire 6. Habitat Compliance

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Annex-7/C. Flora and Fauna Species Detected Within the Project Area

Mediterranean xerophilous meadow (E1.3)

Pseudomaquis (F5.3)

Maquis (F5.2)

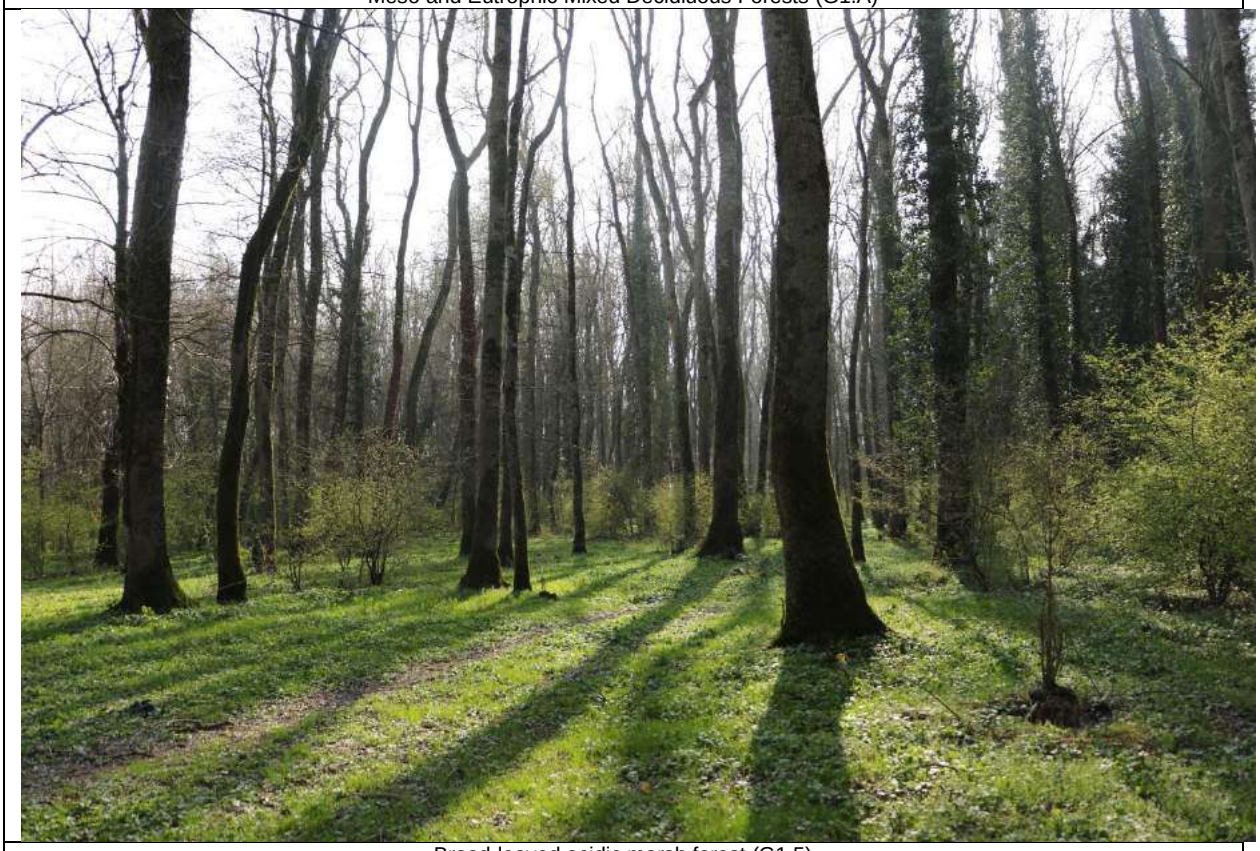
Agricultural lands (I1.2)

Mixed riparian forests (G1.2)

Highly artificial coniferous plantations (G3.F)

Highly artificial broadleaved deciduous forestry plantations (G1.3)

Meso and Eutrophic Mixed Decidiuous Forests (G1.A)



Broad-leaved acidic marsh forest (G1.5)

Moist or wet eutrophic and mesotrophic grassland (G1.A)

Permanent mesotrophic lakes, ponds and pools (C1.2)

Rural industrial and commercial sites still in active use (J2.3)

Campanula lyrata subsp. lyrata (endemic)	Cirsium polycephalum (endemic) General View
Crocus pestalozzae (endemic)	*Euphorbia amygdaloides subsp. amygdaloides 1*

Galanthus plicatus subsp. byzantinus (endemic)

Leucojum aestivum

Helleborus orientalis

Hypericum avicularifolium subsp. bithynicum (endemic)

Ornithogalum paschaenum (endemic)

Primula vulgaris subsp sibthorpii

Scilla bithynica

Trachystemon orientalis

Viola sieheana

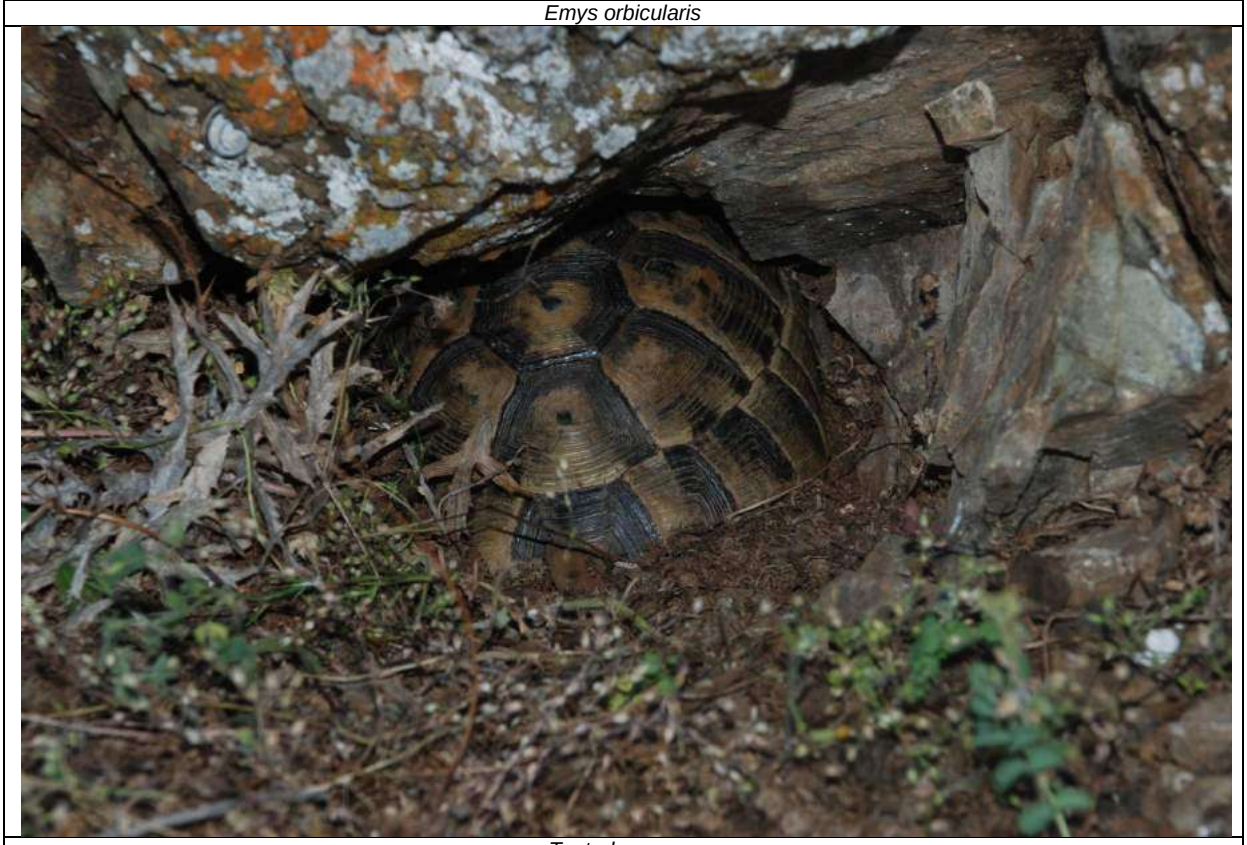
Pelophylax ridibundus

Lacerta viridis

Anguis fragilis

Platyceps collaris

Emys orbicularis



Testudo graeca

Bufo bufo

Pelobates syriacus

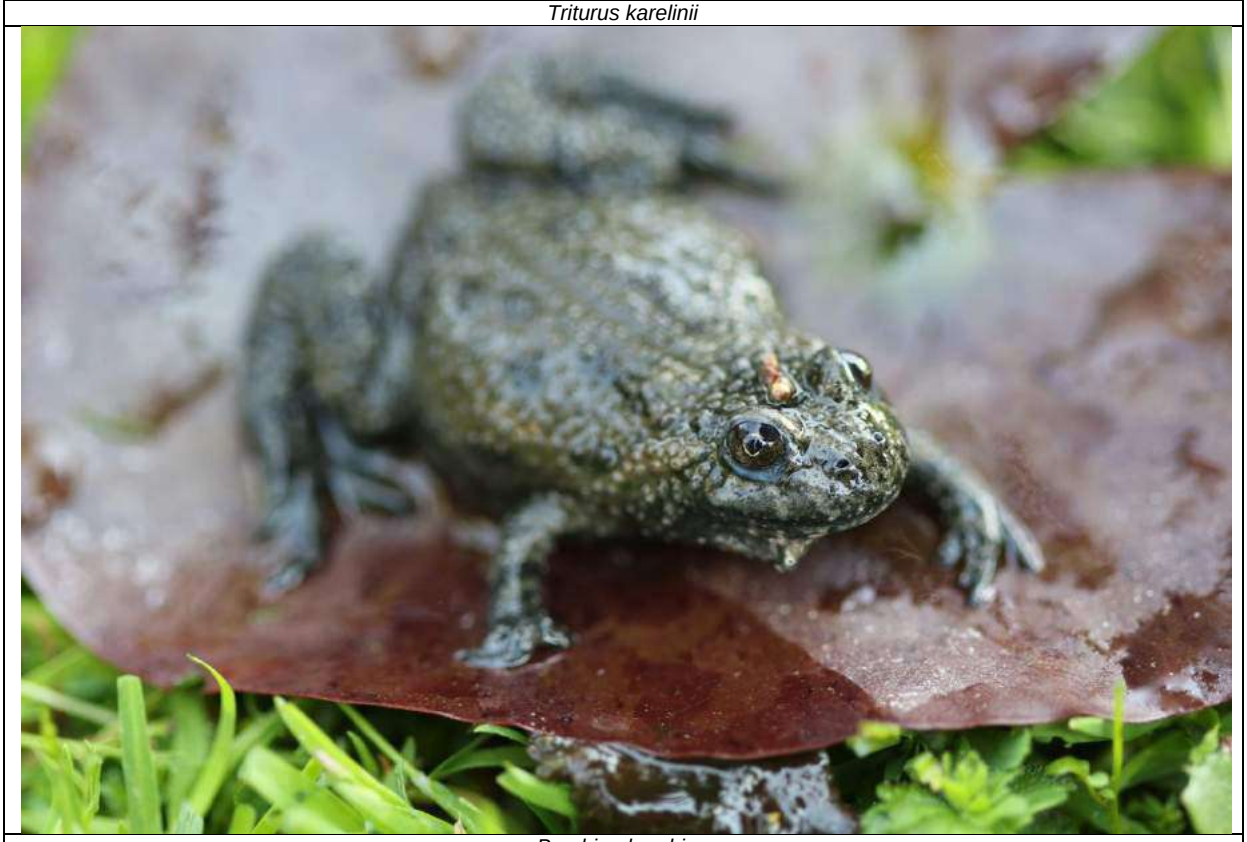
Mauremys rivulata

Elaphe sauromates

Zamenis longissimus

Platyceps najadum

Triturus karelinii



Bombina bombina

Podarcis muralis

Podarcis siculus

Eirenis modestus

Natrix tessellata

Saxicola torquata (Stonechat)

Anas platyrynchos (Mallard)

Buteo rufinus

Buteo buteo

Phalacrocorax carbo

Egretta garzetta

Ardea cinerea

Tachybaptus ruficollis

Larus michahellis

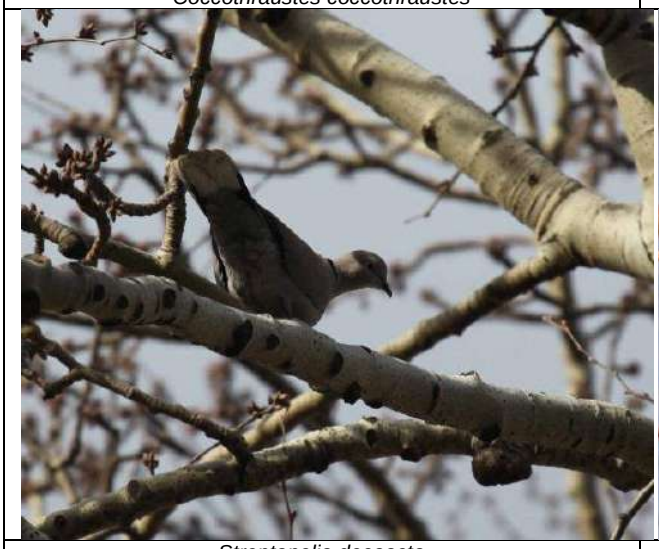
Galerida cristata

Phylloscopus collybita

Garrulus glandarius

Coccothraustes coccothraustes

Fringilla coelebs



Streptopelia decaocto

Motacilla alba alba

Erithacus rubecula

Parus major

Corvus corenecornix

Turdus merula

Sus sucrofa feeding traces

Erinaceus roumanicus feces

Lepus europaeus feces

Vulpes vulpes nest

Felis silvestris trace

Nannospalax leucodon nest

Microtus guentheri nest

Apodemus sp. nest

Canis aureus feces

Canis familaris (domestic dog) feces

Vulpes vulpes ayak izi

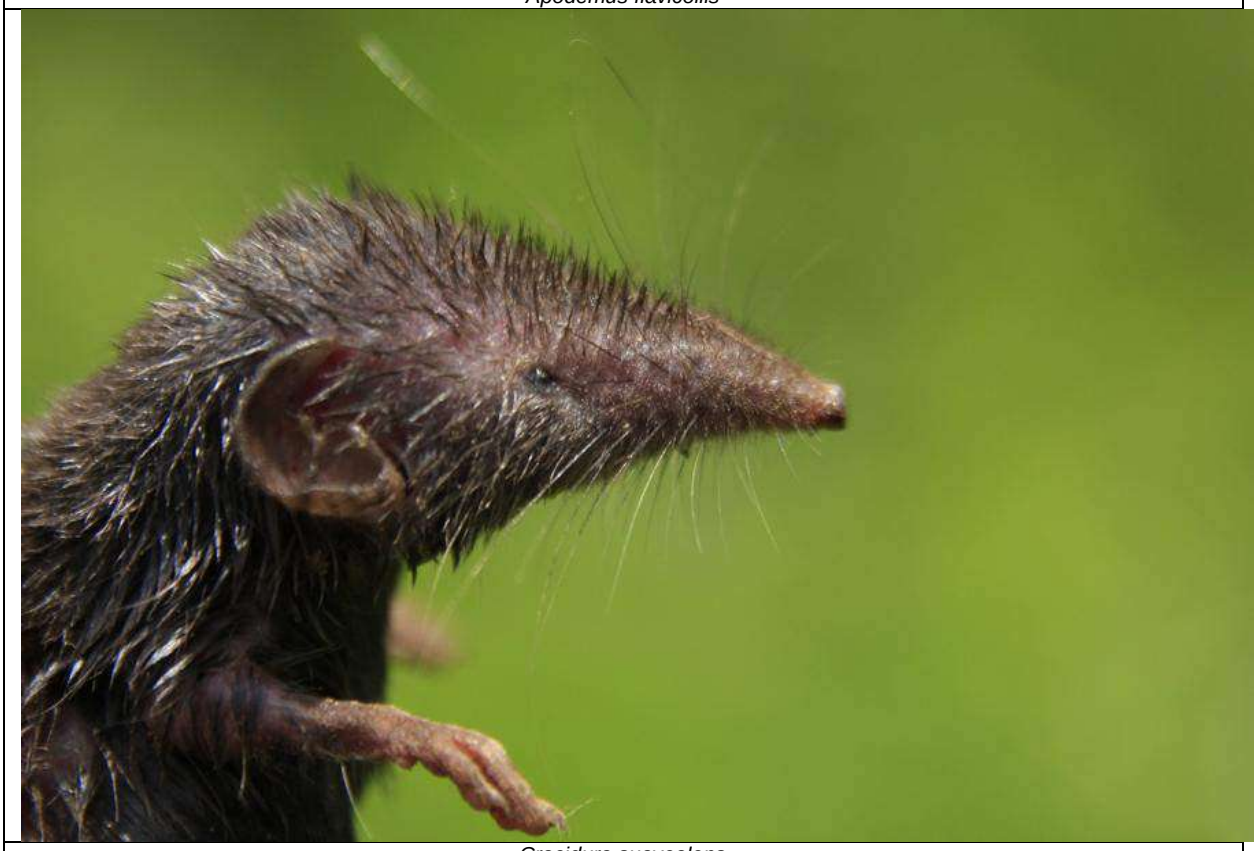
Vulpes vulpes trace

Talpa levantis nest

Martes foina trace

Apodemus sp. feeding trace

Apodemus flavicollis



Crocidura suaveolens

Myodes glareolus

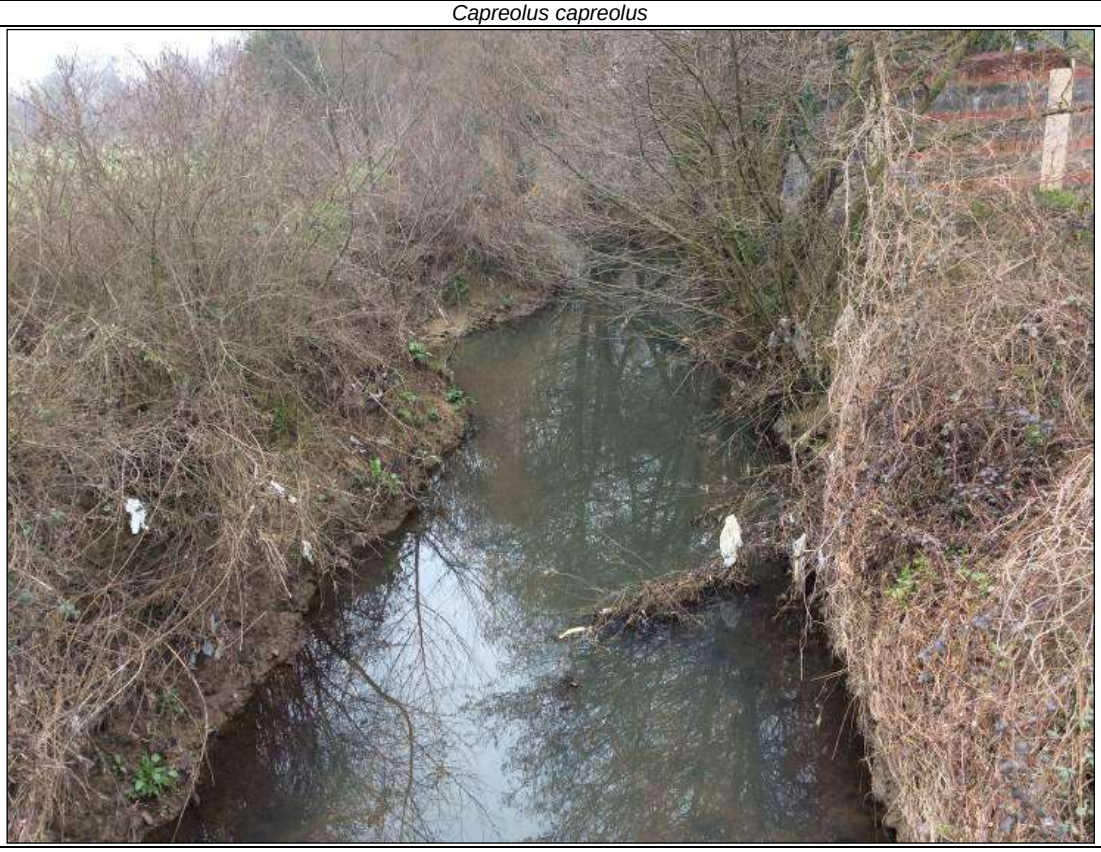
Rattus sp.

Erinaceus roumanicus

Vulpes vulpes

Meles meles

Capreolus capreolus



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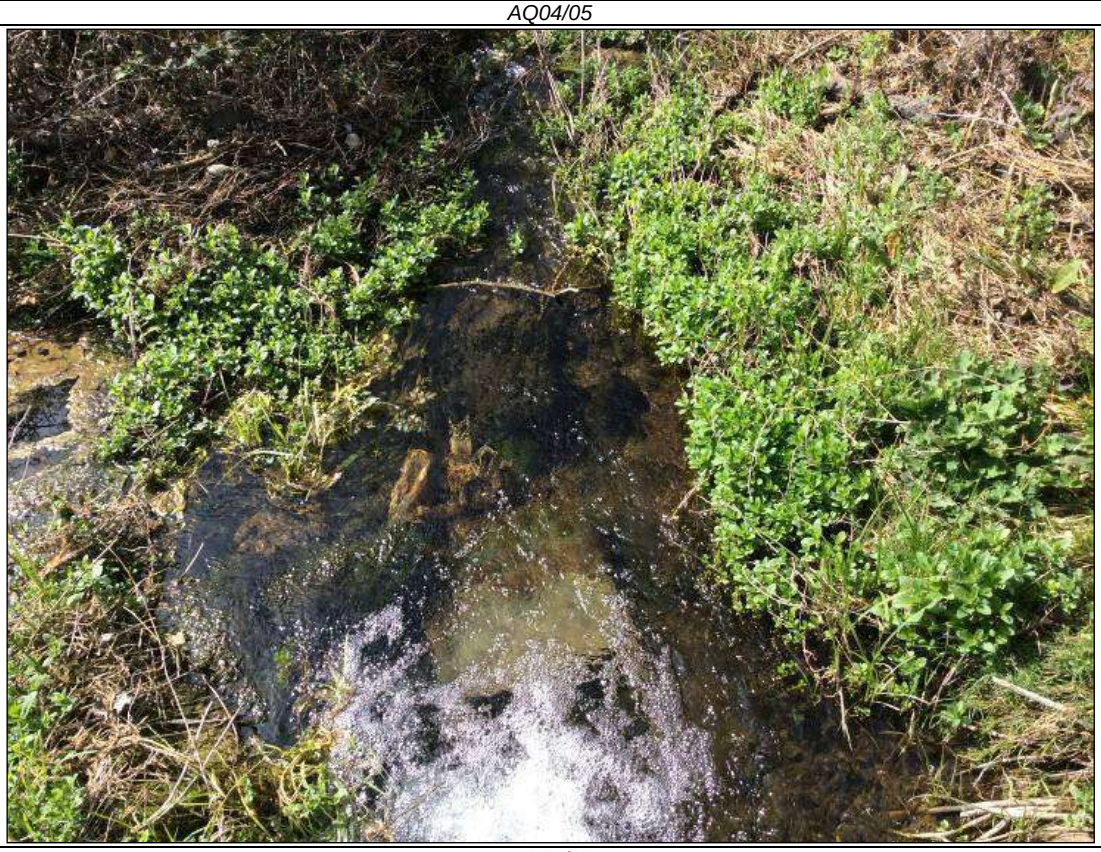
AQ04/05



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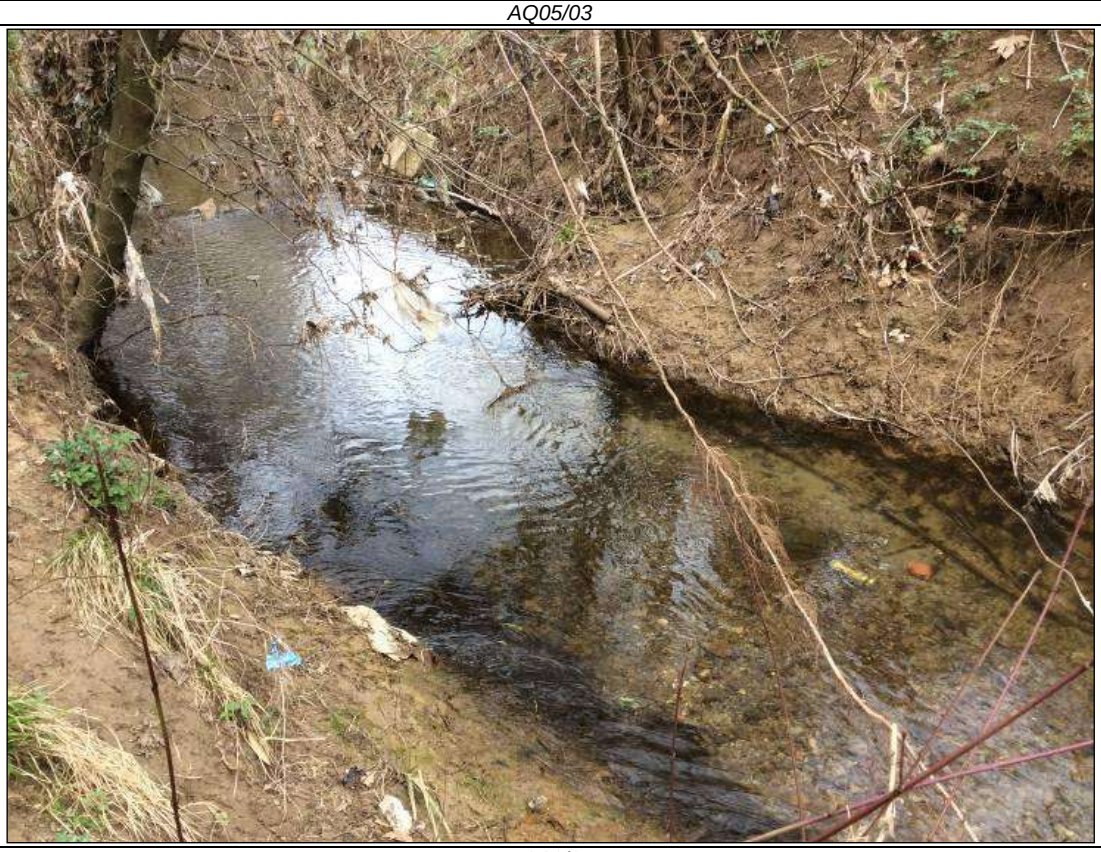

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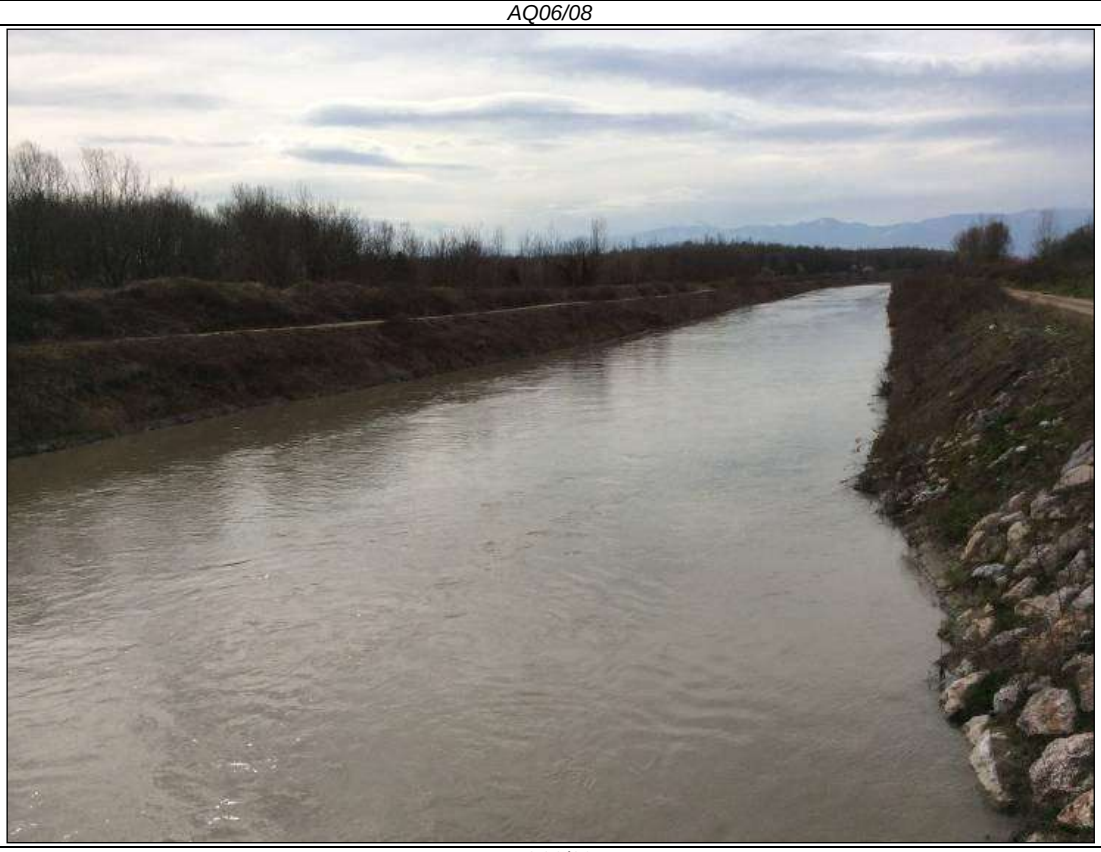
AQ06/08



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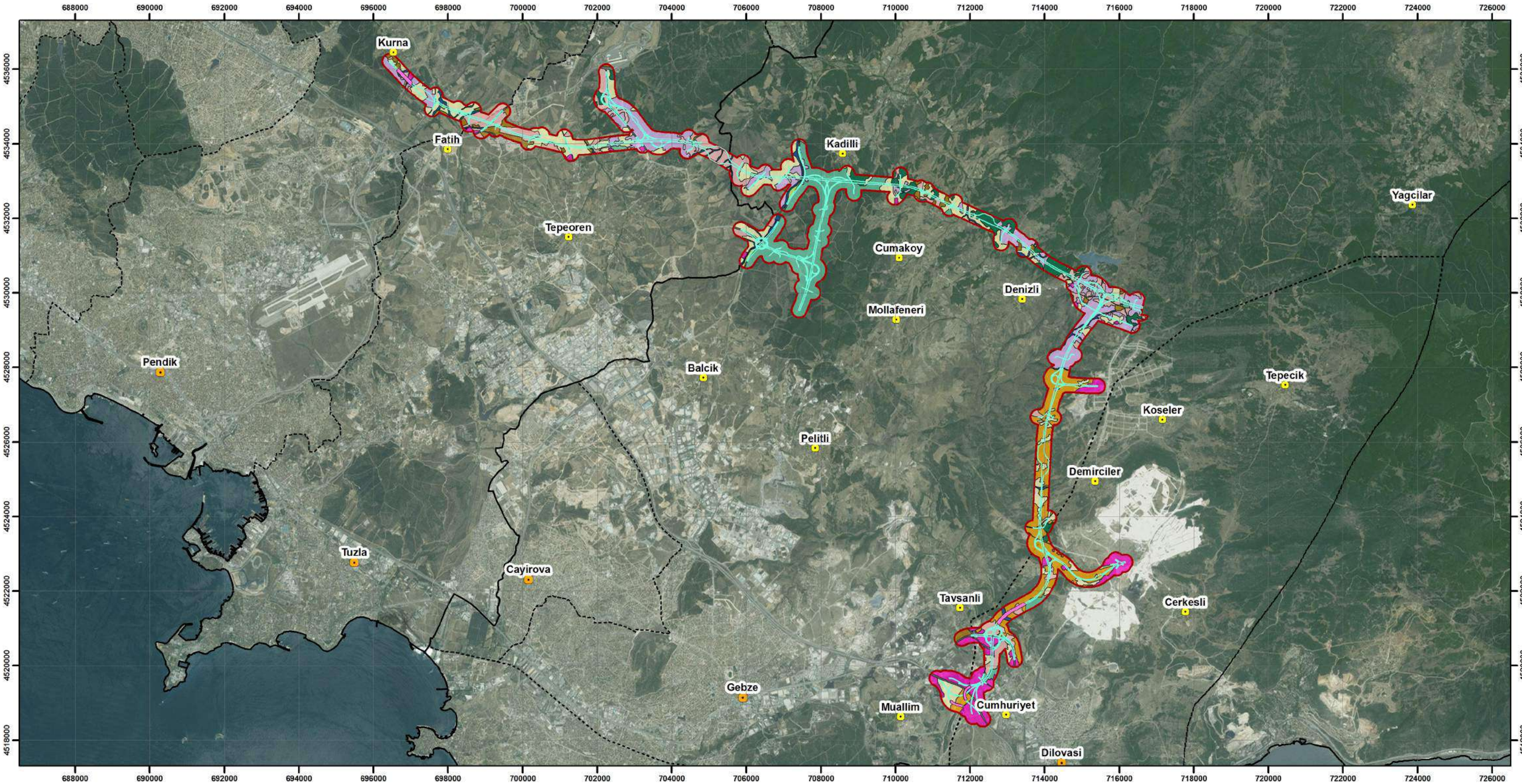
Annex 7/D. EUNIS Habitat Types within the Project Area



LEGEND

Boundaries
- Province Boundary
- District Boundary

Settlement Centers
- District Center
- Neighbourhood (Municipality)

Study Areas
- ESIA Study Area

Sections Description
- Section 4: Kurtkoy-Liman

Engineering Structures
- Viaduct

EUNIS Habitats
- E 1.3- Mediterranean xerophilous meadow
- E 3.4 - Moist or wet eutrophic and mesotrophic grassland
- F 5.2- Maquis
- F 5.3- Pseudomaquis
- G 1.2- Mixed riparian forests
- G 1.A - Meso and Eutrophic Mixed Decidiuous Forests
- G 3.F - Highly artificial coniferous plantations
- I 1.2 - Agricultural lands
- I 1.5- Roadsides and field sides (ruderal lands)
- J 2.1 - Scattered residential buildings
- J 2.3 Rural industrial and commercial sites still in active use
- J 4.2 - Disused road, rail and other constructed hard-surfaced areas

UTMWGS84 ZONE35

0 1 2 4 km

N

MARMARA OTOYOLU JOINT VENTURE

NORTH MARMARA MOTORWAY PROJECT

Map of Eunis Habitats

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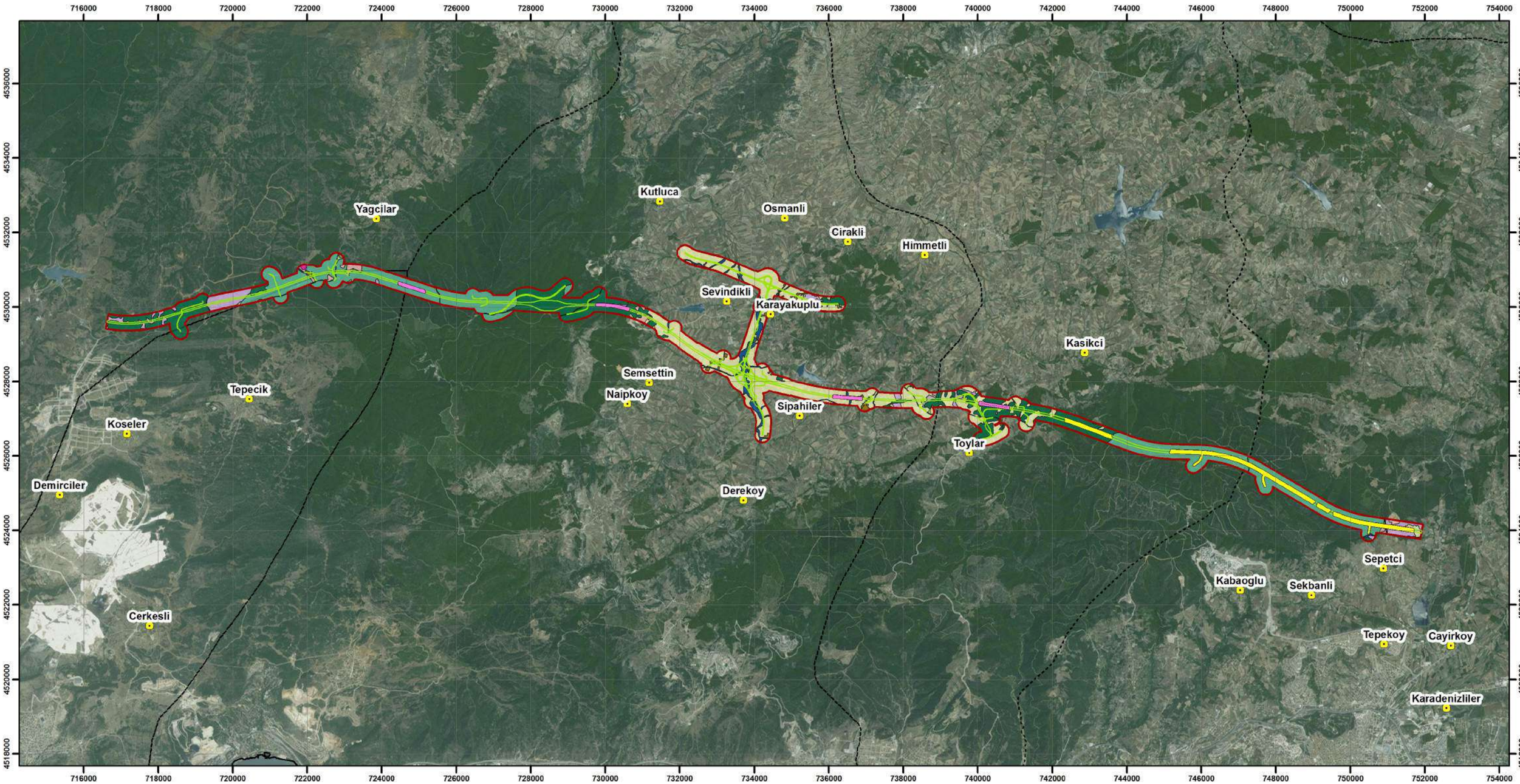

LEGEND

Boundaries
- Province Boundary
- District Boundary

Settlement Centers
- District Center
- Neighbourhood (Municipality)

Study Areas
- ESIA Study Area

Sections Description
- Section 5: Liman-Izmit

Engineering Structures
- Viaduct
- Tunnel

EUNIS Habitats
- E 1.3- Mediterranean xerophilous meadow
- E 3.4 - Moist or wet eutrophic and mesotrophic grassland
- F 5.3- Pseudomaquis
- G 1.2- Mixed riparian forests
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UTMWGS84 ZONE35

0 1 2 4 km

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MARMARA OTOYOLU JOINT VENTURE

NORTH MARMARA MOTORWAY PROJECT

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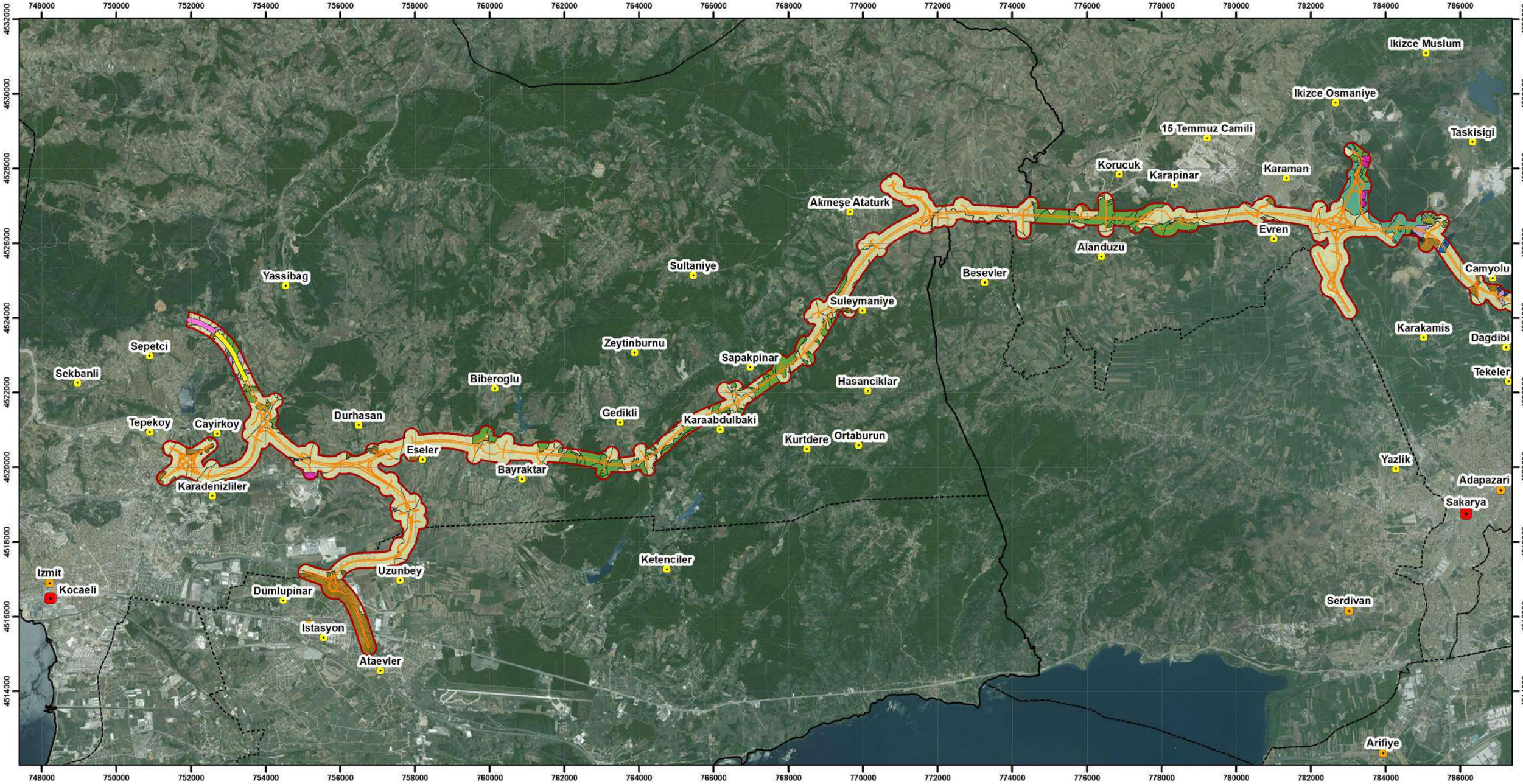

LEGEND

Boundaries
- Province Boundary
- District Boundary

Settlement Centers
- Province Center
- District Center
- Neighbourhood (Municipality)

Study Areas
- ESIA Study Area

Sections Description
- Section 6: Izmit-Akyazi

Engineering Structures
- Viaduct
- Tunnel

EUNIS Habitats
- C 1.2 Permanent mesotrophic lakes, ponds and pools
- E 3.4 - Moist or wet eutrophic and mesotrophic grassland
- F 5.3- Pseudomaquis
- G 1.2- Mixed riparian forests
- G 1.5- Broad-leaved acidic marsh forest
- G 1.C- Highly artificial broadleaved deciduous forestry plantations
- G 3.F - Highly artificial coniferous plantations
- I 1.2 - Agricultural lands
- I 1.5 - Roadsides and field sides (ruderal lands)
- J 2.1 - Scattered residential buildings
- J 2.3 - Rural industrial and commercial sites still in active use
- J 3.3 - Inactive quarry sites
- J 4.2 - Disused road, rail and other constructed hard-surfaced areas

UTMWGS84 ZONE35

0 1 2 4 km

N

MARMARA OTOYOLU JOINT VENTURE

NORTH MARMARA MOTORWAY PROJECT

Map of Eunis Habitats

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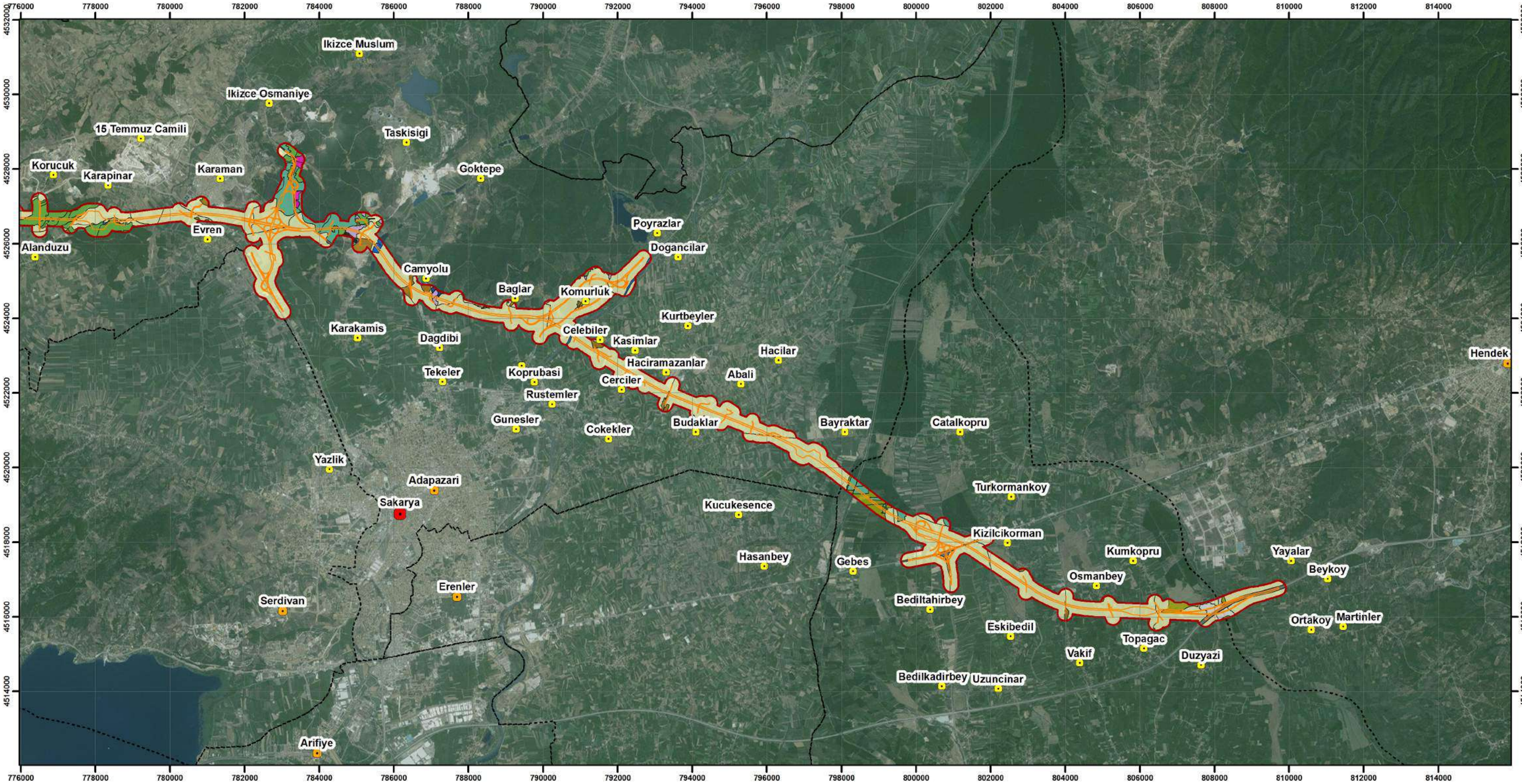

LEGEND

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Sections Description
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UTMWGS84 ZONE35

0 1 2 4 km

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ANNEX-8

NOISE MODELING AND ASSESSMENT REPORT

Noise Assessment for North Marmara Motorway

November 2017

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6.1 Suggestions For Action Plan ..... **Hata! Yer işareti tanımlanmamış.**

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1 NORTH MARMARA MOTORWAY NOISE ASSESSMENT

1.1 Introduction

Sound/noise that can be perceived by the human ear is a mechanical wave generated by the vibrations on the medium in which they can pass through. Sound waves has two characteristic properties of frequency and amplitude. Noise is generally defined as unwanted sound or noise pollution. Noise sources such as constructions, woofers/vibrating loudspeakers, construction equipment etc. are major causes of noise pollution.

Despite of the subjective aspect of the noise, short or long exposure above a certain threshold is proven to affect human health negatively. These effects can be classified as physiological, psychological effects or disorders. The noise exposure depending on the level of the exposure, can cause short term or permanent effects on human health or disorders. Reducing the noise levels transmitted to the receiver in order to prevent these problems is a major importance. Increased or constant noise levels can have major compromises on human helath and quality of life.

“Ambient noise” is generally defined as sum of the total noise of the noise sources such as external sources of the constructions which results no health issues on short term yet various health issues on the long term exposure. Most common and most disturbing source of noise is motor transportation vehicle traffic.

Within the scope of this report, studies on the determination of the effects of possible noises that may arise from the construction and operation of the planned North Marmara Motorway and action plans carried out in accordance with the regulation in the routes exceeding the limit values stated in TNR are explained.

The subjects related to noise pollution, preventation and control of this pollution is controlled as described by the **official gazette** print 29536 released in 18 November 2015 under the Environmental law by Regulation on the Assessment and Management of Environmental Noise – CGDYY.

Within the scope of this project, noise level evaluation, noise modelling studies are conducted by Hidrotek Architecture and Engineering Ltd. Şti.

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1.2 Aim of the Project

Potential noise effects on the North Marmara Motorway is reviewed within the scope of this project. Noise modelling is performed by generating noise maps. In accordance with the calculations acquired by modeling, the results are obtained and evaluated according to TNR

In this section, noise assessments caused by construction and operation of North Marmara Motorway Project are evaluated.

To estimate a more comprehensive scenerio a working area was created for all project fields (see Figure 3.1 - Figure 5.116). The impact reducing precautions fort he transportation noise caused by the North Marmara Motorway Project are analyzed in with regard to the operation conditions. Noise effects are reviewed in accordance to TNR. In this section, the present noise levels of the planned highway region is also presented.

The computed noise modelling analysis provides future predictions of potential effects for the highway and nearby regions of the project.

Purpose of this study is to predict and model the noise generated by construction and highway operation along with the following special purposes:

- Create action plans to reduce noise levels to acceptable levels at determined locations
- Modelling of the noise levels emitted by the vehicles during the operation stage of the highway and generation of noise maps.
- Evaluating whether the noise levels in the region exceed the criteria specified in related regulations and manuals.
- Define mitigation measures to be used to decrease noise levels under acceptable values at specified locations.

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2 NOISE REGULATIONS

2.1 National Noise Regulations

In this section, evaluation of the ambient noise generated by the construction and operation of the Project according to the national noise regulation.

Matters concerning noise pollution in Turkey and control of this pollution is regulated under by Envoronmental law in Official Gazette print 18 November 2015 under page 29536 by TNR.

TNR aims to take the preventive measures for people who are exposed to environmental noise in order to maintain their mental and physical health and determine the environmental noise exposure levels, the targeted noise levels, acoustic reports and determining by environmental noise level evaluation reports, informing the public on environmental noise and its effects, establishing the course of action to prevent and reduce the noise in regions where environmental noise can have detrimental effects on human health and determining the procedures and principles based

Noise model is developed with a commercial software called SoundPLAN v7.4 (64 Bit). The calculations for motorways, bridges, viaduct and tunnels are performed by using the emission values given by the XPS31-133 French Standard "Guide du bruit des transports terrestres, fascicule prevision des niveaux sonores CETUR 1980" which is recommended by National Noise Directive and European Comission for the Assessment of environmental noise.

Noise Criteria for New Roads

The noise emissions generated by road transport is regulated by TNR. The threshold values for road transportation noise is given at Annex VII - Table 1 in aforementioned regulation. Noise levels mentioned in Table 2.1 should be achieved using by noise reduction precautions.

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Table 2.1 Environmental Noise Limit values for highway, Turkey (Leq dB(A)

Land Use Type	New Road			Upgrading of Existing Road		
	Day (07-19)	Evening (19-22)	Night (22-07)	Day (07-19)	Evening (19-22)	Night (22-07)
Industrial Area (Heavy Industries)	67	62	57	72	67	62
Commercial area with noise sensitive area where workplaces are predominant (commercial area)	63	58	53	68	63	58
Commercial area with noise sensitive area where residential buildings are predominant (mixed commercial / residential area)	65	60	55	70	65	60
Noise-sensitive areas where educational, cultural, health institutes, or summer residential and camping areas are predominant (residential areas for recreational purpose,educational, hospitals)	60	55	50	65	60	55

Noise Criteria for Construction Area

The noise emissions generated by construction area is regulated by TNR. The threshold values for road construction area is given at TNR's 18th item.

"ISO 9613-2:Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation" was used in the calculations of construction area. Environmental noise limit values for construction area is given in Table 2.2.

Table 2.2 Environmental noise limit values for construction area

Type of Action (building, demolition and repairment)	L_{day} (dBA)
Building	70
Motorway	75
Other Sources	70

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3 THE STUDY AREA

The project study area is North Marmara Motorway and it is shown in Figure 3.1 and Figure 3.2. The Project area located in the northern part of İstanbul;

- Starting from Kınalı to Odayeri on the European side is usually agricultural land,
- The region that starts from Habipler and passes through the tunnel in a large part of the section extending to Hasdal
- Starting from Kurtköy to Liman on the Asian side is usually agricultural and forest land,
- Starting from Liman to İzmit is usually agricultural and forest land,
- Starting from İzmit to Akyazı is usually agricultural and forest land.

During the noise evaluation stage, 2 km wide calculation area is defined on the project route. Virtual receivers are defined for the points where noise measurement is made.

European Side of project area has,

Küçük Kılıçlı, İzzettin, Nakkaş İhsaniye,

Asian side of project area has,

Kurna, Akfırat, Kadıllı, Demirciler, Kutuca, Sipahiler, Çayırköy, Durhasan, Eseler, Bayraktar, Karaabdülbaki, Sapakpınar, Süleymaniye, Korucuk, Evrenköy, Karaman, Çamyolu, Çelebiler, Budaklar, Osmanbey, Topağaç sites.

Project field is divided into subsections to simplify the designing, planning and evaluation of the noise calculation field in question as shown in Table 3.1 and Table 3.2. First, second and seventh sections of the projects are located in European side while the rest are located in Asian side. The general view of the motorway is shown in Figure 3.1 and Figure 3.2.

The number of vehicles indicated on Table 3.1 and Table 3.2 is estimated traffic data for 2027 and modeled according to this data. According to the statistics, it is estimated that the average increase of the percentage of the traffic data will be as in Table 3.3, and this percentage is modeled with the increase data.

- Section 1 – *Kınalı - Yassıören*
- Section 2 – *Yassıören – Odayeri*
- Section 7 – *Habibler - Hasdal*

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Table 3.1 Sub sections of the European Side with 2027 traffic data estimation

Sections	Explanation	Automobile	Bus	Truck	Truck+Treiler, Tow Truck+Semi-Trailer	Total	Heavy Vehicle Percentage
Section 1	Kınalı-Yassioren	48.212	1.586	6.591	3.884	60.274	25
Section 2	Yassıoren-Odayeri	74.099	3.595	13.438	8.801	99.932	35
Section 7	Habibler-Hasdal	79.340	1.506	7.706	3.686	92.238	16

Table 3.2 Sub sections of the Asian Side with 2027 traffic data estimation

Sections	Explanation	Automobile	Bus	Truck	Truck+Treiler, Tow Truck+Semi-Trailer	Total	Heavy Vehicle Percentage
Section 4	Kurtkoy-Liman	69.852	1.688	11.589	4.132	87.261	25
Section 5	Liman-İzmit	51.163	1.178	8.430	2.884	63.655	24
Section 6	İzmit-Akyazi	16.006	383	1.933	937	19.259	20

- Section 4 – *Kurtköy - Liman*
- Section 5 – *Liman - İzmit*
- Section 6 – *İzmit - Akyazı*

Table 3.3 Percentage of daily vehicle distribution

	Day(%)	Evening (%)	Night (%)
Light Vehicle	70	15	15
Heavy Vehicle	50	25	25

Table 3.4 Velocities of vehicles (km/h)

	Day	Evening	Night
Light Vehicle	120	120	120
Heavy Vehicle	100	100	100

The building heights in the study region differ since the project route passes through different regions. The buildings in the project area are mostly 1 - 2 floor height structures, but the structure height rises up to 5 floor-height at some regions in the project area (Korucuk-Karaman zone).

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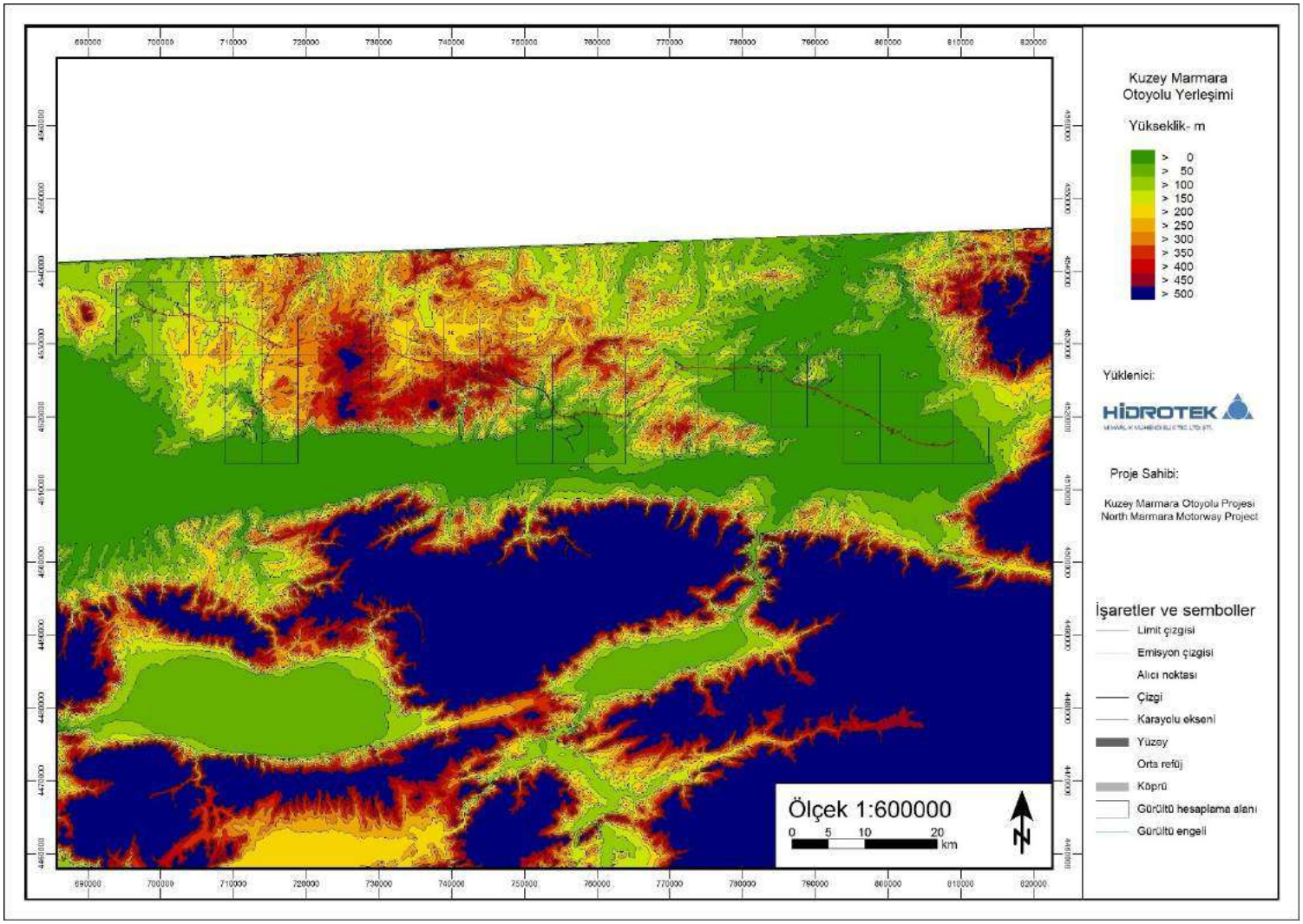

Figure 3.1 General view of North Marmara Motorway Asian side

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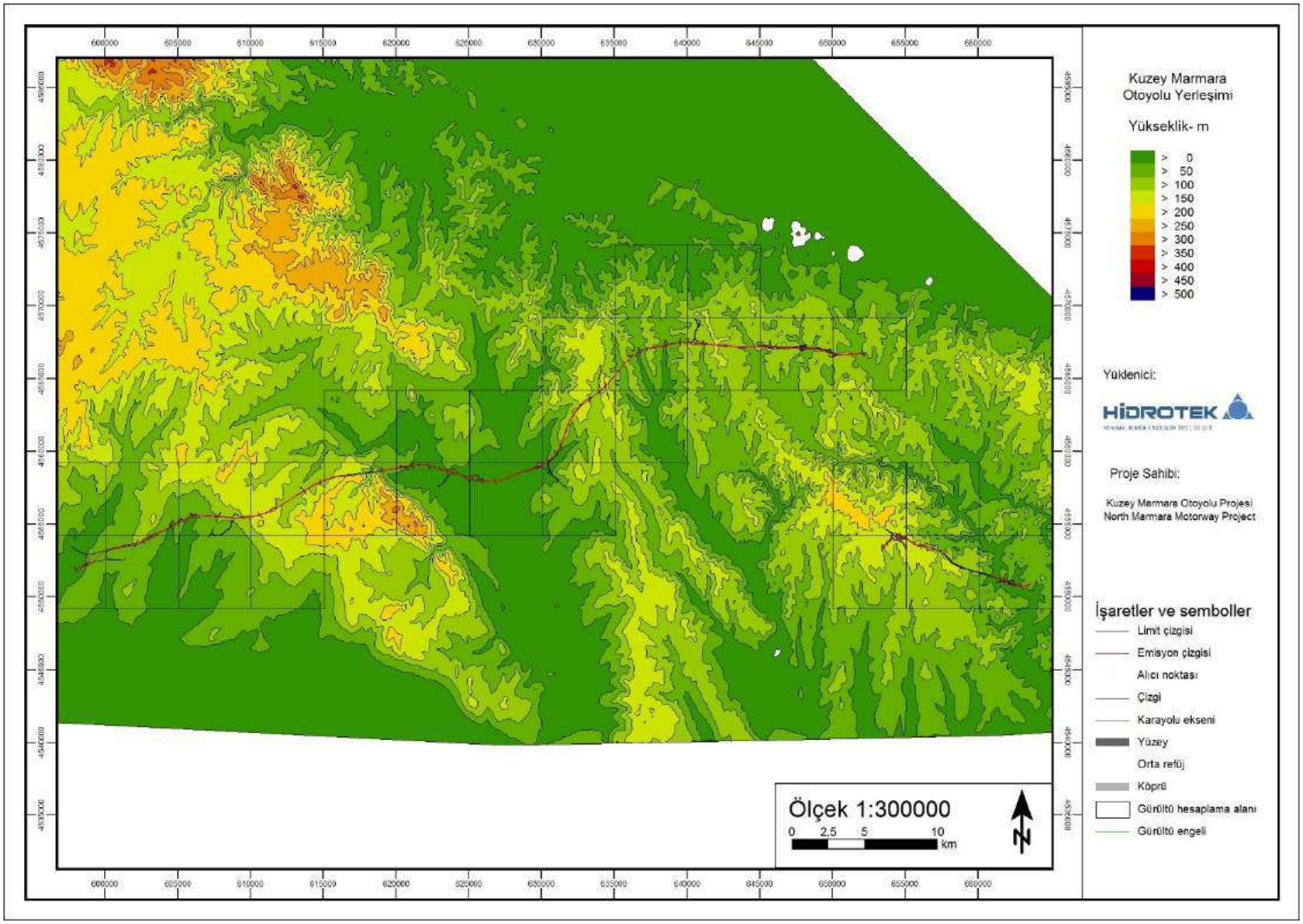

Figure 3.2 General view of North Marmara Motorway European side general view

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4 NOISE EVALUATIONS AND METODOLOGIES

Traffic noise is the major noise pollution source in urban areas. Sounds generated by exhausts systems and aerodynamic system of automobiles, trucks, buses, motorcycles are major causes of noise pollution.

It is critical to follow criteria of regulations in order to maintain quiet environment, protect mental and physicial health of people. Primary aim of this study is described in the first item of the regulation: “This Regulation takes preventive measures for the negative effects of noise pollution on the peace, comfort, physical and mental health of the society. The regulation further contains topics such as; informing the public about the negative effects of environmental noise, building up an action plan to prevent and reduce high level of noise and to determinate degrees of exposure according to the reports and noise maps".

4.1 Traffıc Noise Evaluation

All the predictions are performed by noise modelling software SoundPLAN V7.4 (64 Bit) based on the recommended XPS31-133 French Standard based which is recommended in EU and Turrey noise directives.

Table 4.1 Environmental noise limit values, Turkey (Leq dB(A))

Land Usage Type	New Roads			Current Road Improvements		
	Day (07-19)	Evening (19-22)	Night (22-07)	Day (07-19)	Evening (19-22)	Night (22-07)
Areas where commercial buildings and noise sensitive uses exist together that residential buildings are concentrated (commercial / residential mixed areas)	65	60	55	70	65	60

Maximum threshold values in Turkish Traffic Regulations are considered for the annual avarage velocity values.

Terrain elevation, city plan, road layout data are registered into modeling system.

The treshold values for new roads are shown in TNR Annex-VII Table 1 and specified individually for distinctive times of day; day (07:00-19:00), evening (19:00-23:00) and night (23:00-07:00). Therefore computation results are given as Lday, Levening and Lnight.

Individual computations and noise maps for each time range are given within the scope of the porject.

The highway traffic methodology requires data on hourly light and heavy vehicle traffic data, road surface coverage, and average speeds of vehicles

Velocity of light and heavy vehicle are respectively accepted as 120 km/h and 100 km/h.

Ground attenuation factor (G) value is 0.6 and all factors of screening, topography, distance propagation are considered in modeling process.

The road surface was assessed as mastic asphalt. The topography of the project field is given in Figure 3.1 and Figure 3.2.

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Traffic flow data are given in Table 3.1 and Table 3.2. Automobiles represent the light vehicles; buses, trucks, trailers, tractors and semi-trailers represent heavy vehicles in this table. This data is calculated from the average daily traffic flow forecast of “Environmental and Social Impact Assessment (ESIA) of the Third Bosphorus Bridge and Connected Motorways” report. The total values of traffic flow data used in noise modelling software are presented in Table 3.1 and Table 3.2.

The total values of traffic flow data used in noise modelling software are converted into day, evening and night (vehicle/hour) values which presented in Table 3.1 and Table 3.2 by using the data stated in Table 3.3. The calculations are modeled for the worst case based on the year 2027.

4.2 Evaluation of the Noise Levels

Traffic noise evaluations are evaluated by considering the noise regulations of Turkey and European union. Noise map calculations are made according to the Strategic Noise Maping Guideline that T.C. Ministry of Environmen and Urbanization. According to NMPB Road 96 (Highway noise mapping method) and ISO 9613-2 (Industrial noise mapping method) noise mappings are computed with 10 mx10 m grids 4 meters above the ground. Traffic noise modelling is performed with SoundPlan V 7.4 (64 Bit). Traffic noise levels are computed by using the vehicle counts given in Table 3.1 and Table 3.2. Noise maps presenting the noise levels due to the construction and operation of the project are given in the scope of the report. Presented noise maps reflect the situation after the North Marmara Motorway has been in operation

4.3 Evaluation of Construction Noise

In this section, parameters used for noise modelling caused by construction activities are described. Noise levels may differ as the Project duration is 3 years and it involves different construction activities which can result in different noise levels. Therefore, noise modelling of the project is computed for various receiver points which are sensitive to noise such as residential areas, schools etc. The number of equipments used in construction process are given in Table 4.2. Machinery and equipment noise levels were taken from the SoundPLAN noise modeling software database. The sound power levels of the equipments in the SoundPLAN software library are given in Table 4.4.

Table 4.2 Equipment Pool

Type of Machinery	European Side			Asian Side		
	Section 1	Section 2	Section 7	Section 4	Section 5	Section 6
Crawler excavator	18	45	21	35	16	30
Wheeled excavator				3	1	5
Grader				10	2	3
Dozer	9	9	5	12	3	6
Wheeled loader	15	19	6	10	5	8
Backhoe loader				3	2	2
Crawler loader					5	1
Roller	7	7	4	20	7	3

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Type of Machinery	European Side			Asian Side		
	Section 1	Section 2	Section 7	Section 4	Section 5	Section 6
Truck	126	265	102	130	65	200
Rock Driller				8		4
Water Truck				4	5	6
Light tower				15		4
Trailer					1	4
Crane					2	3
Fueloil Tanker					2	4
Maintenance Vehicle					1	3
Concrete Pump					2	6
Others (ROC)					4	-
Total	**175**	**345**	**138**	**250**	**123**	**292**

Table 4.3 Sound power levels of plants

Type of Machinery	European Side			Asian Side		
	Section 1	Section 2	Section 7	Section 4	Section 5	Section 6
Crawler excavator	117	121	117	119	116	119
Wheeled excavator				105	100	107
Grader				115	108	110
Dozer	115	115	112	116	110	113
Wheeled loader	112	113	108	110	107	109
Backhoe loader				105	103	103
Crawler loader					107	100
Roller	109	109	107	114	109	106
Truck	125	128	124	125	122	127
Rock Driller				124		121
Water Truck				110	111	112
Light tower				97		91
Trailer					104	110
Crane					88	90
Fueloil Tanker					107	110
Maintenance Vehicle					98	103
Concrete Pump					102	107
Others (ROC)					6	
Total	**126**	**129**	**125**	**129**	**124**	**129**

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Table 4.4 Sound power levels of machinery at Sound PLAN library, (dB(A))

Crawler excavator	104
Wheeled excavator	100
Grader	105
Dozer	105
Backhoe loader	100
Crawler loader	100
Roller	101
Truck	104
Rock Driller	115
Water Truck	104
Light tower	85
Trailer	104
Crane	85
Fueloil Tanker	104
Maintenance Vehicle	98
Concrete Pump	99

The worst case assessment was made based on the assumption that noise levels for construction activities were the same for all machinery at 50% efficiency.

The construction noise evaluation is performed using guidance specified in TNR. Noise maps are calculated at 4 meter elevation from ground level with 10mx10m grid size.

4.4 Impact Evaluation

During the potential noise evaluation stage, computed daytime, evening and night traffic noise levels are compared to the TNR threshold values depending on the building usage type. Construction noise levels are also compared with the threshold levels given by the regulation

Noise levels are compared with present background noise levels to decide the required effect reducing precautions to reduce noise levels

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5 RESULTS OF MODELLING COMPUTATIONS

5.1 Modelling Results for Highway of Year 2027

Residential districts and sensitive areas are considered in the process of noise modelling. The effect levels are determined by comparing the threshold levels between modelling results and the threshold levels determined in TNR. Assessments for the potential scenerios for the year 2027 are evaluated by studies conducted by modelling and computation processes. The noise maps demonstrating the analyses for the motorways which are conducted by modelling processes are shown in Figure 5.1 – Figure 5.90

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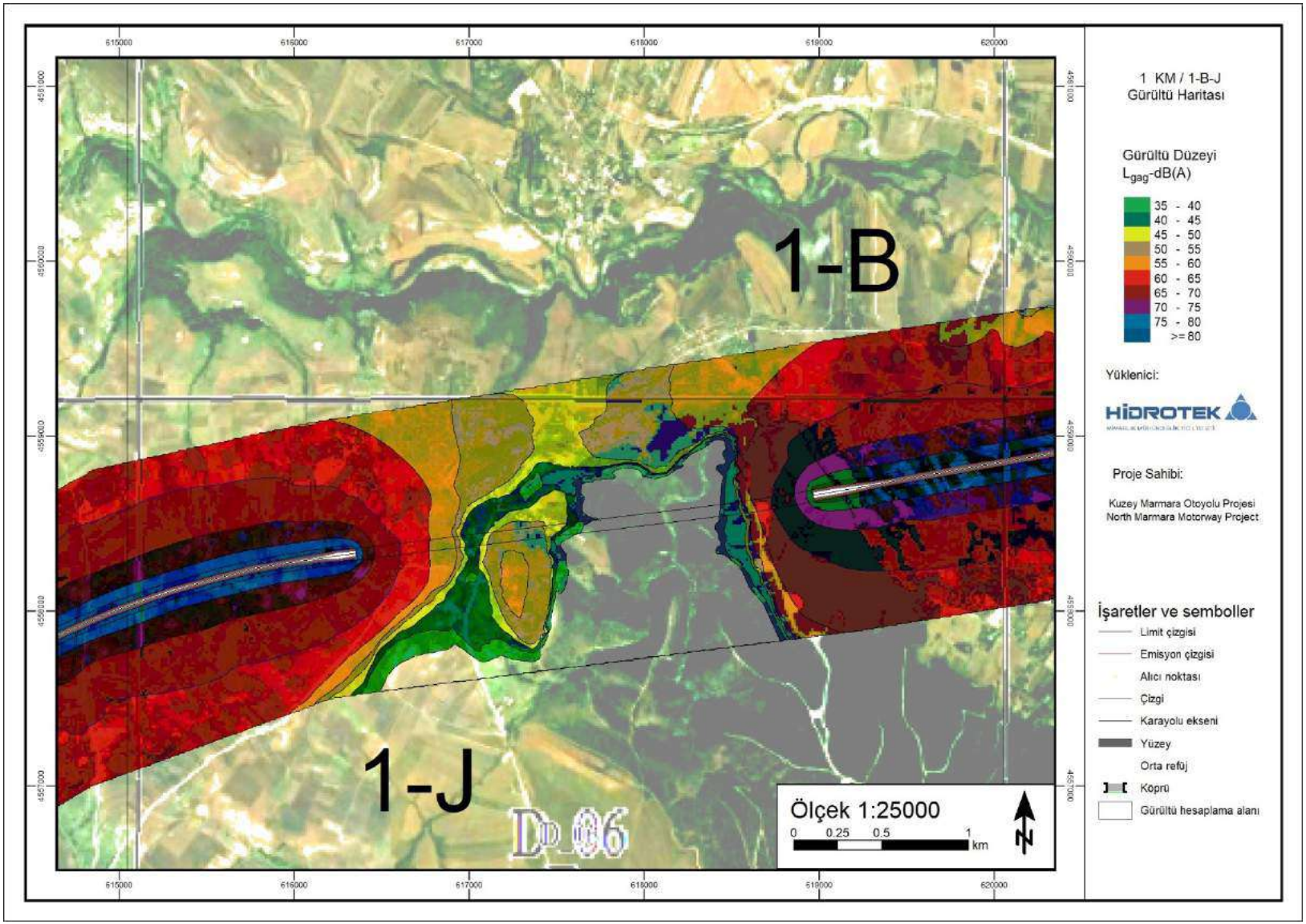

Figure 5.1 Lden noise map for part 1B of year 2027

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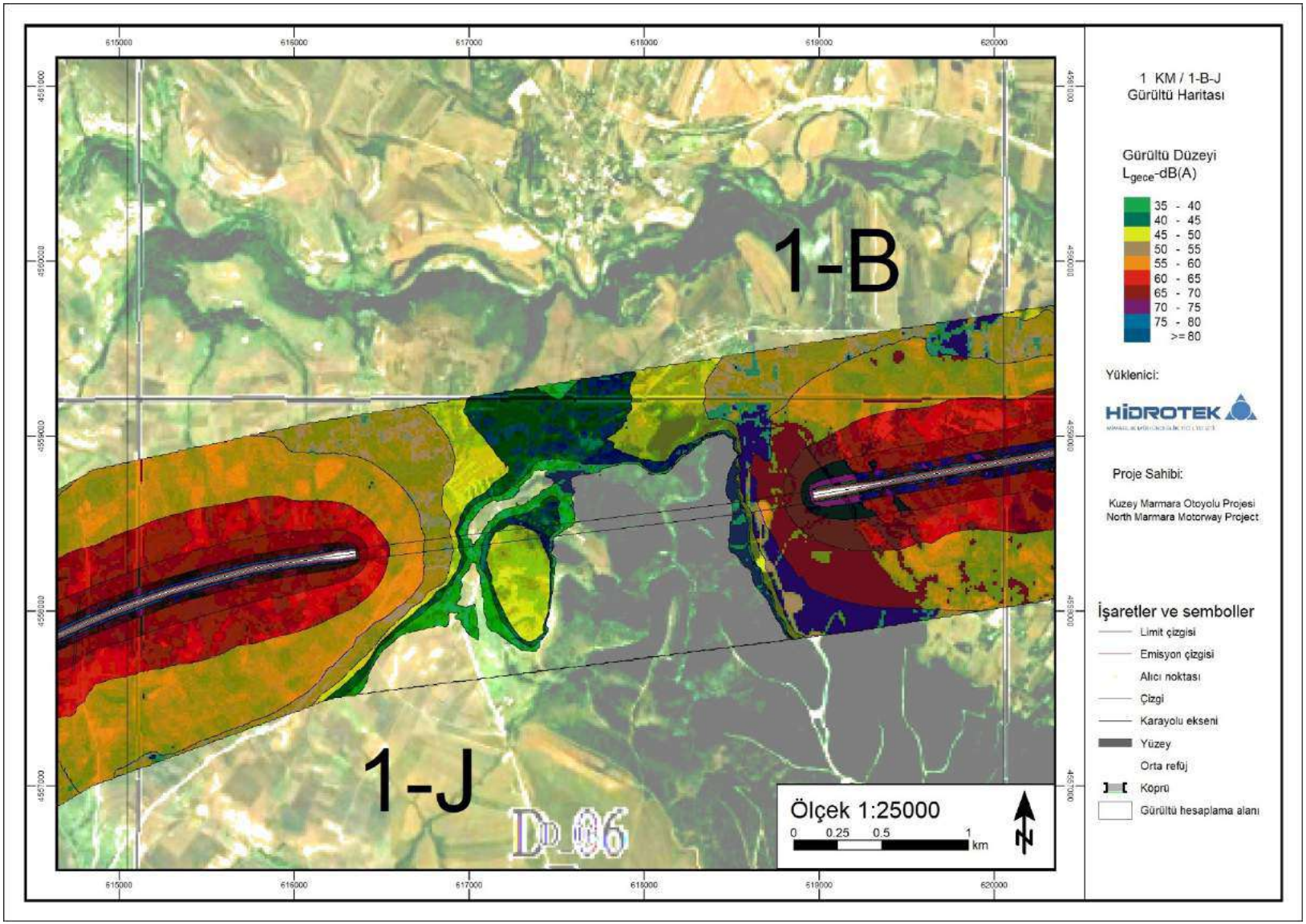

Figure 5.2 Ln noise map for part 1B of year 2027

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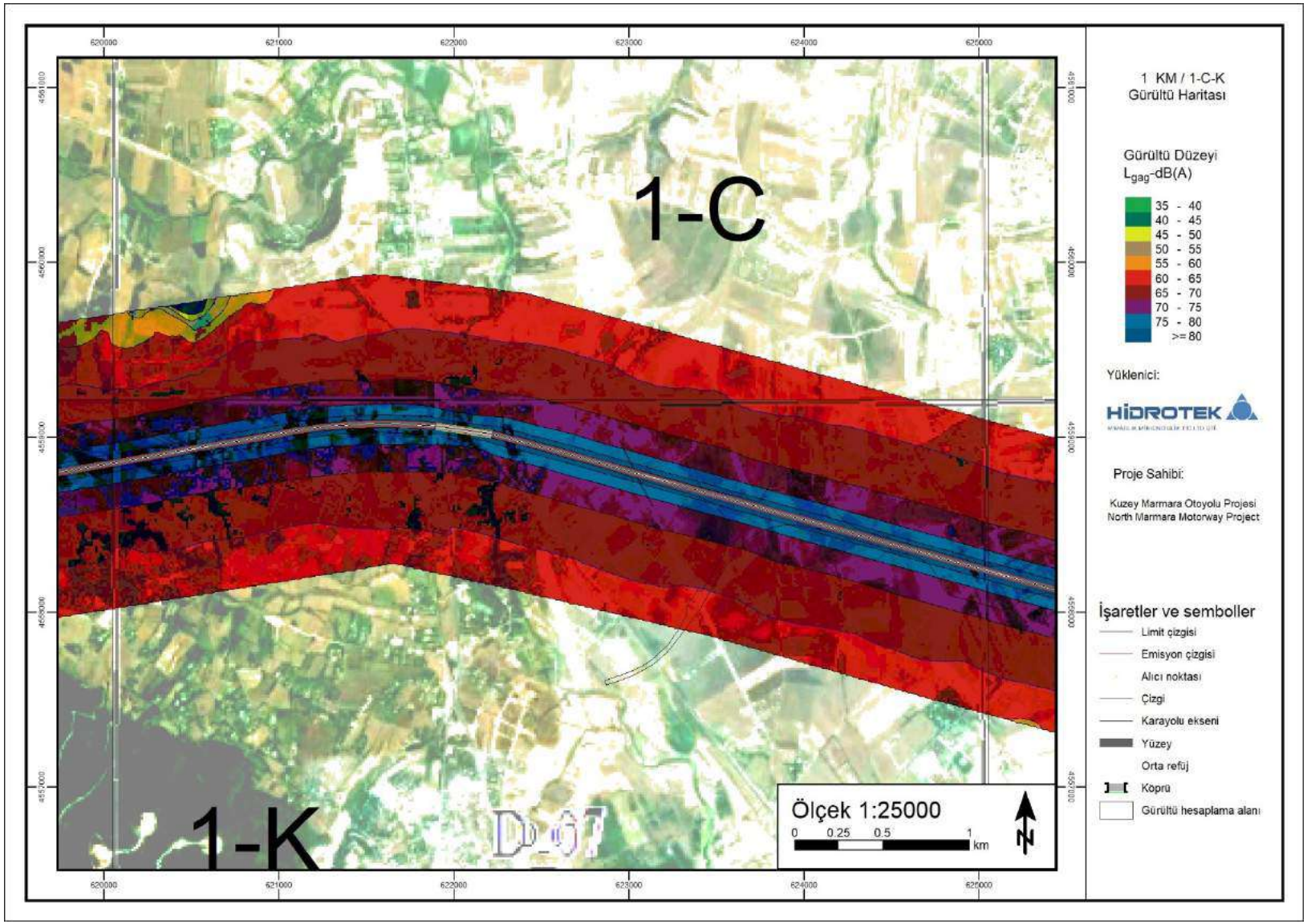

Figure 5.3 Lden noise map for part 1B of year 2027

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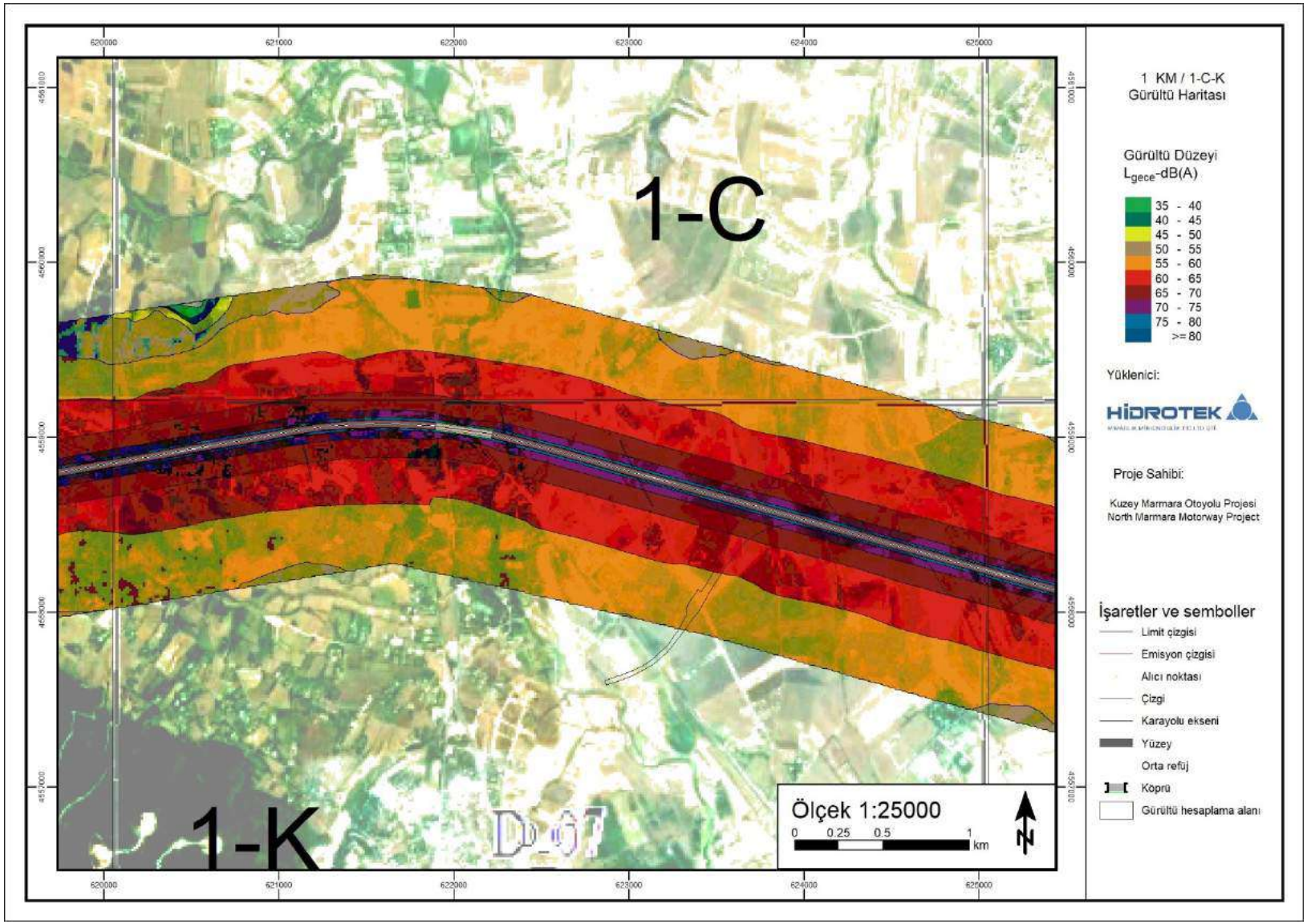

Figure 5.4 Ln noise map for part 1C of year 2027

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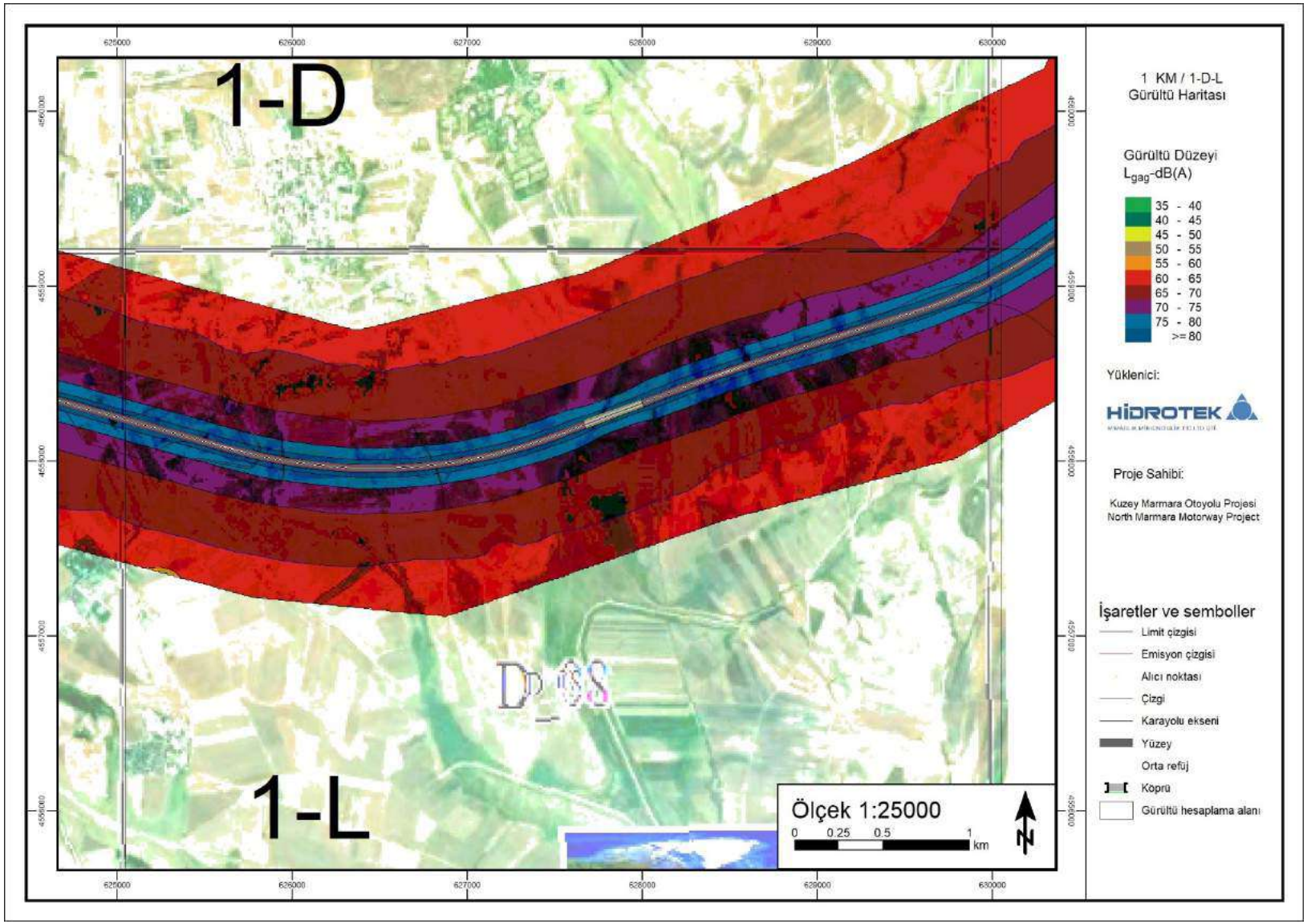

Figure 5.5 Lden noise map for part 1D of year 2027

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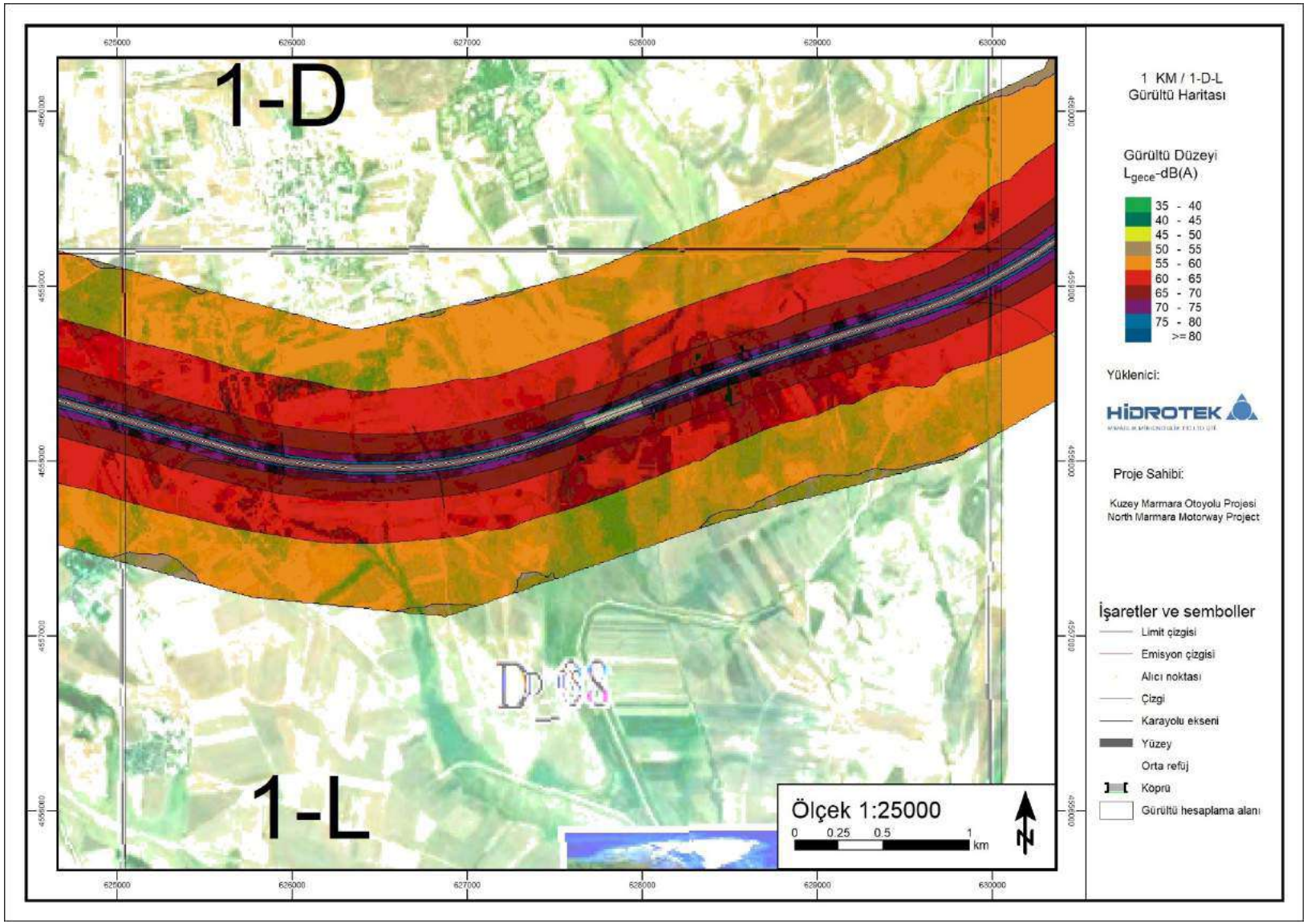

Figure 5.6 Ln noise map for part 1D of year 2027

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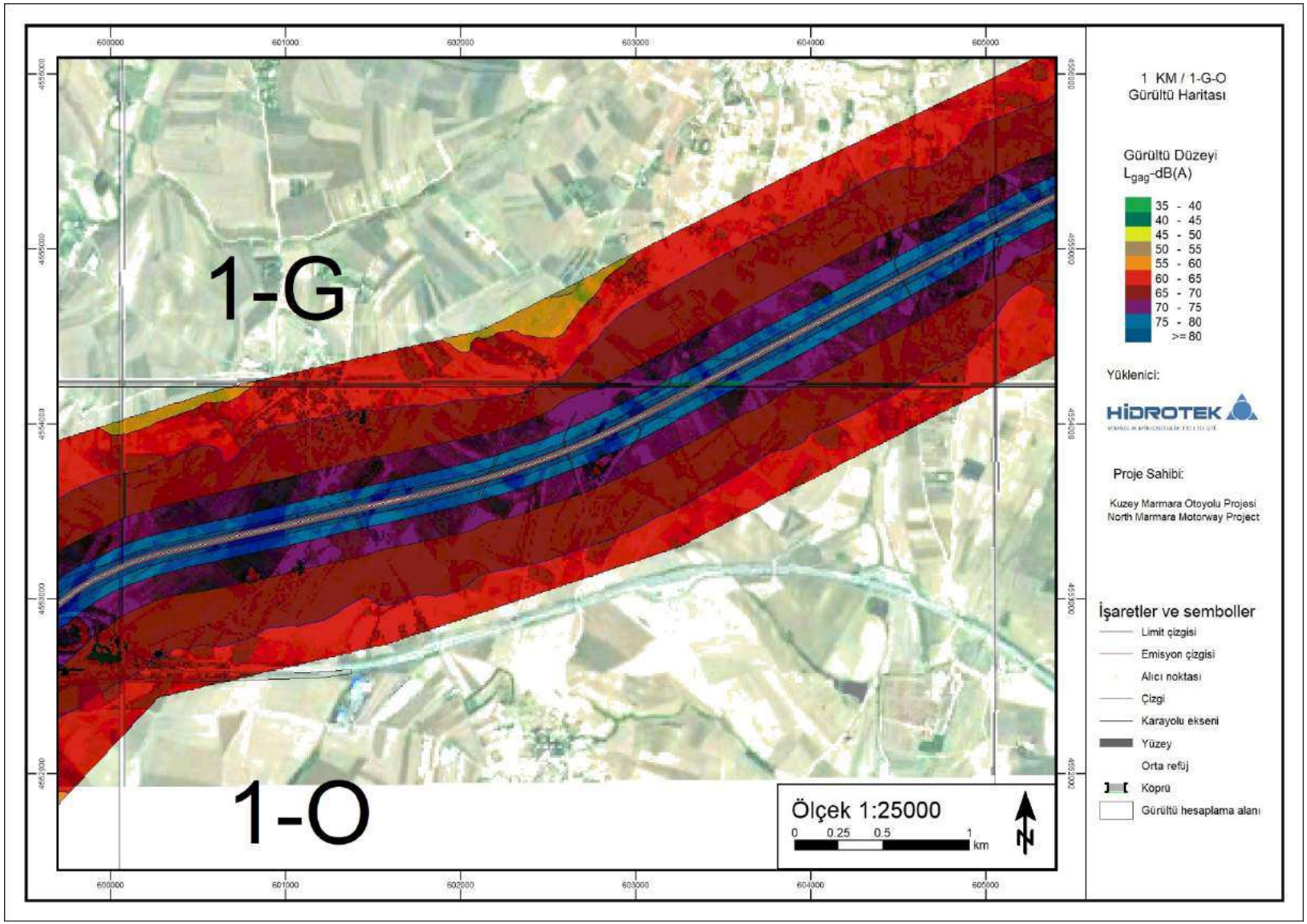

Figure 5.7 Lden noise map for part 1G of year 2027

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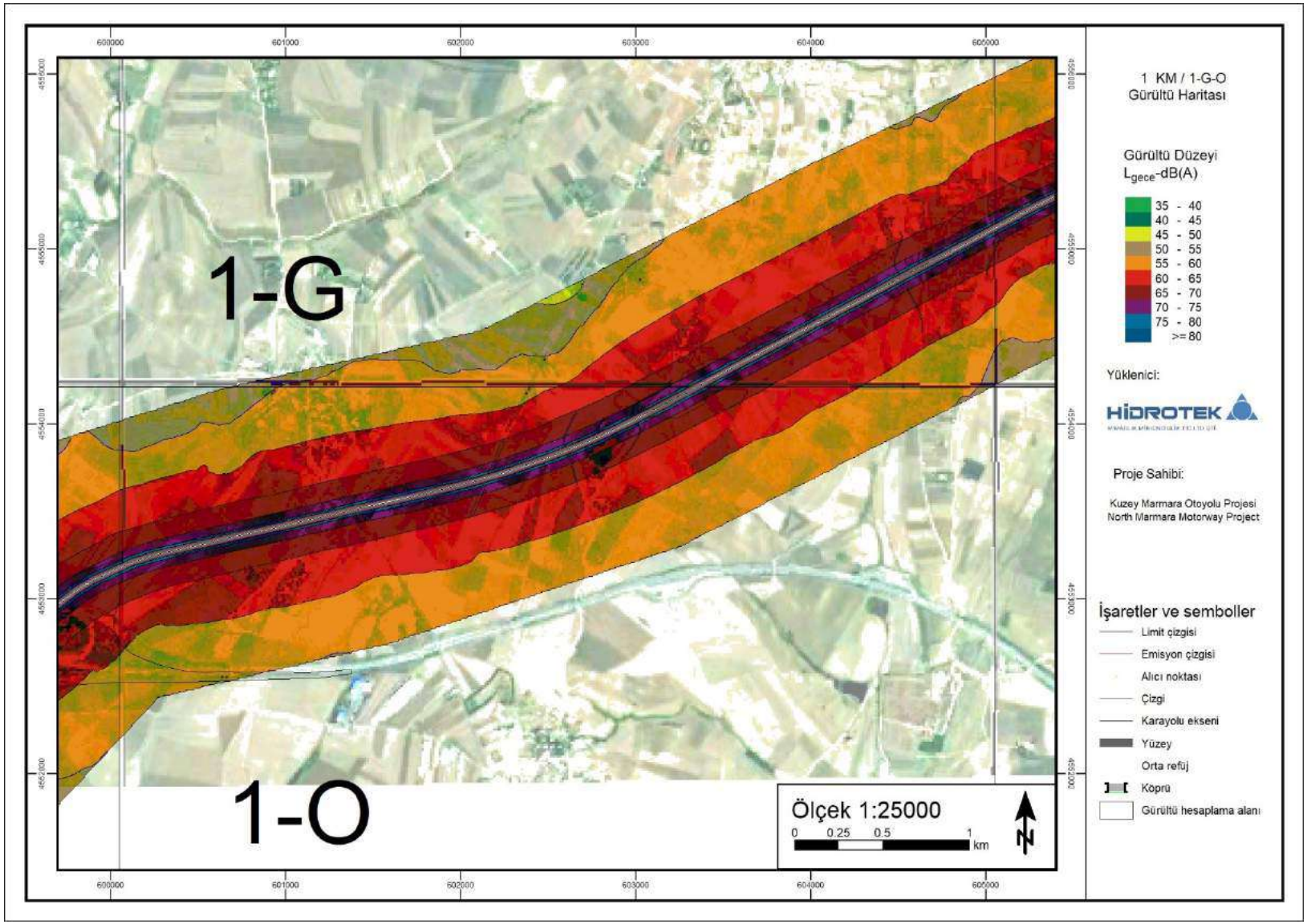

Figure 5.8 Ln noise map for part 1G of year 2027

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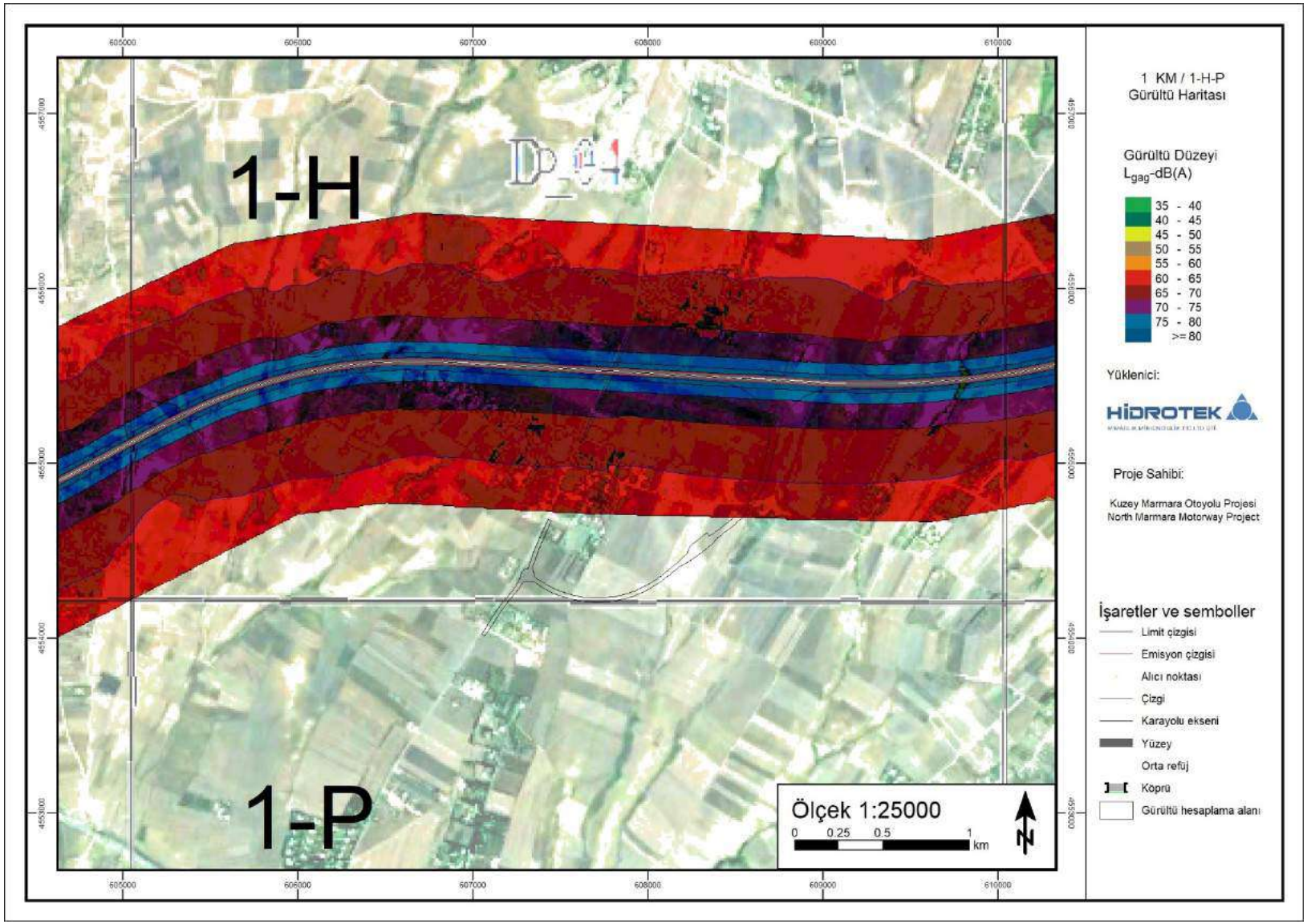

Figure 5.9 Lden noise map for part 1H of year 2027

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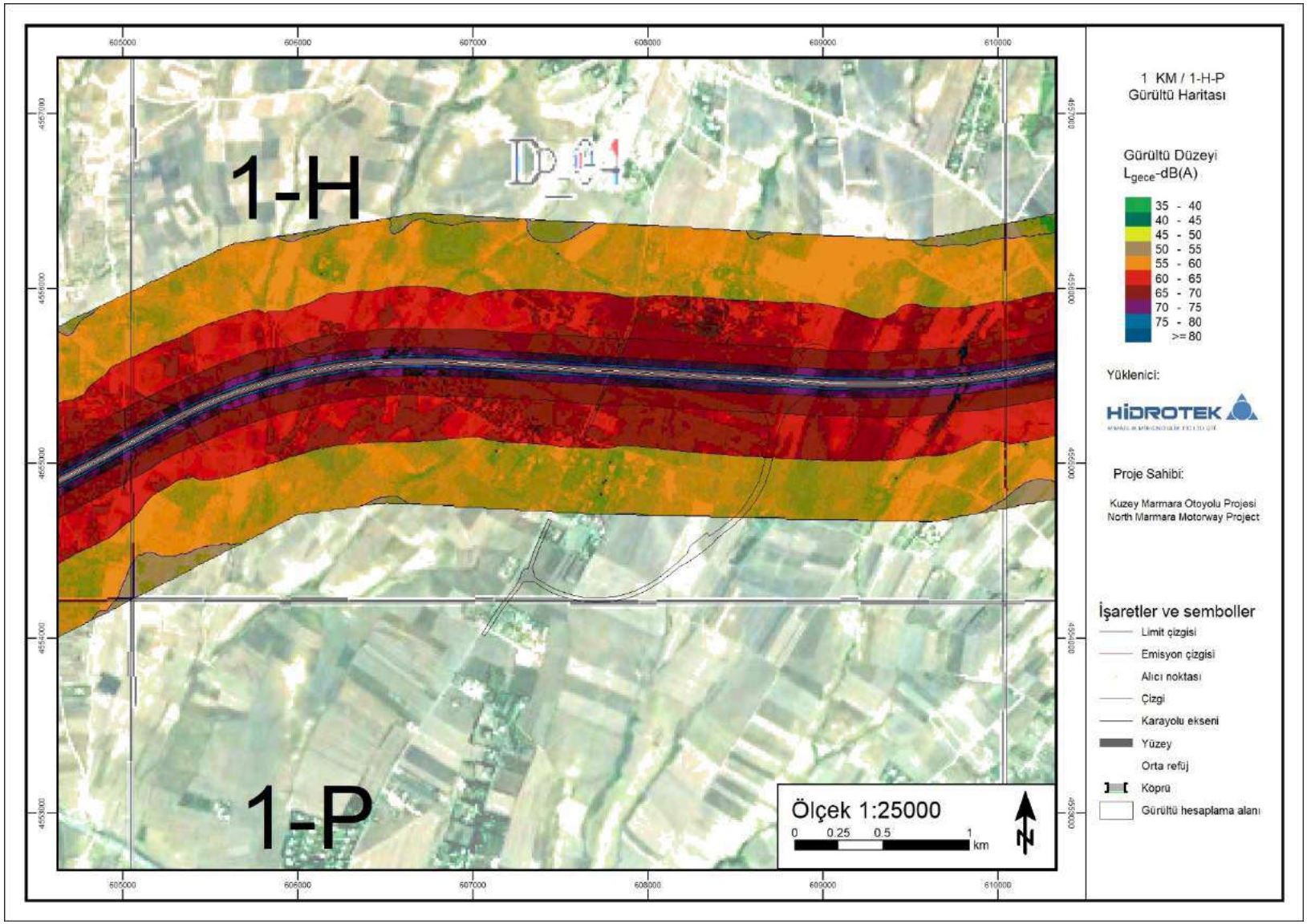

Figure 5.10 Ln noise map for part 1H of year 2027

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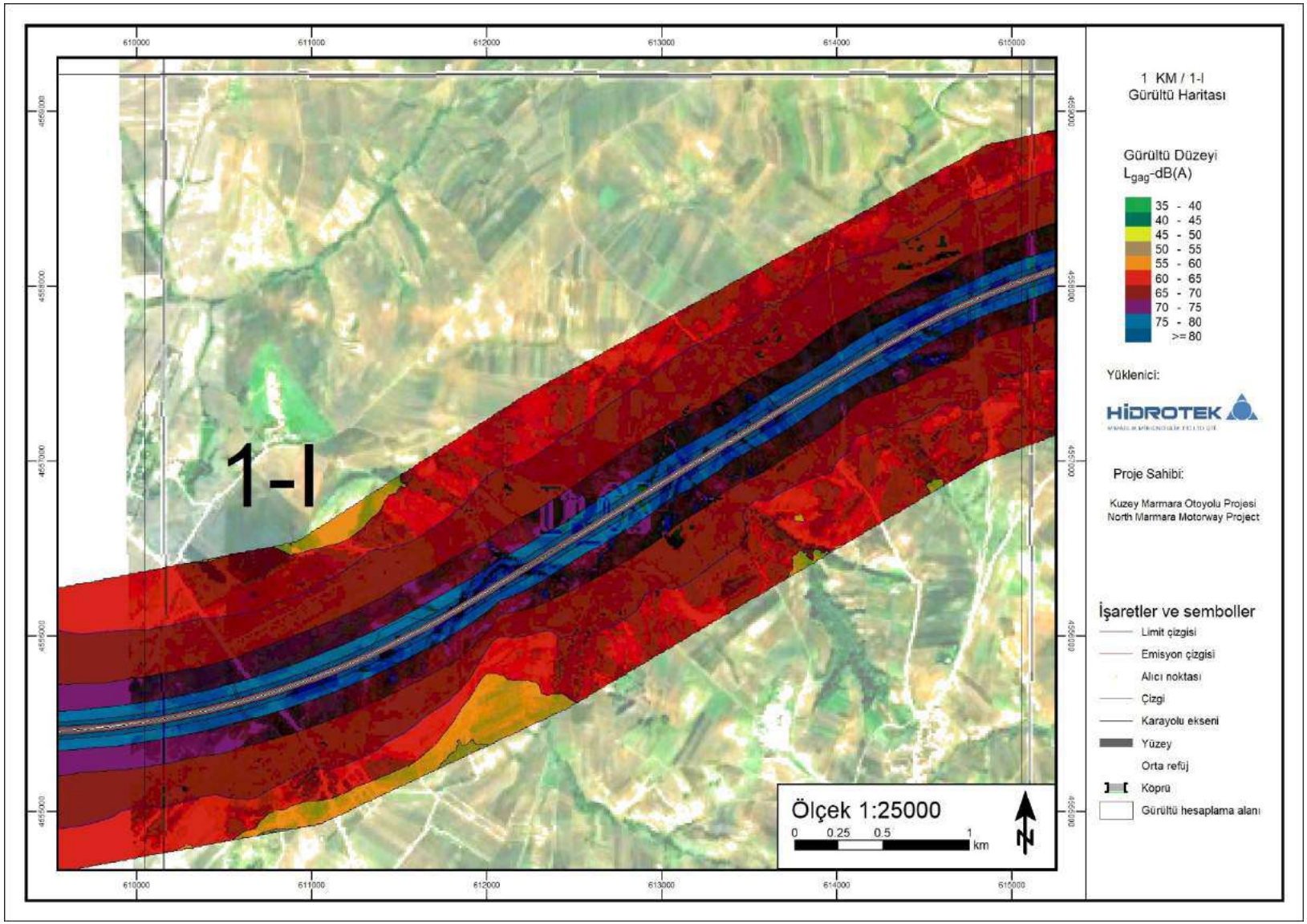

Figure 5.11 Lden noise map for part 1I of year 2027

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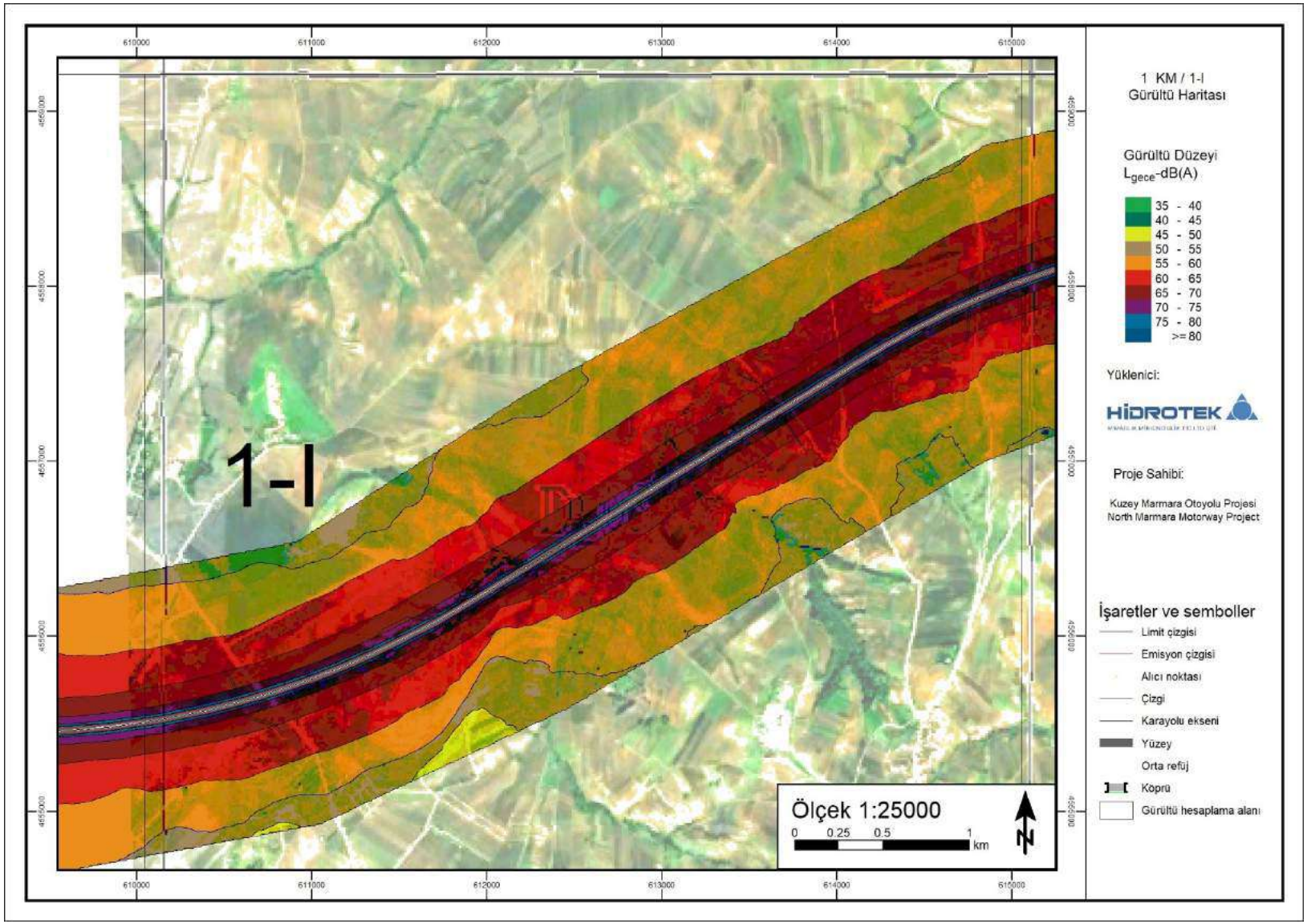

Figure 5.12 Ln noise map for part 1I of year 2027

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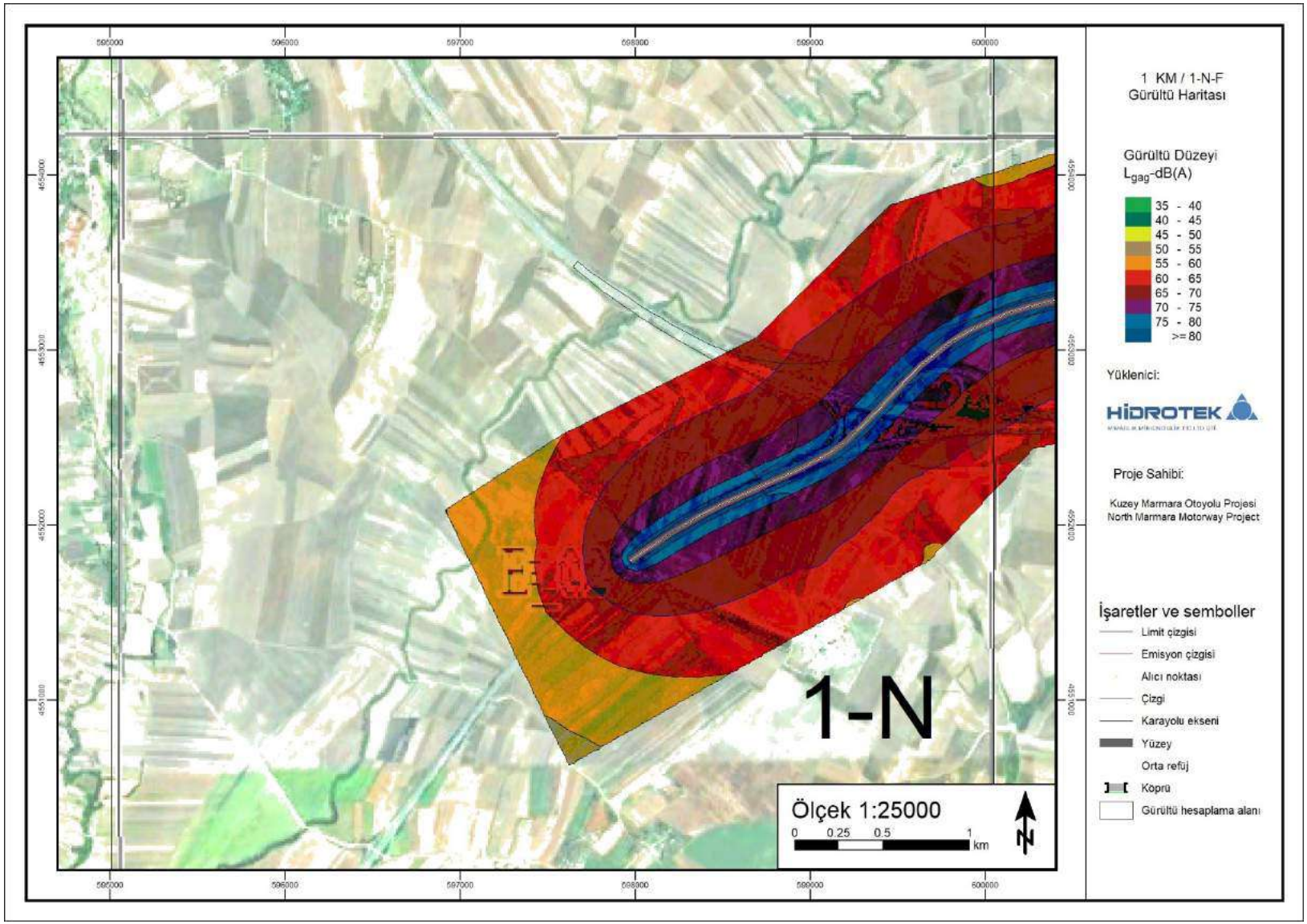

Figure 5.13 Lden noise map for part 1N of year 2027

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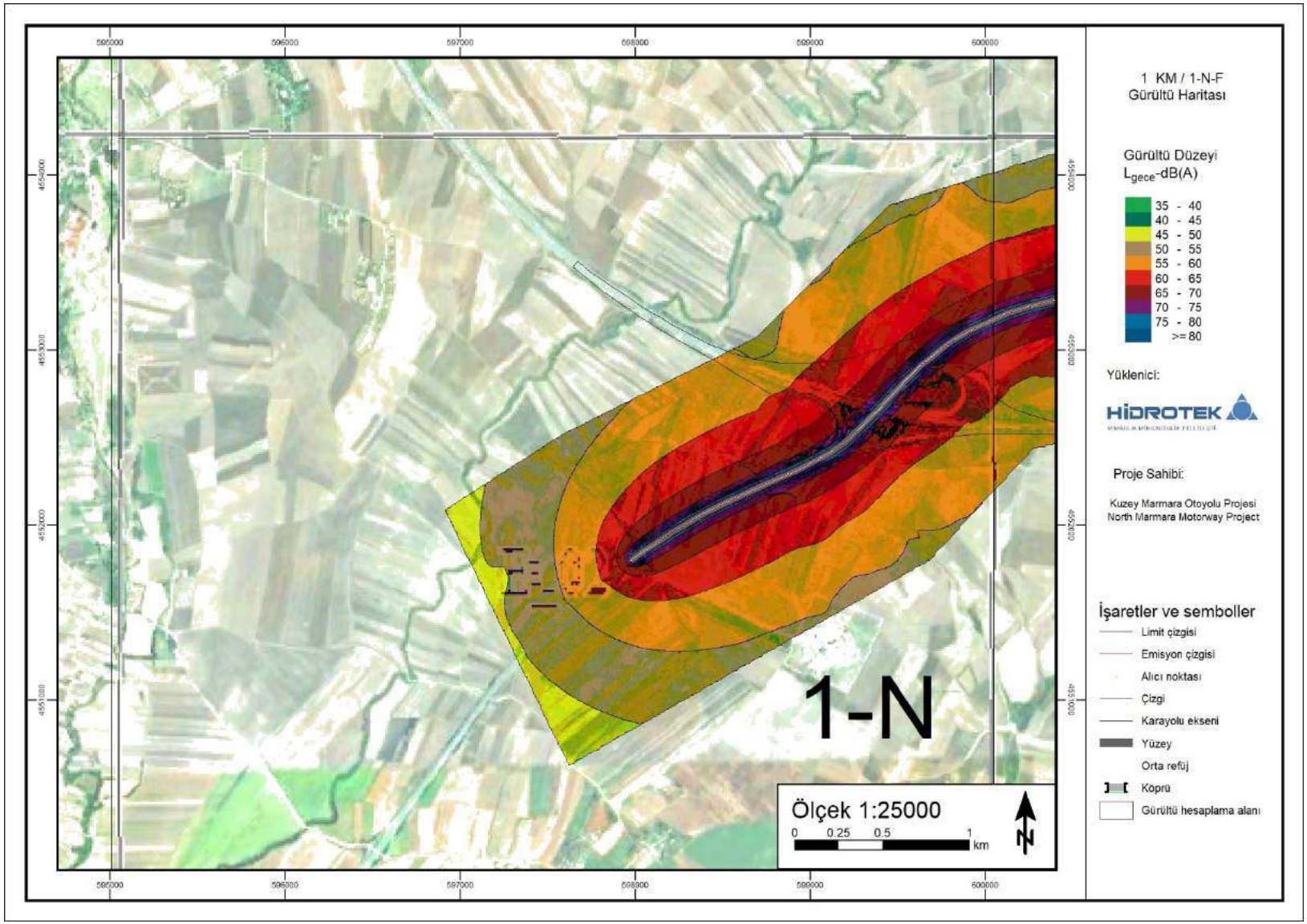

Figure 5.14 Ln noise map for part 1N of year 2027

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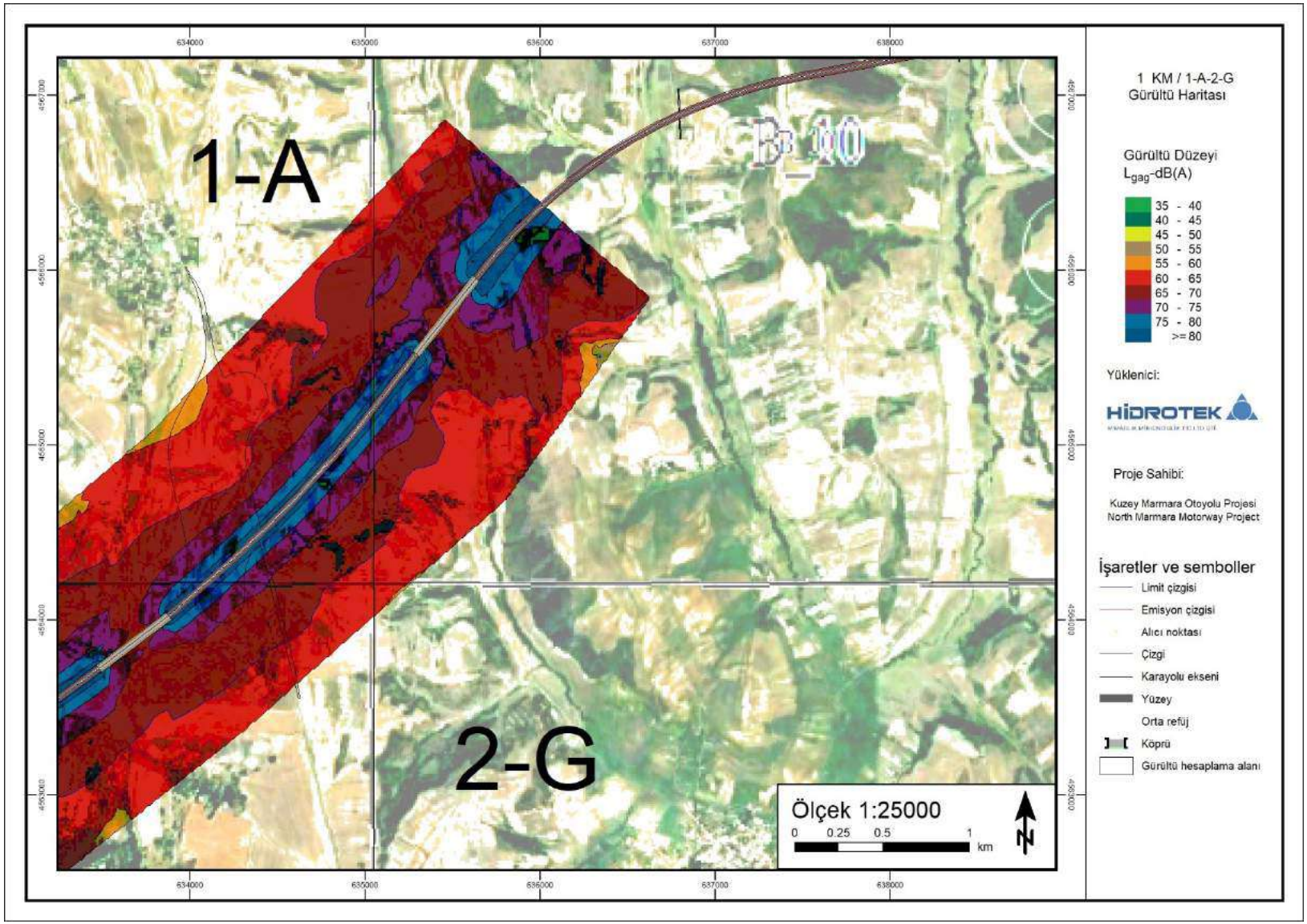

Figure 5.15 Lden noise map for part 1A of year 2027

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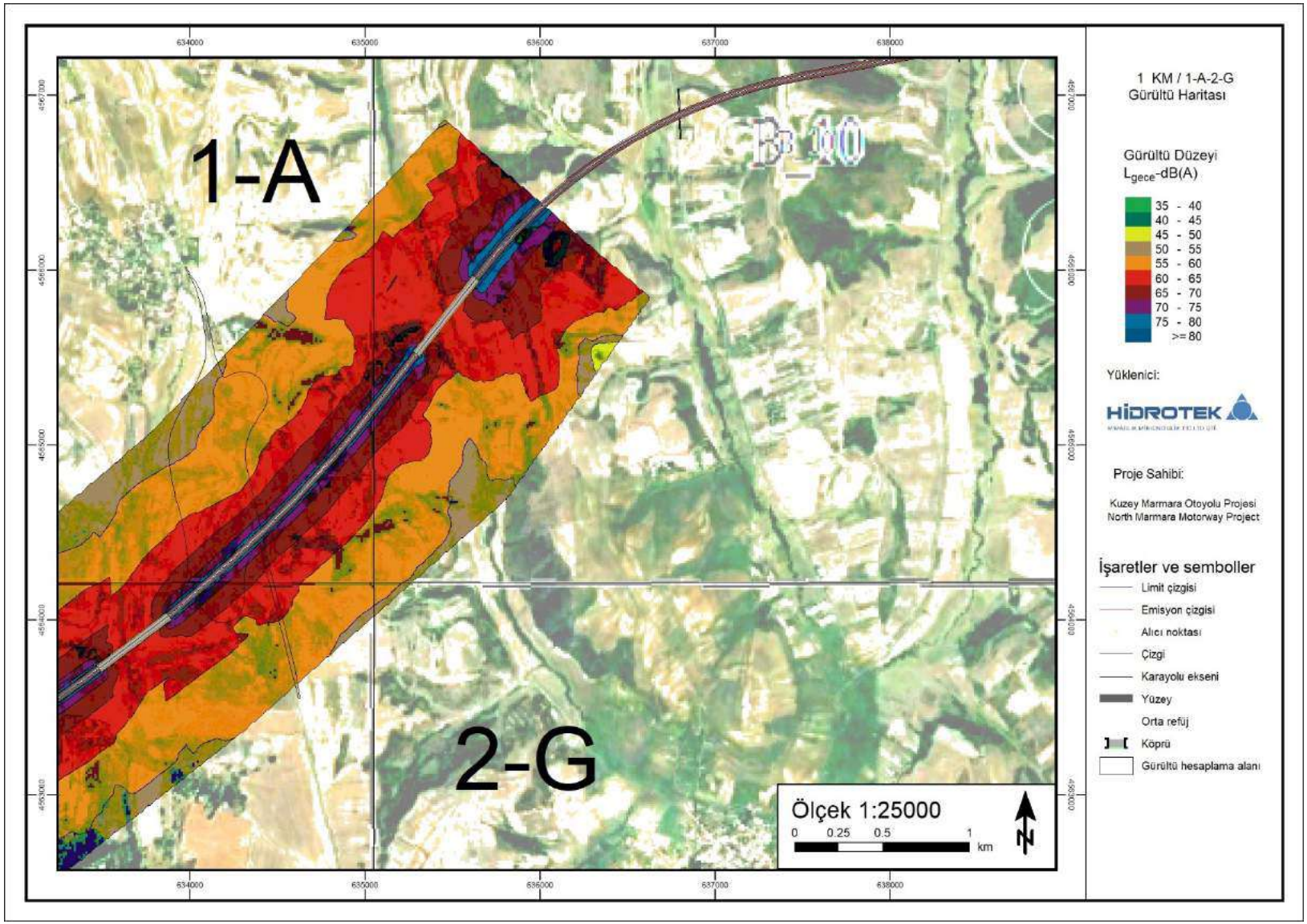

Figure 5.16 Ln noise map for part 1A of year 2027

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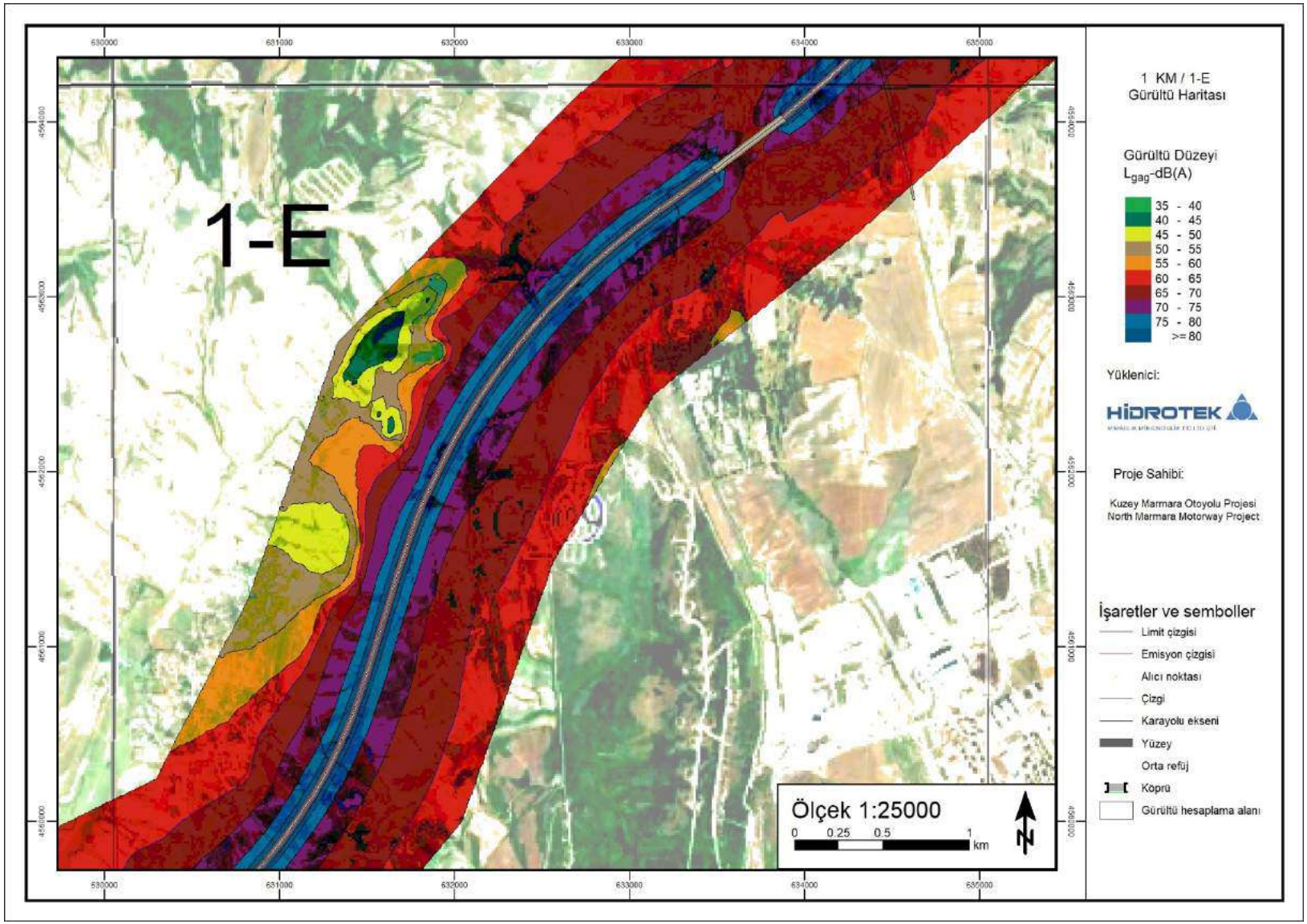

Figure 5.17 Lden noise map for part 1E of year 2027

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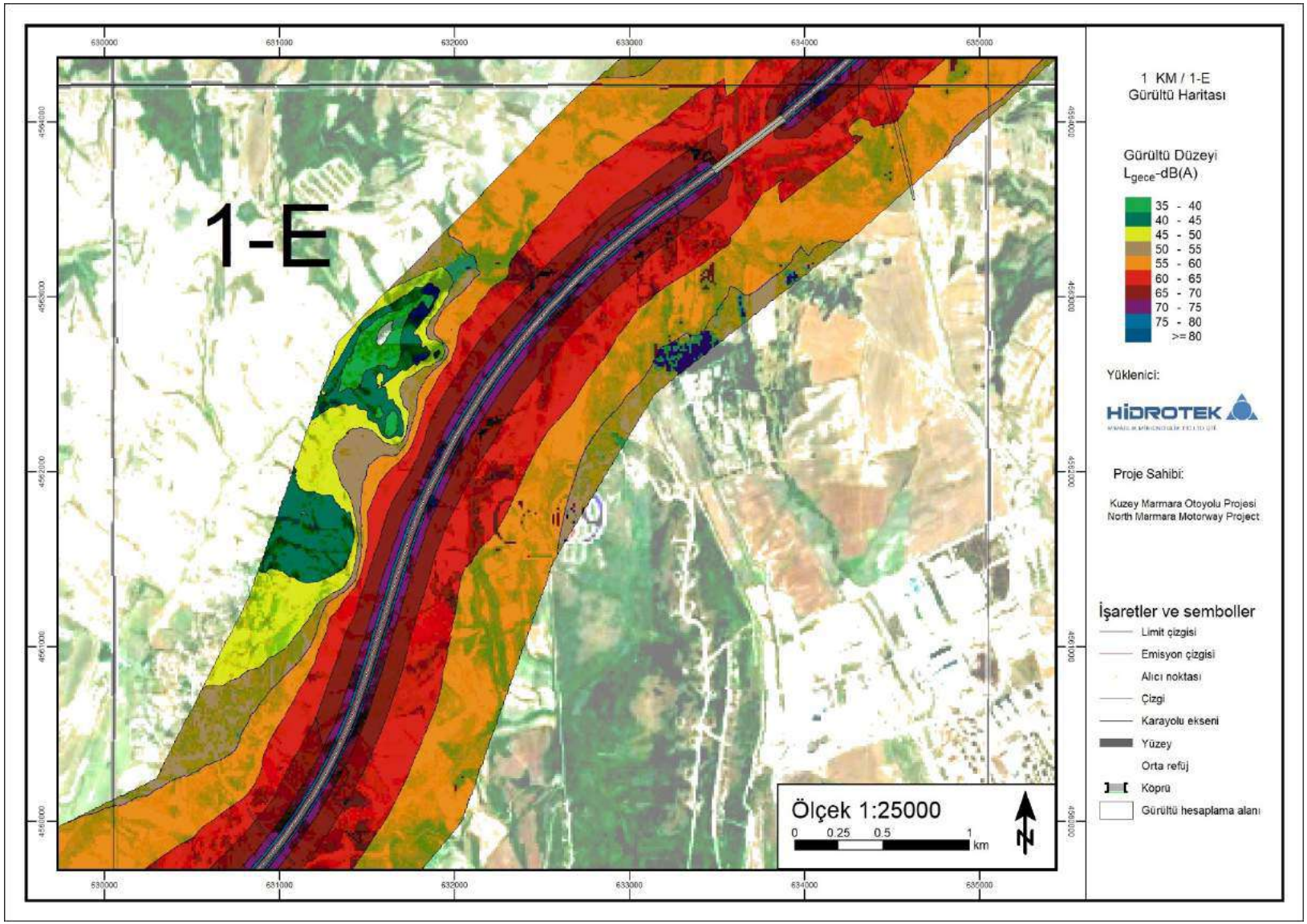

Figure 5.18 Ln noise map for part 1E of year 2027

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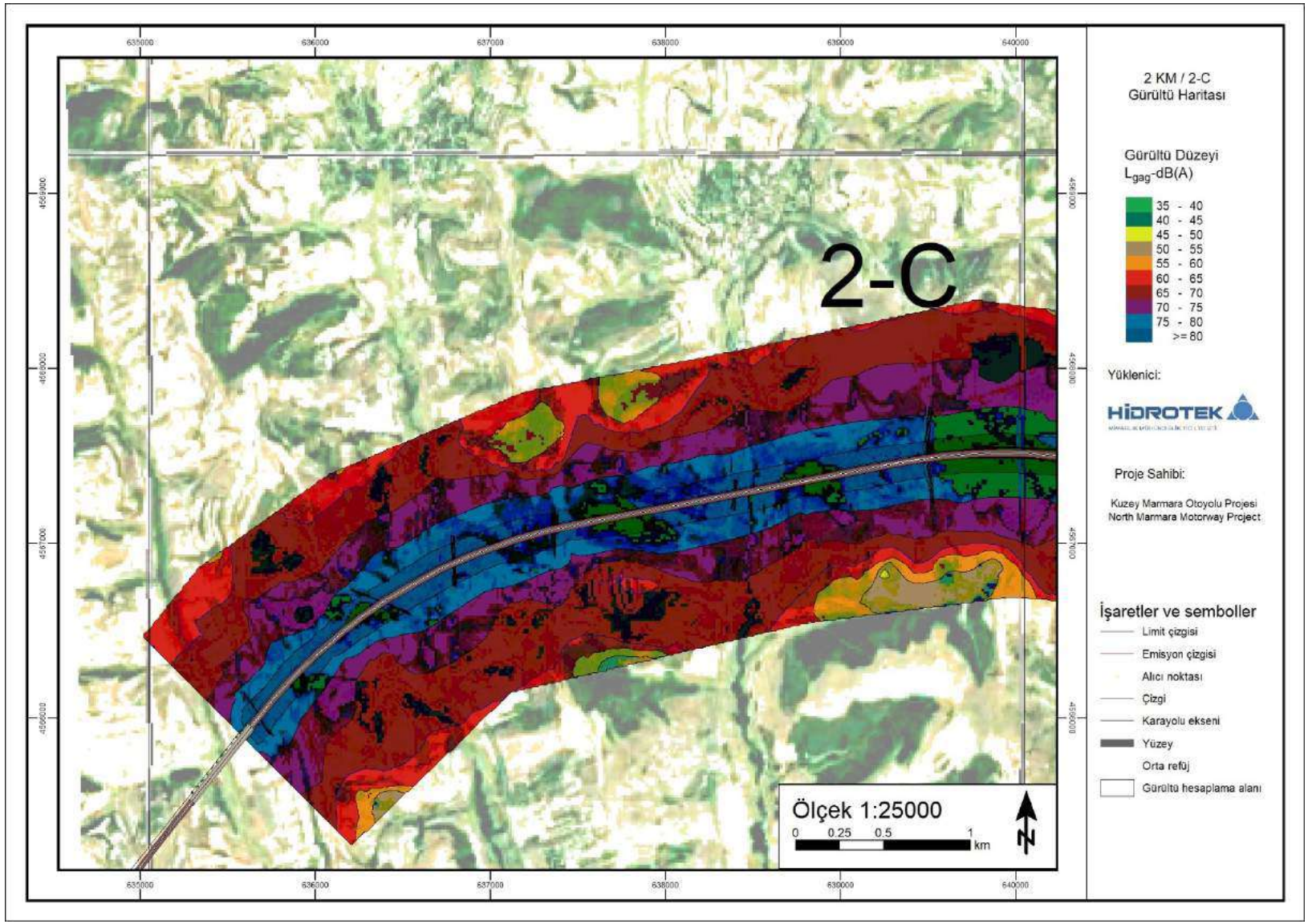

Figure 5.19 Lden noise map for part 2C of year 2027

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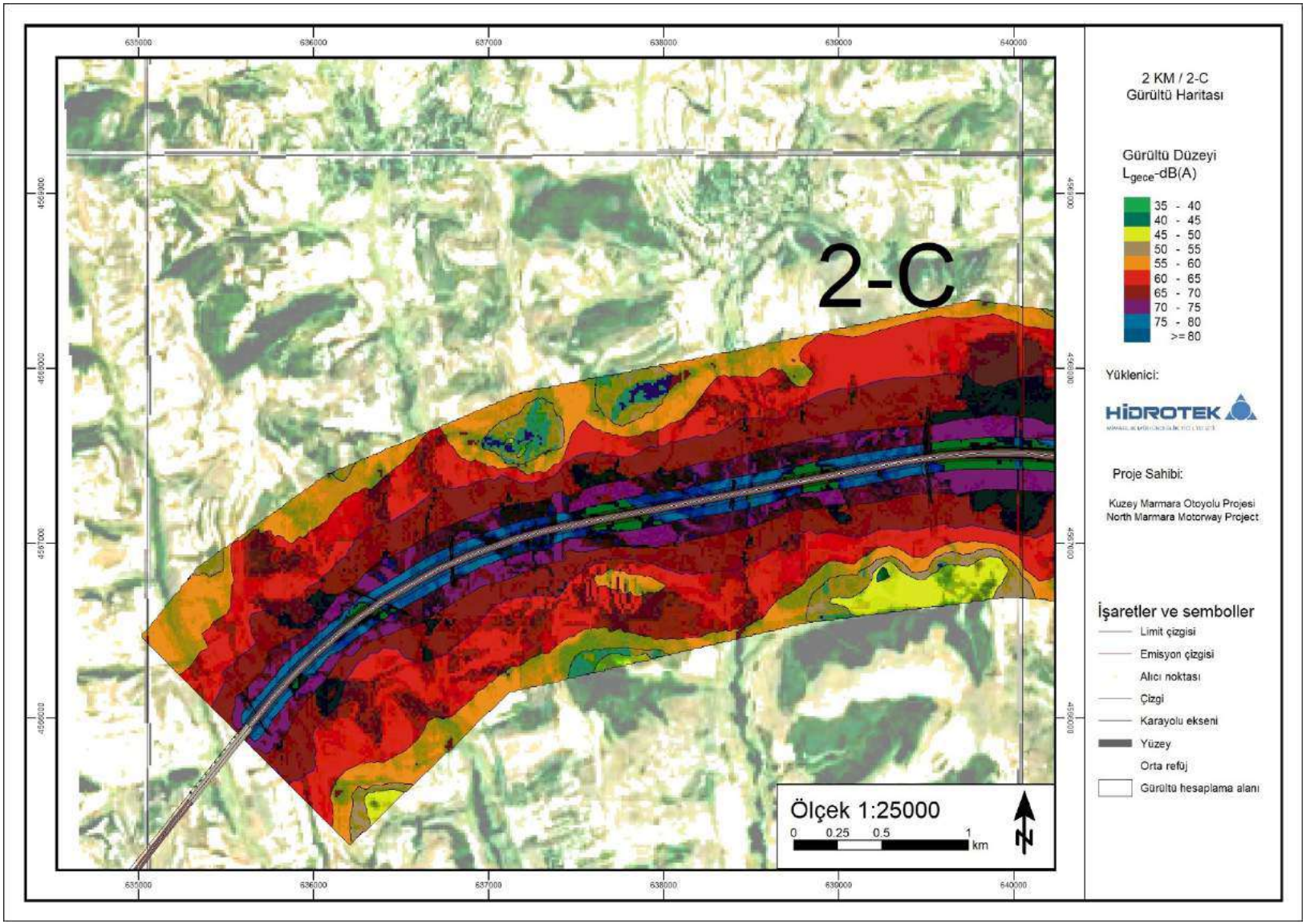

Figure 5.20 Ln noise map for part 2C of year 2027

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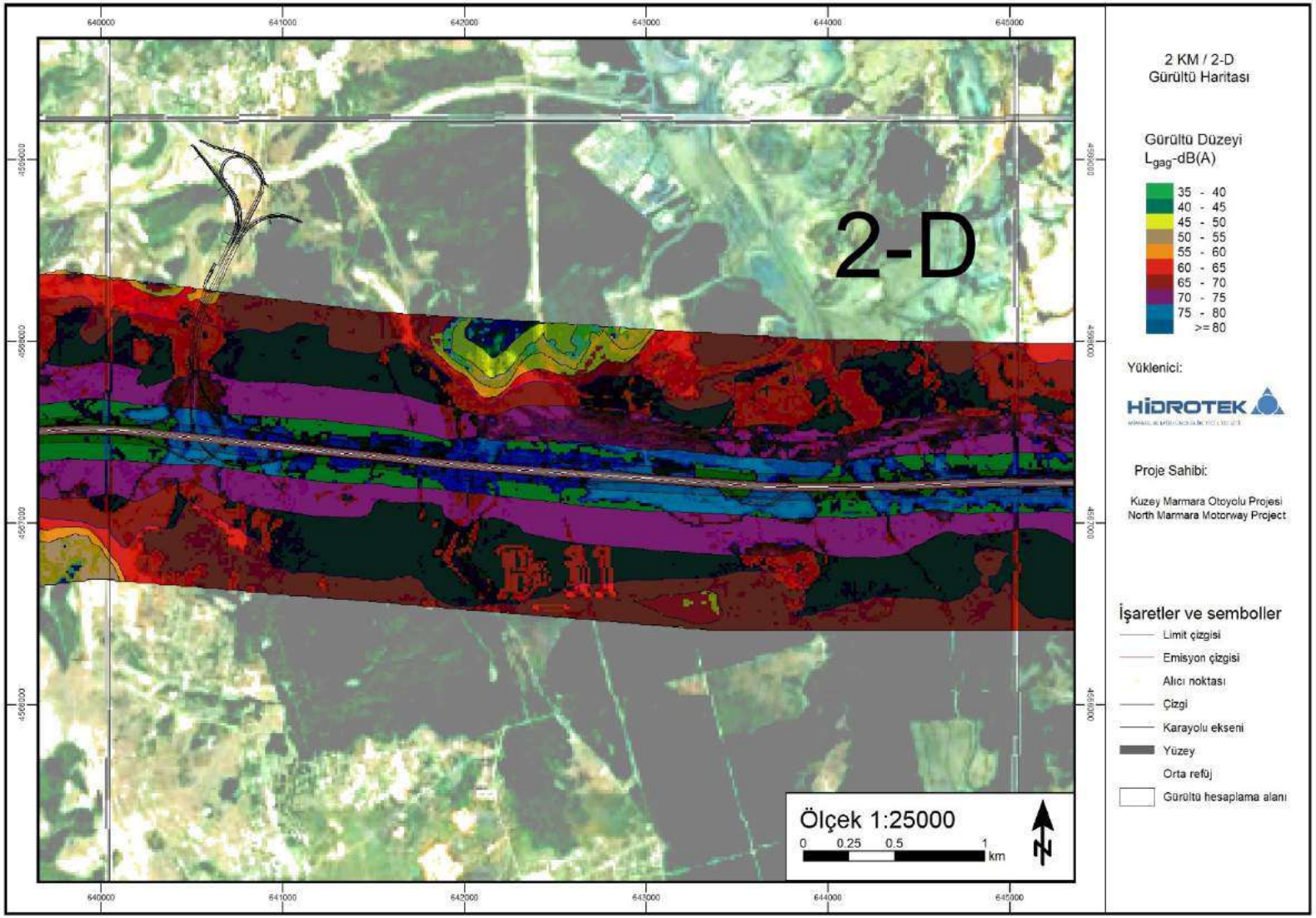

Figure 5.21 Lden noise map for part 2D of year 2027

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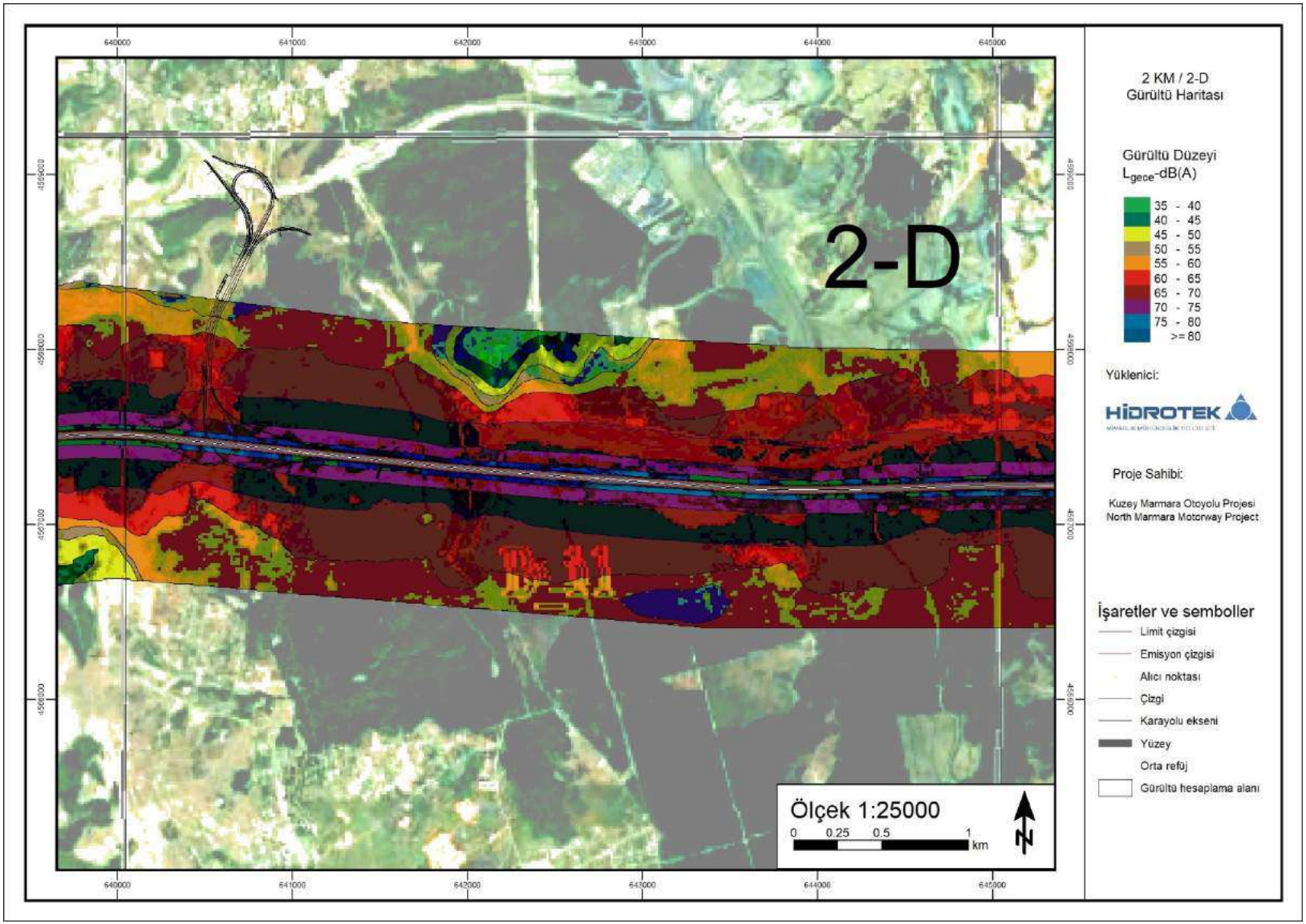

Figure 5.22 Ln noise map for part 2D of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

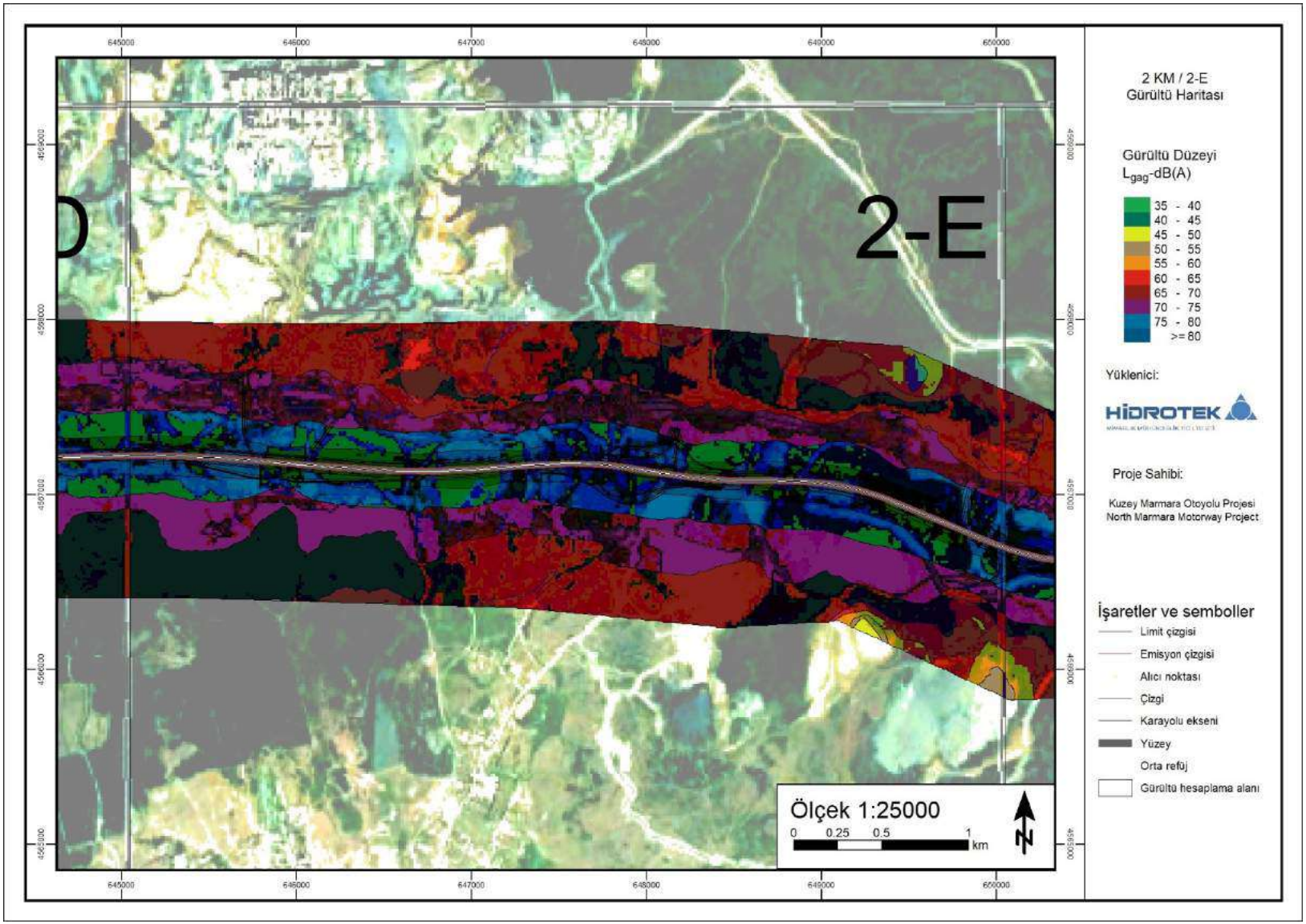

Figure 5.23 Lden noise map for part 2E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

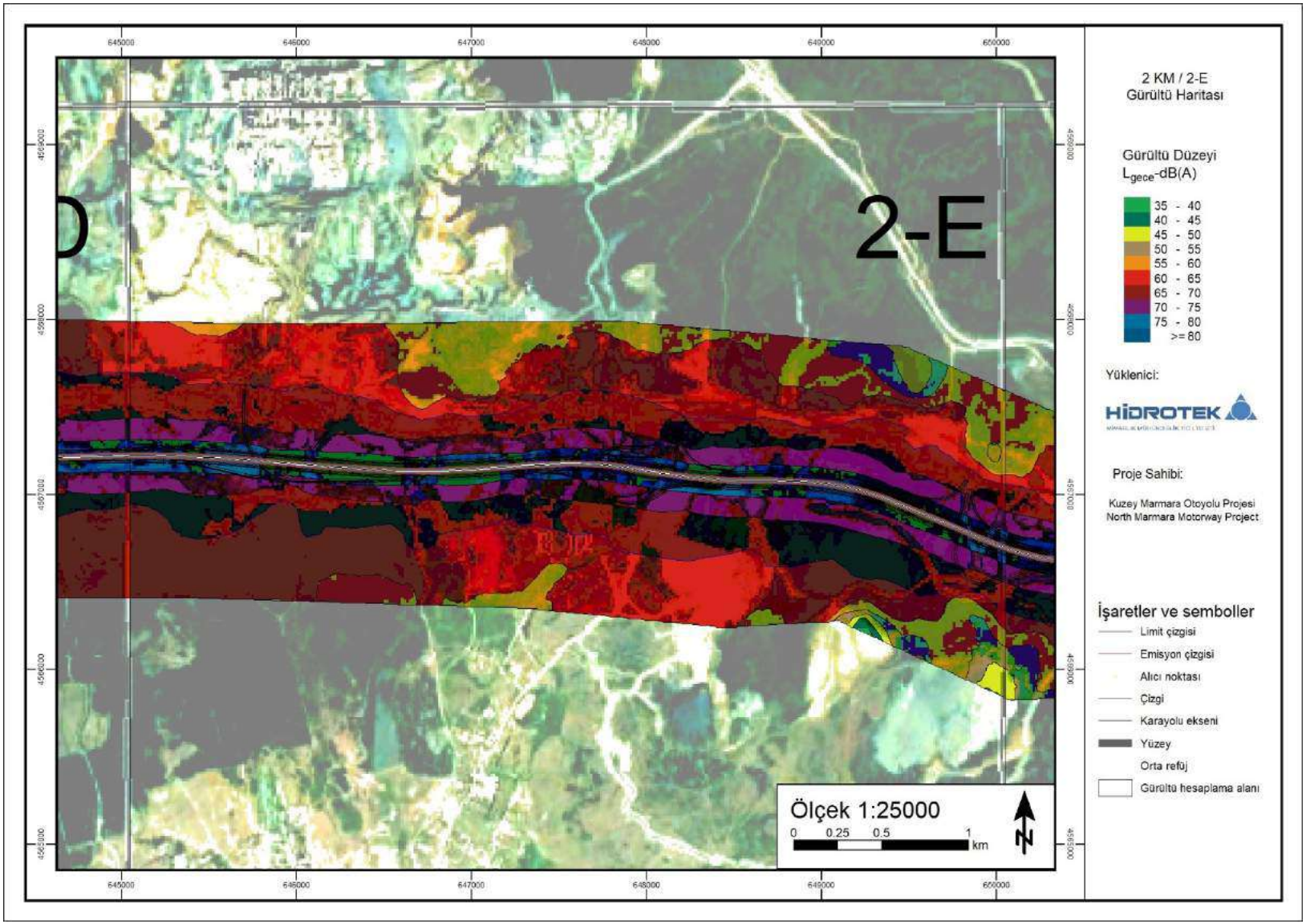

Figure 5.24 Ln noise map for part 2E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

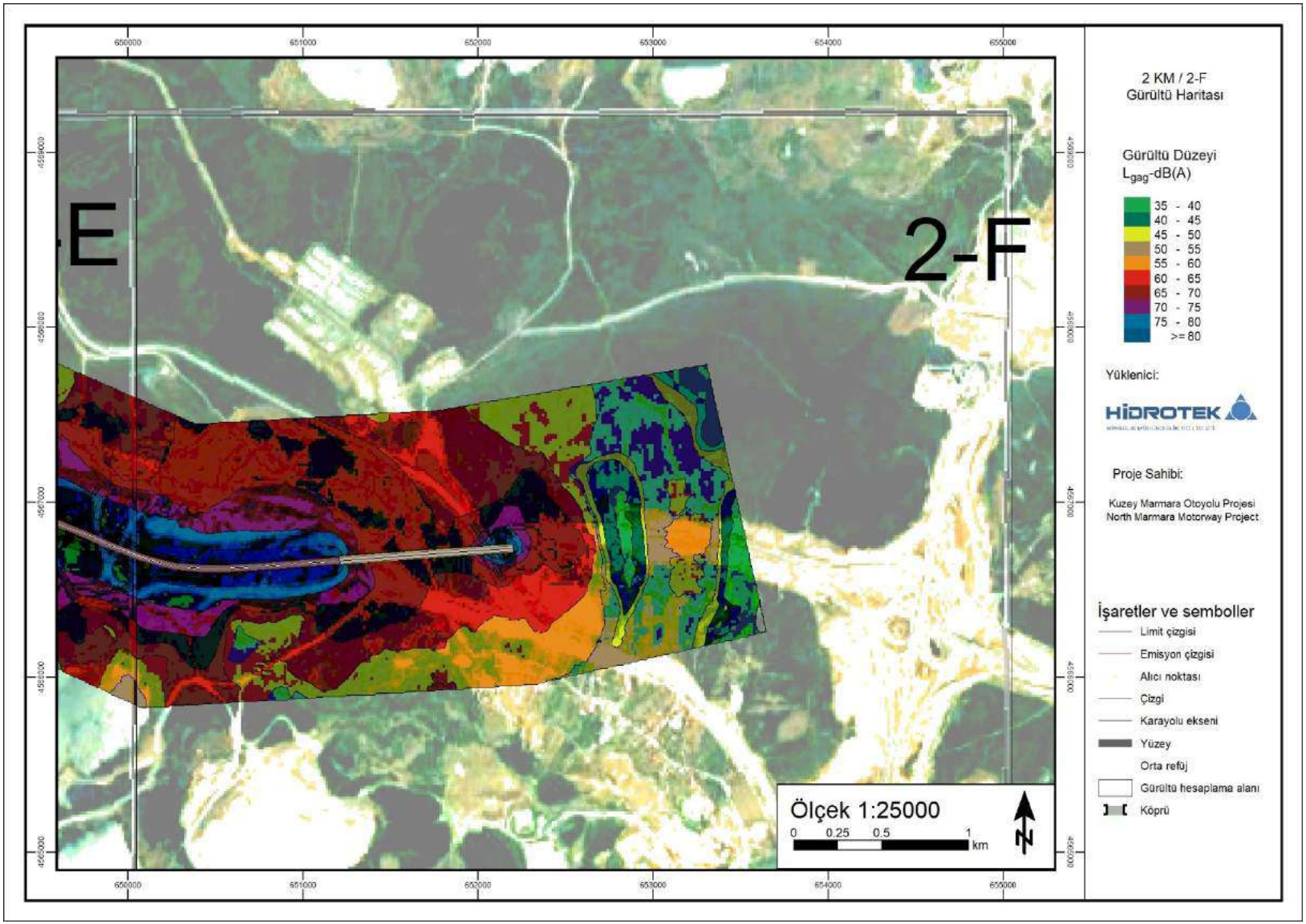

Figure 5.25 Lden noise map for part 2F of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

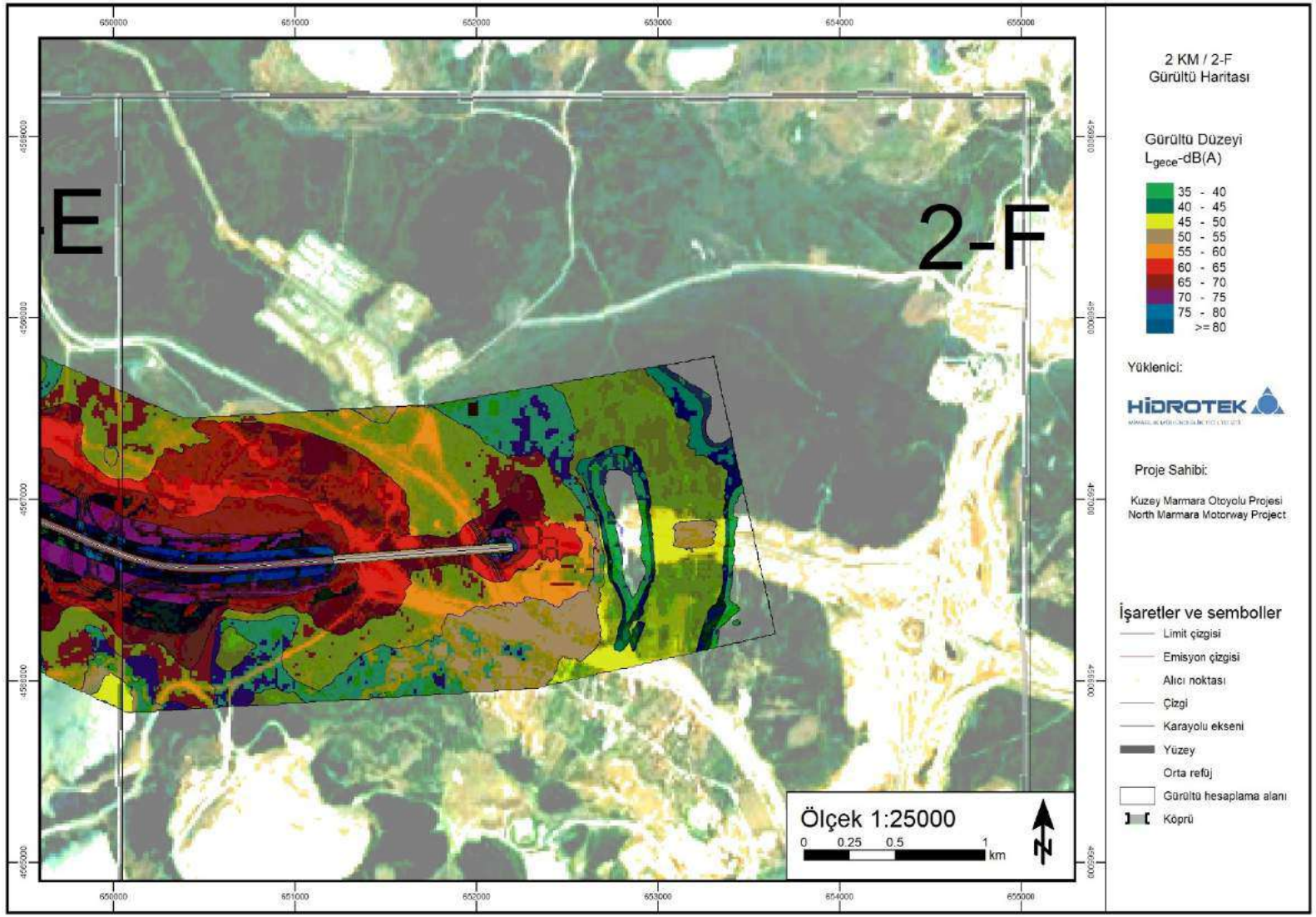

Figure 5.26 Ln noise map for part 2F of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

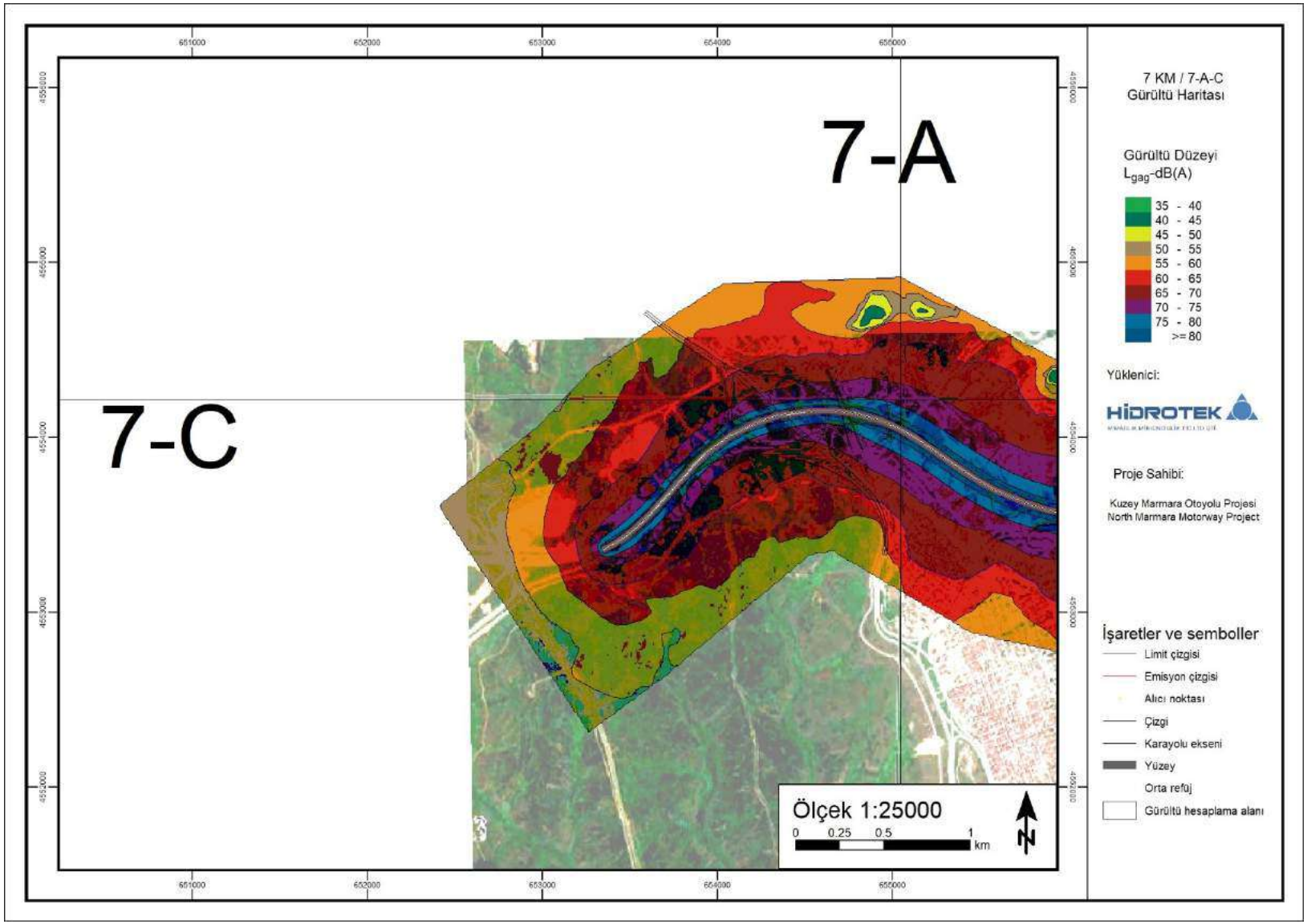

Figure 5.27 Lden noise map for part 7A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

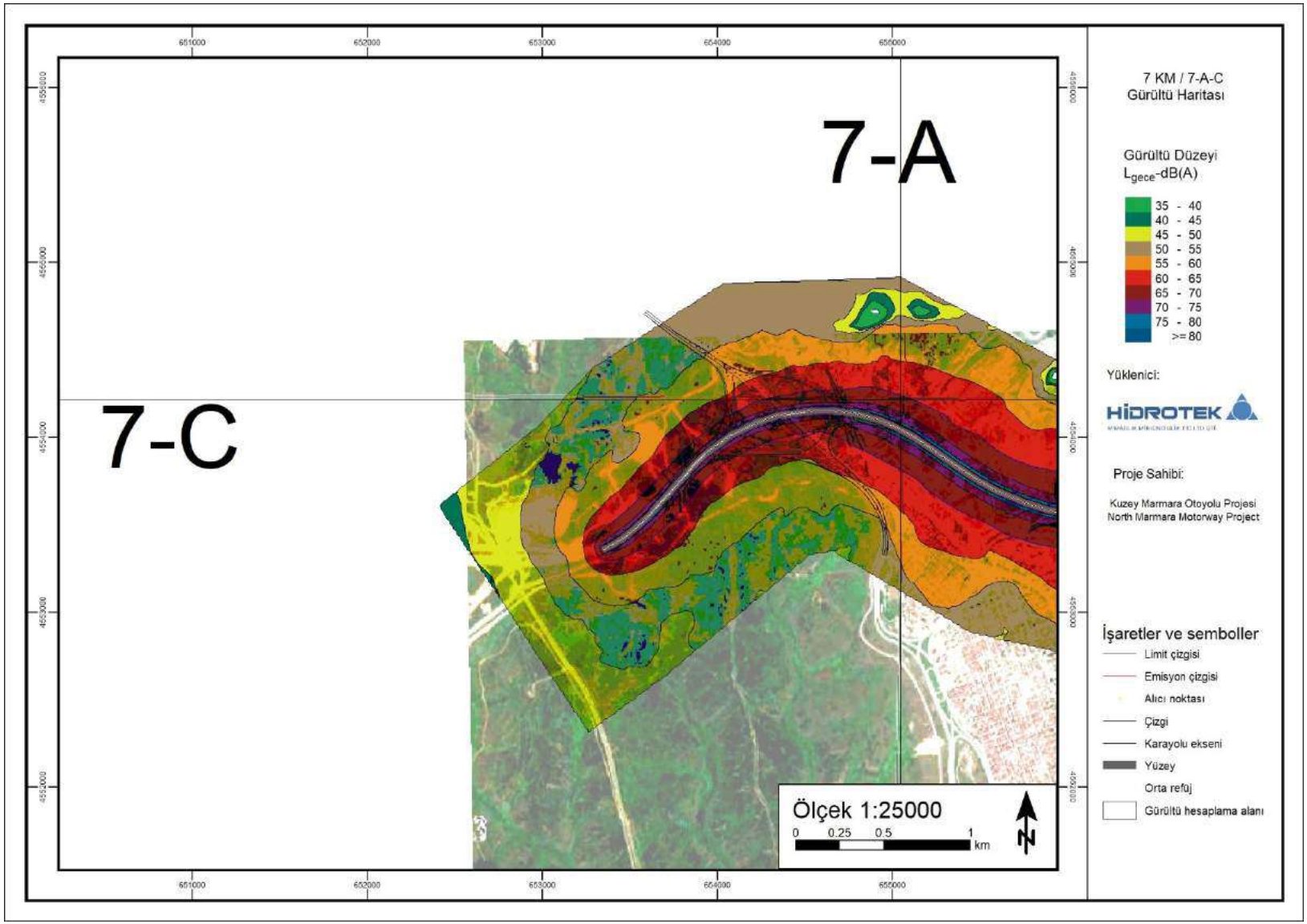

Figure 5.28 Ln noise map for part 7A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

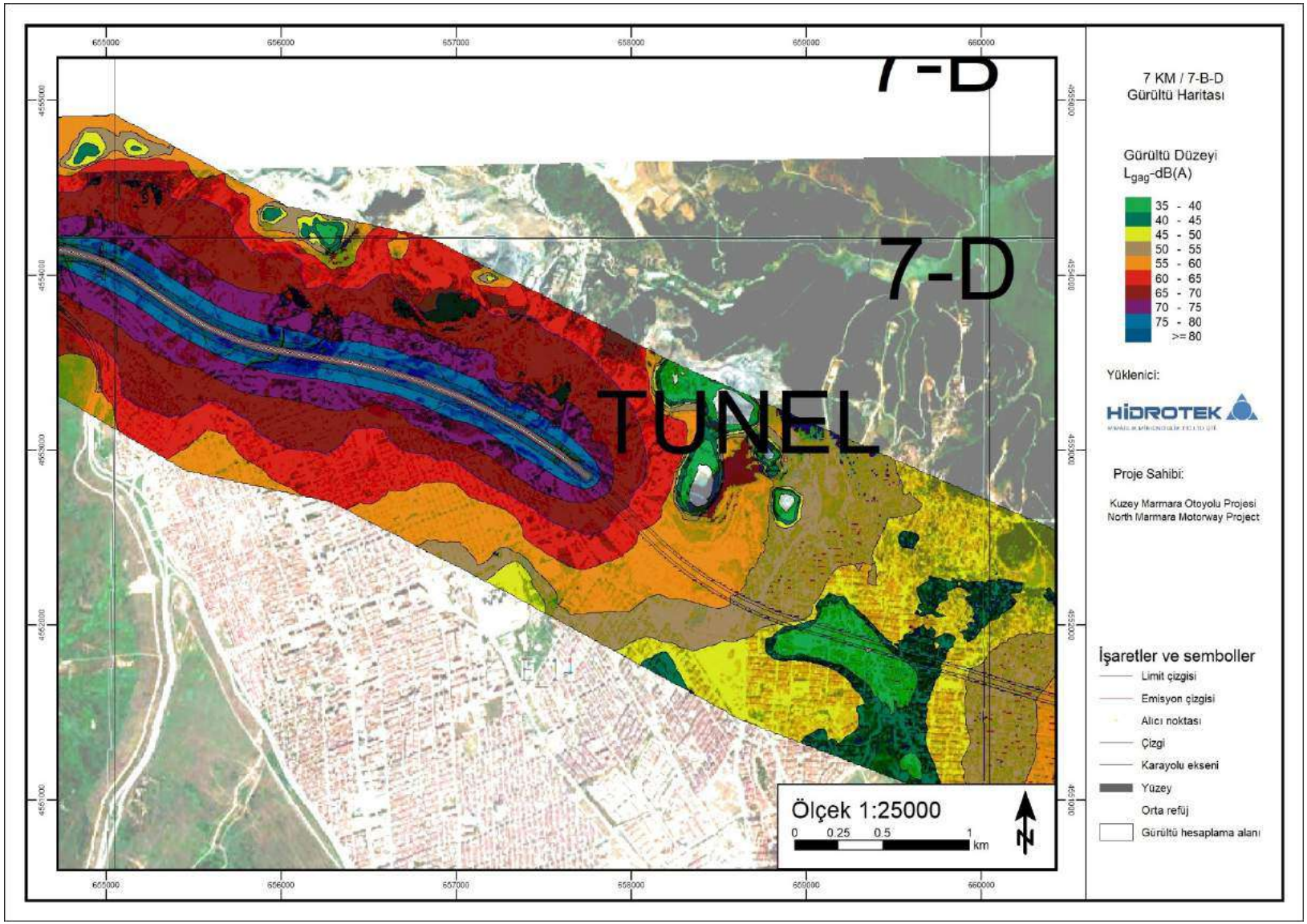

Figure 5.29 Lden noise map for part 7B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

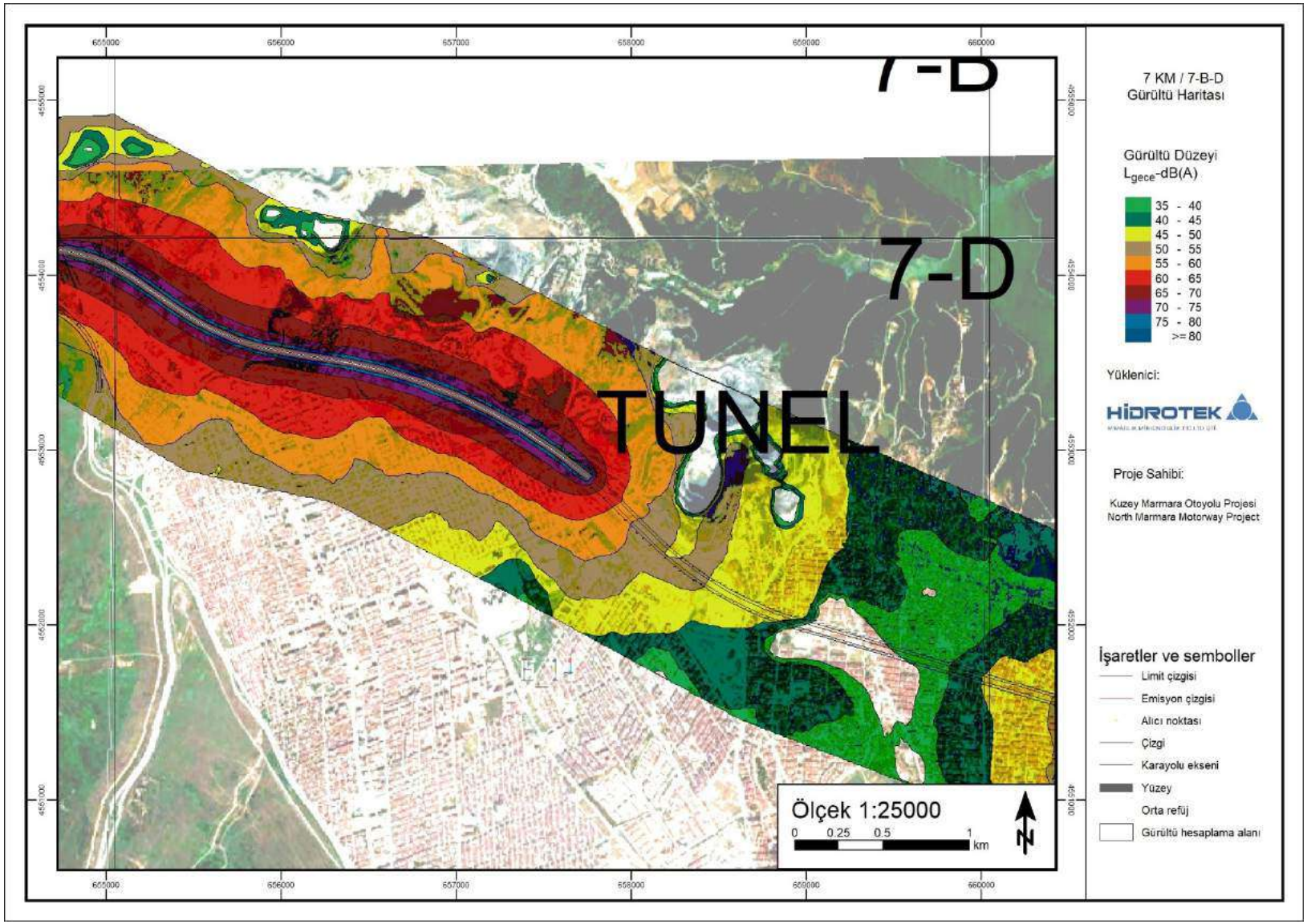

Figure 5.30 Ln noise map for part 7B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

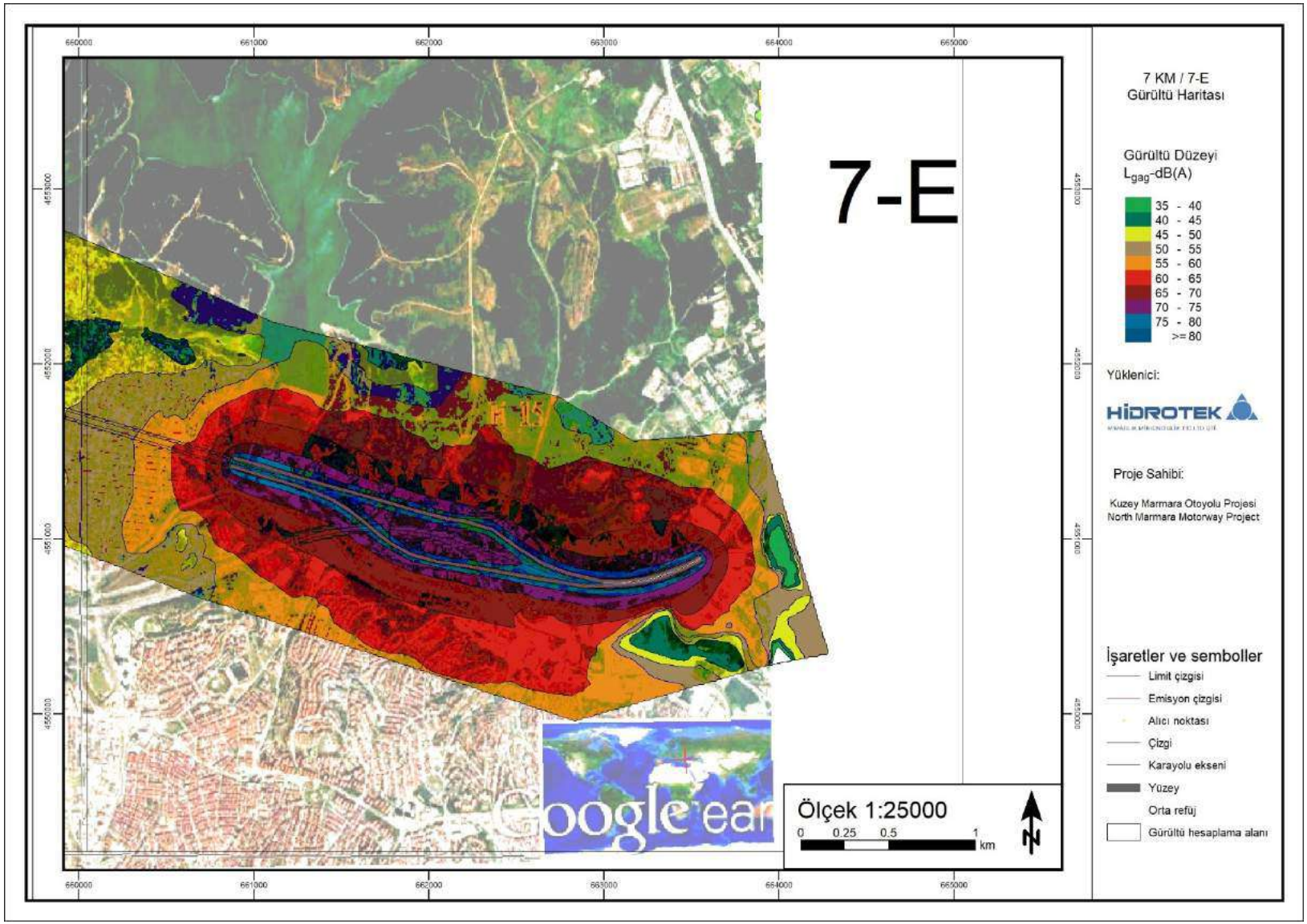

Figure 5.31 Lden noise map for part 7E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

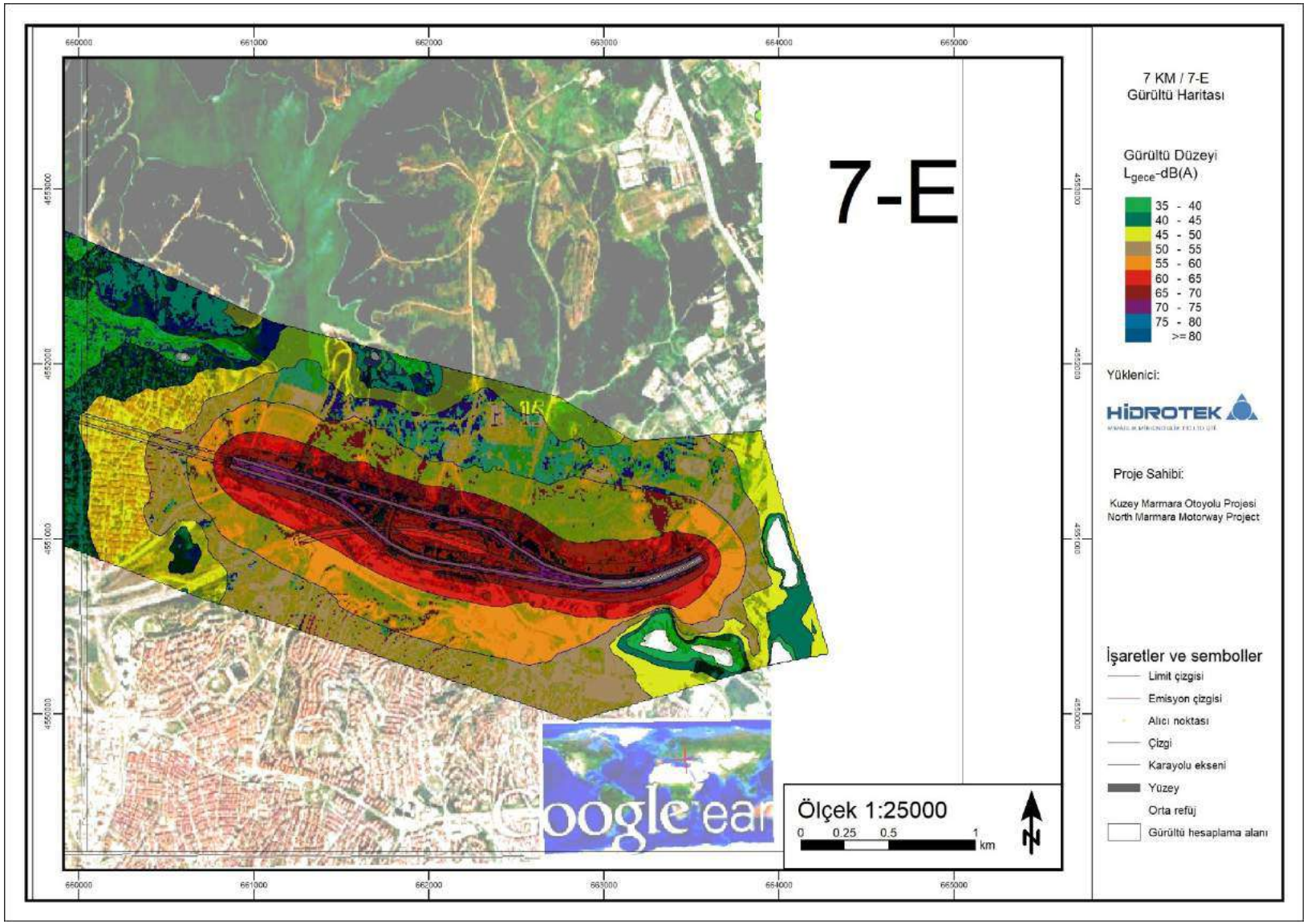

Figure 5.32 Ln noise map for part 7E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

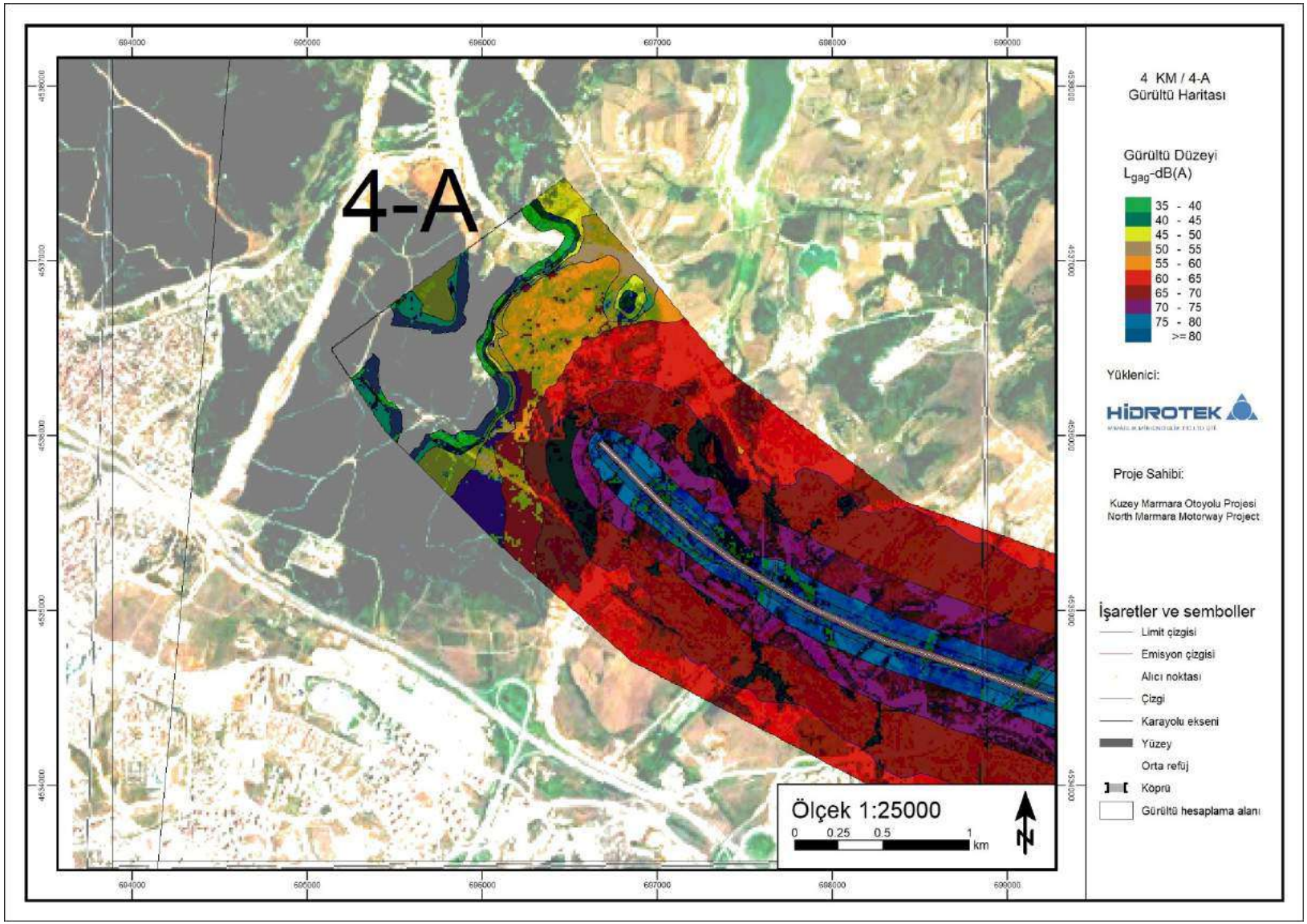

Figure 5.33 Lden noise map for part 4A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

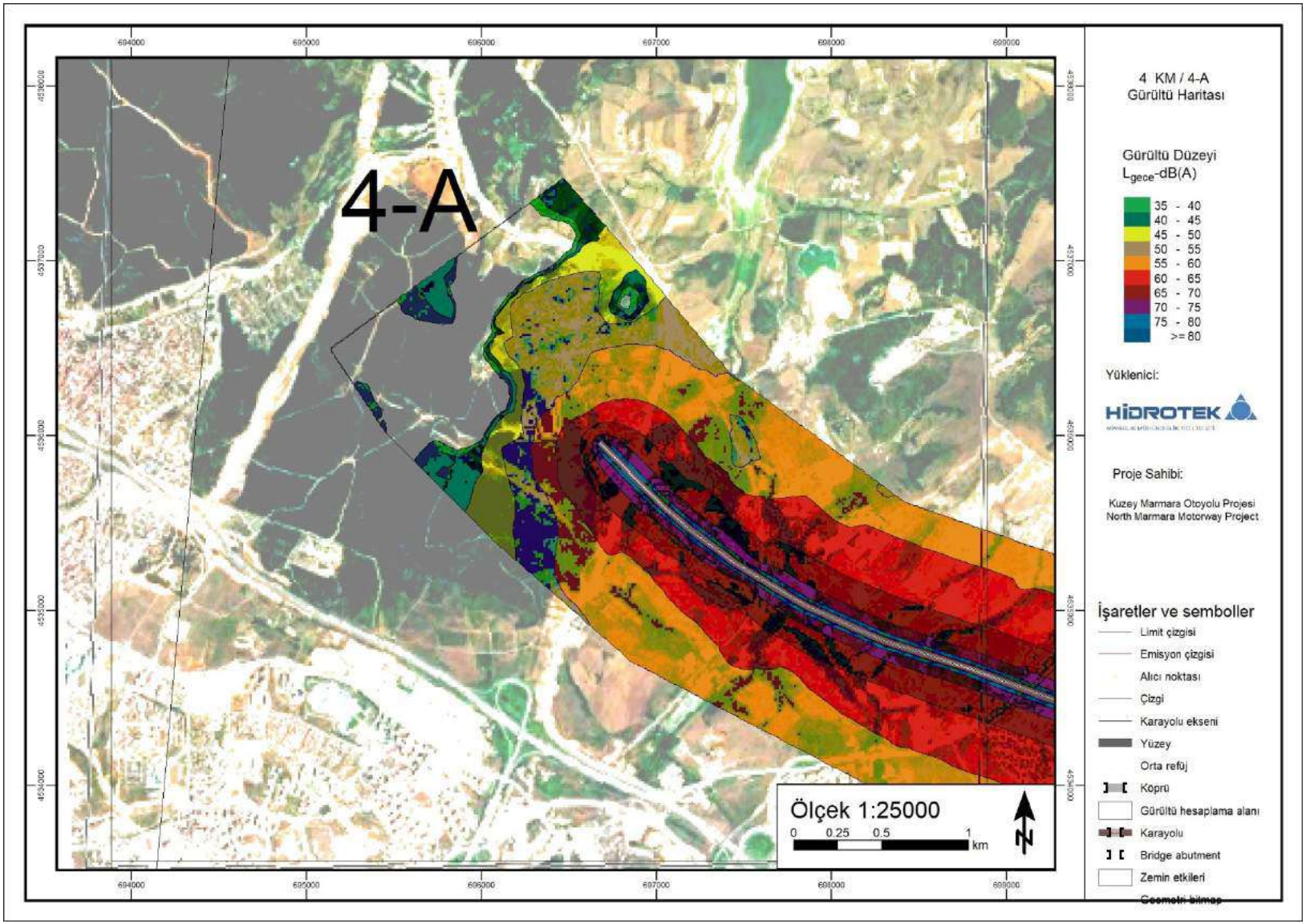

Figure 5.34 Ln noise map for part 4A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

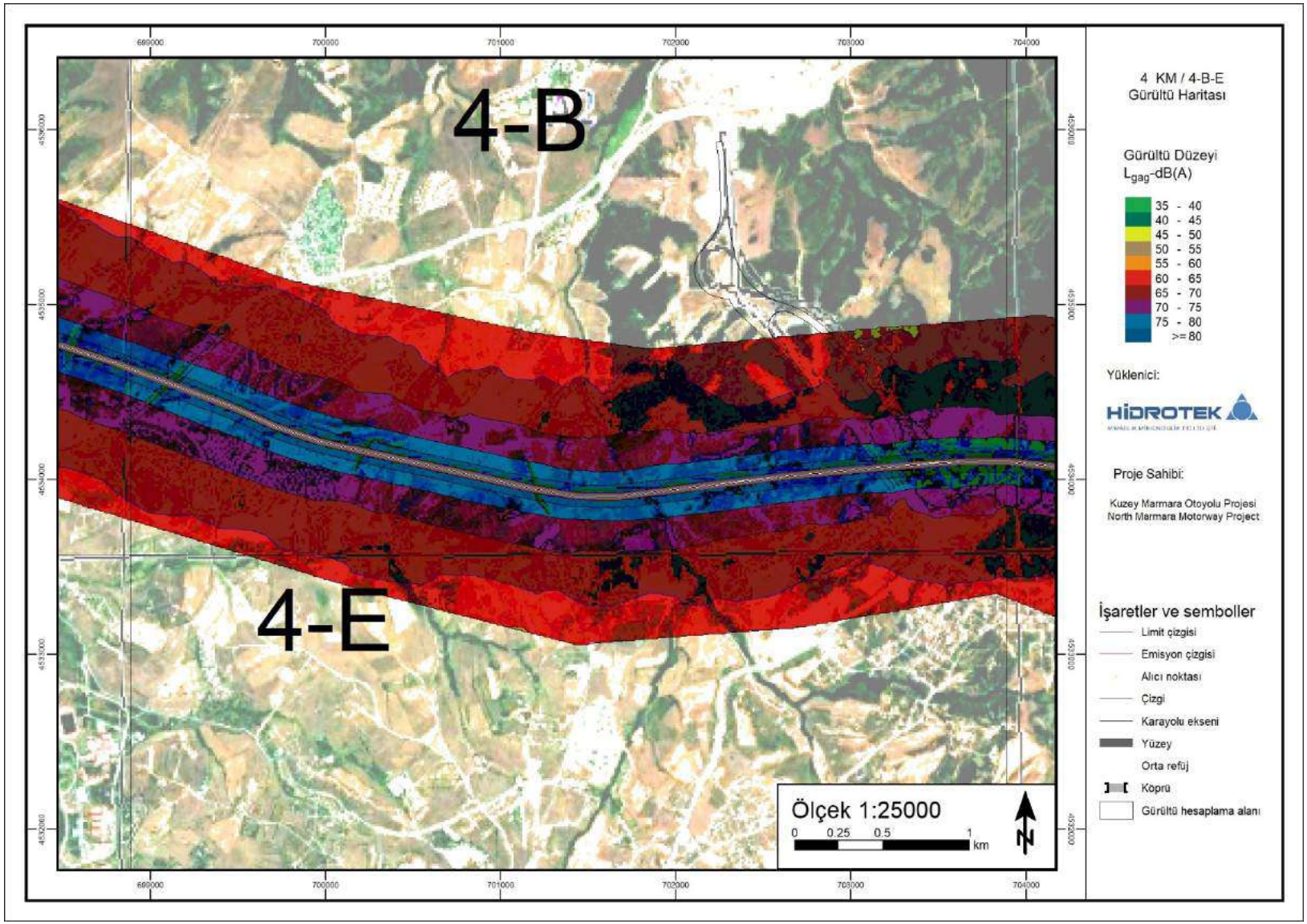

Figure 5.35 Lden noise map for part 4B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

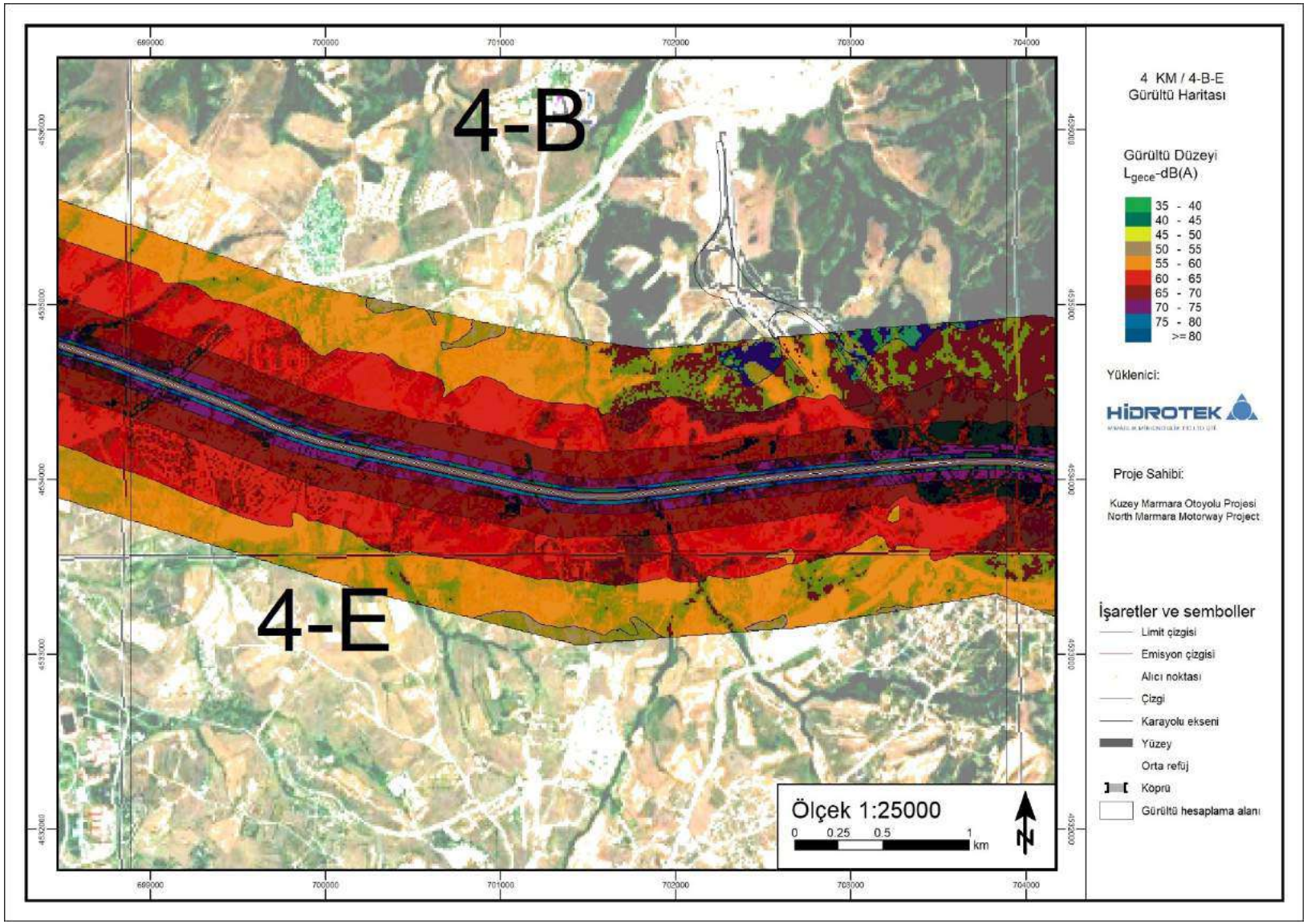

Figure 5.36 Ln noise map for part 4B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

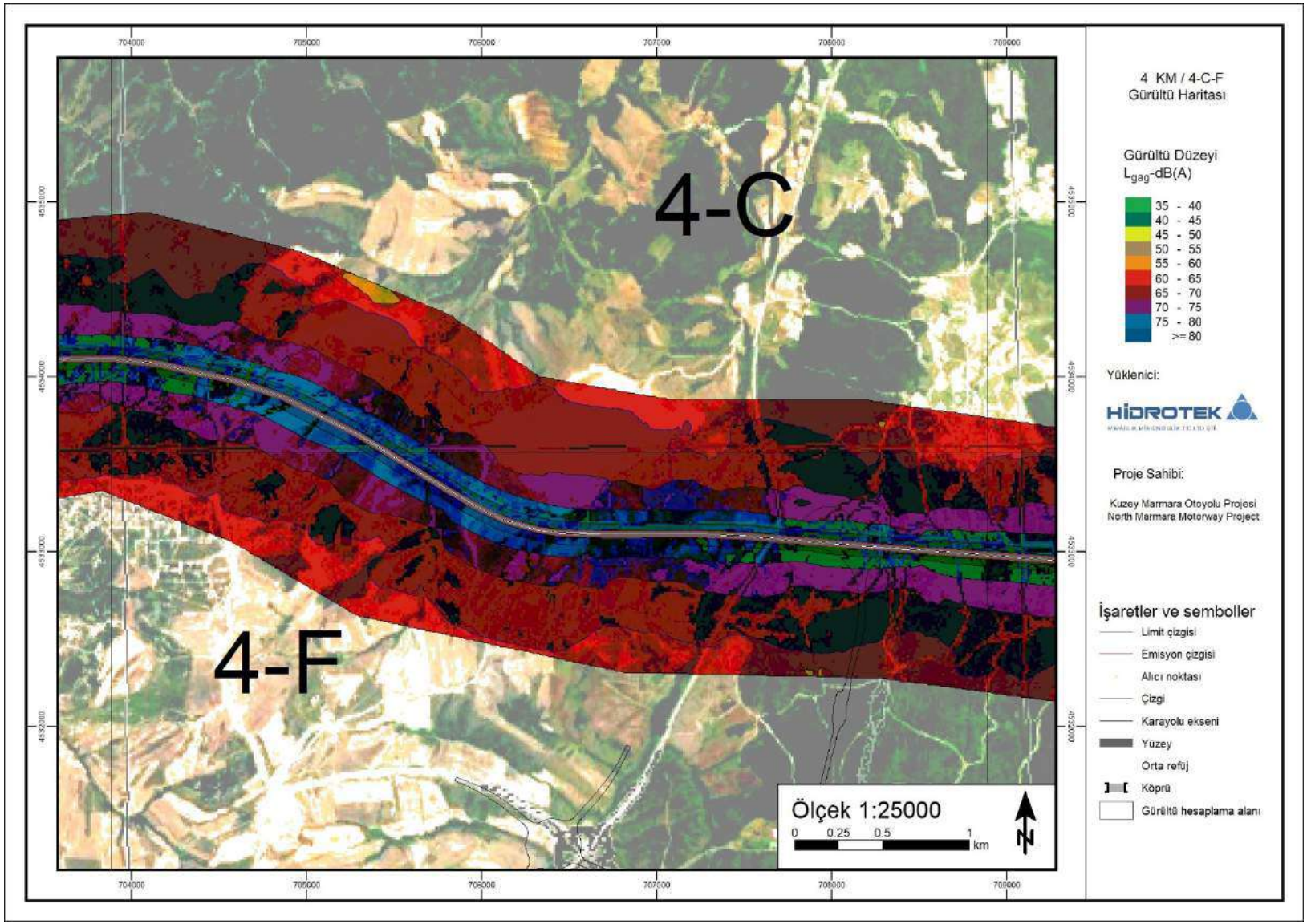

Figure 5.37 Lden noise map for part 4C of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

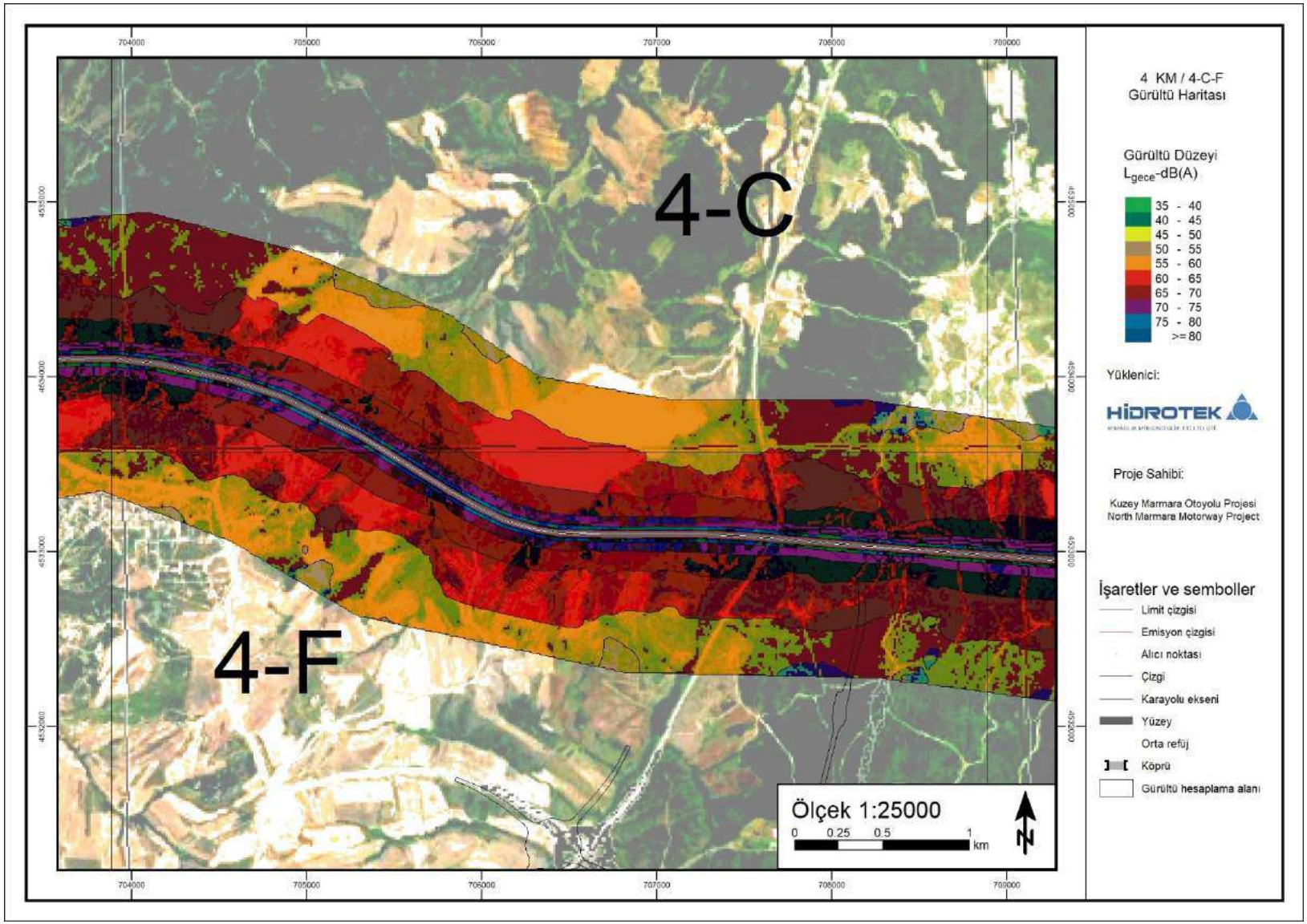

Figure 5.38 Ln noise map for part 4C of year 2027 of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

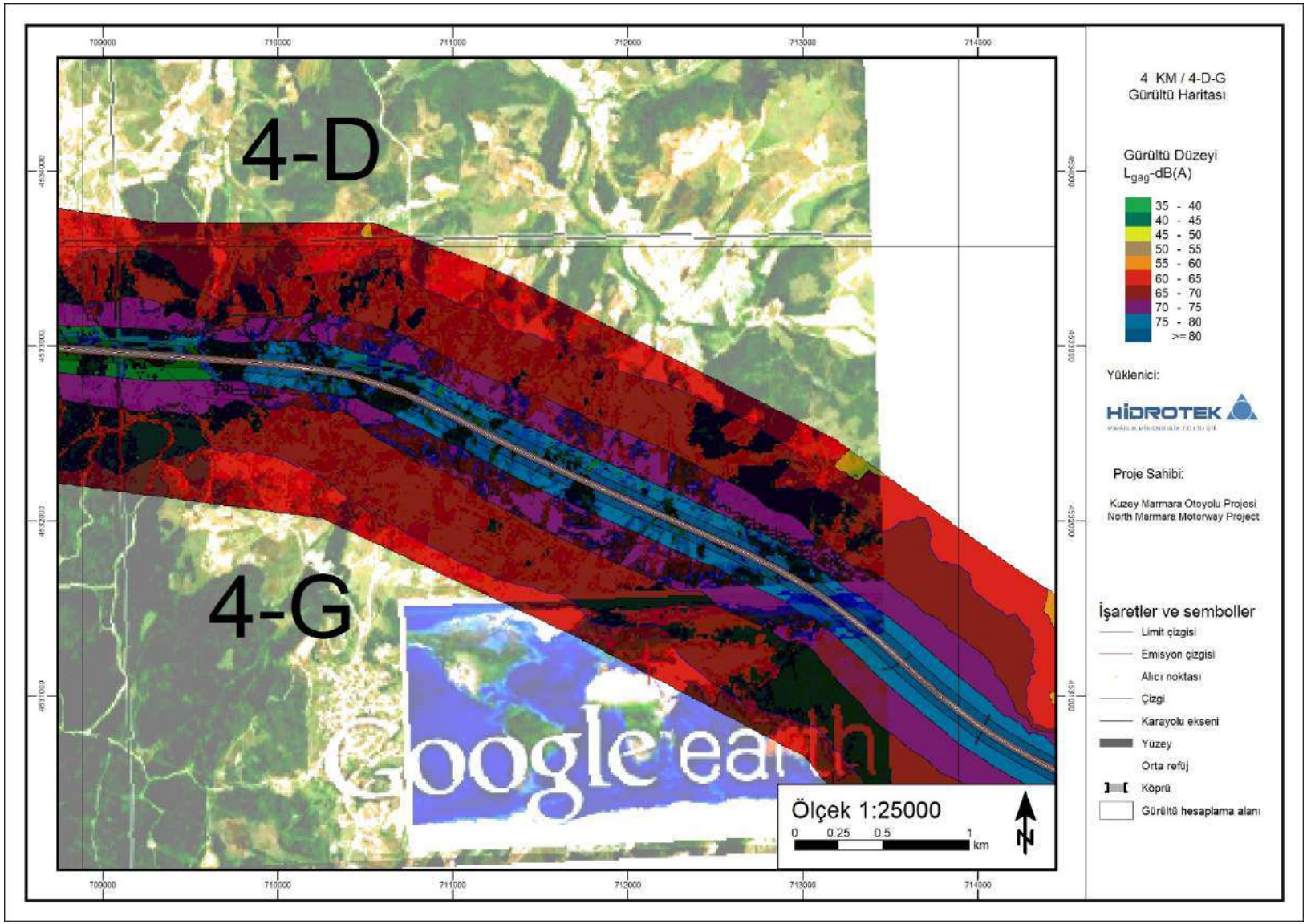

Figure 5.39 Lden noise map for part 4D of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

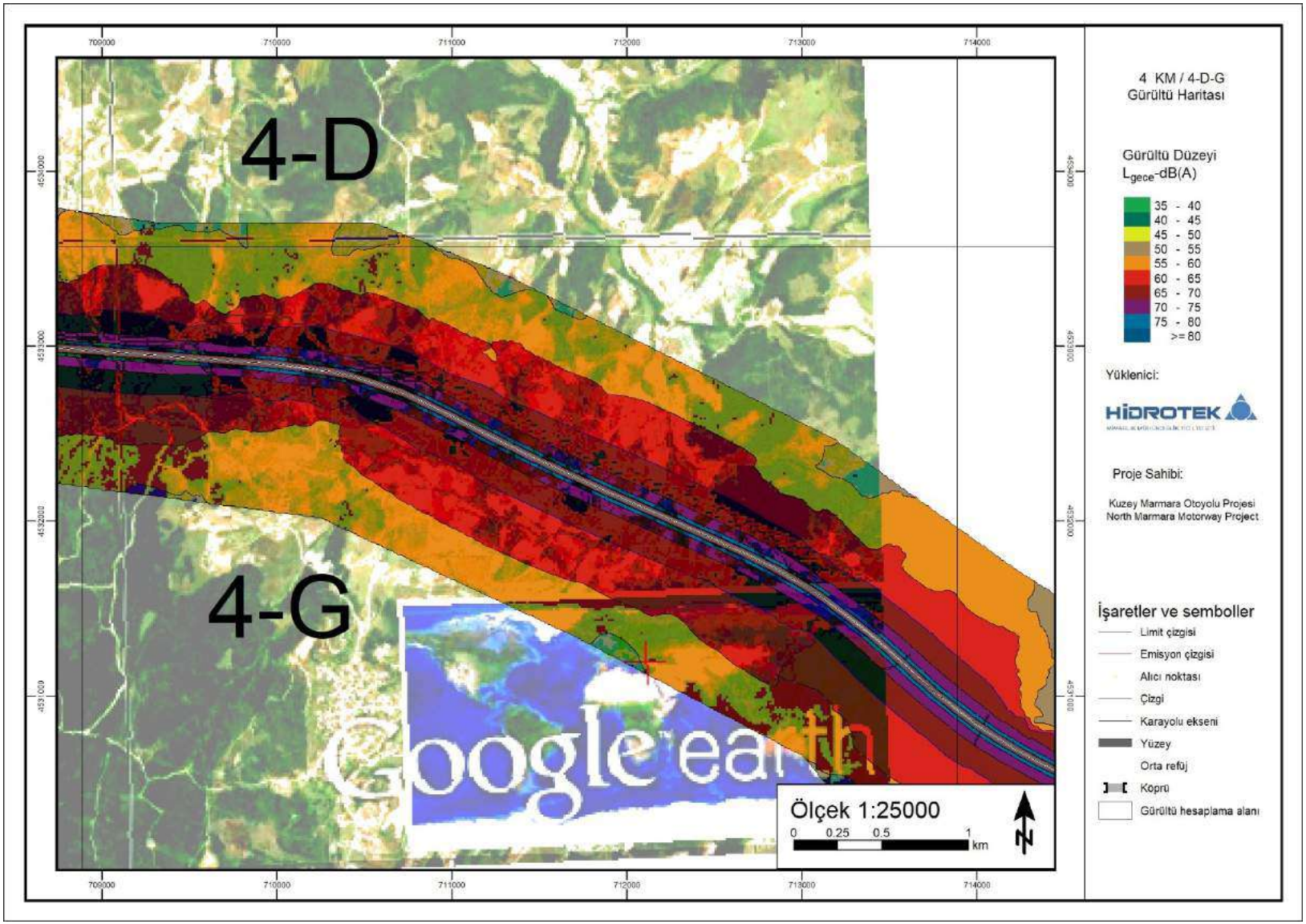

Figure 5.40 Ln noise map for part 4D of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

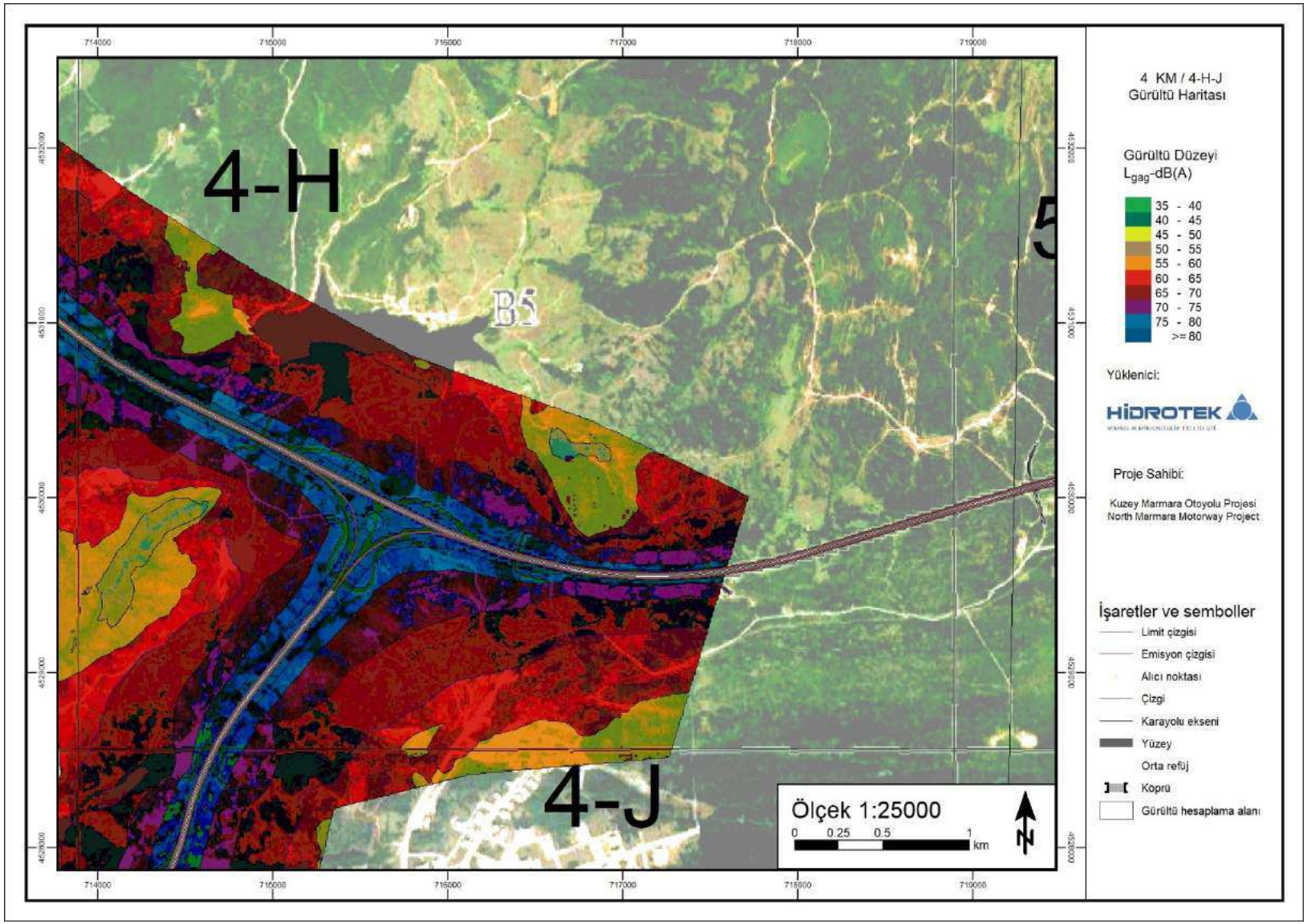

Figure 5.41 Lden noise map for part 4H of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

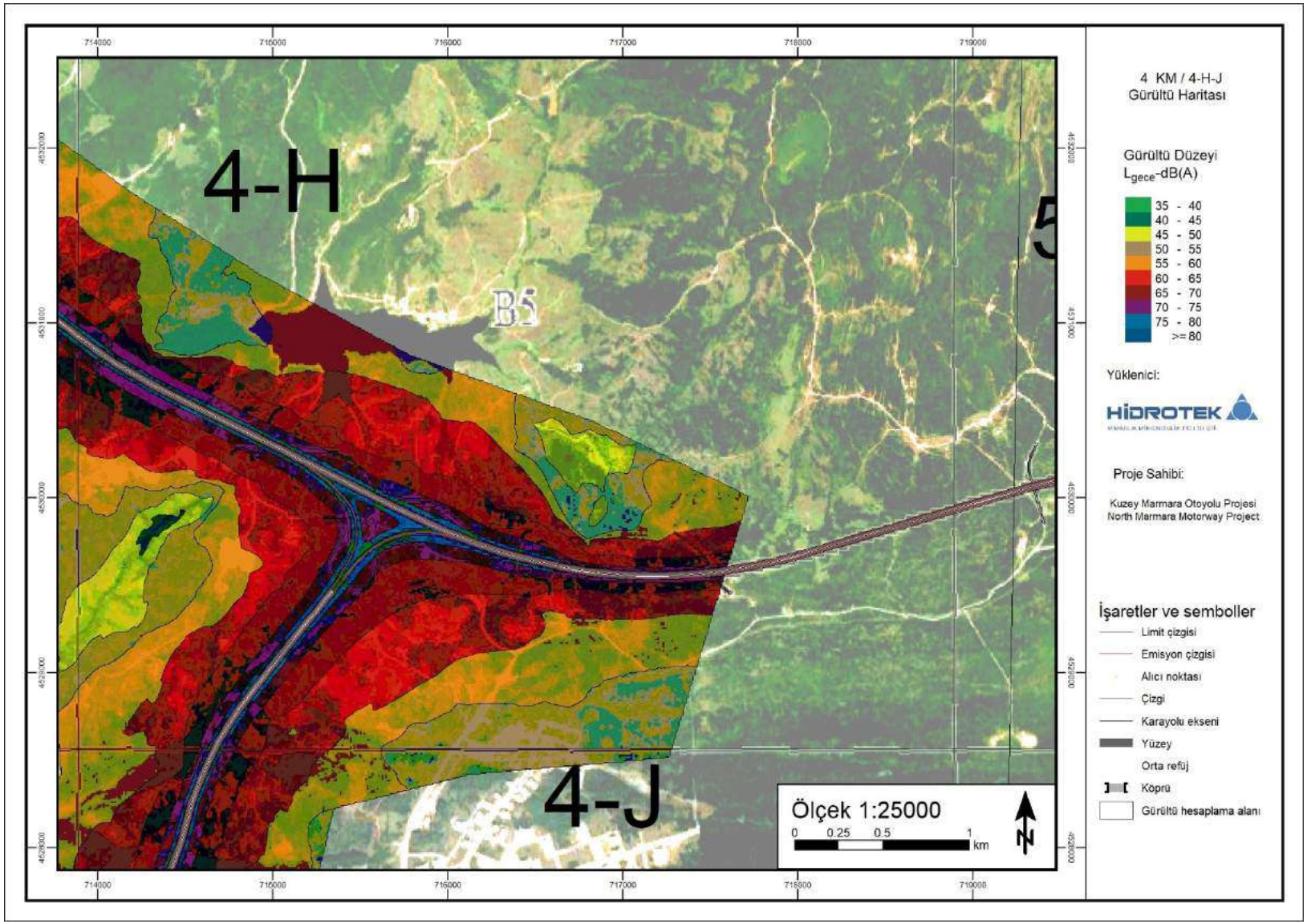

Figure 5.42 Ln noise map for part 4H of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

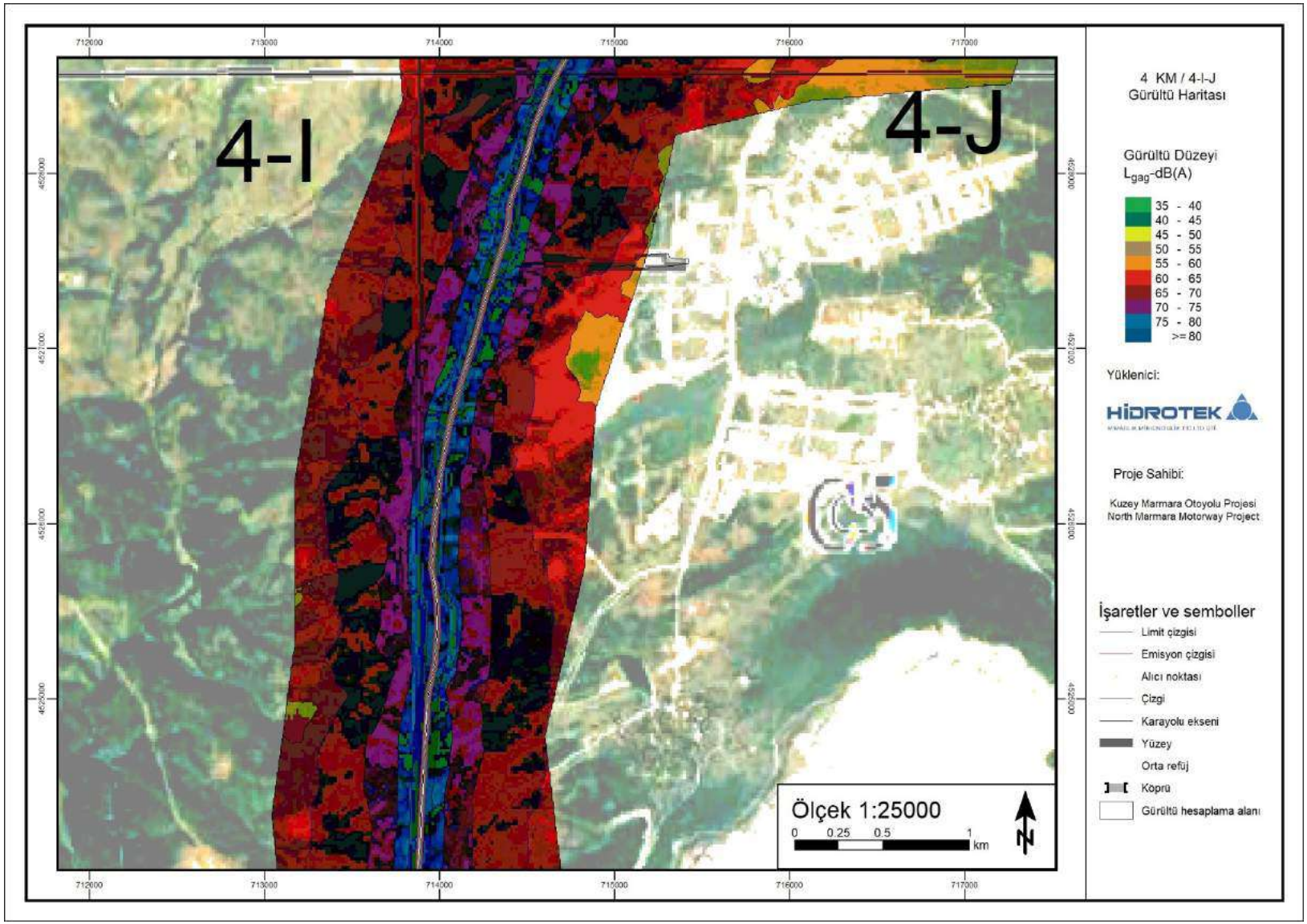

Figure 5.43 Lden noise map for part 4I of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

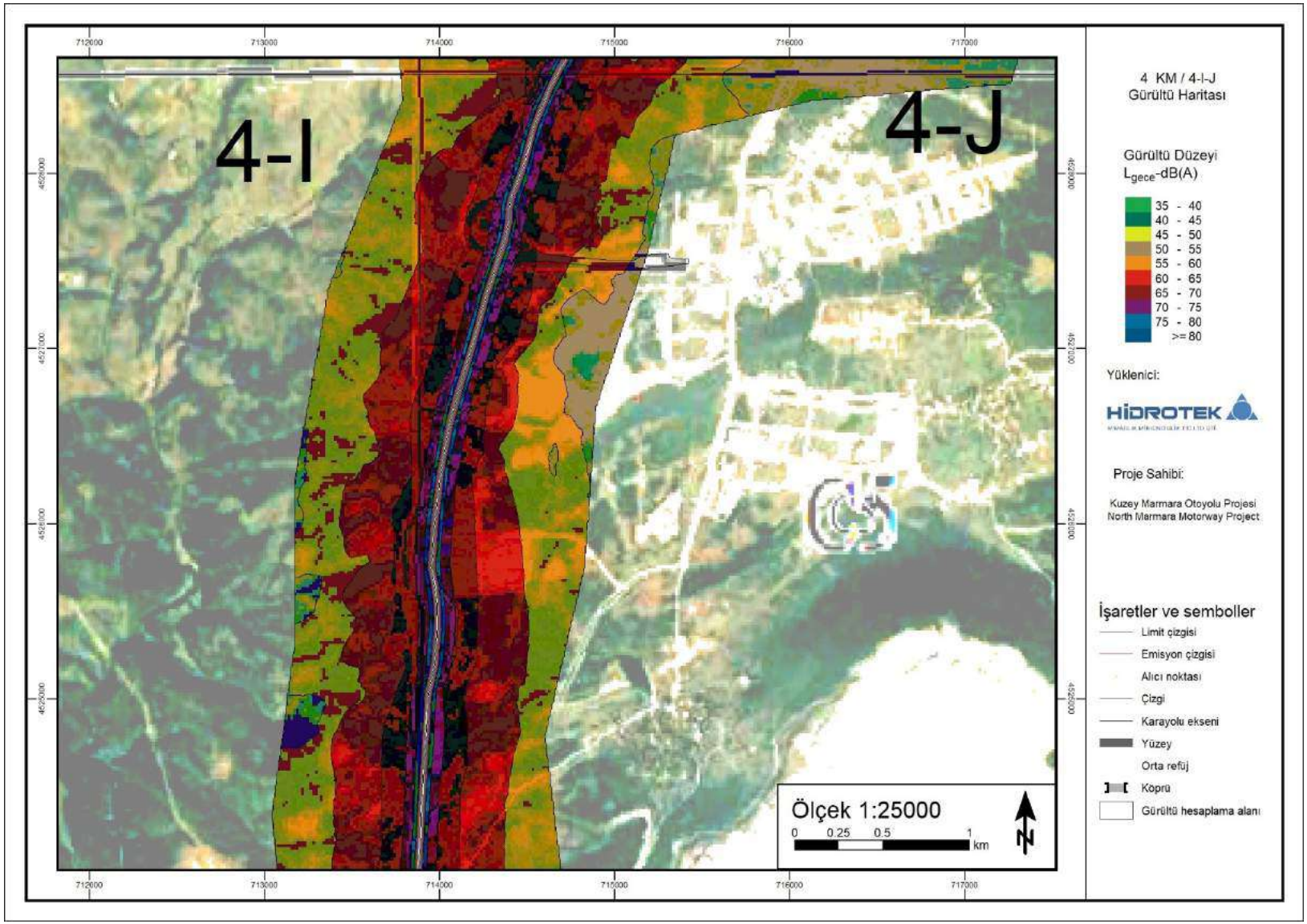

Figure 5.44 Ln noise map for part 4I of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

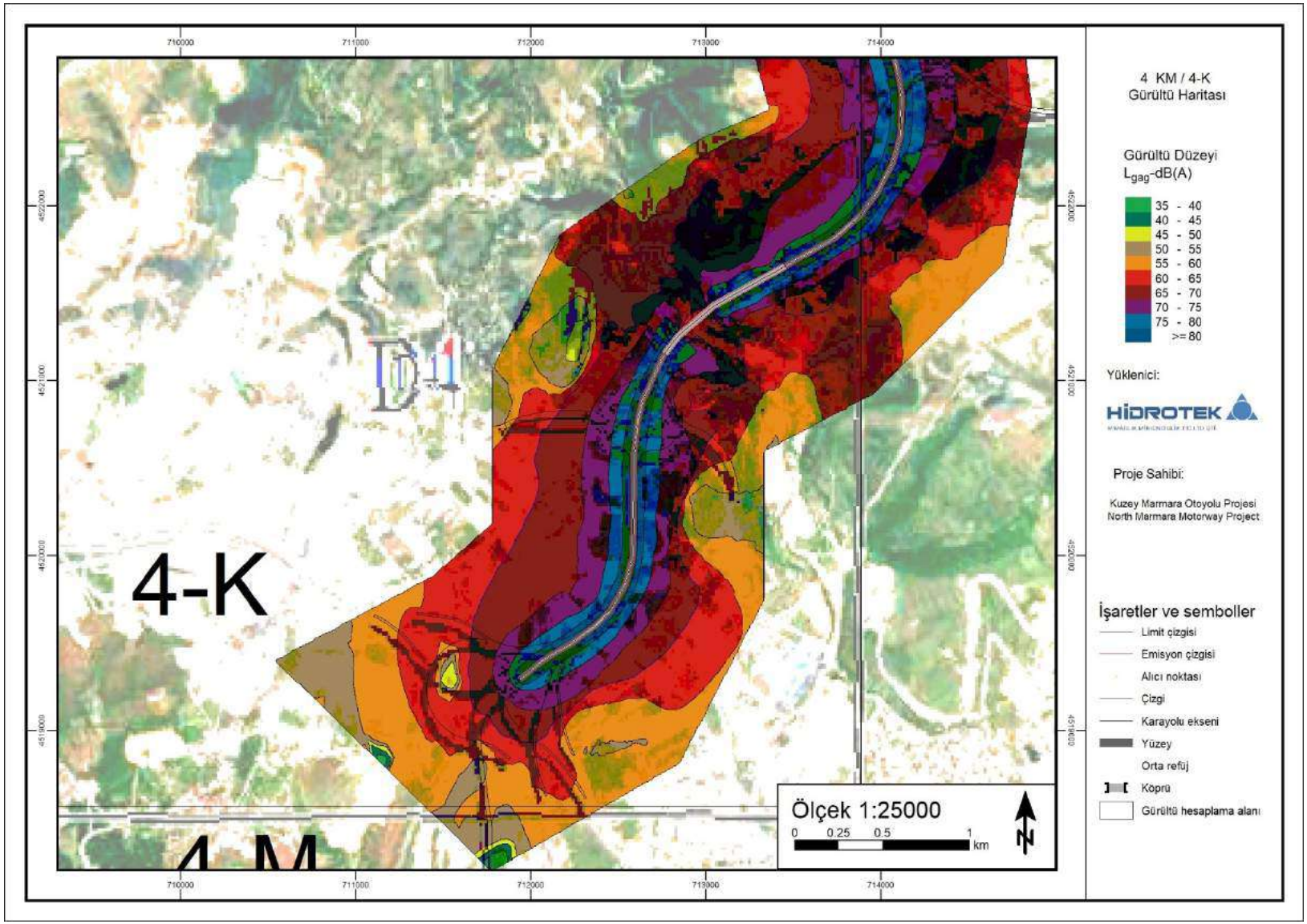

Figure 5.45 Lden noise map for part 4K of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

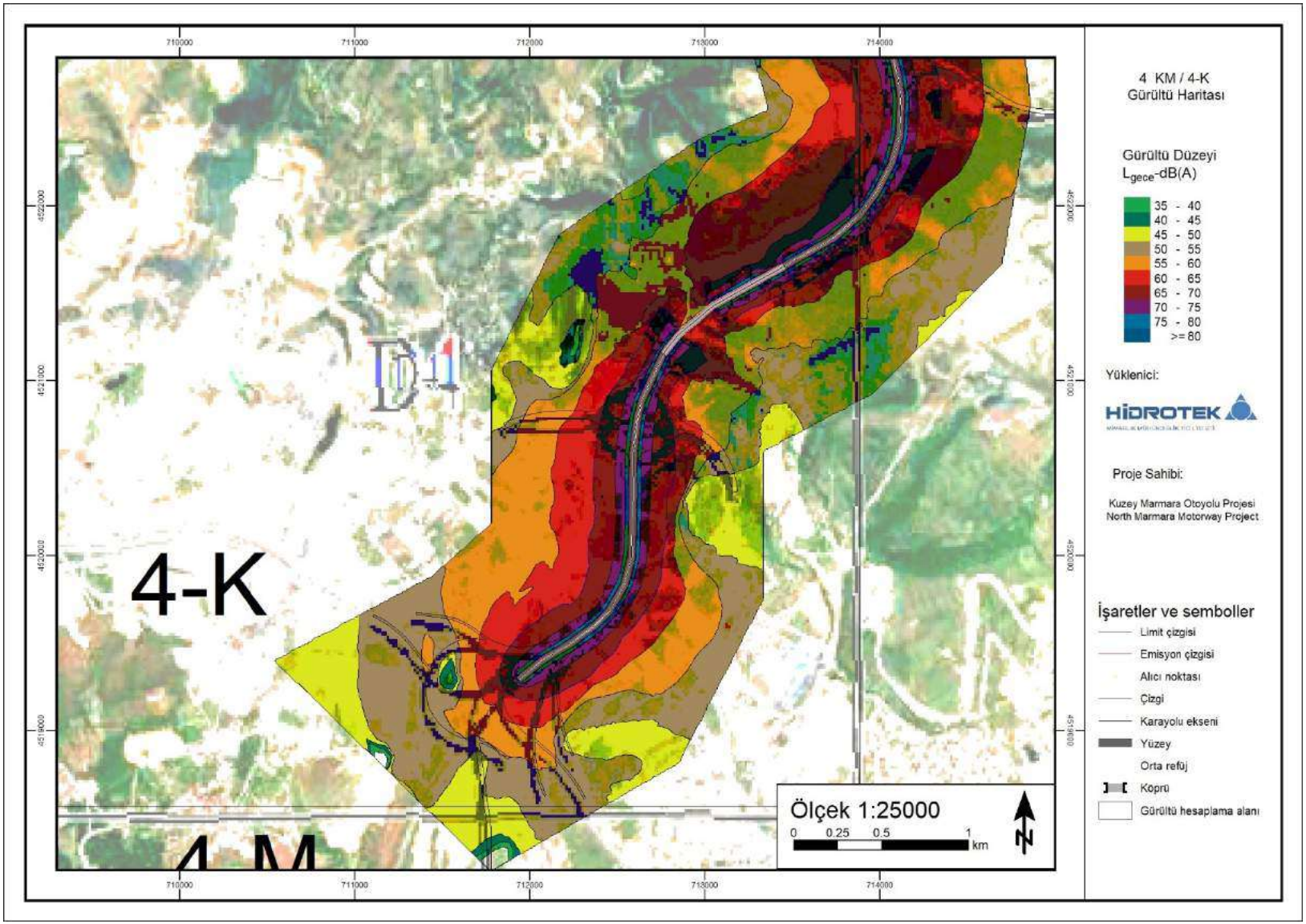

Figure 5.46 Ln noise map for part 4K of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

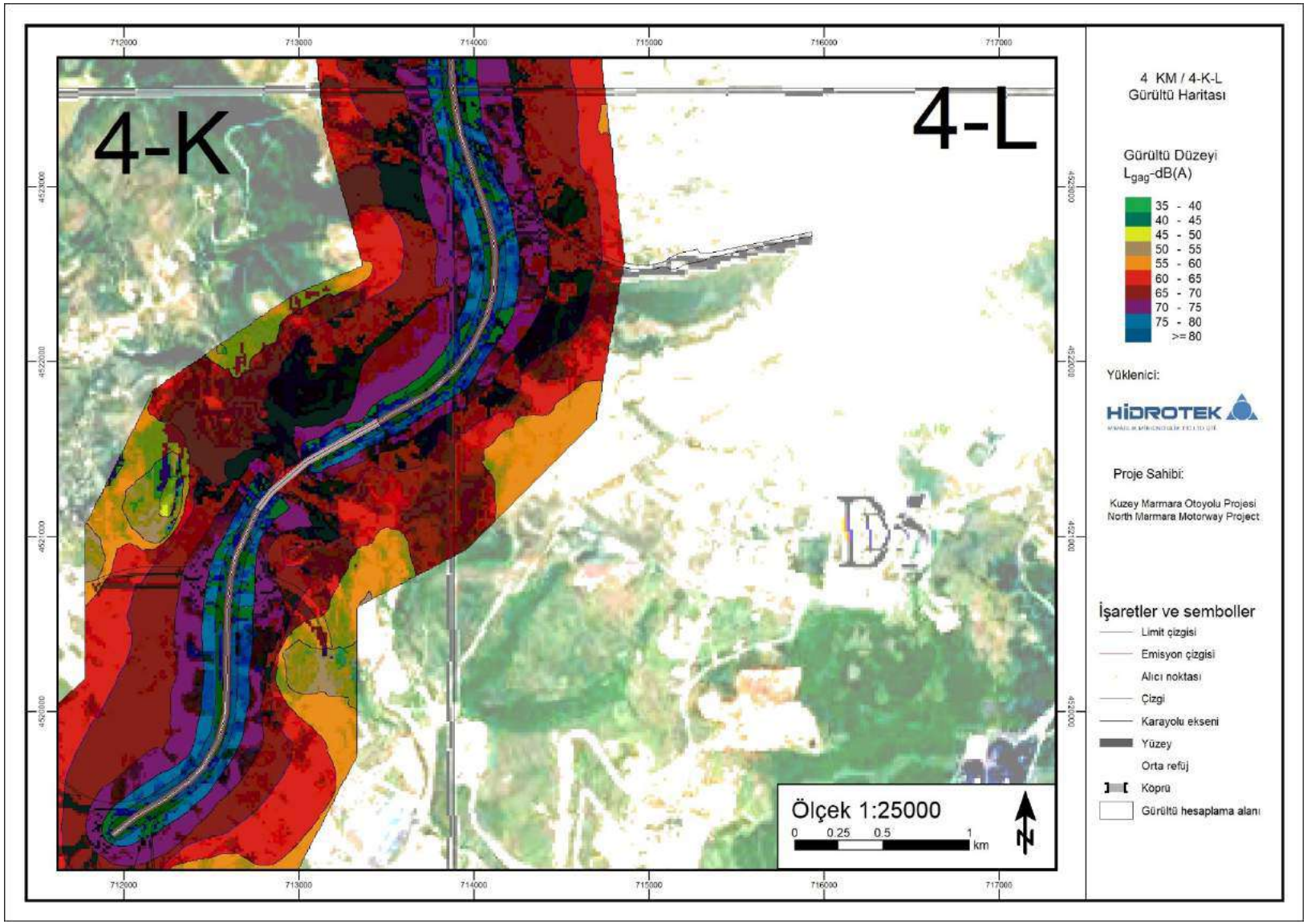

Figure 5.47 Lden noise map for part 4K-L of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

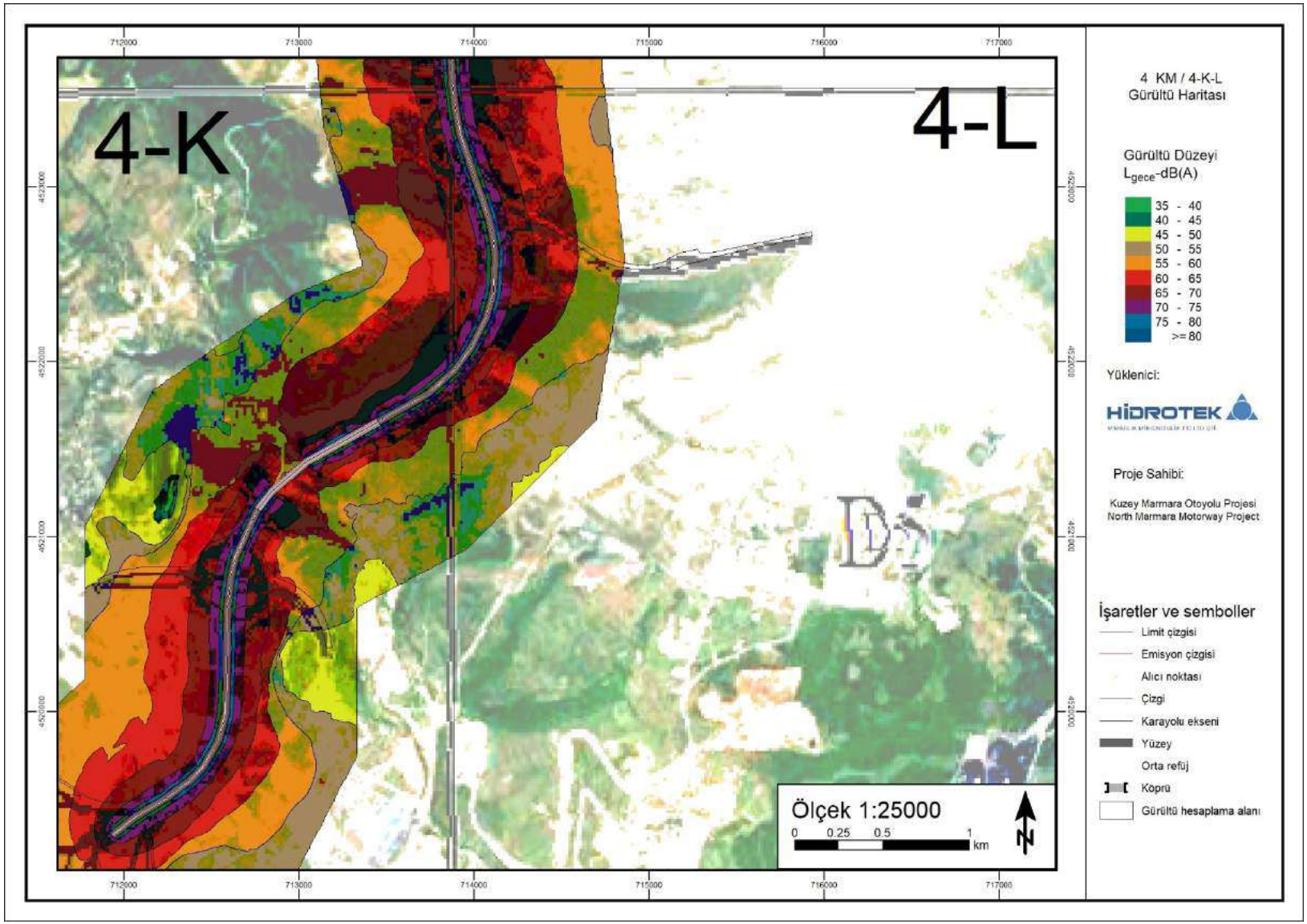

Figure 5.48 Ln noise map for part 4K-L of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

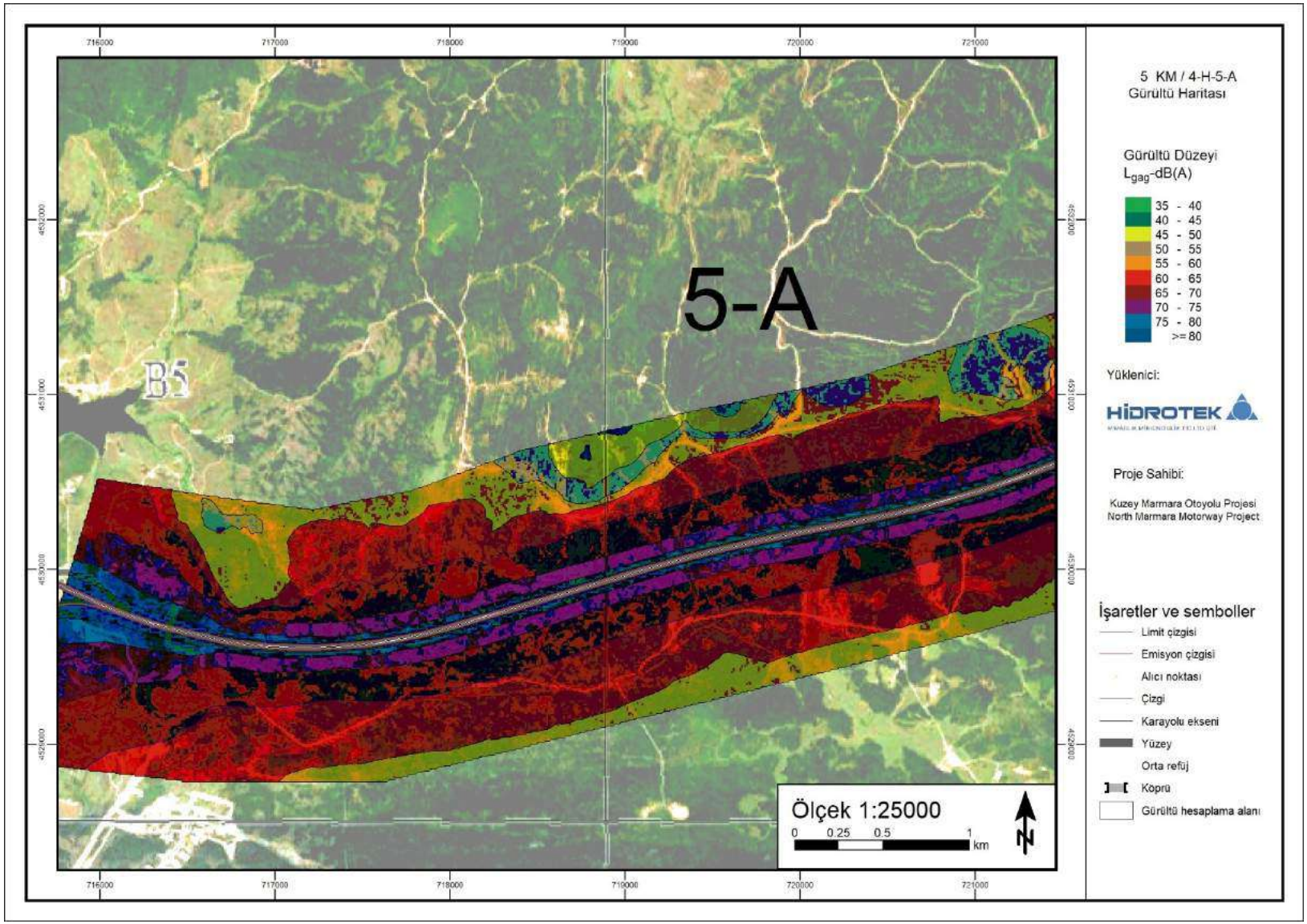

Figure 5.49 Lden noise map for part 5A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

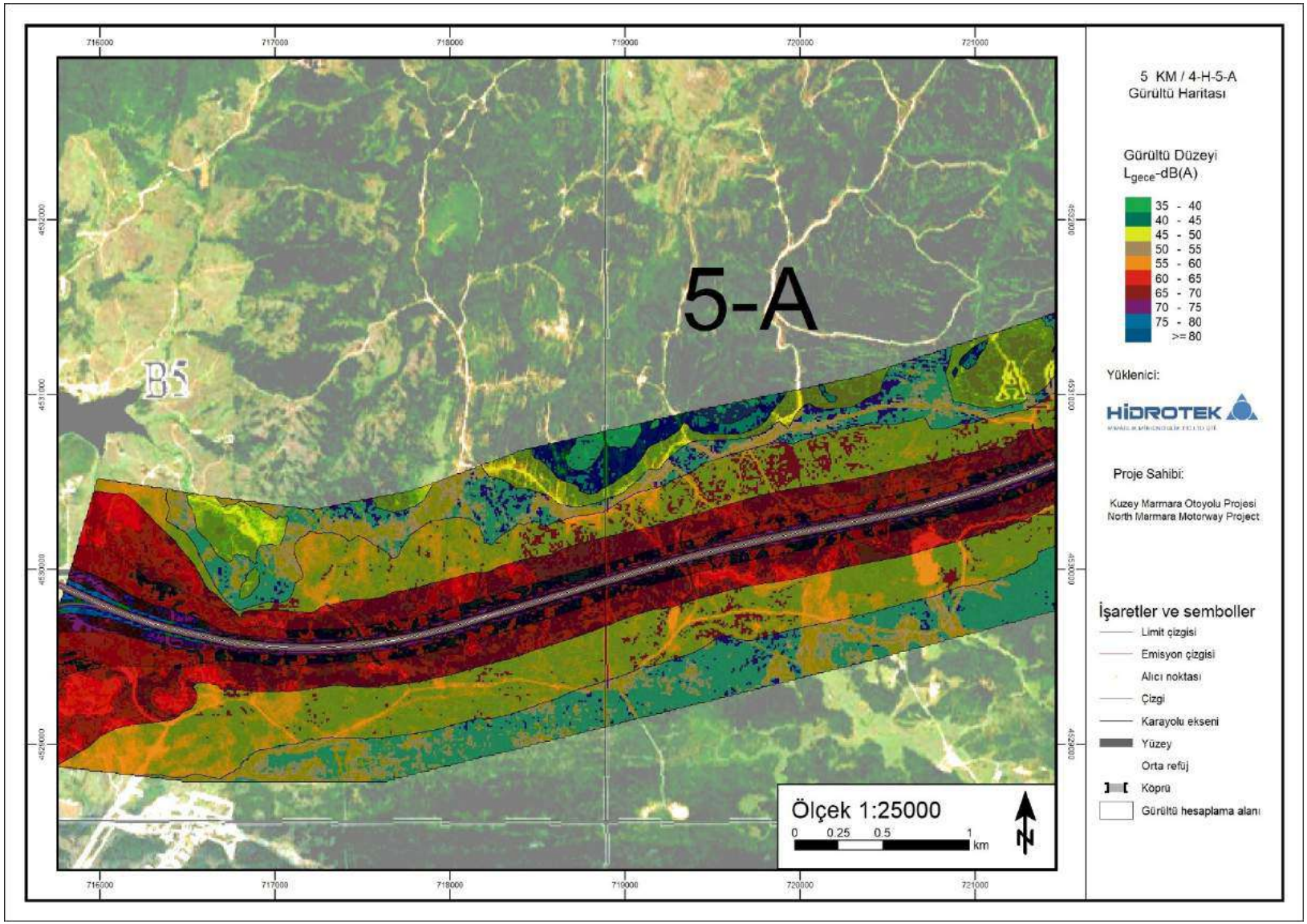

Figure 5.50 Ln noise map for part 5A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

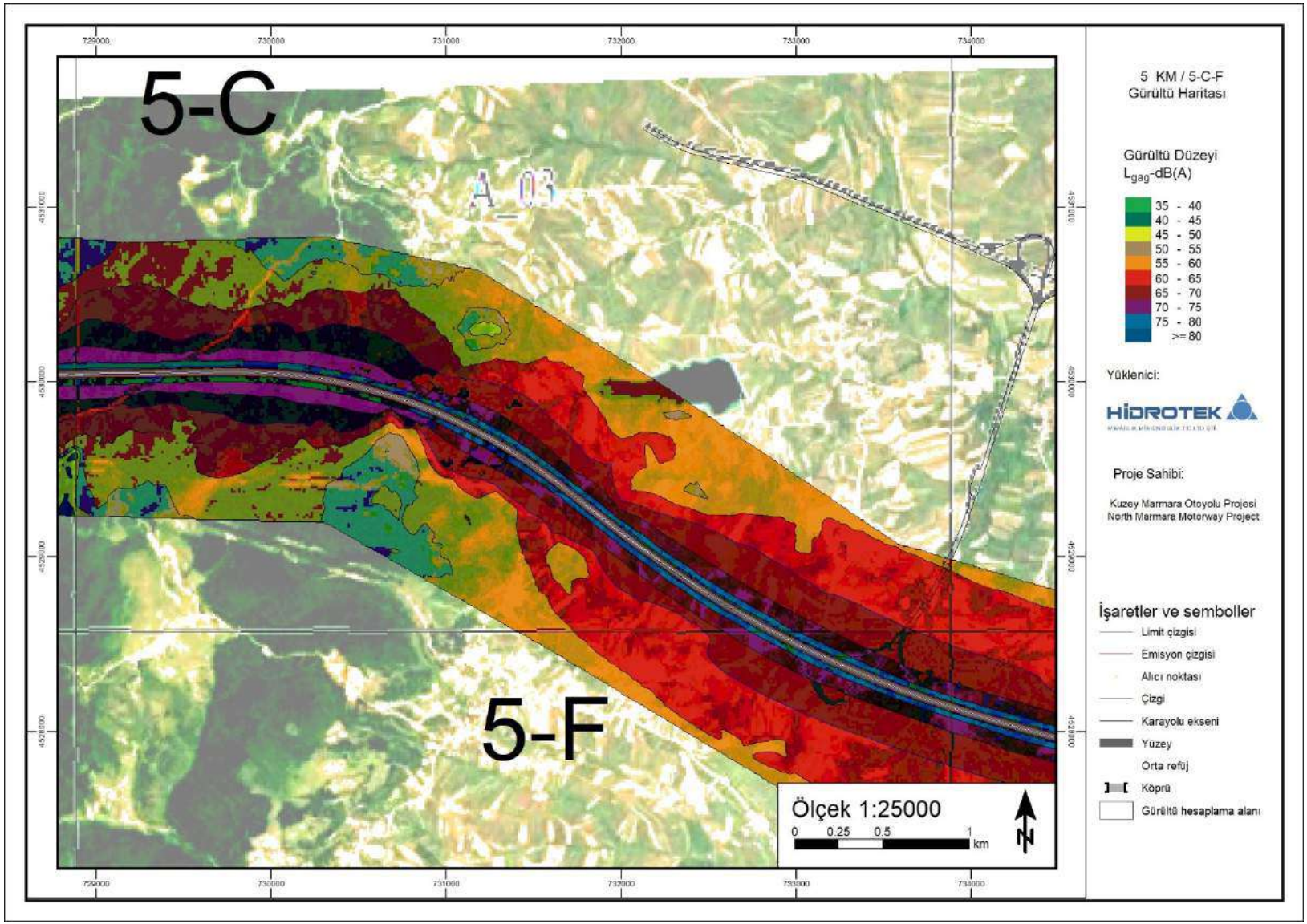

Figure 5.51 Lden noise map for part 5C of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
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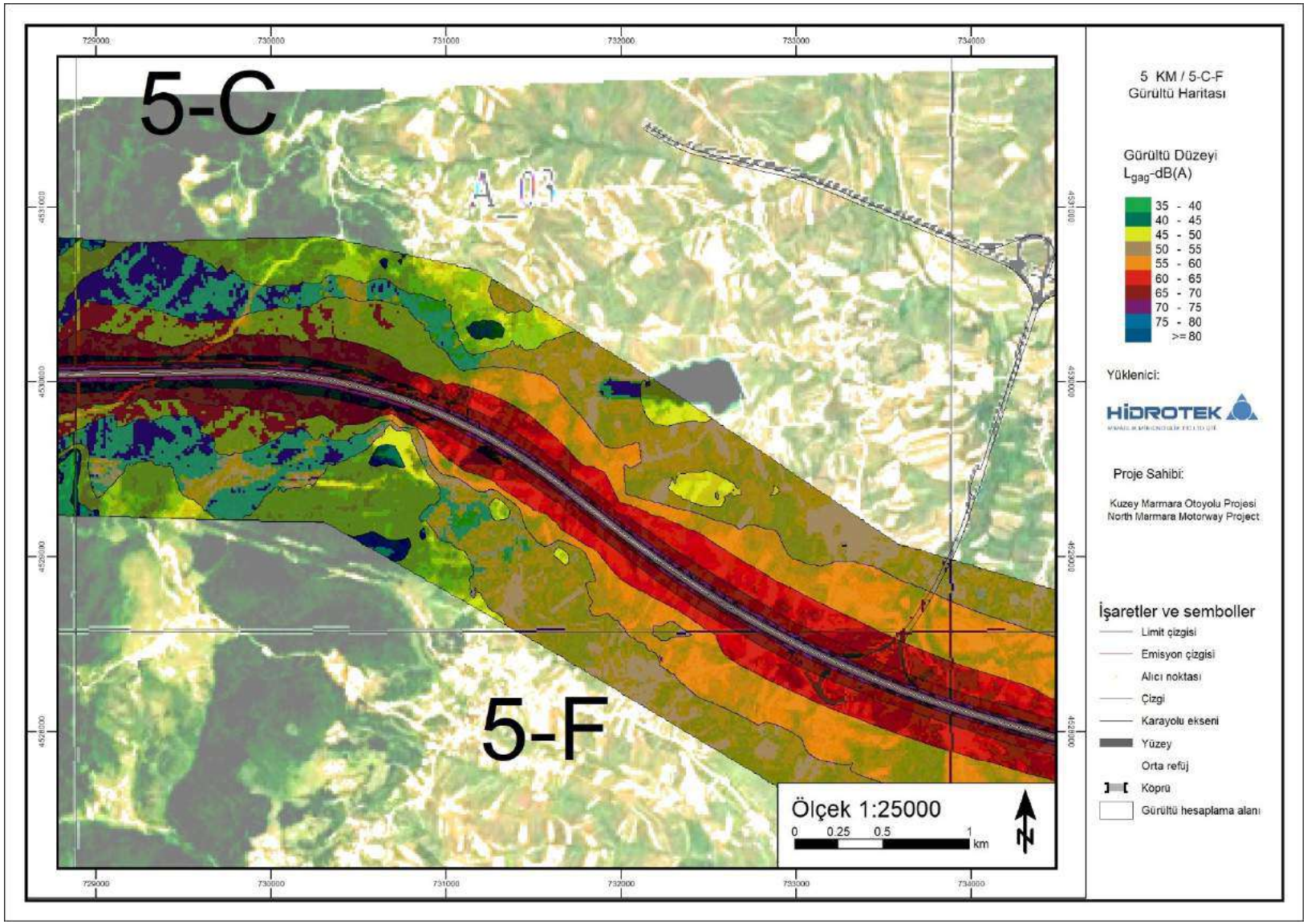

Figure 5.52 Ln noise map for part 5C of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
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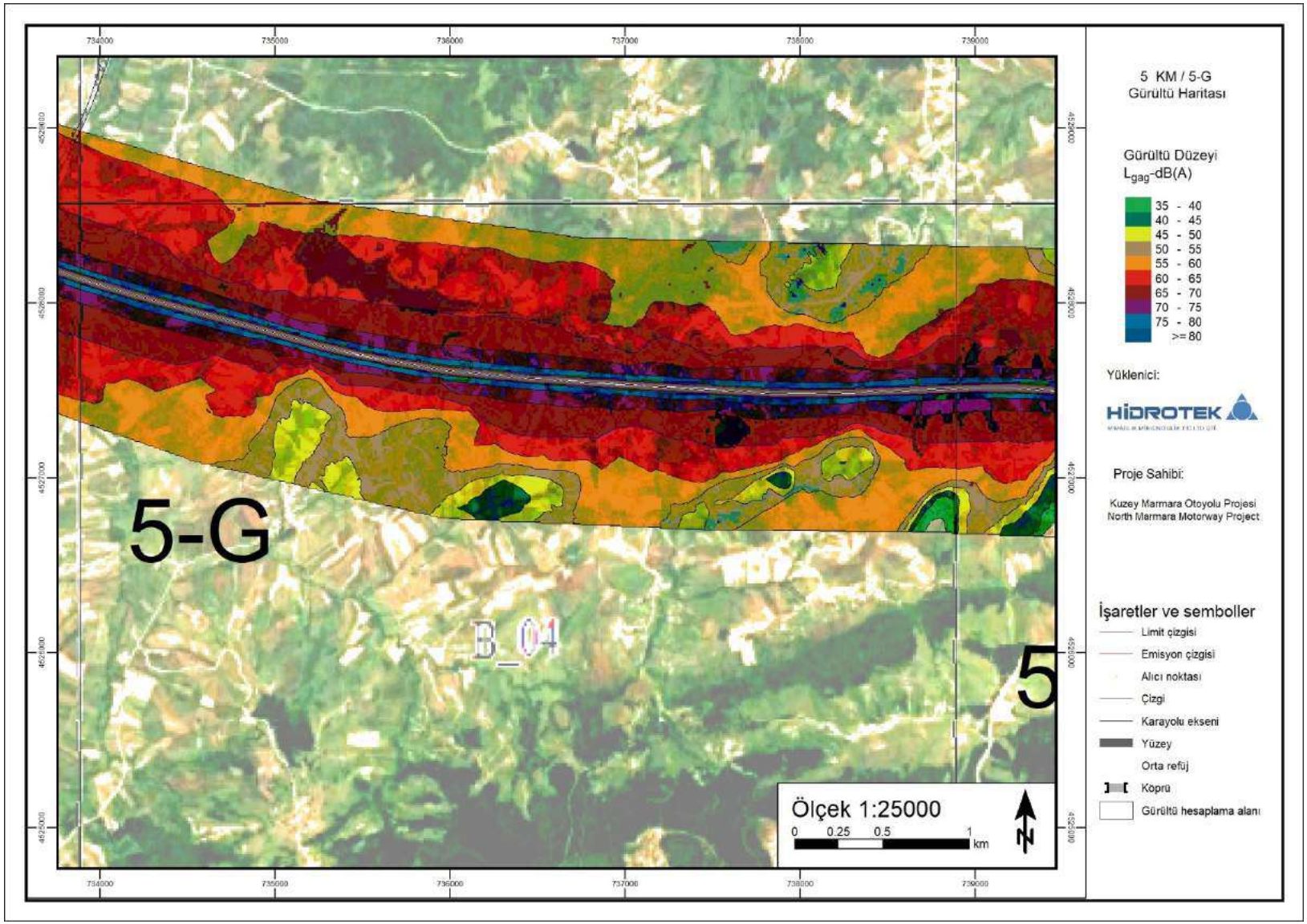

Figure 5.53 Lden noise map for part 5G of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
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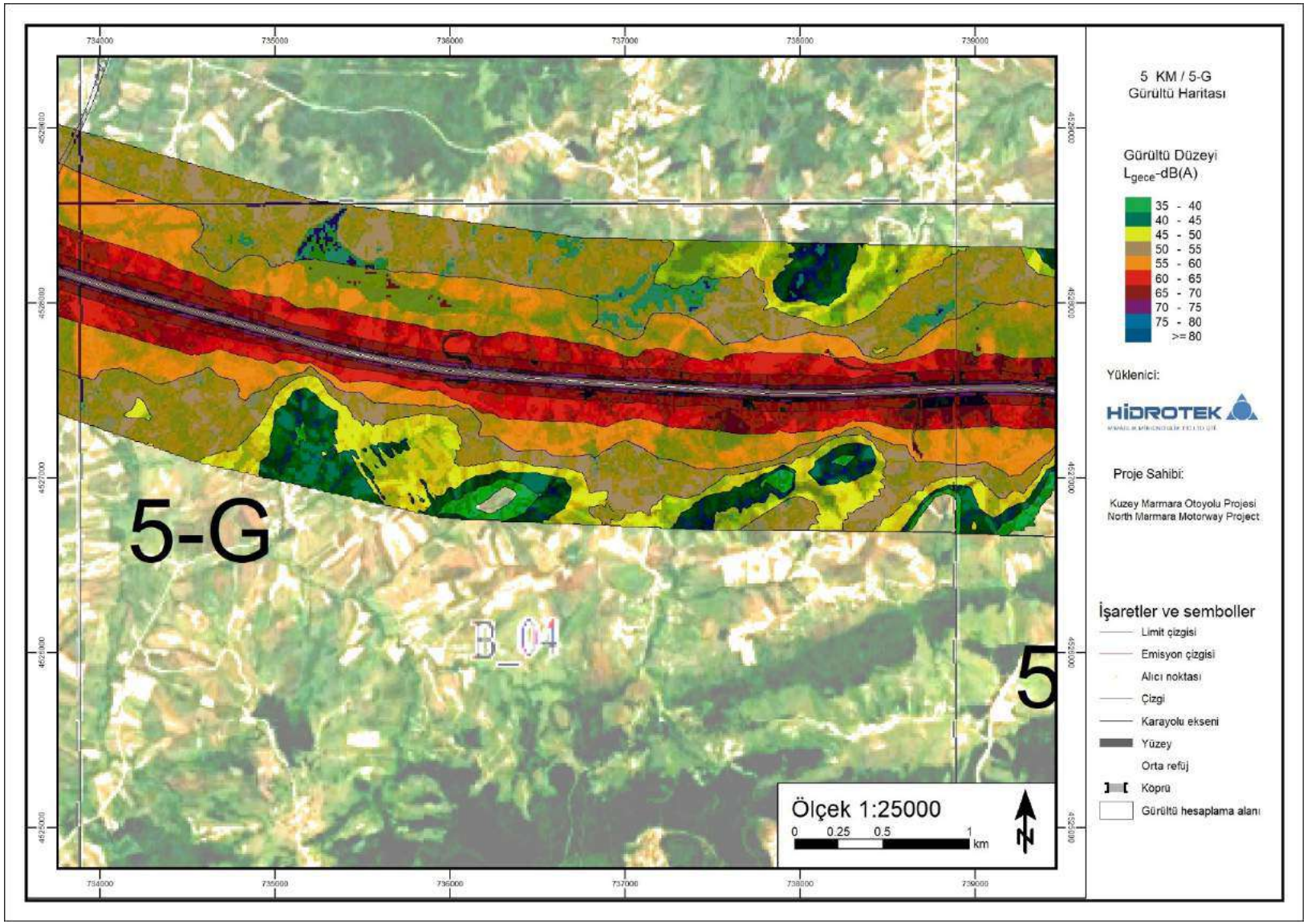

Figure 5.54 Ln noise map for part 5G of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
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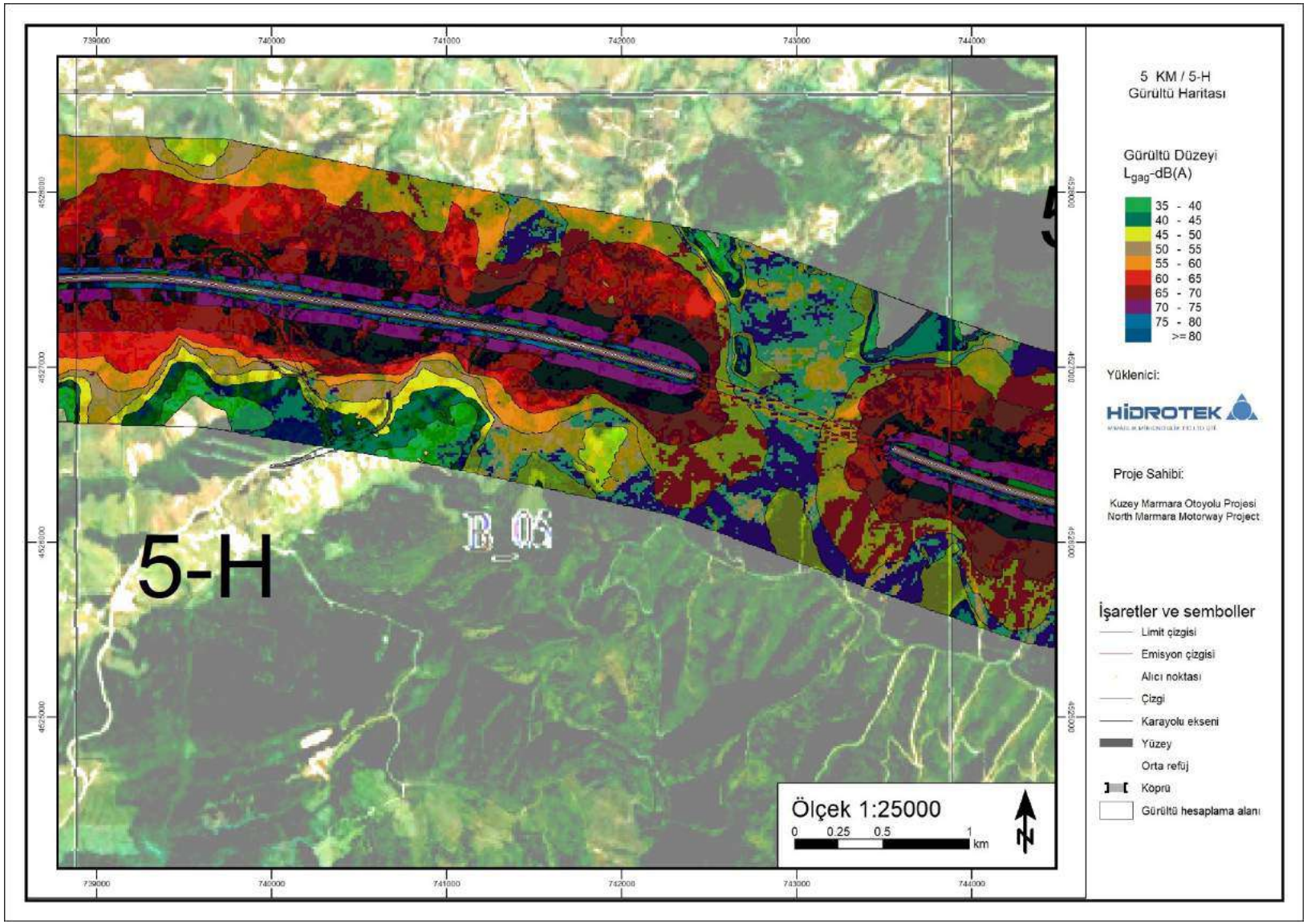

Figure 5.55 Lden noise map for part 5H of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

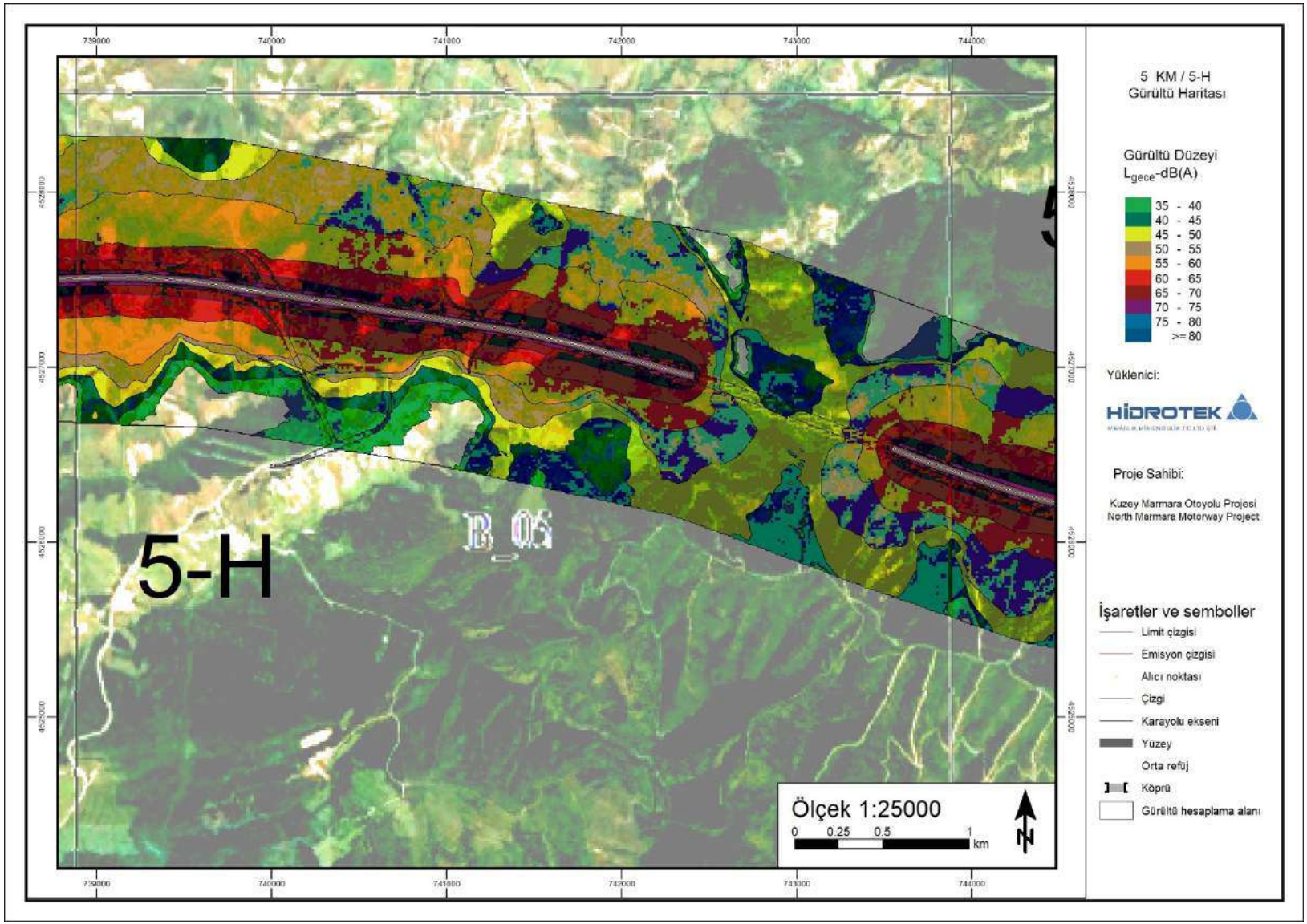

Figure 5.56 Ln noise map for part 5H of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

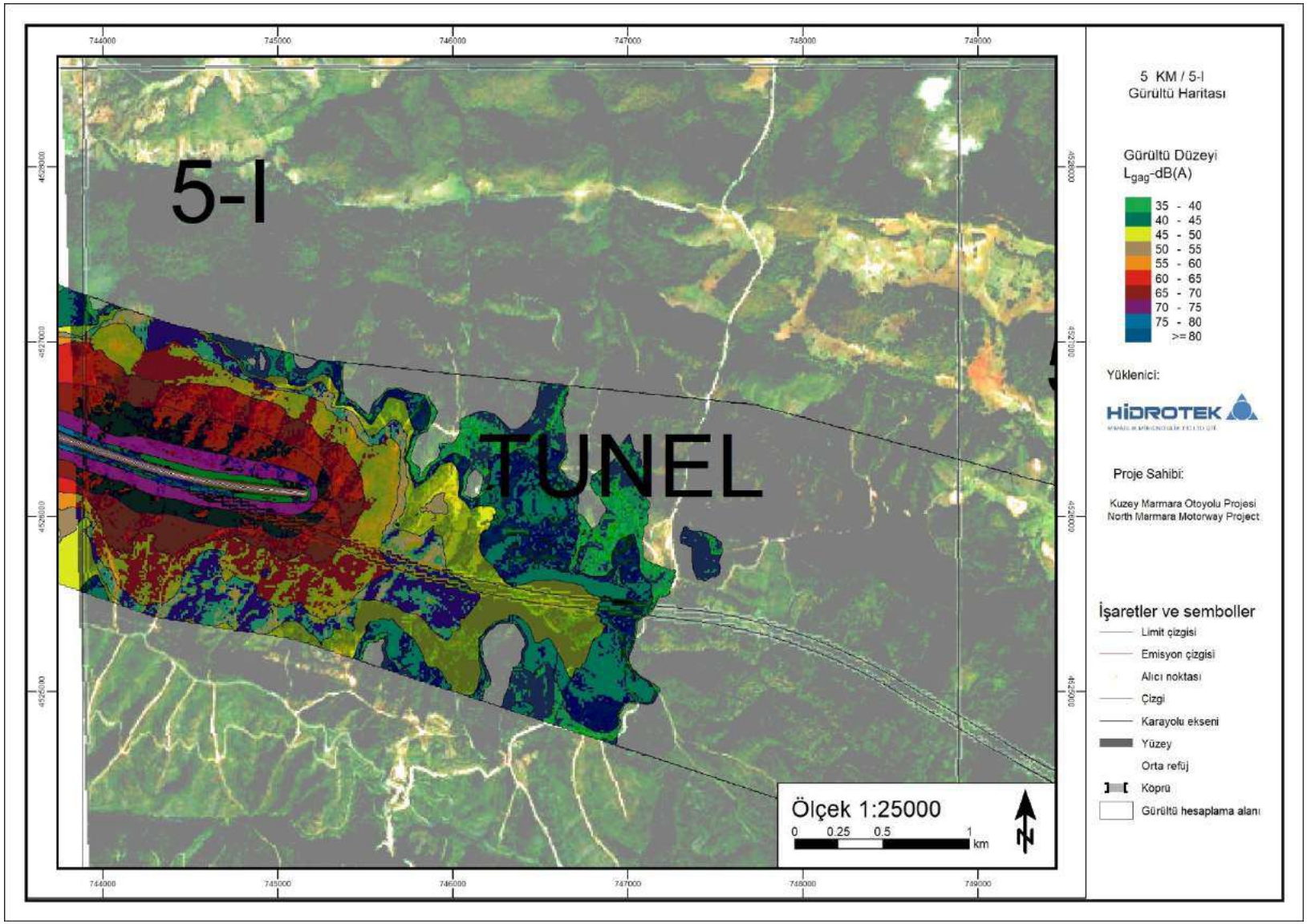

Figure 5.57 Lden noise map for part 5I of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

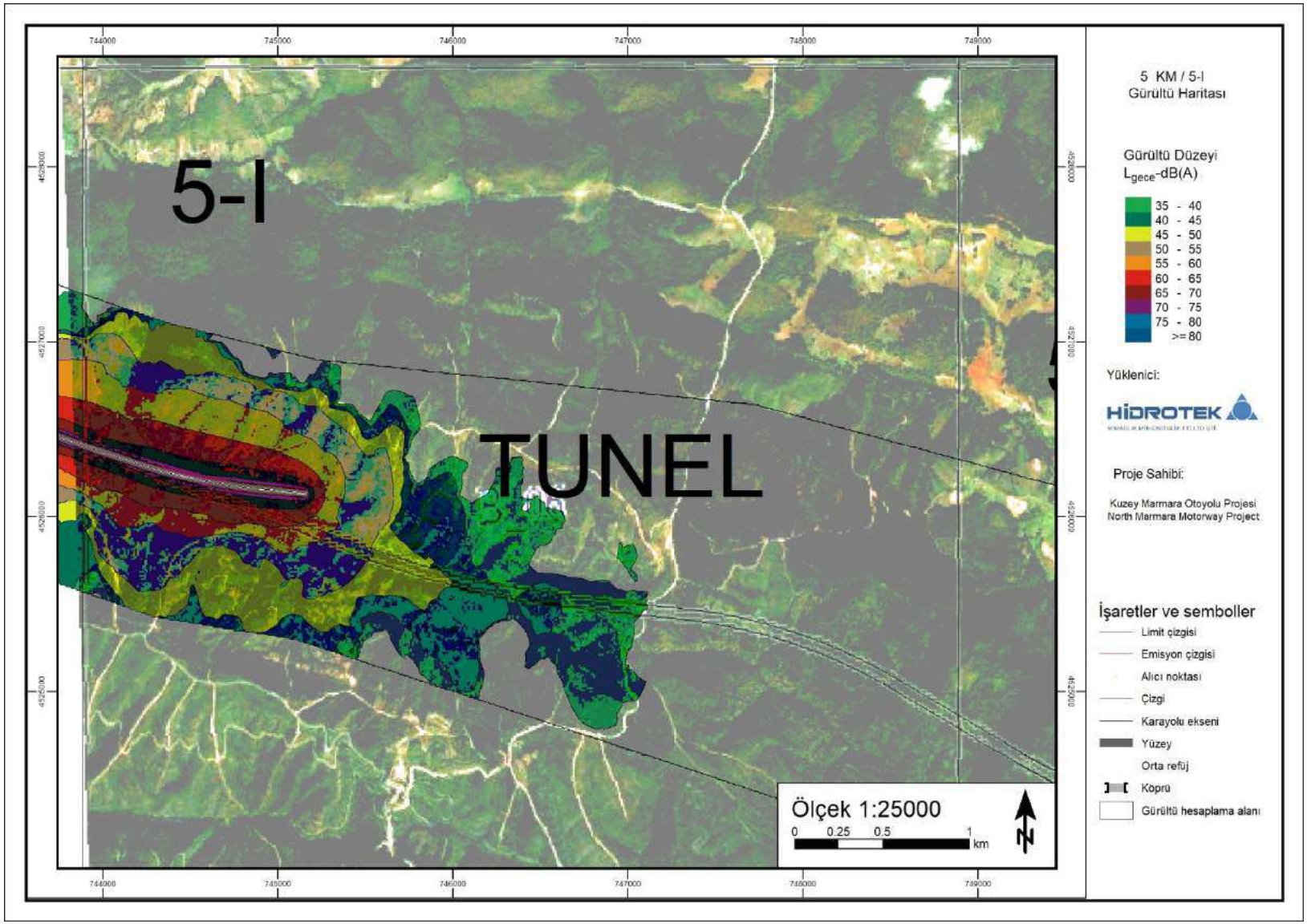

Figure 5.58 Ln noise map for part 5I of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

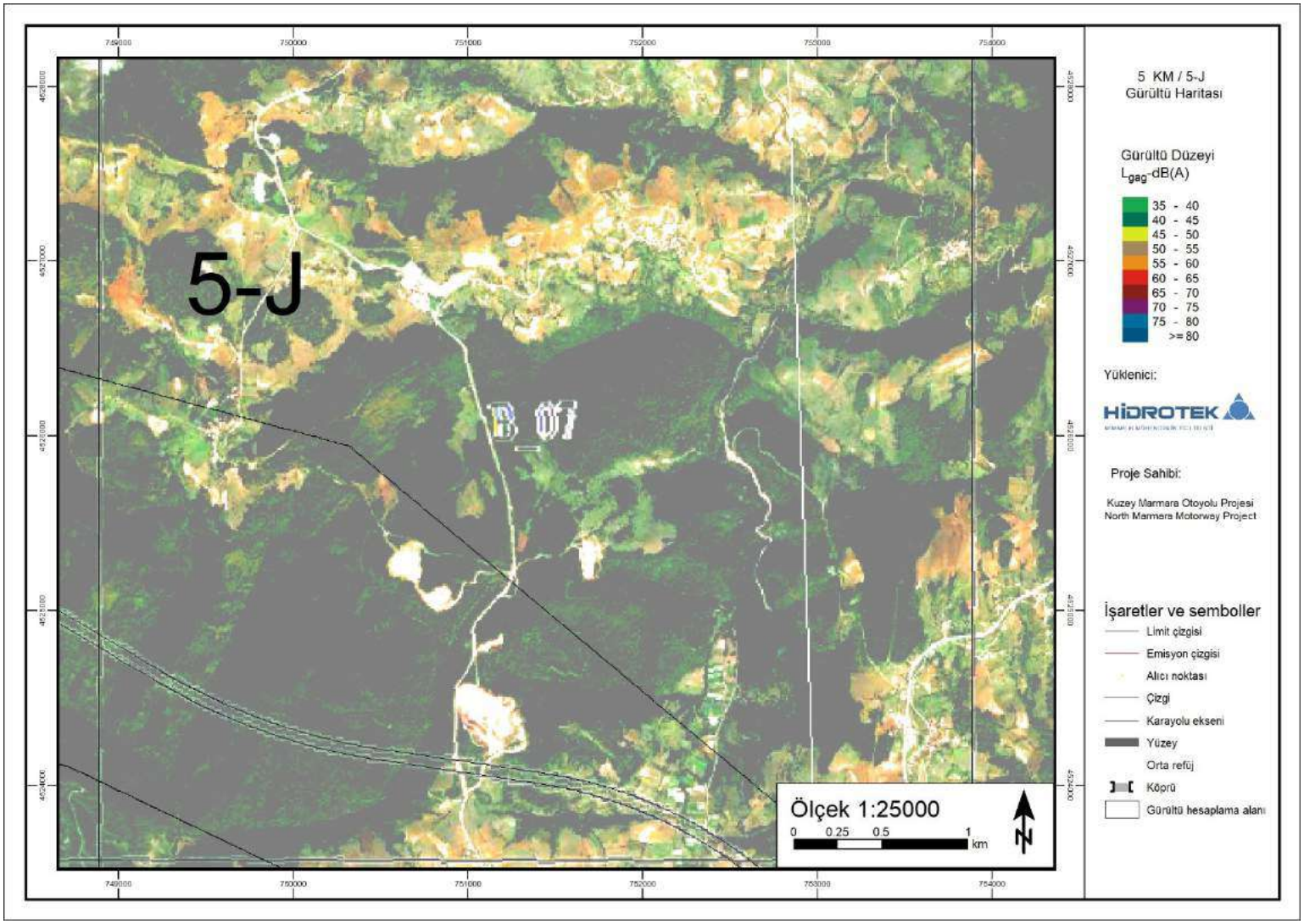

Figure 5.59 Lden noise map for part 5J of year 2027

(There is a tunnel in this area)

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

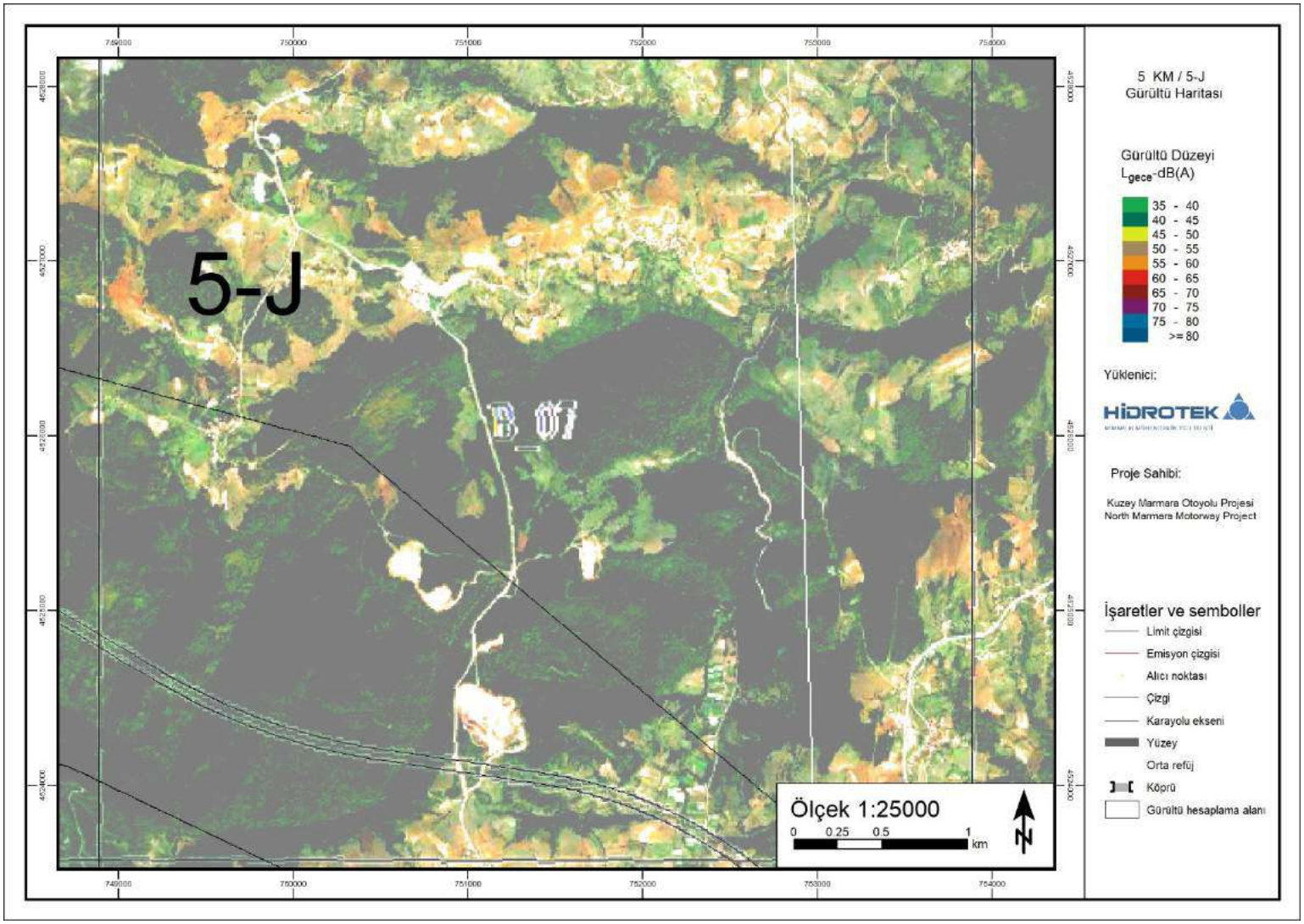

Figure 5.60 Ln noise map for part 5J of year 2027

(There is a tunnel in this area)

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

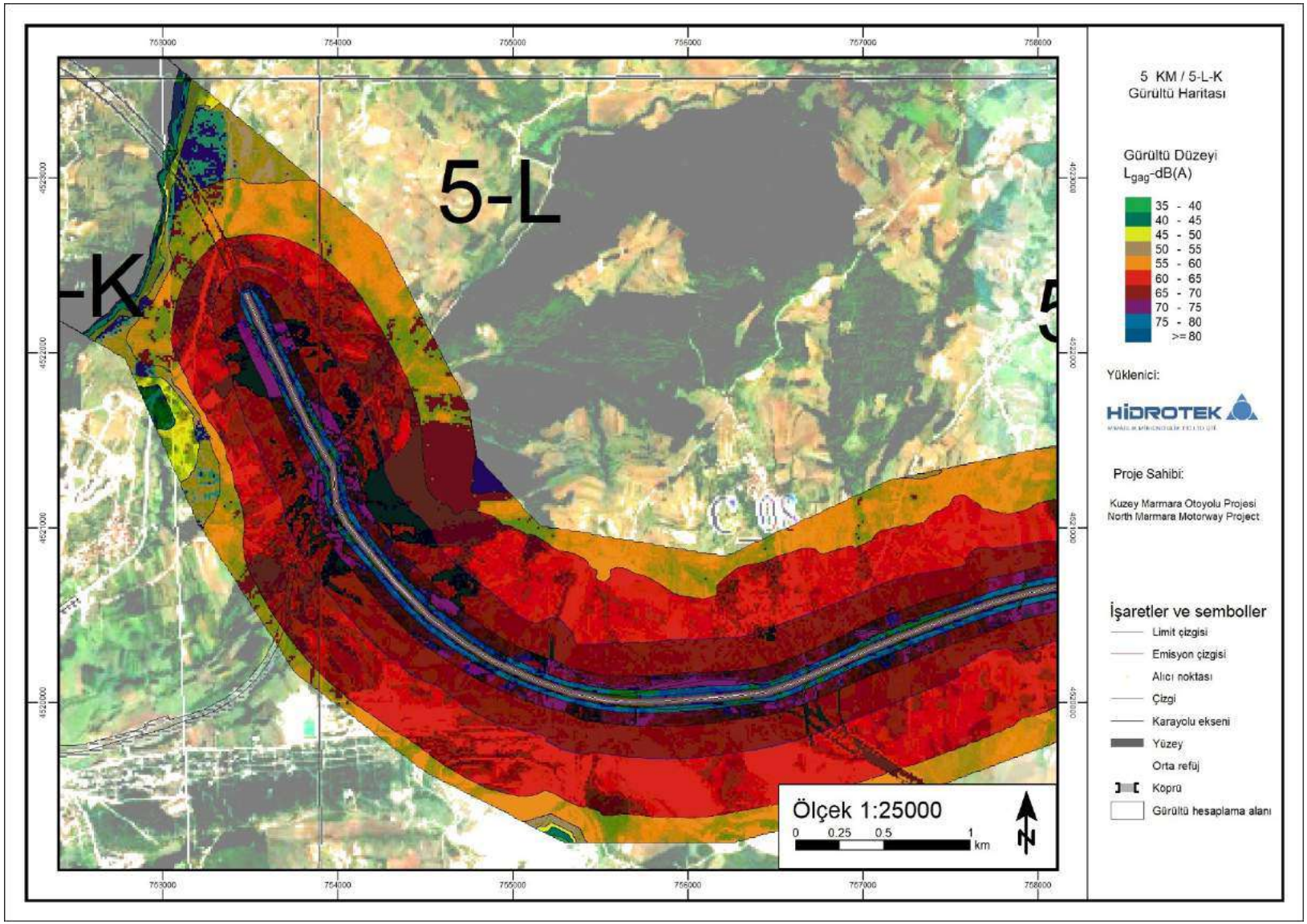

Figure 5.61 Lden noise map for part 5L of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

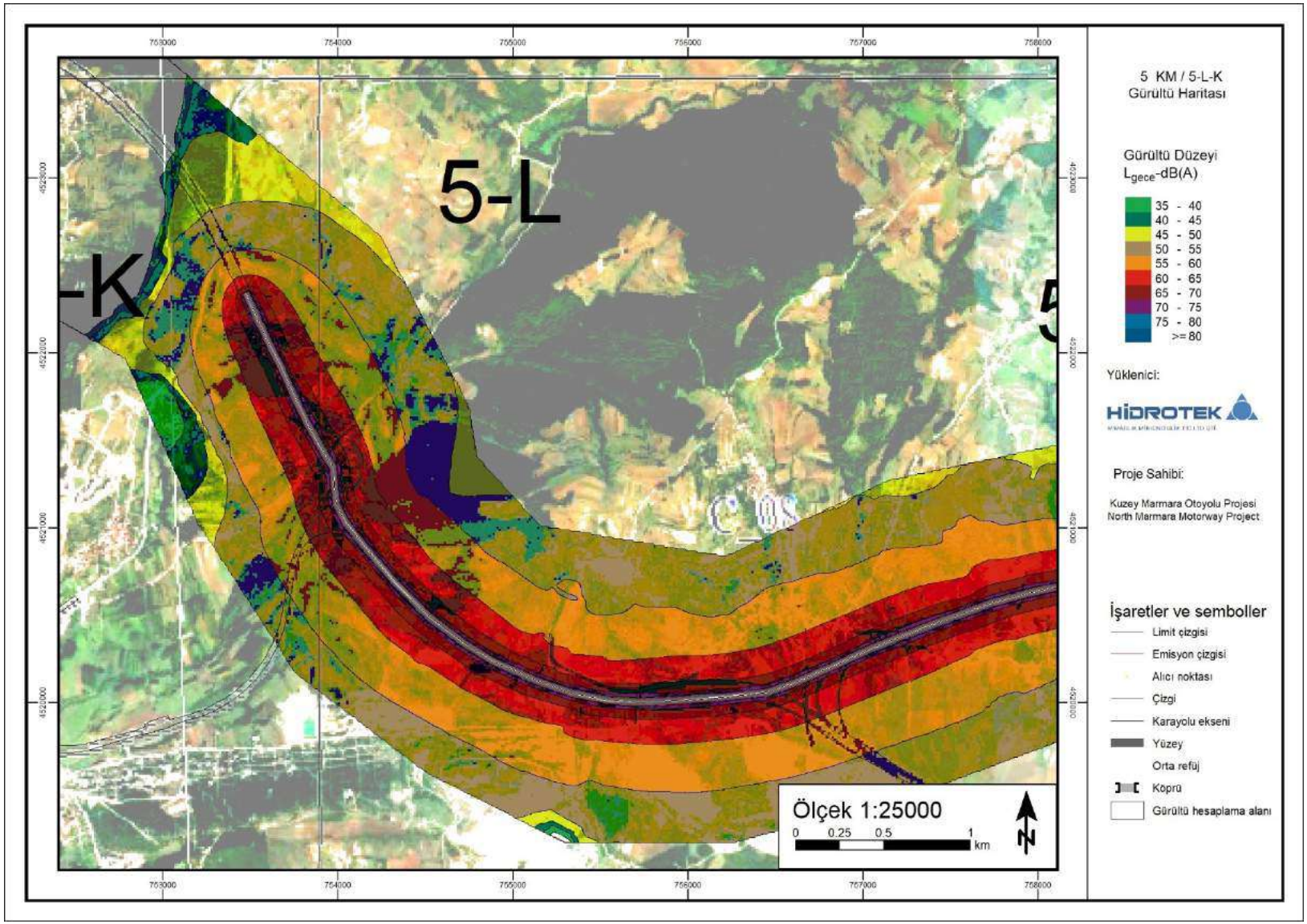

Figure 5.62 Ln noise map for part 5L of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

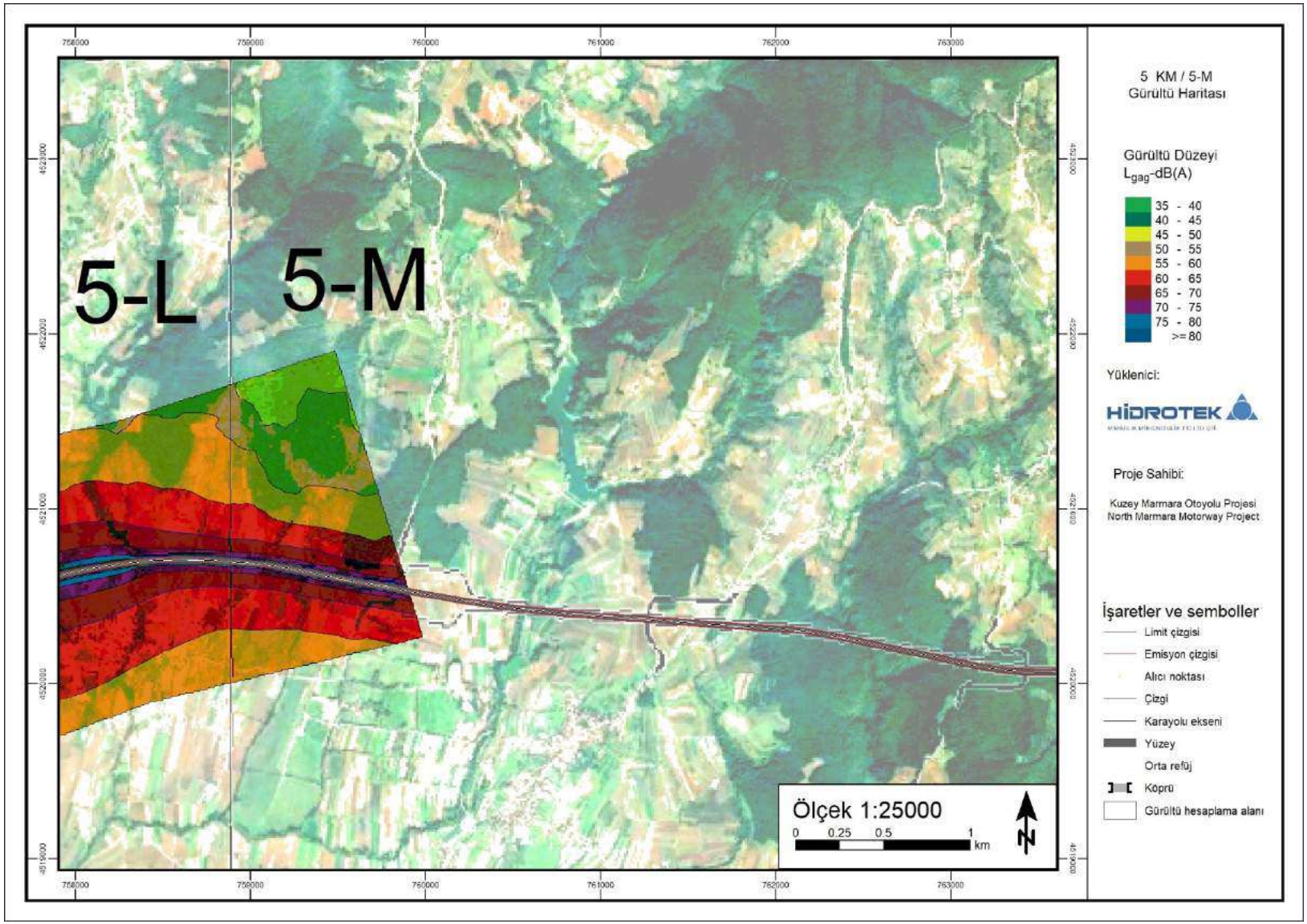

Figure 5.63 Lden noise map for part 5M of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

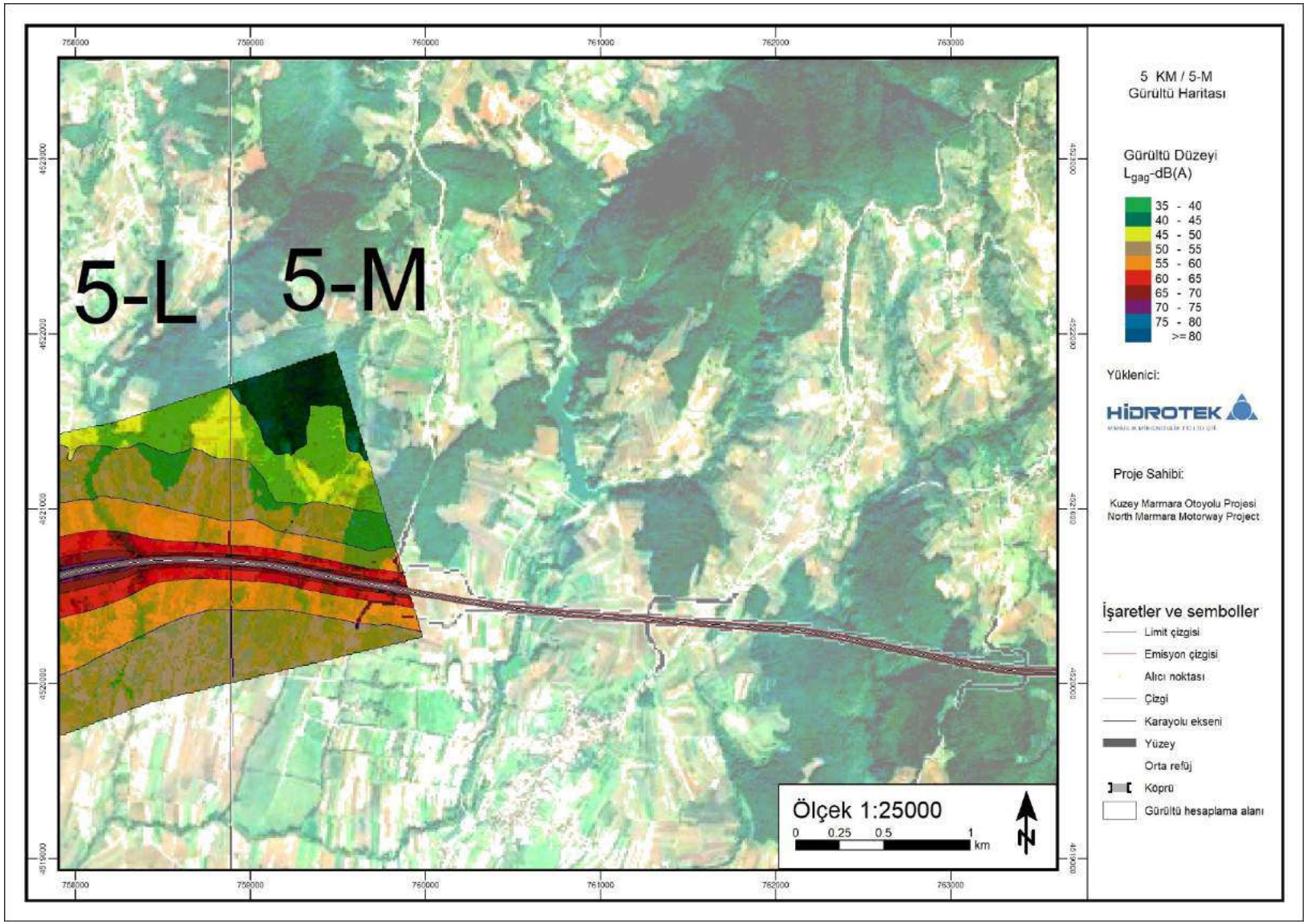

Figure 5.64 Ln noise map for part 5M of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

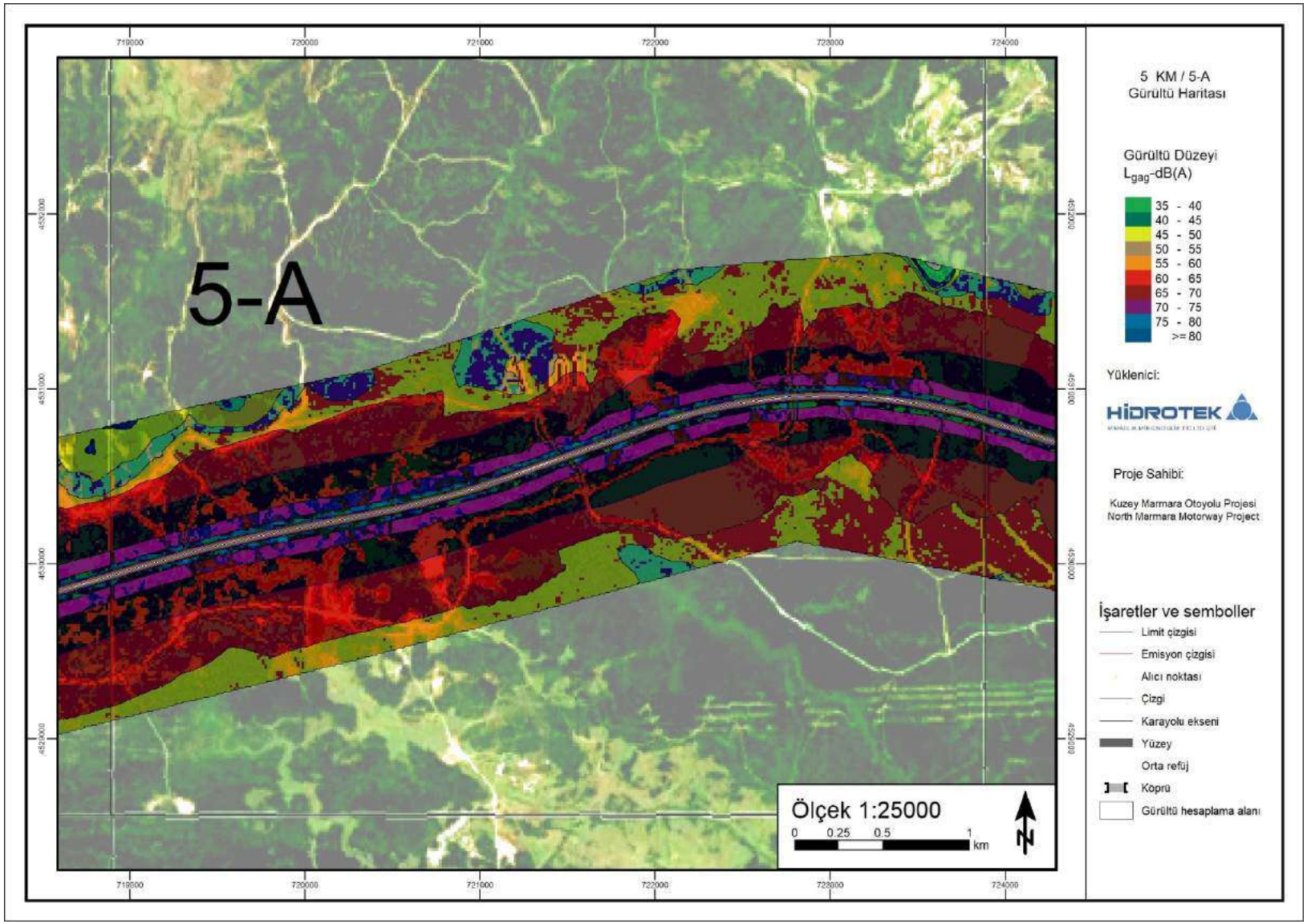

Figure 5.65 Lden noise map for part 5A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

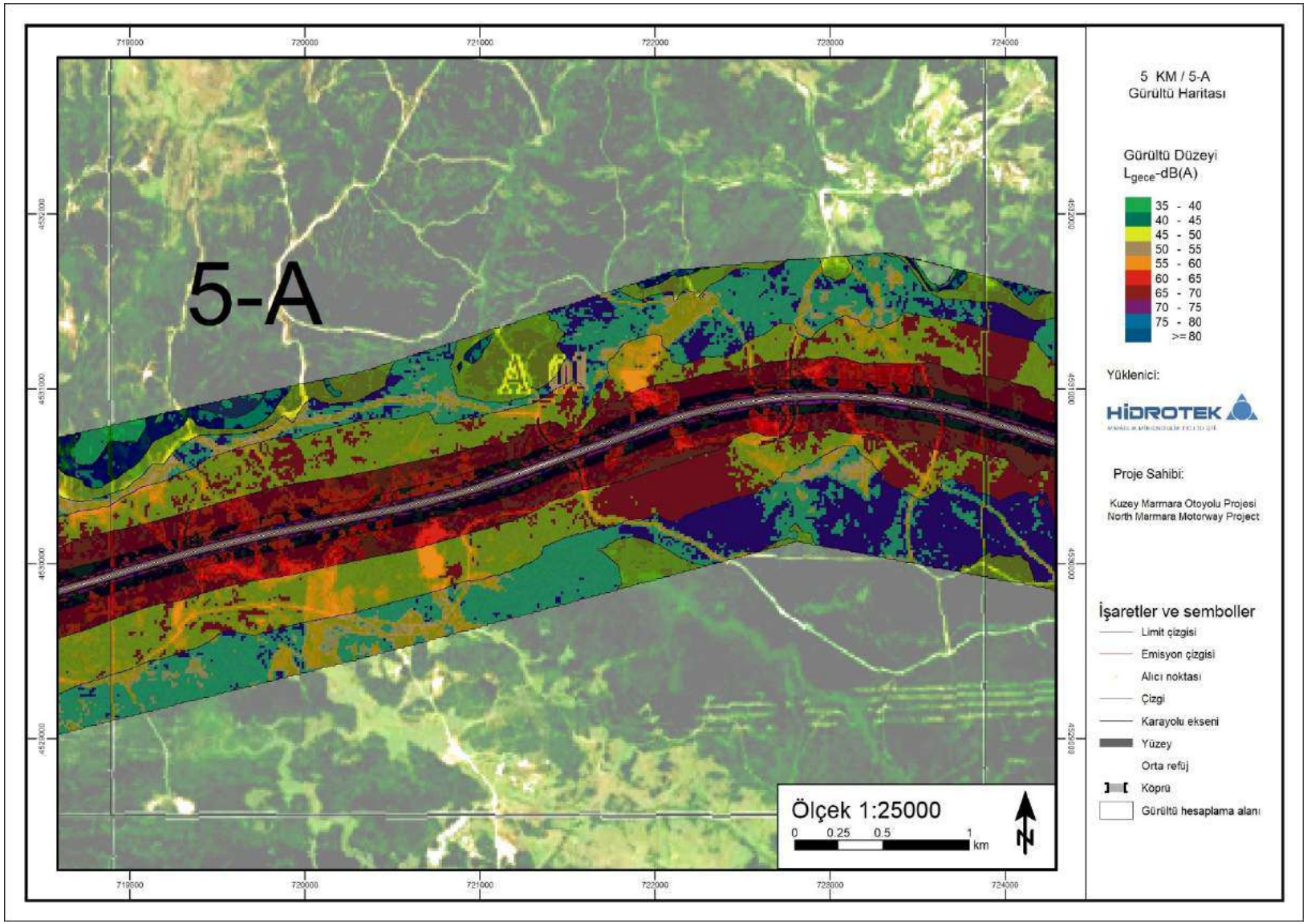

Figure 5.66 Ln noise map for part 5A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

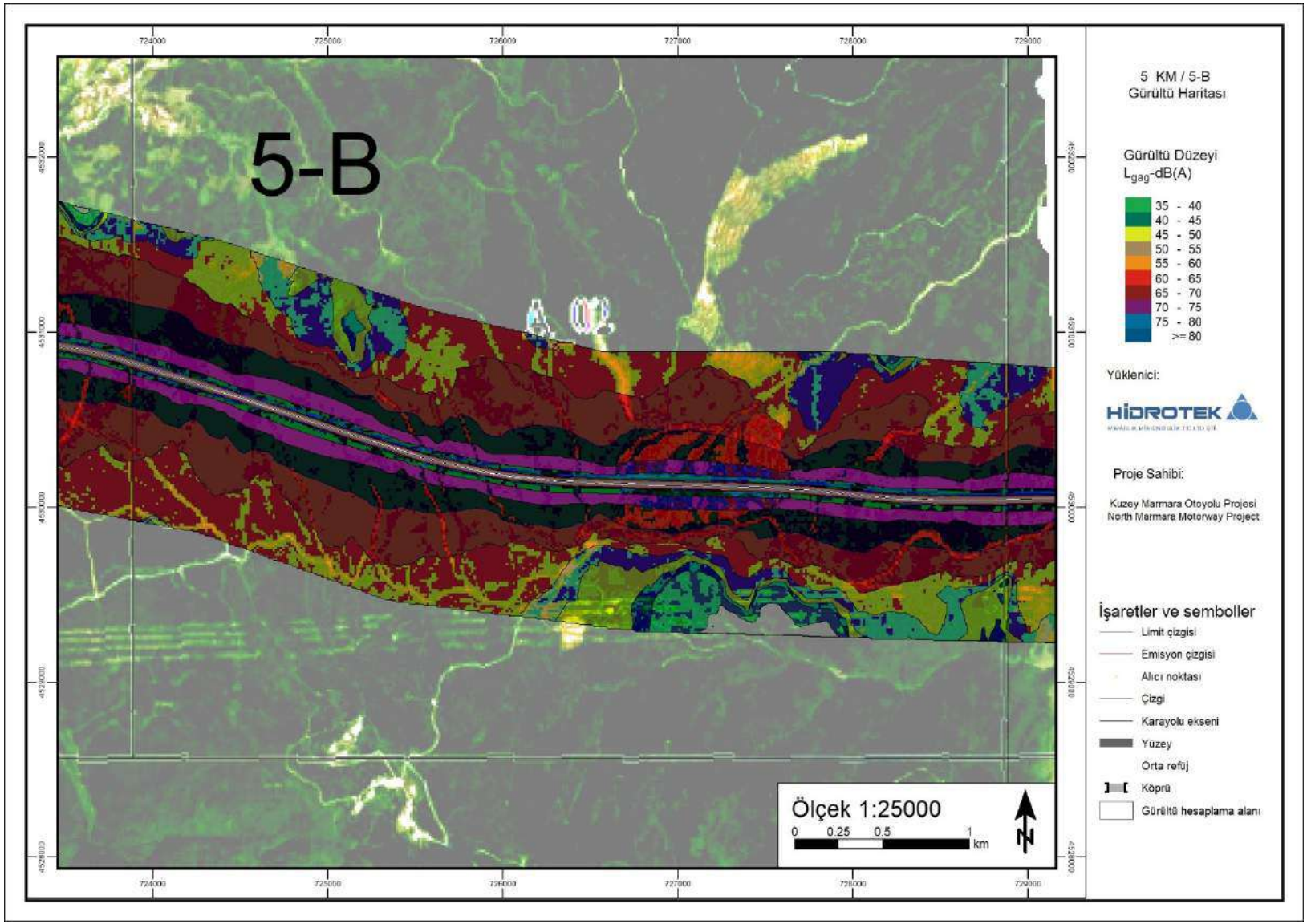

Figure 5.67 Lden noise map for part 5B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

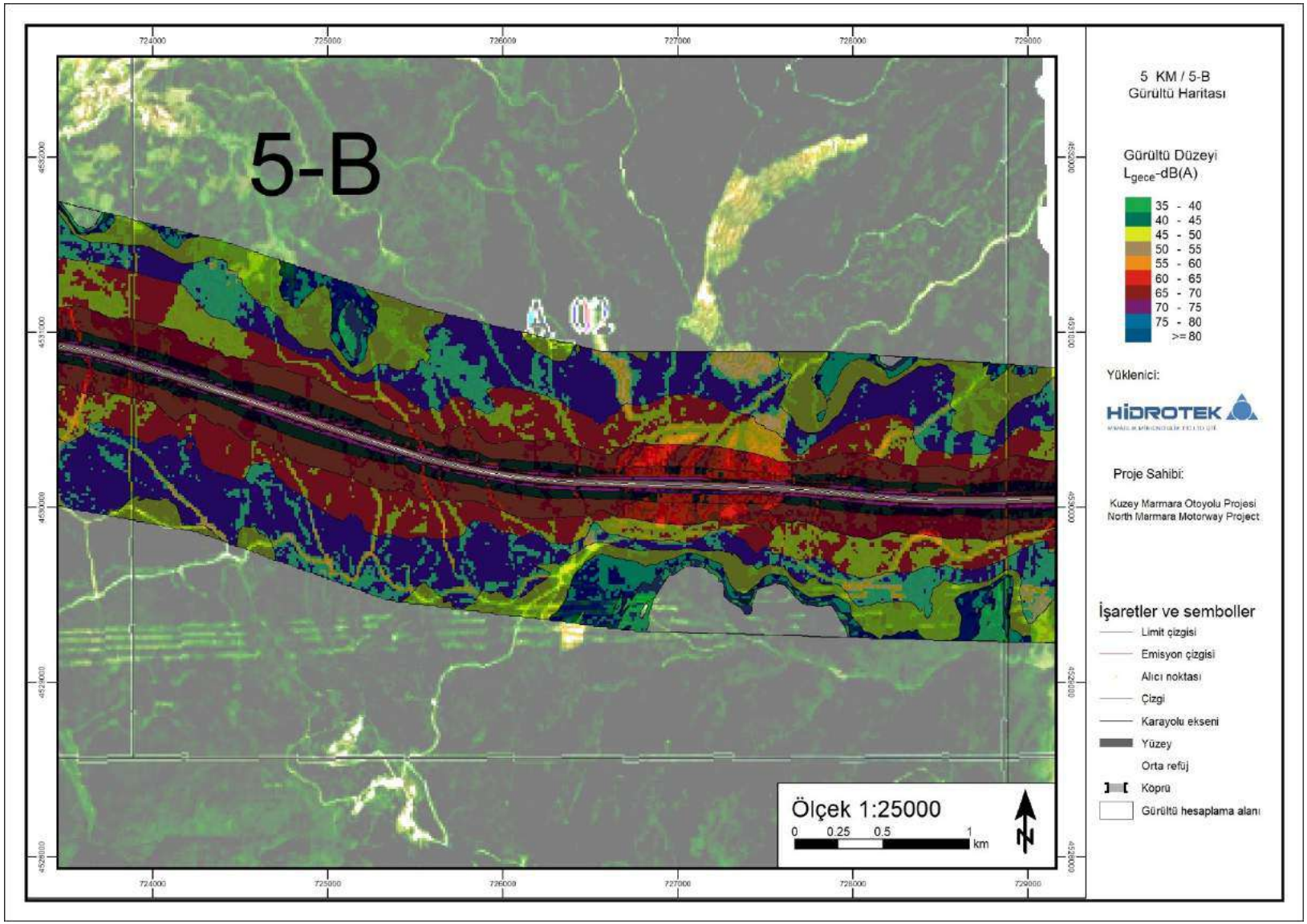

Figure 5.68 Ln noise map for part 5B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

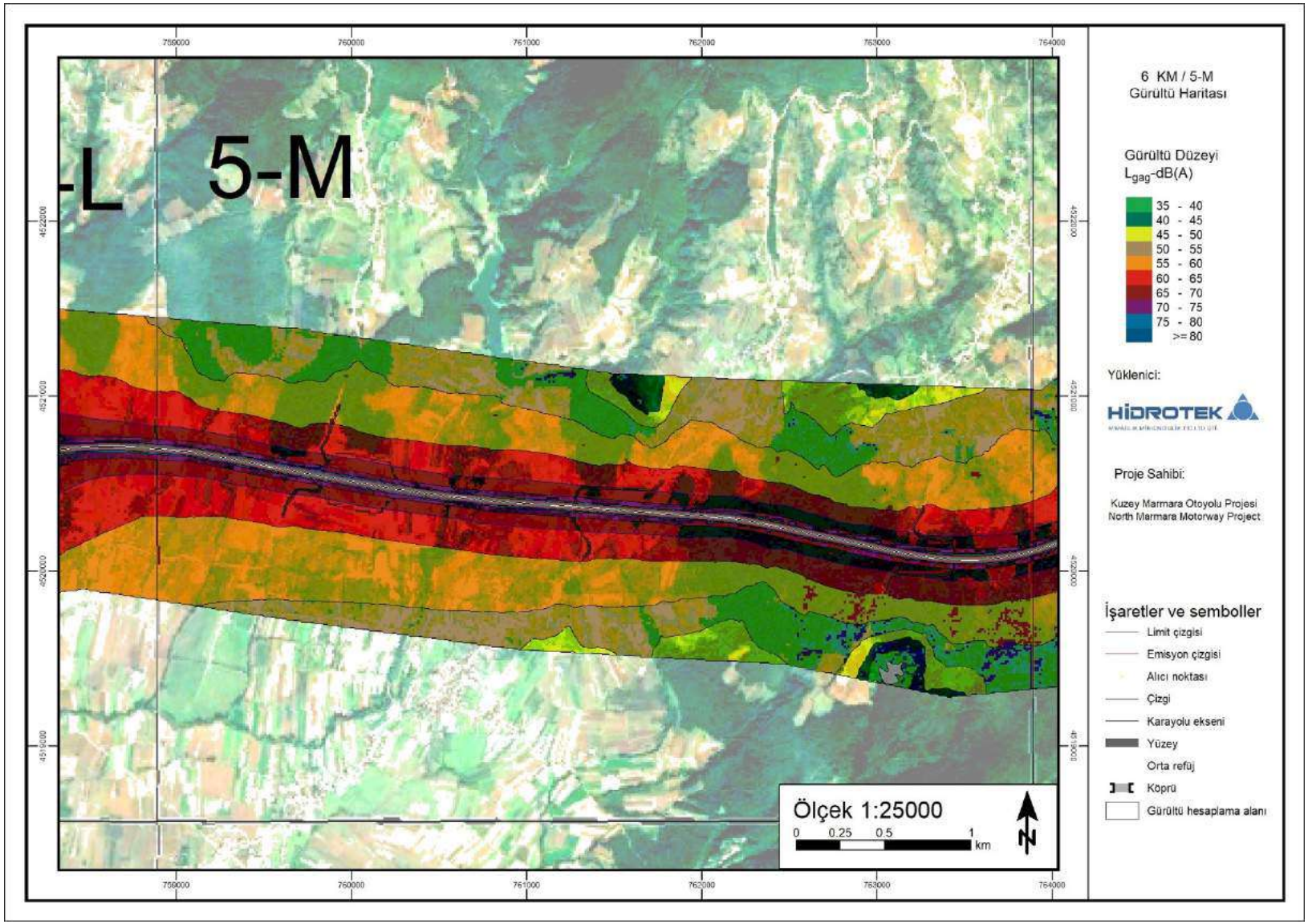

Figure 5.69 Lden noise map for part 5M of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

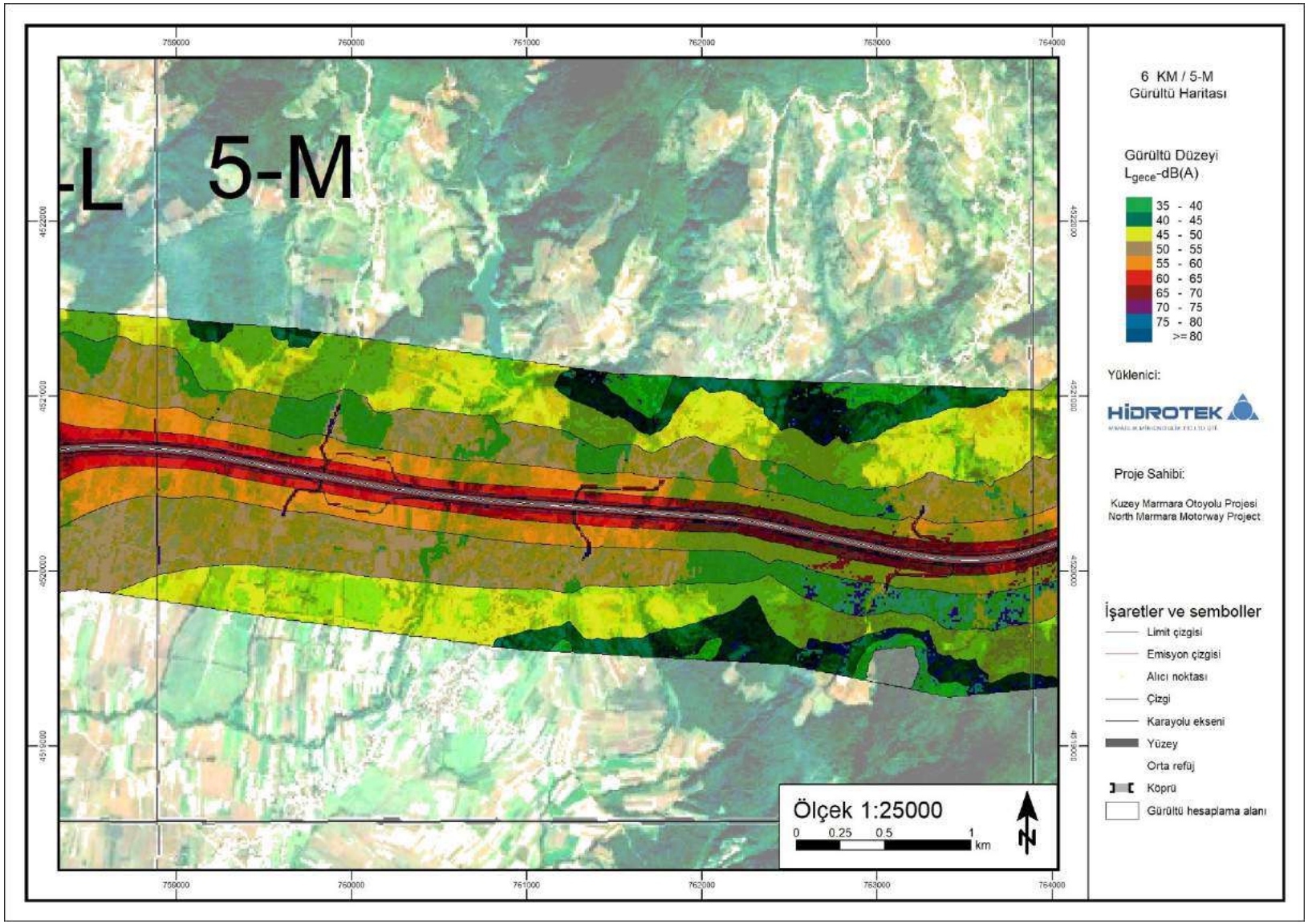

Figure 5.70 Ln noise map for part 5M of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

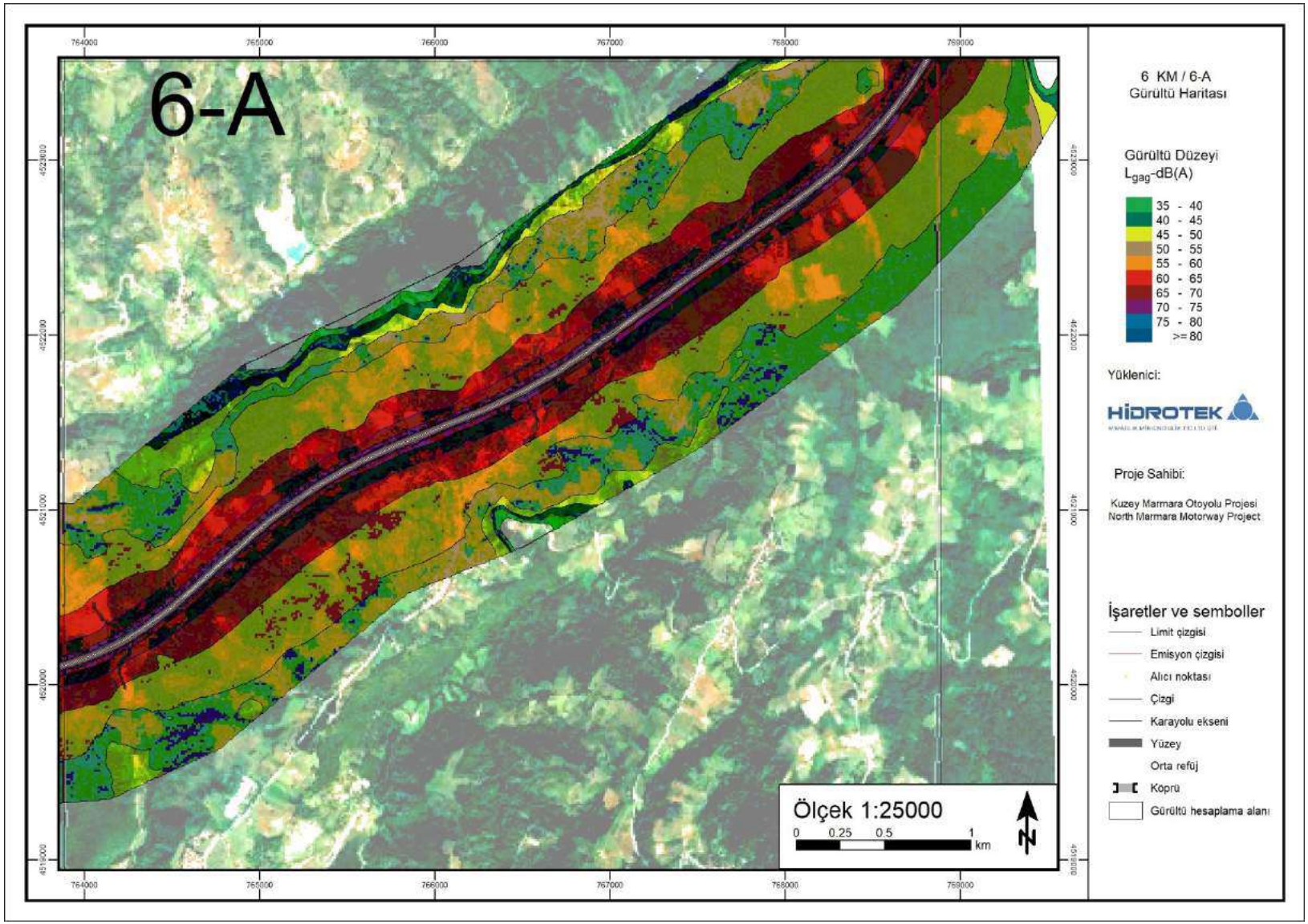

Figure 5.71 Lden noise map for part 6A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

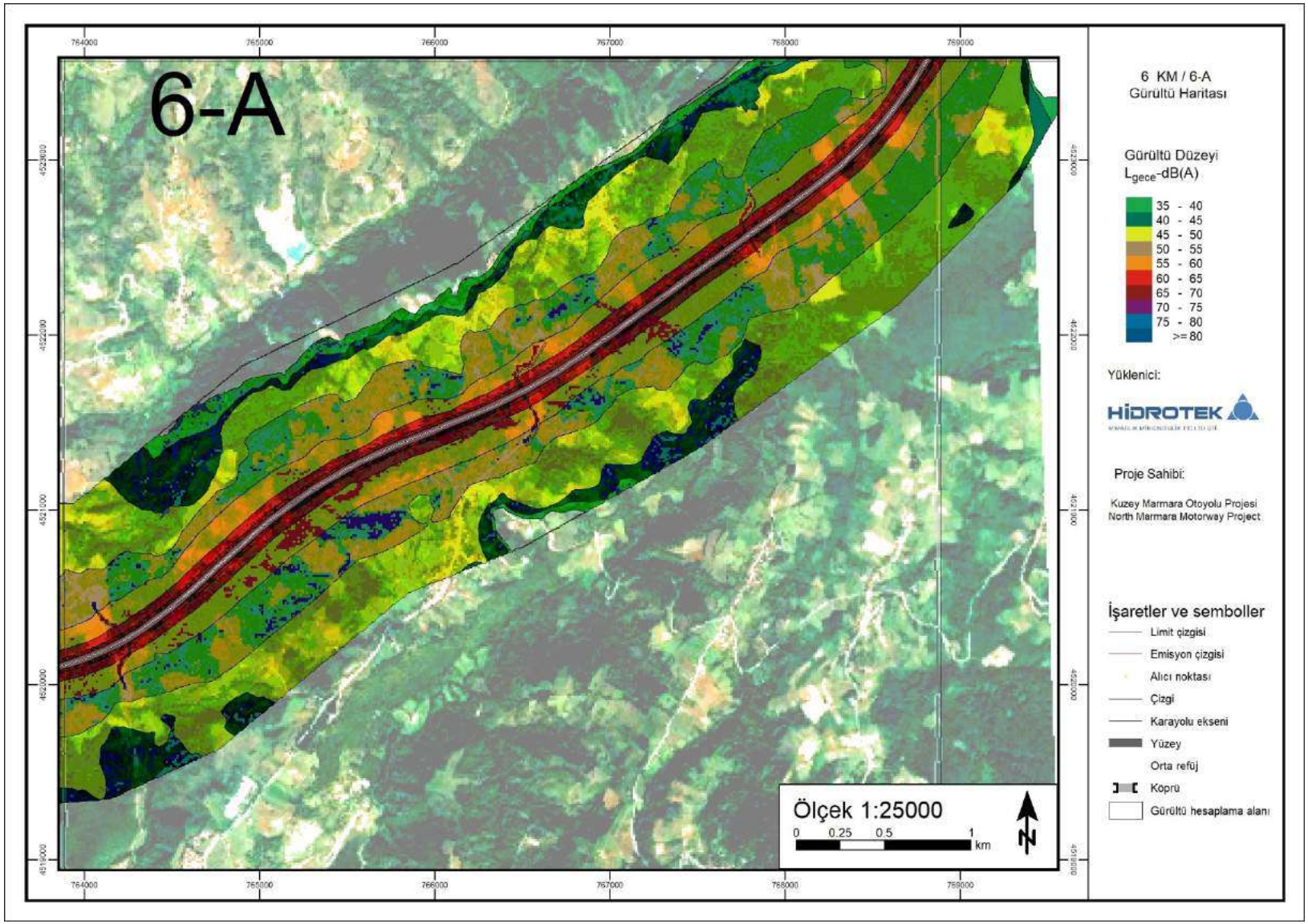

Figure 5.72 Ln noise map for part 6A of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

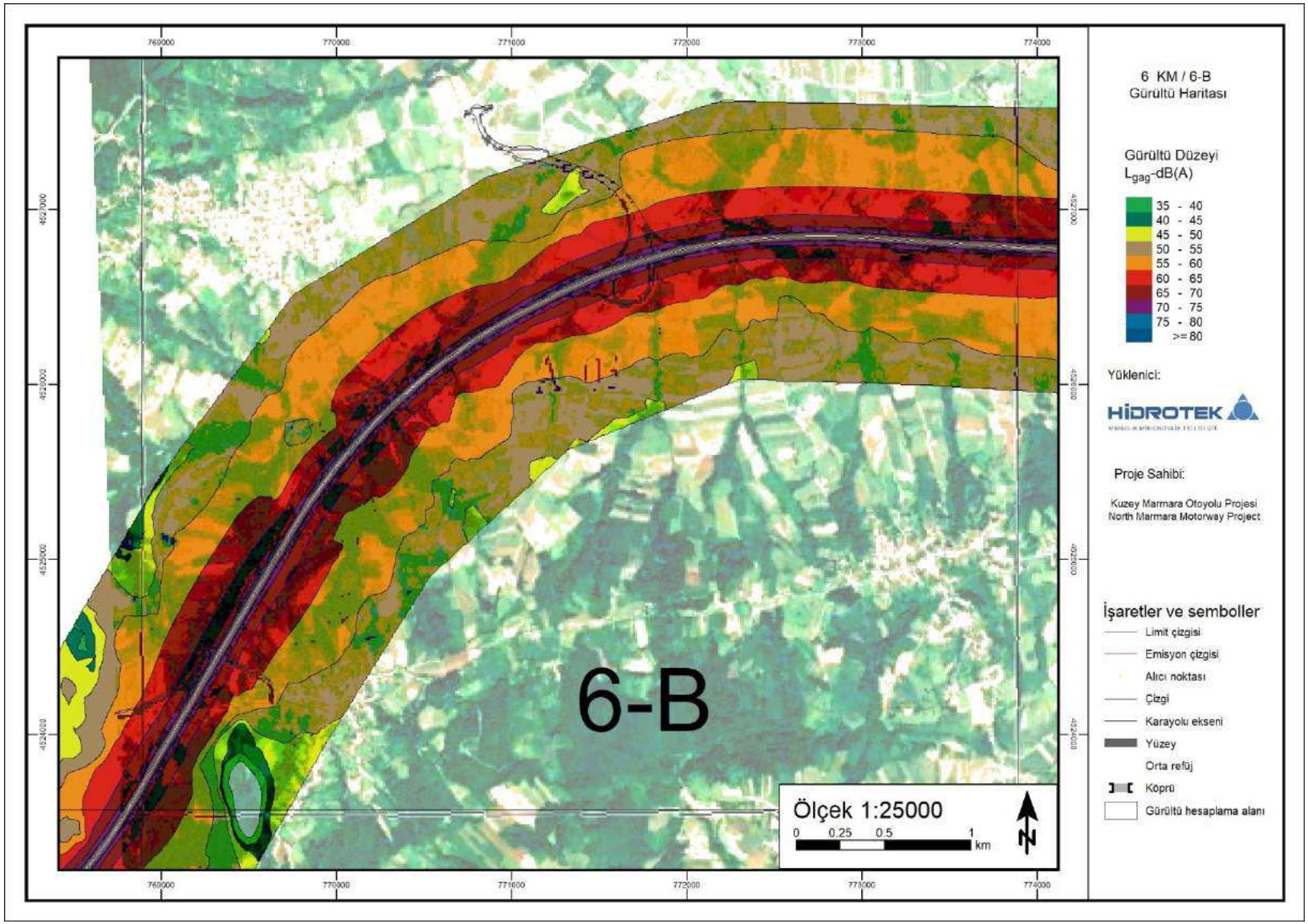

Figure 5.73 Lden noise map for part 6B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

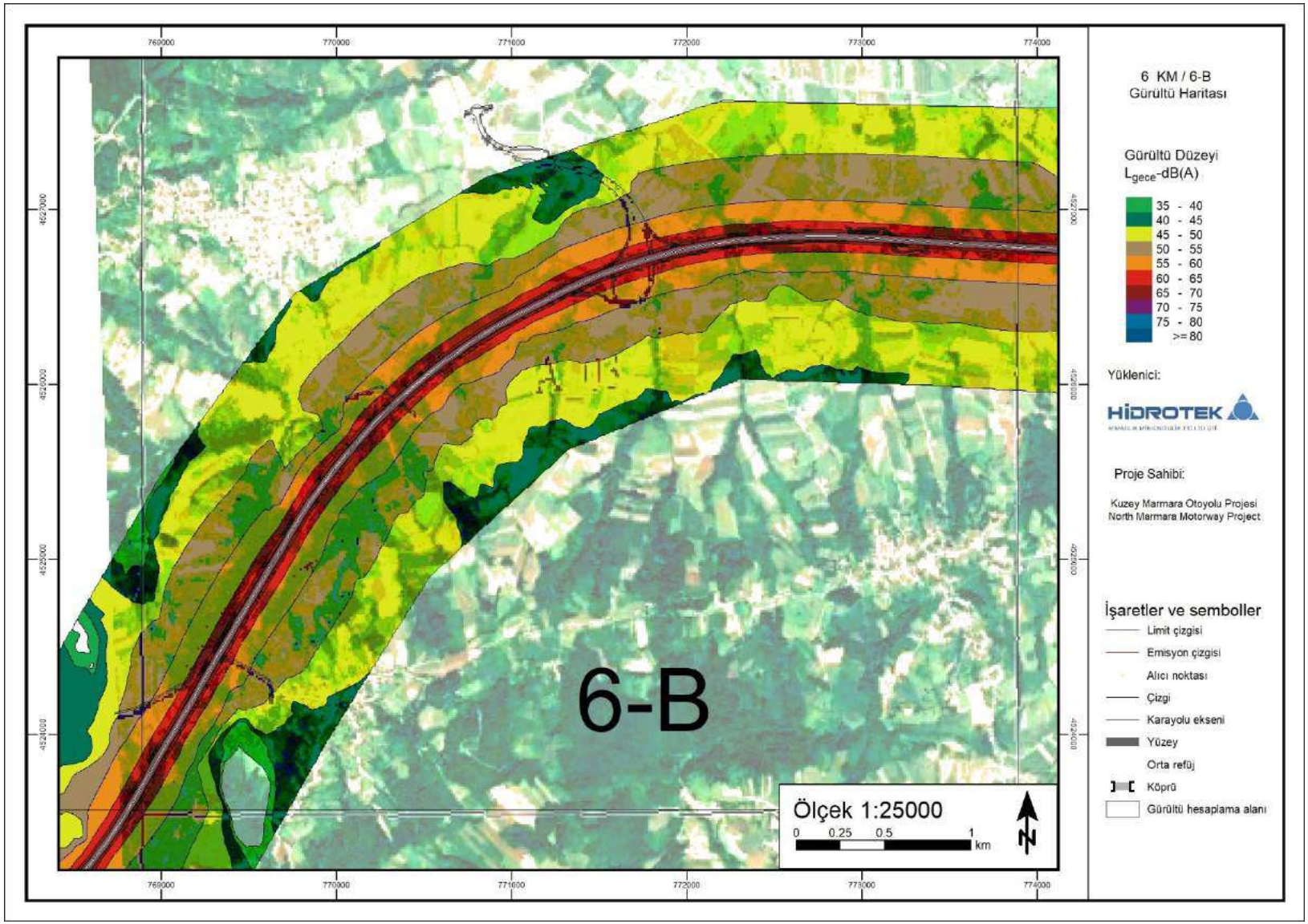

Figure 5.74 Ln noise map for part 6B of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

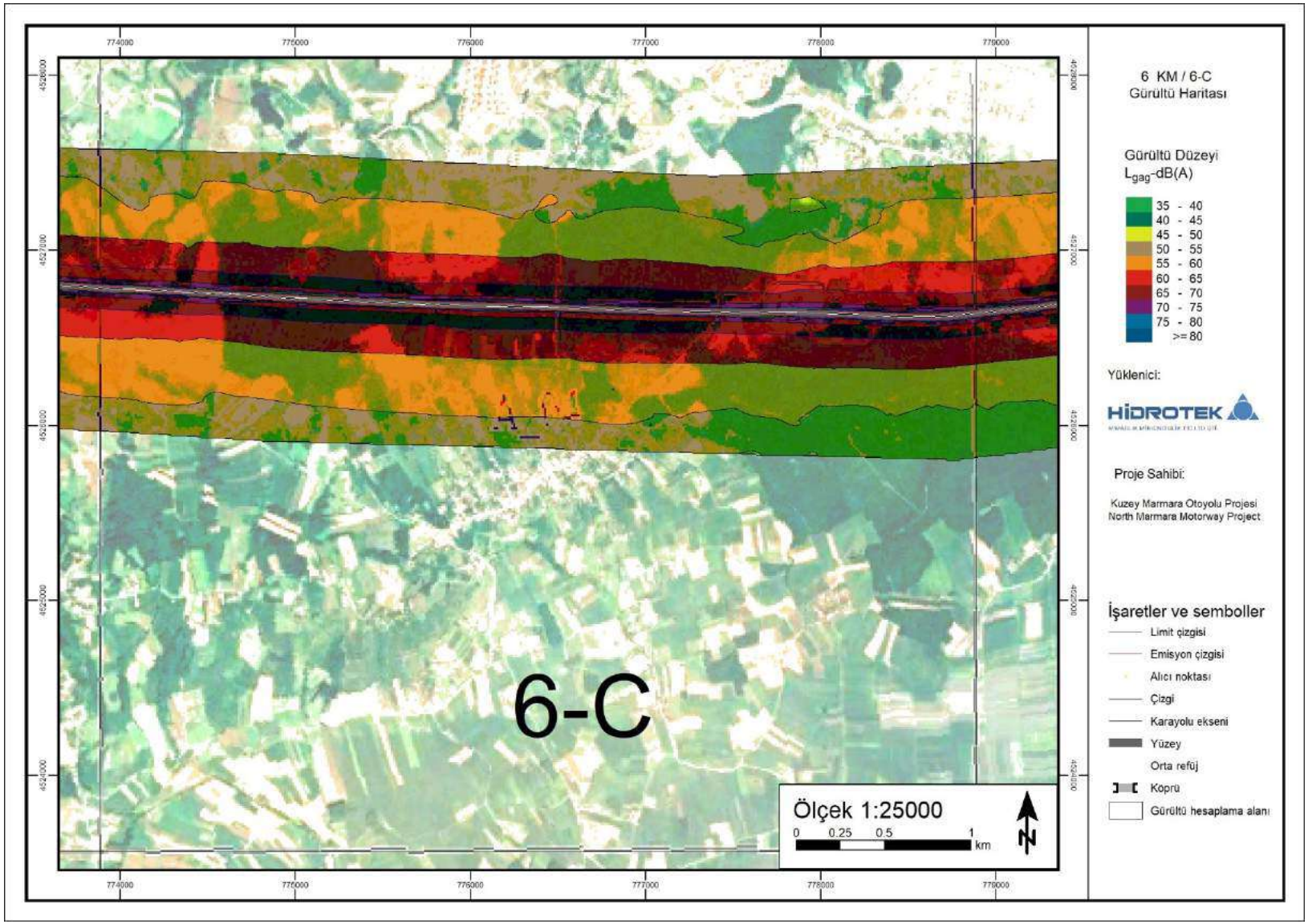

Figure 5.75 Lden noise map for part 6C of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

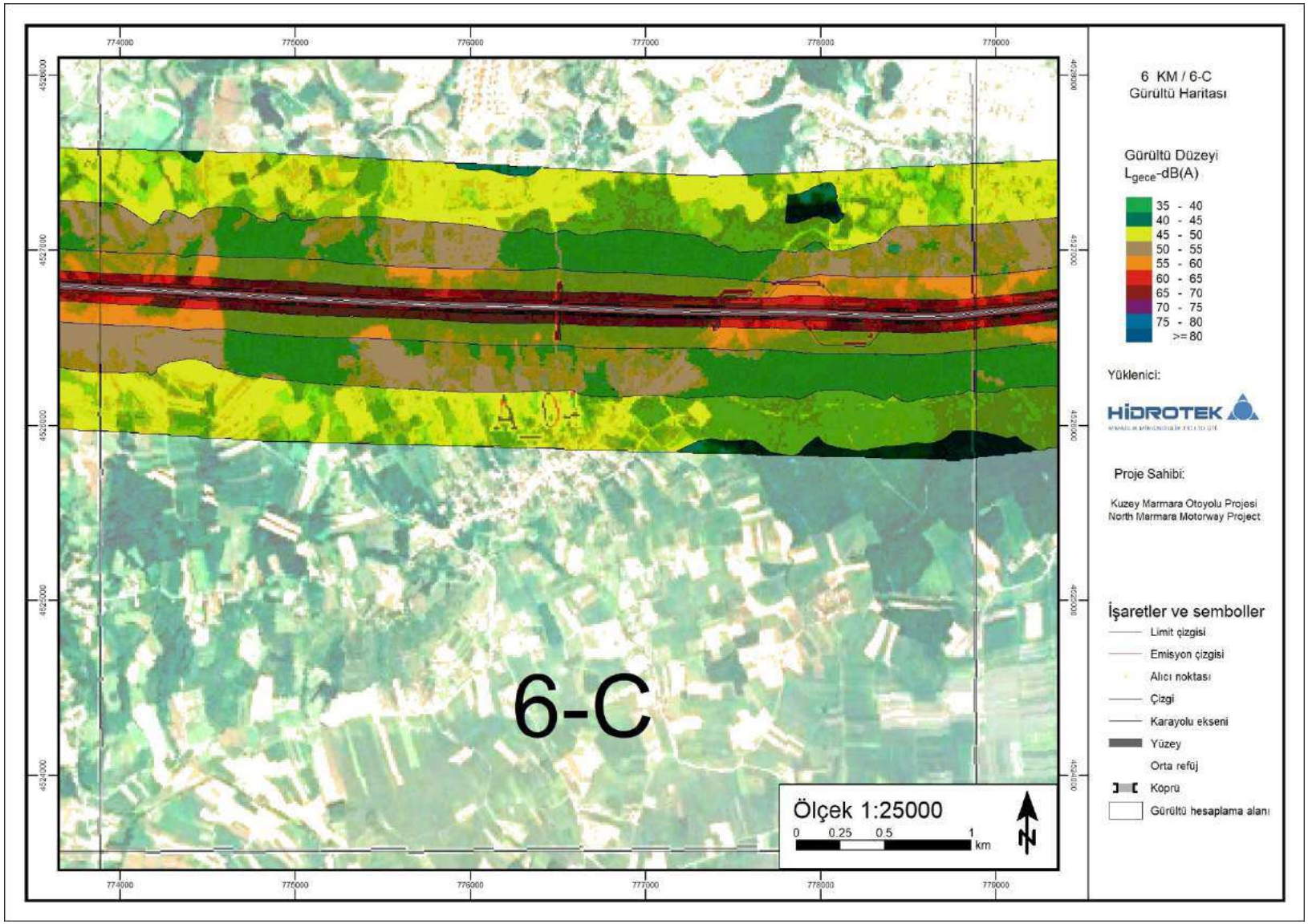

Figure 5.76 Ln noise map for part 6C of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

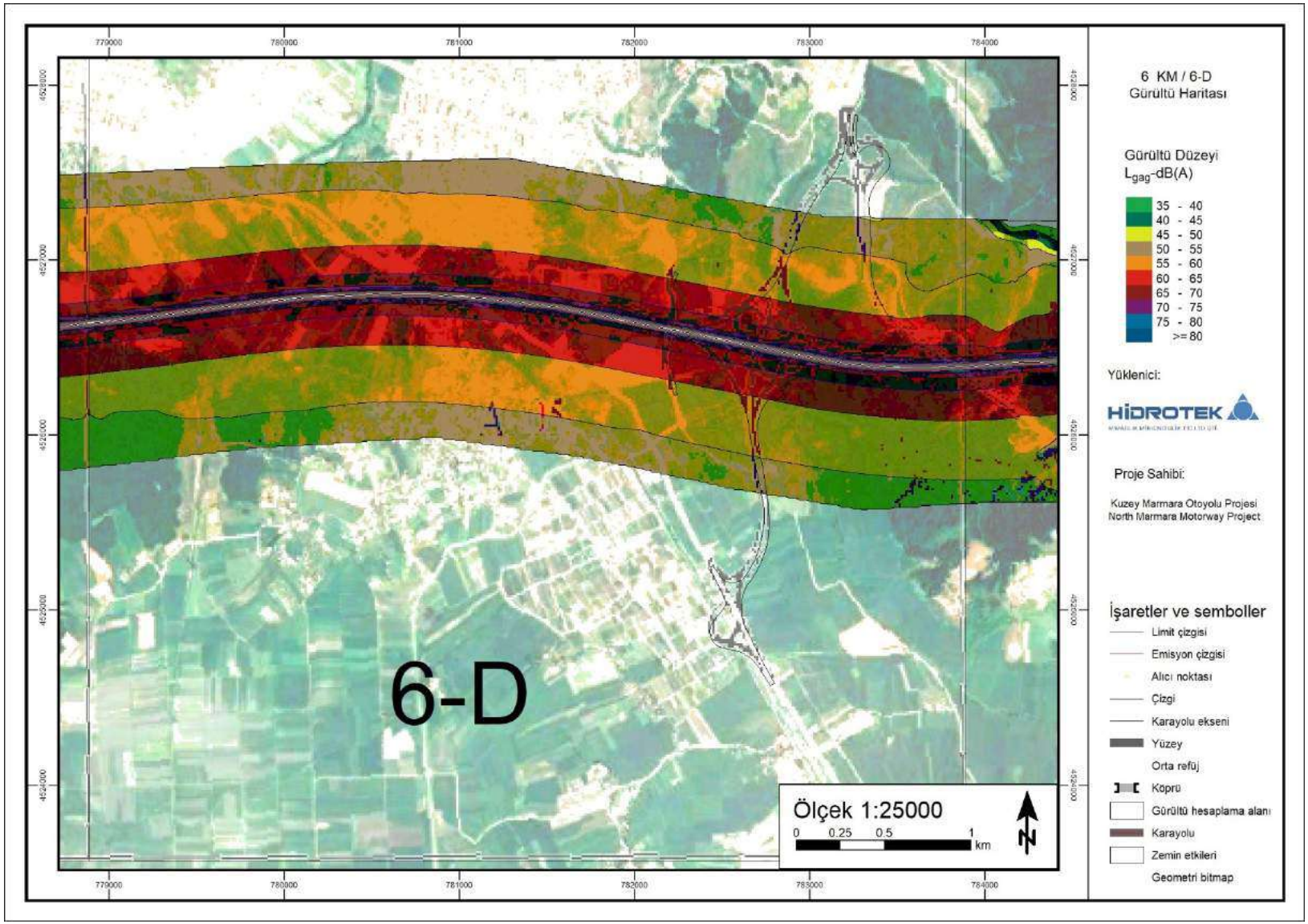

Figure 5.77 Lden noise map for part 6D of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

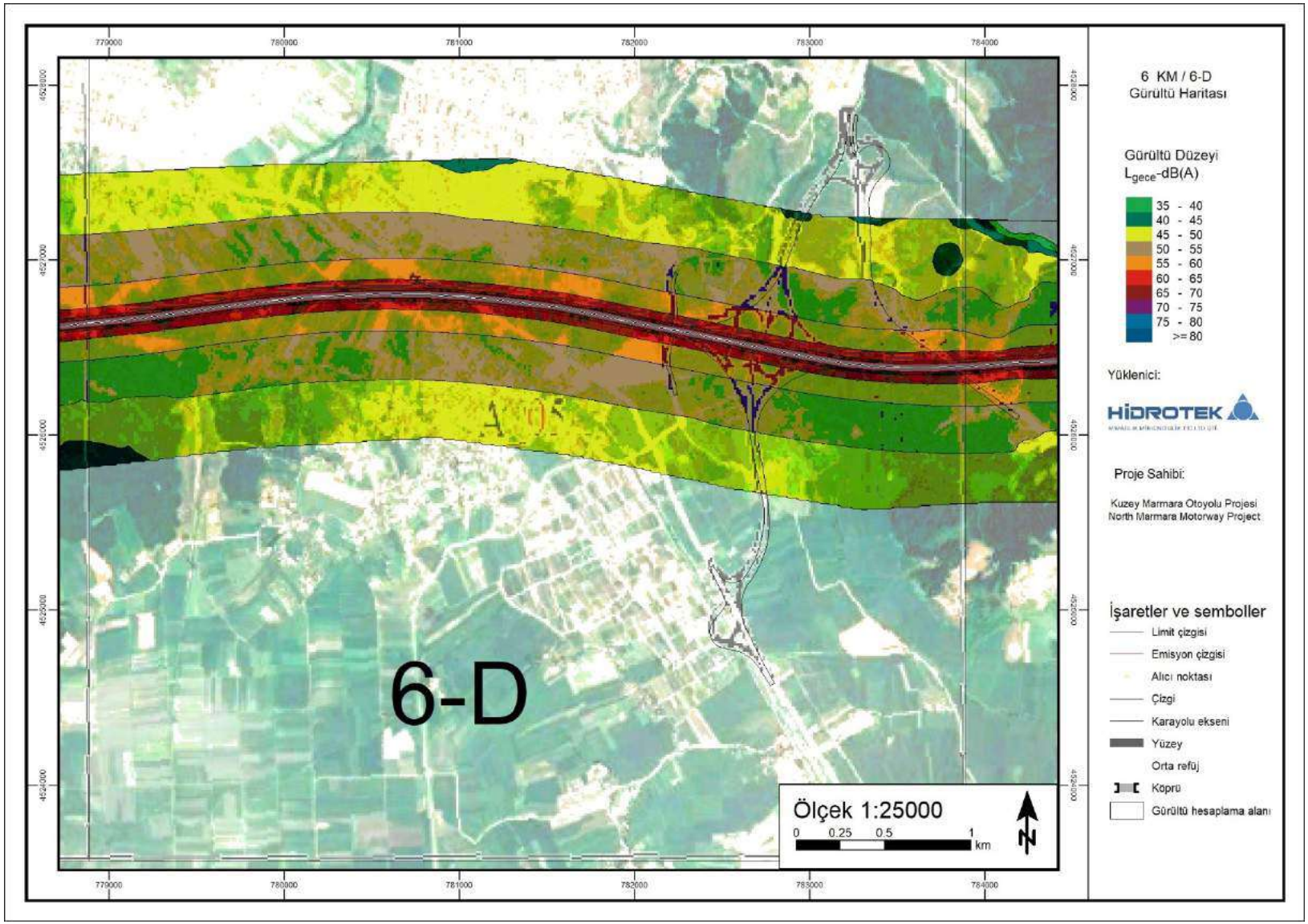

Figure 5.78 Ln noise map for part 6D of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

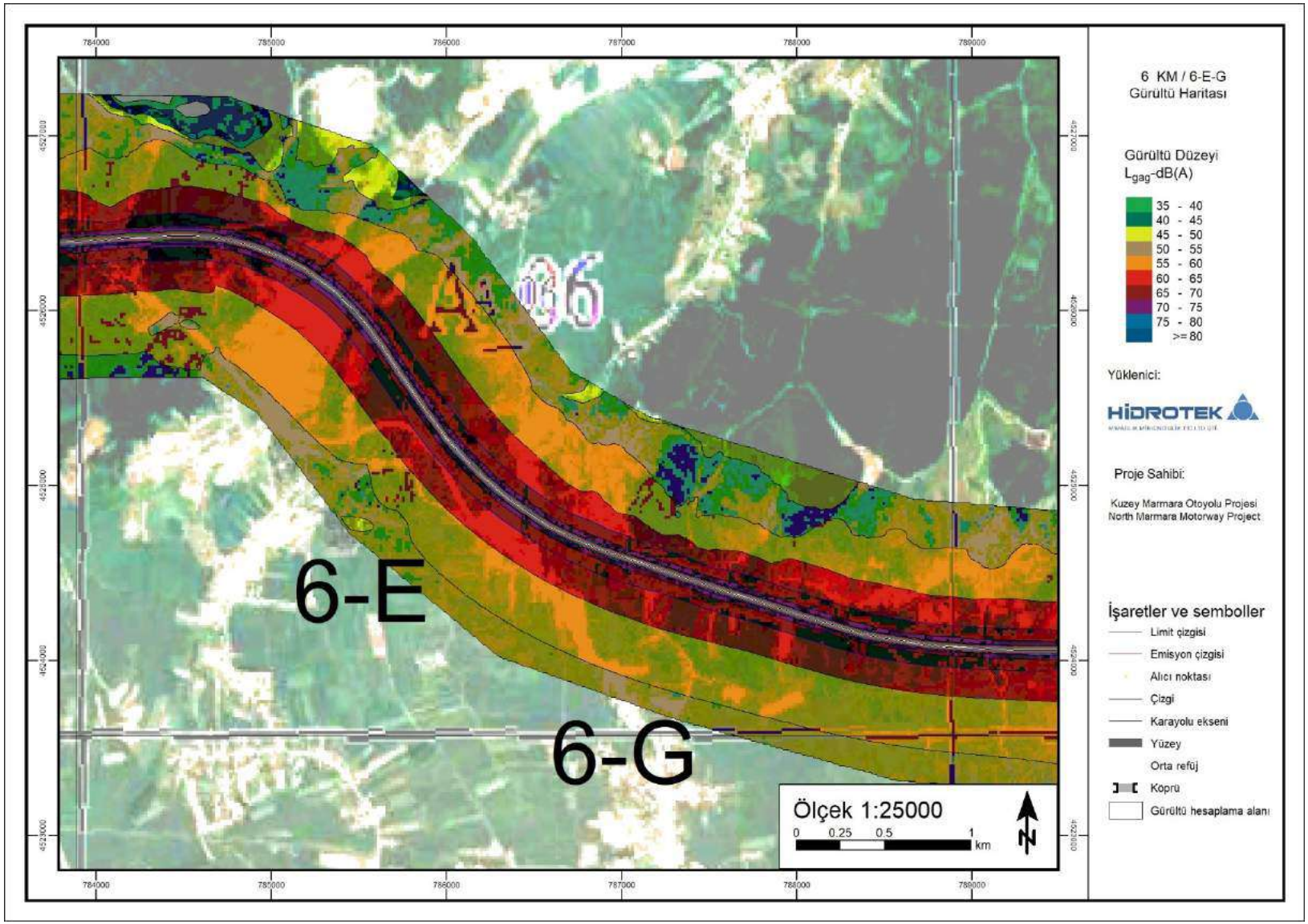

Figure 5.79 Lden noise map for part 6E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

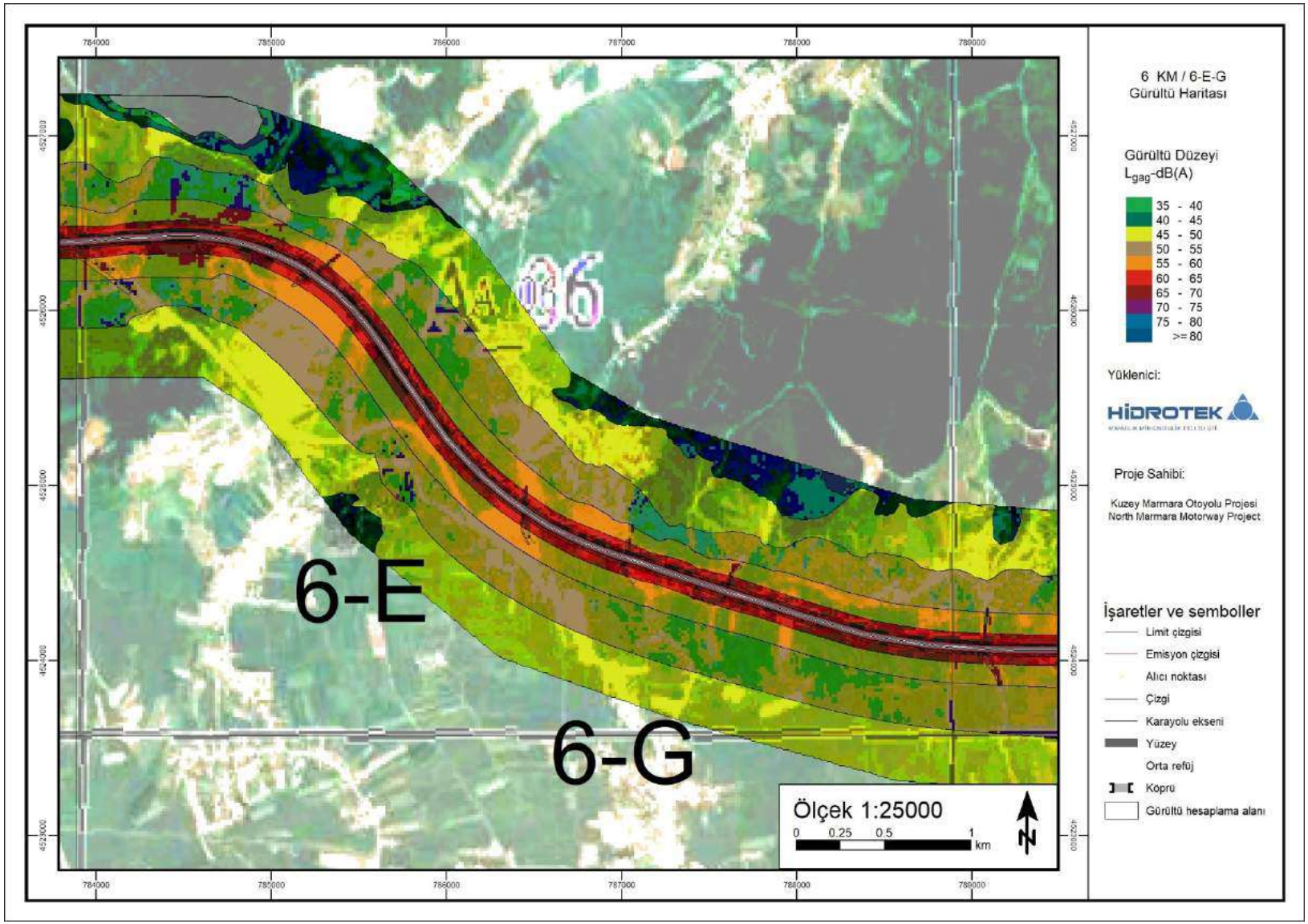

Figure 5.80 Ln noise map for part 6E of year 2027

HİDROTEK
MİMARLIK MÜHENDİSLİK TİC.LTD.ŞTİ.
İmzasız ve mühürsüz raporlar geçersizdir. Hidrotek Mim. Müh. Tic. Ltd. Şti. 'nin yazılı onayı olmadan kopyalanıp çoğaltılamaz.

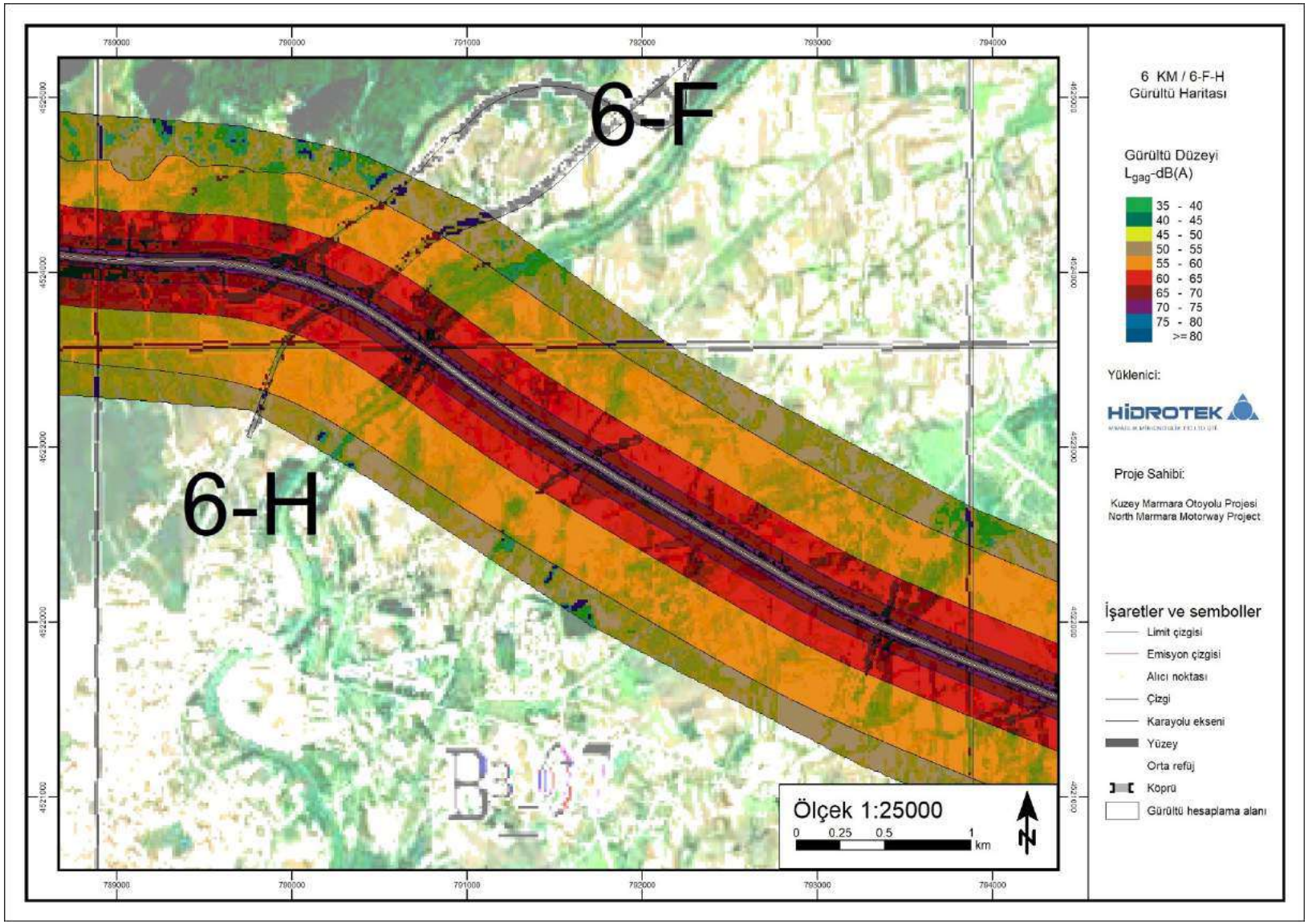

Figure 5.81 Lden noise map for part 6F of year 2027

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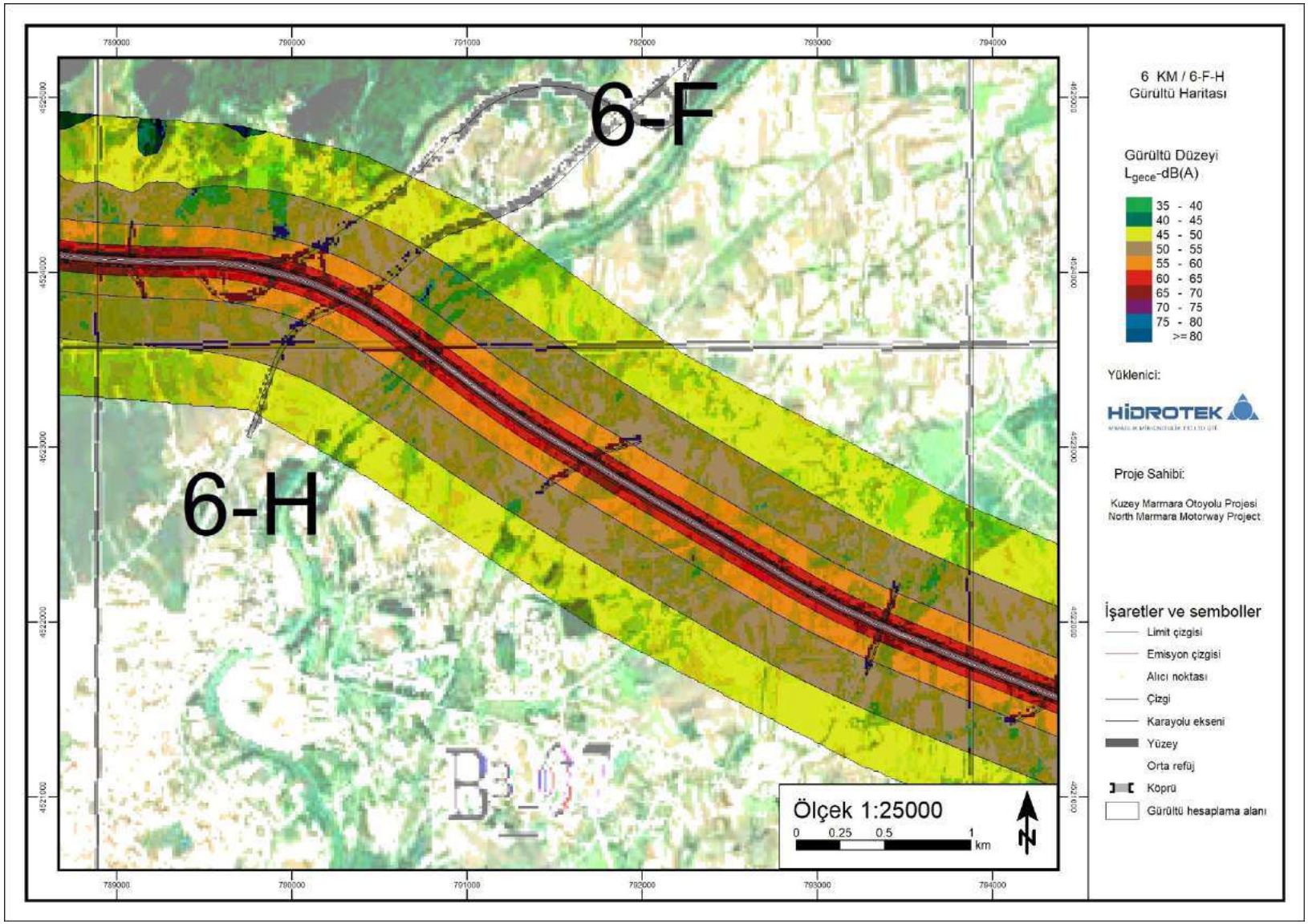

Figure 5.82 Ln noise map for part 6F of year 2027

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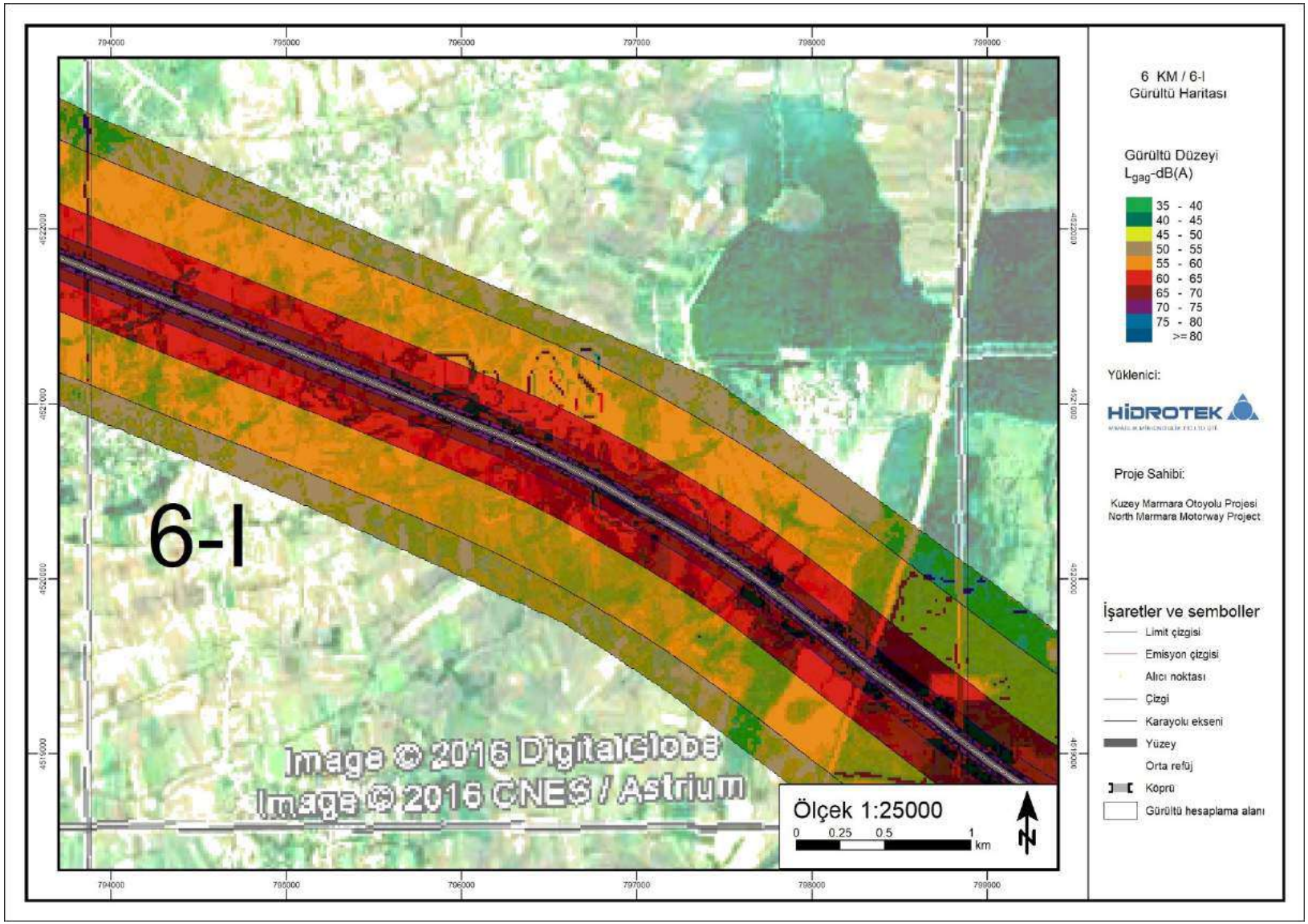

Figure 5.83 Lden noise map for part 6I of year 2027

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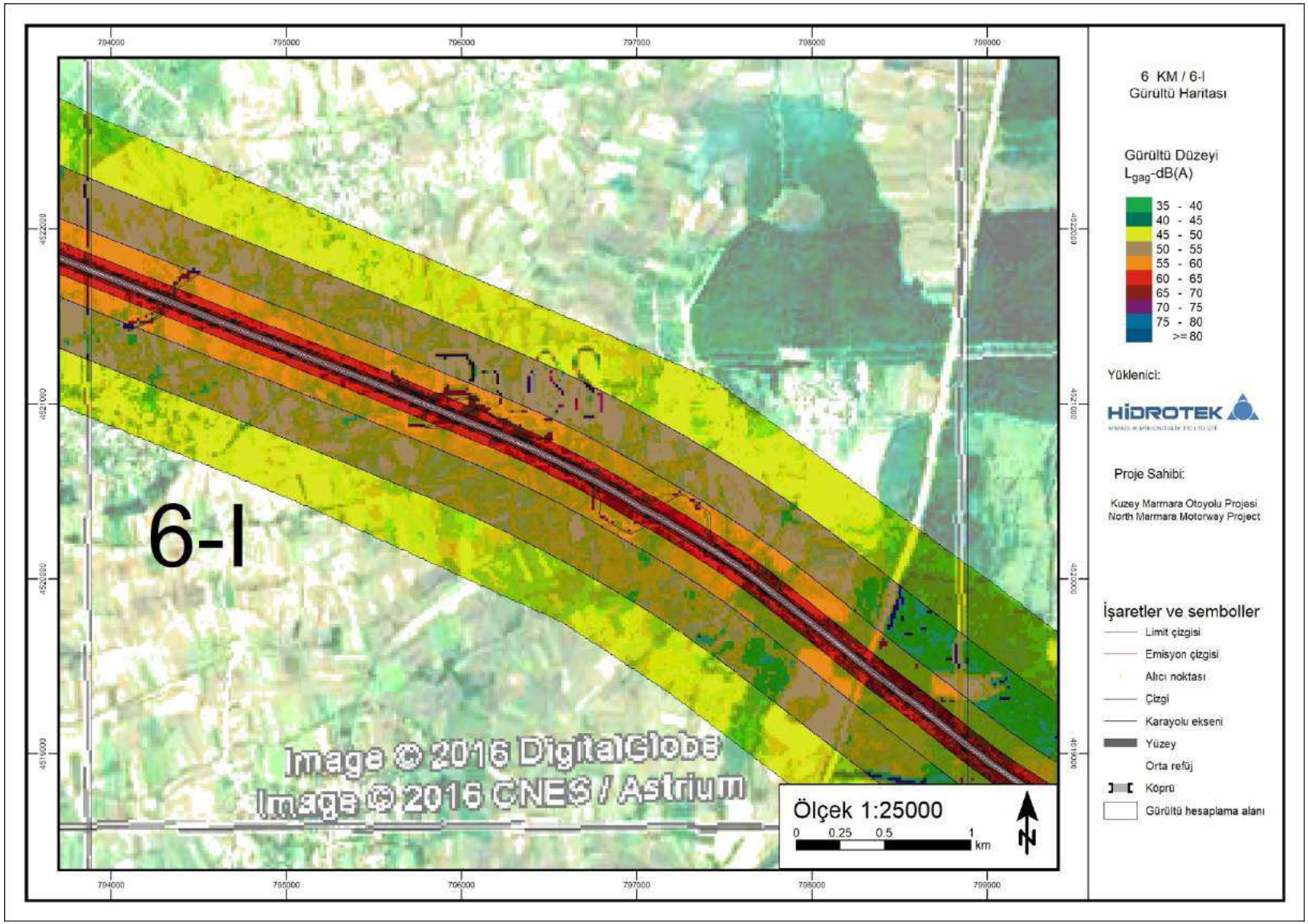

Figure 5.84 Ln noise map for part 6I of year 2027

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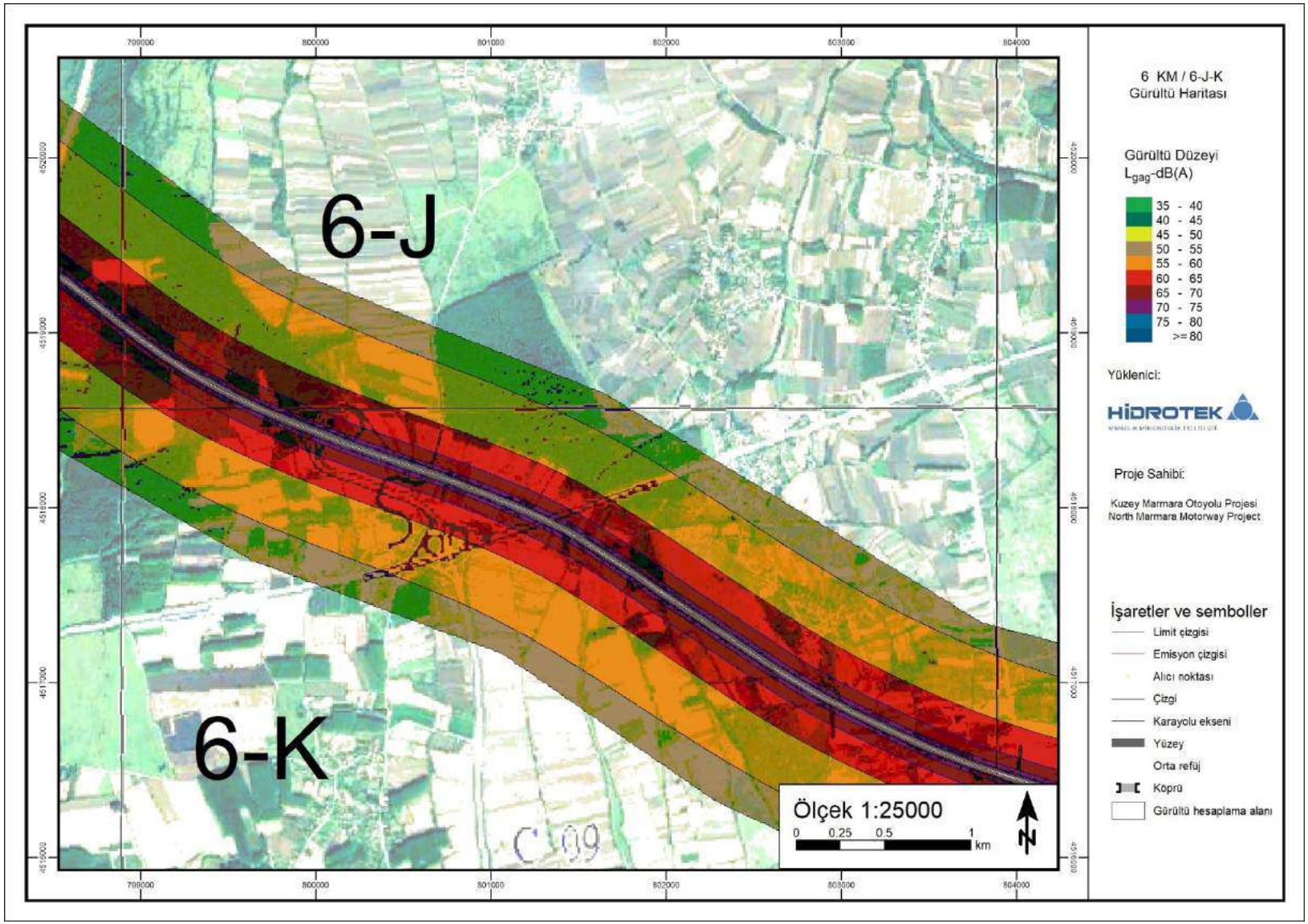

Figure 5.85 Lden noise map for part 6J of year 2027

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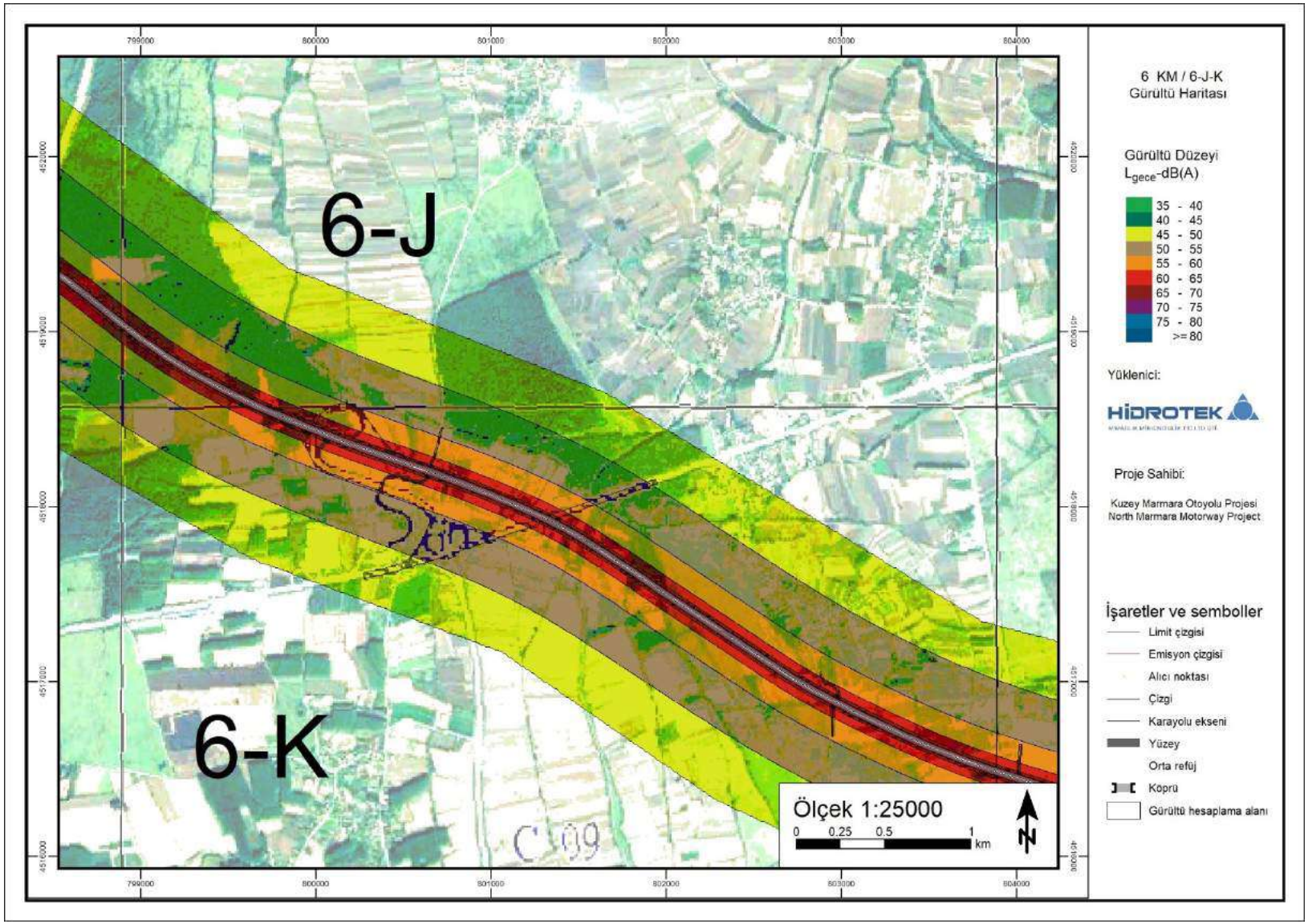

Figure 5.86 Ln noise map for part 6J of year 2027

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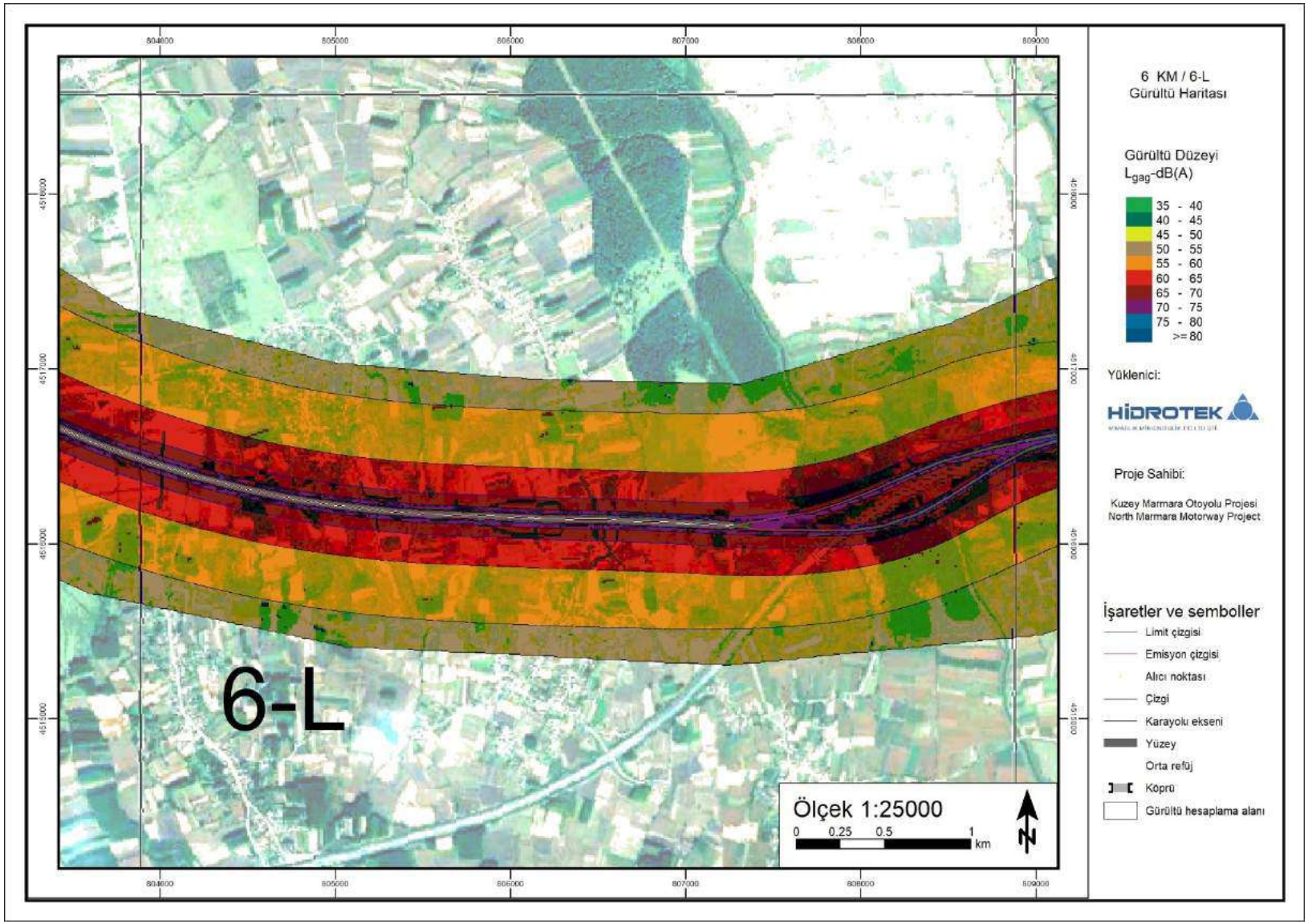

Figure 5.87 Lden noise map for part 6L of year 2027

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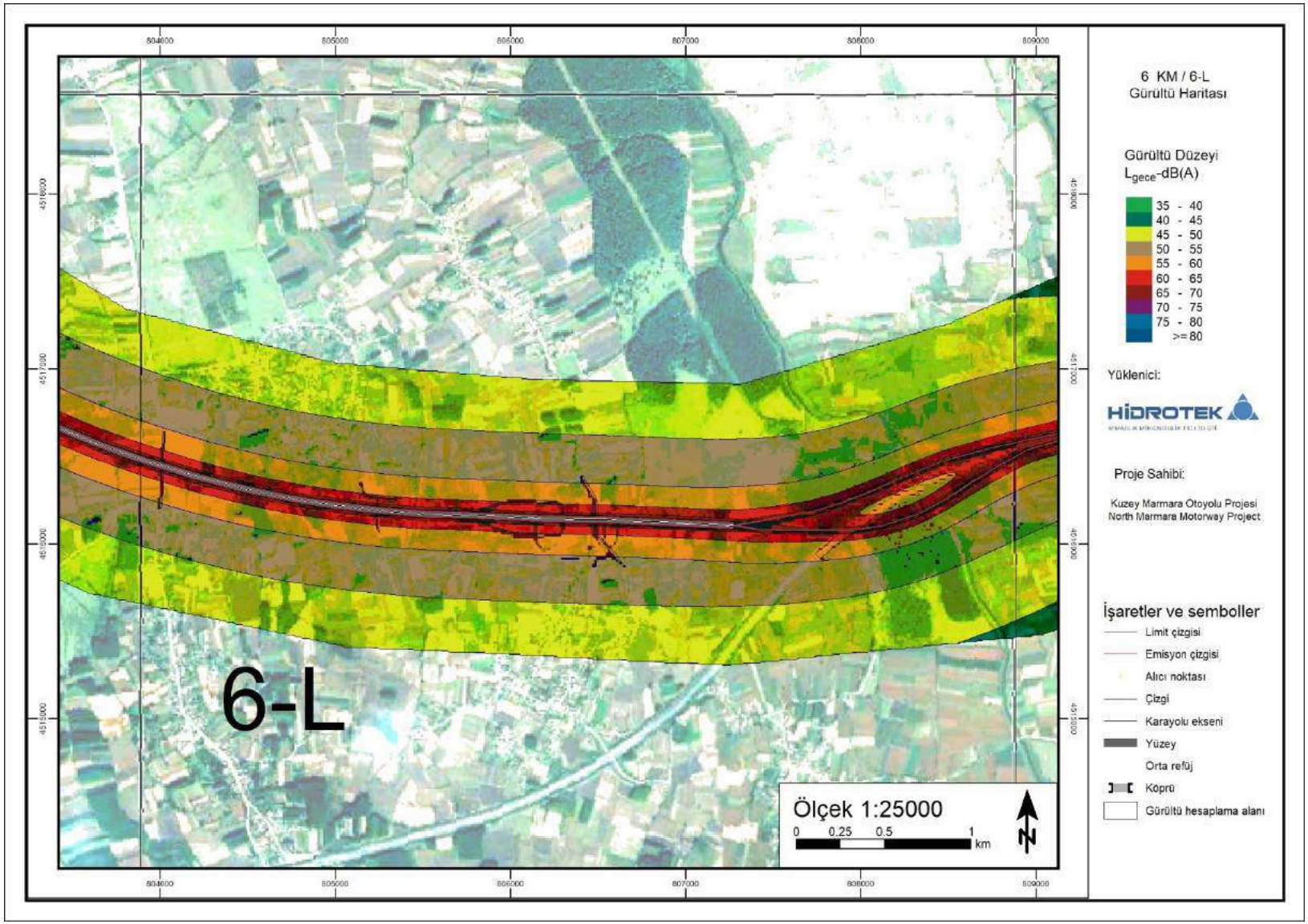

Figure 5.88 Ln noise map for part 6L of year 2027

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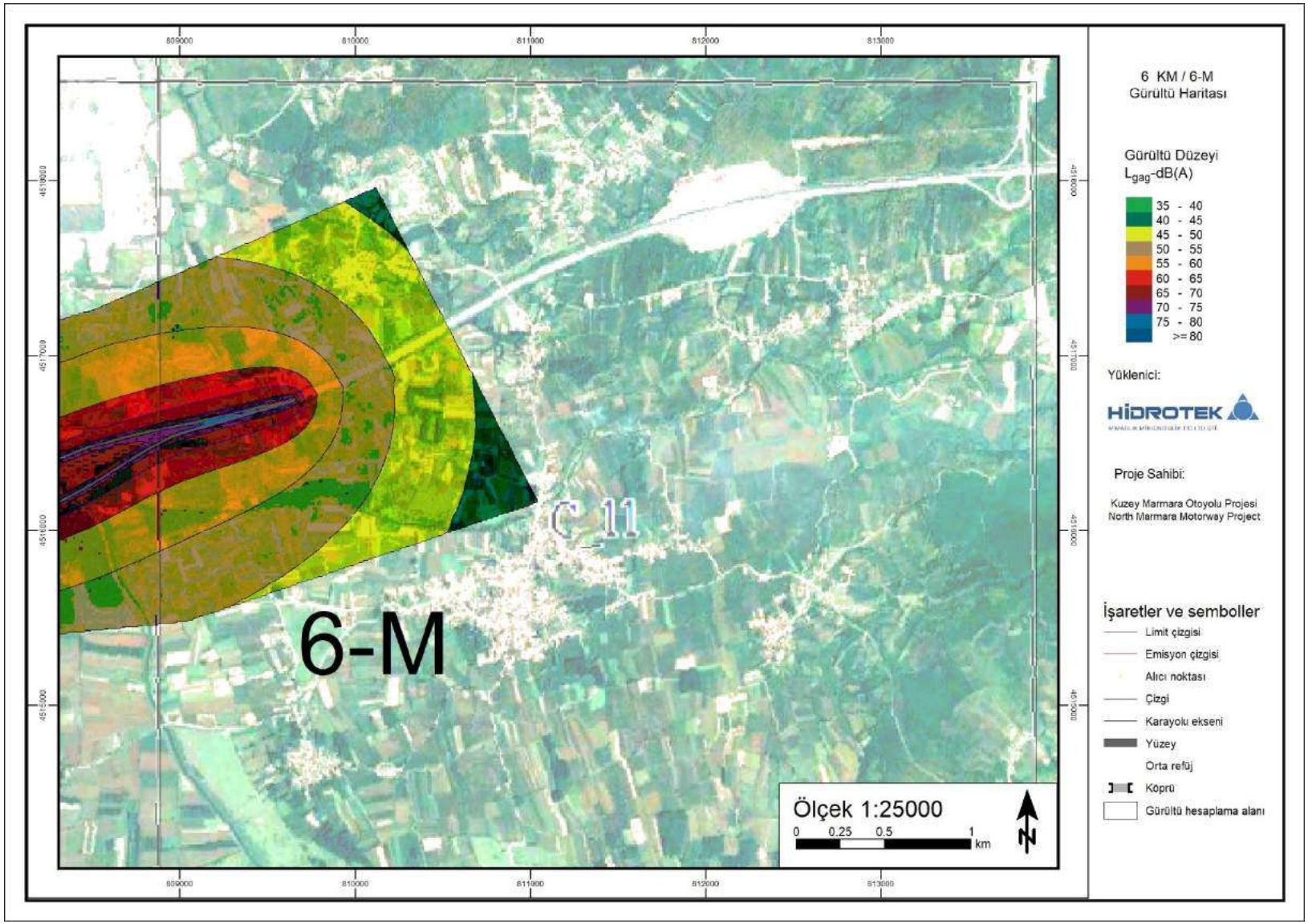

Figure 5.89 Lden noise map for part 6M of year 2027

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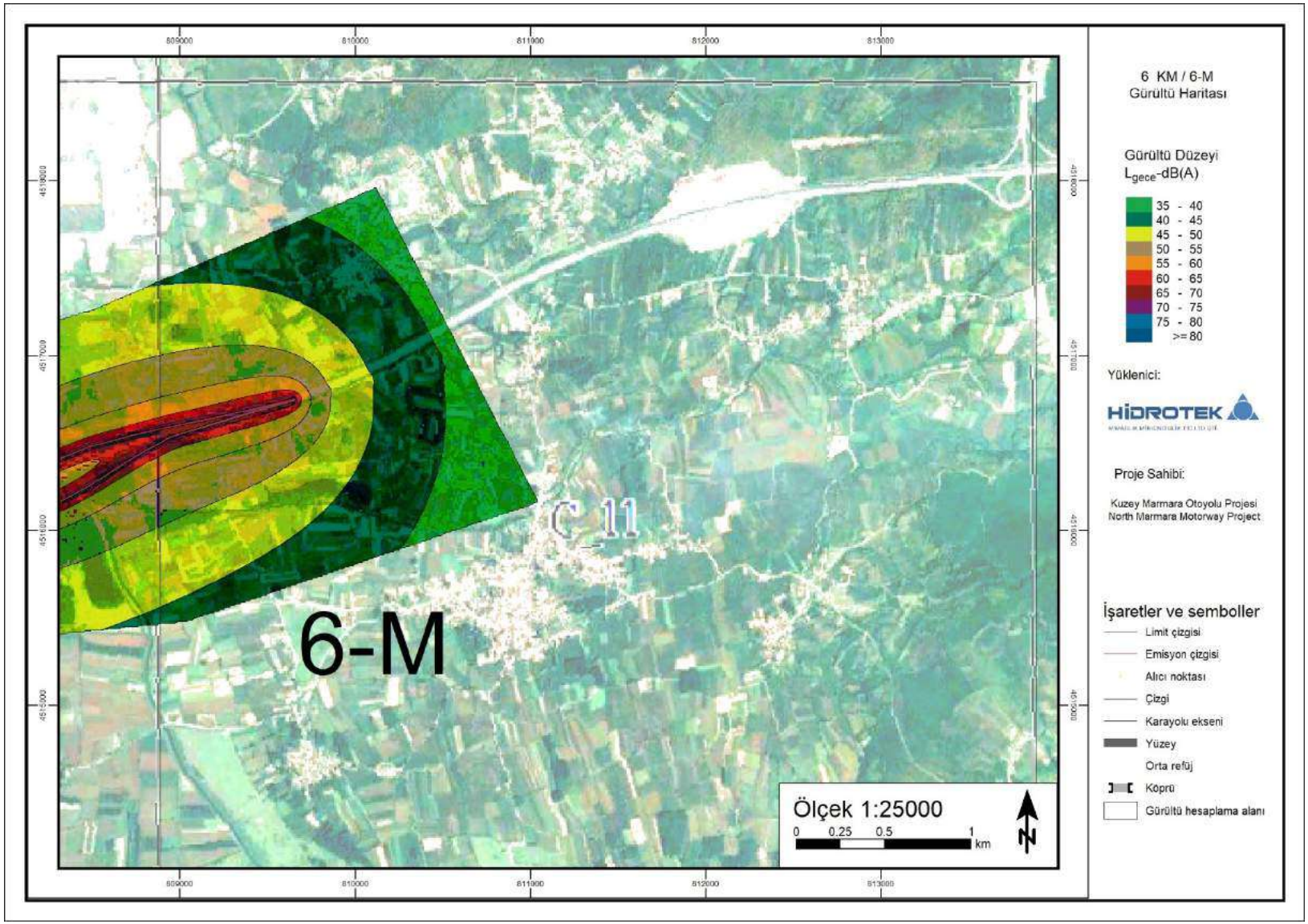

Figure 5.90 Ln noise map for part 6M of year 2027

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5.2 Status Assessment For Year 2027

According to the results of motorway noise modeling it is required to make action plan for regions above Lden 65 dB (A) and Lnight 55 dB (A) boundary values. The noise levels from virtual receivers created in these regions for year 2027 are given in Table 5.1.

According to model results at North Marmara Motorway,

It is required to make action plan at Durhasan, Karadülbaki, Süleymaniye, Korucuk, Budaklar Osmanbey, İhsaniye, Sultangazi Turnaköy, Kadıllı, Tepecik, Sipahiler, Akfırat, Eseler, Karaman/Evrenköy regions. The noise levels of the virtual receivers obtained according to the calculation results are shown in Table 5.1. The points indicated in red in the table are the levels at which the limit values are exceeded. Regions where limit values are exceeded are; Durhasan, Karaabdülbaki, Korucuk, İhsaniye, Sultangazi, Kurnaköy, Sipahiler, Akfırat (1_A and 2_A), Eseler.

Table 5.1 Noise levels from virtual receivers for year 2027 (the levels indicated by red state the cases where limit values are exceeded.)

No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
17	Çayırköy	247.074,54	4.521.732,06	58,60	51,70	54,00	52,00
16	Evrenköy	247.892,53	4.524.764,04	42,30	35,10	37,60	35,70
18	Durhasan	250.082,50	4.520.124,07	65,20	58,60	60,70	58,50
19	Karaabdülbaki	259.704,48	4.520.305,08	62,50	57,20	58,20	55,40
20	Süleymaniye	263.410,40	4.522.994,07	55,60	48,60	50,90	49,00
21	Korucuk	269.796,42	4.525.241,07	65,80	59,80	61,30	58,90
22	Taşkısığı	280.778,36	4.525.803,08	33,80	26,60	29,00	27,20
23	Budaklar	287.810,34	4.518.574,13	59,30	52,50	54,70	52,60
24	Osmanbey	298.447,29	4.512.957,17	59,80	53,10	55,20	53,10
1	Küçük Kılıçlı	601.149,74	4.553.759,43	58,30	53,90	54,10	51,10
2	Kadıköy	614.360,67	4.554.892,43	34,40	29,90	30,10	27,10
3	İnceğiz	617.653,65	4.558.940,41	32,50	28,00	28,30	25,30
4	İzzettin	626.114,61	4.558.946,41	47,30	42,90	43,10	40,10
5	Yassıören	633.886,56	4.566.218,37	44,10	39,40	39,60	37,00
6	Tayakadın	640.490,53	4.565.248,38	36,00	29,20	29,70	29,70
7	İhsaniye	651.600,46	4.566.923,38	62,10	55,20	55,70	55,70
8	Sultangazi Cebeci	655.422,45	4.553.361,45	52,00	47,90	47,70	44,70
9	Sultangazi	660.842,42	4.551.423,40	71,70	67,00	67,50	64,50
10	Kurnaköy	696.716,23	4.536.081,56	71,80	67,10	67,50	64,60
11	Kadıllı	708.512,16	4.533.508,57	64,60	58,60	59,90	57,80
12	Demirciler	715.135,13	4.524.838,62	60,00	54,10	55,30	53,10
13	Tepecik	720.755,10	4.529.849,59	60,80	53,80	56,10	54,10
14	Kutluca	730.824,04	4.530.661,59	52,80	46,20	48,20	46,10
15	Sipahiler	737.013,01	4.527.481,61	75,70	70,10	71,30	68,70
1_A	Akfırat	699.419,00	4.534.658,00	72,80	67,30	68,20	65,80
2_A	Akfırat	703.566,00	4.533.409,00	64,90	58,50	60,10	58,20
12_1	Eseler	251.938,00	4.519.957,00	64,90	58,50	60,10	58,20

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No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)
6_A	Karaman-Evrenköy	275.662,00	4.525.395,00	54,90	49,30	50,60	47,90
7_A	Çamyolu	280.791,00	4.522.599,00	61,10	55,30	56,70	54,10

5.3 Evaluation of Modelling Results For Construction Area

The noise maps showing the analyzes made by modeling for the project site of construction facilities are shown in Figure 5.91 - Figure 5.116.

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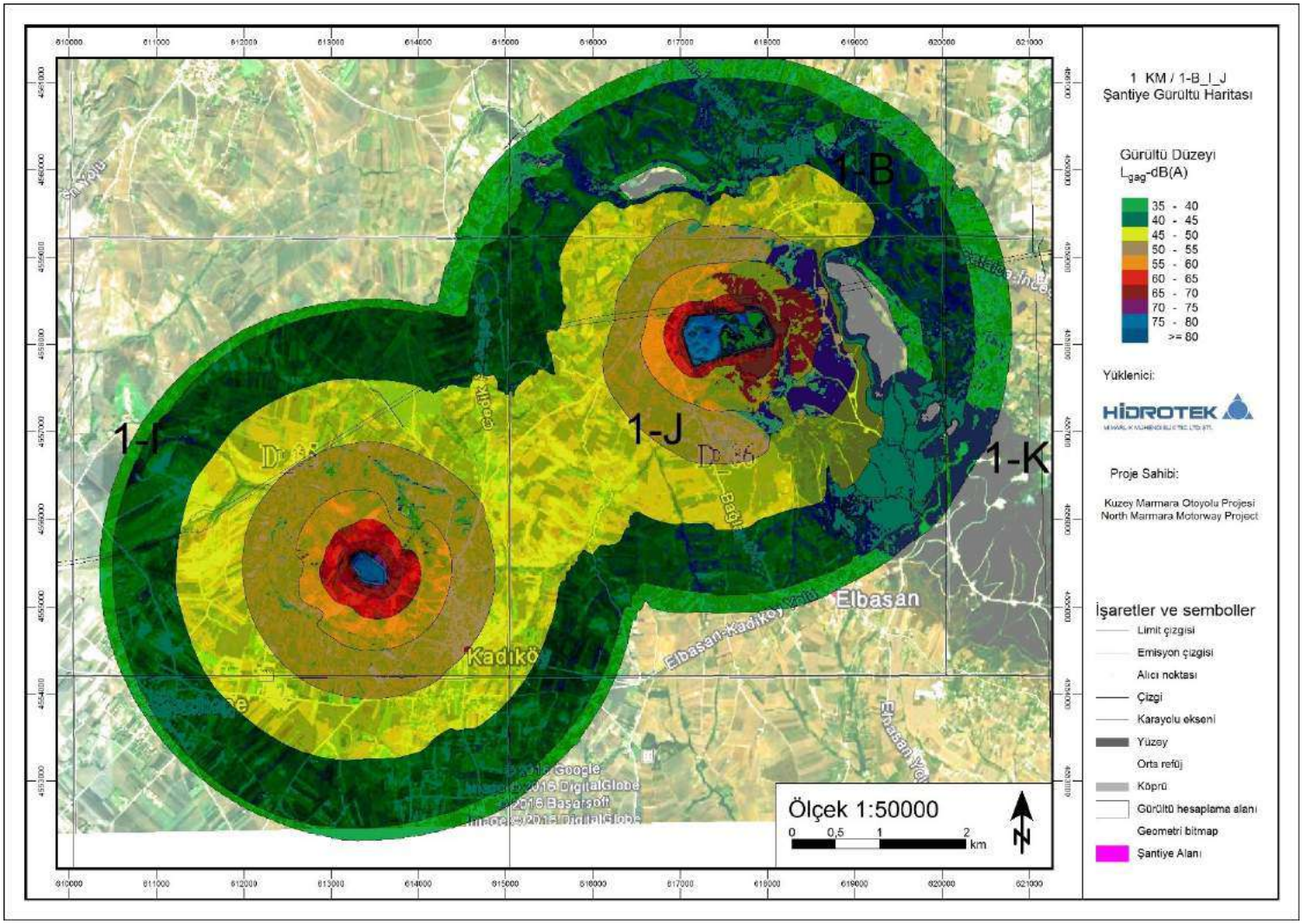

Figure 5.91 Lden noise map for part 1B-J

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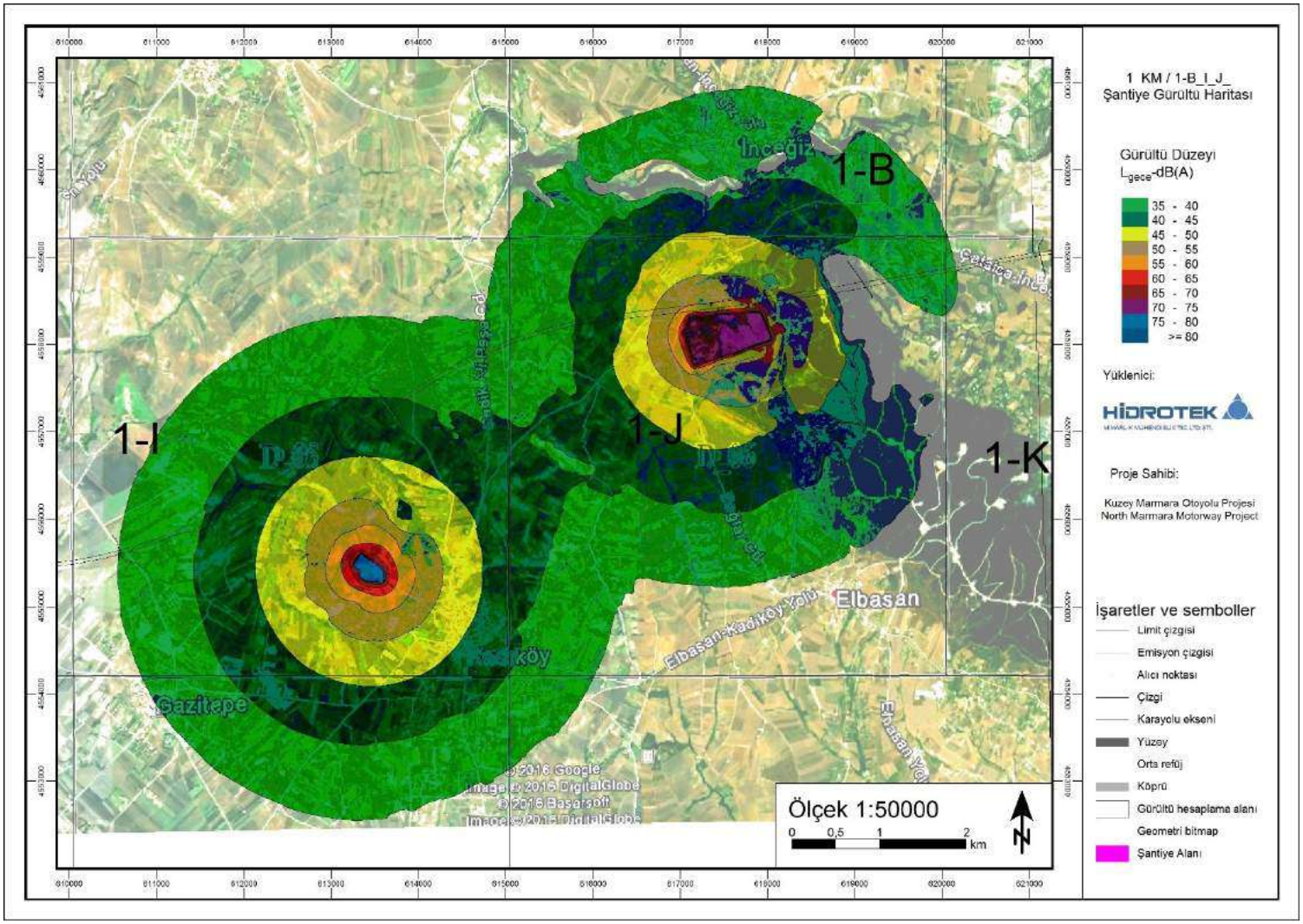

Figure 5.92 Ln noise map for part 1B-J

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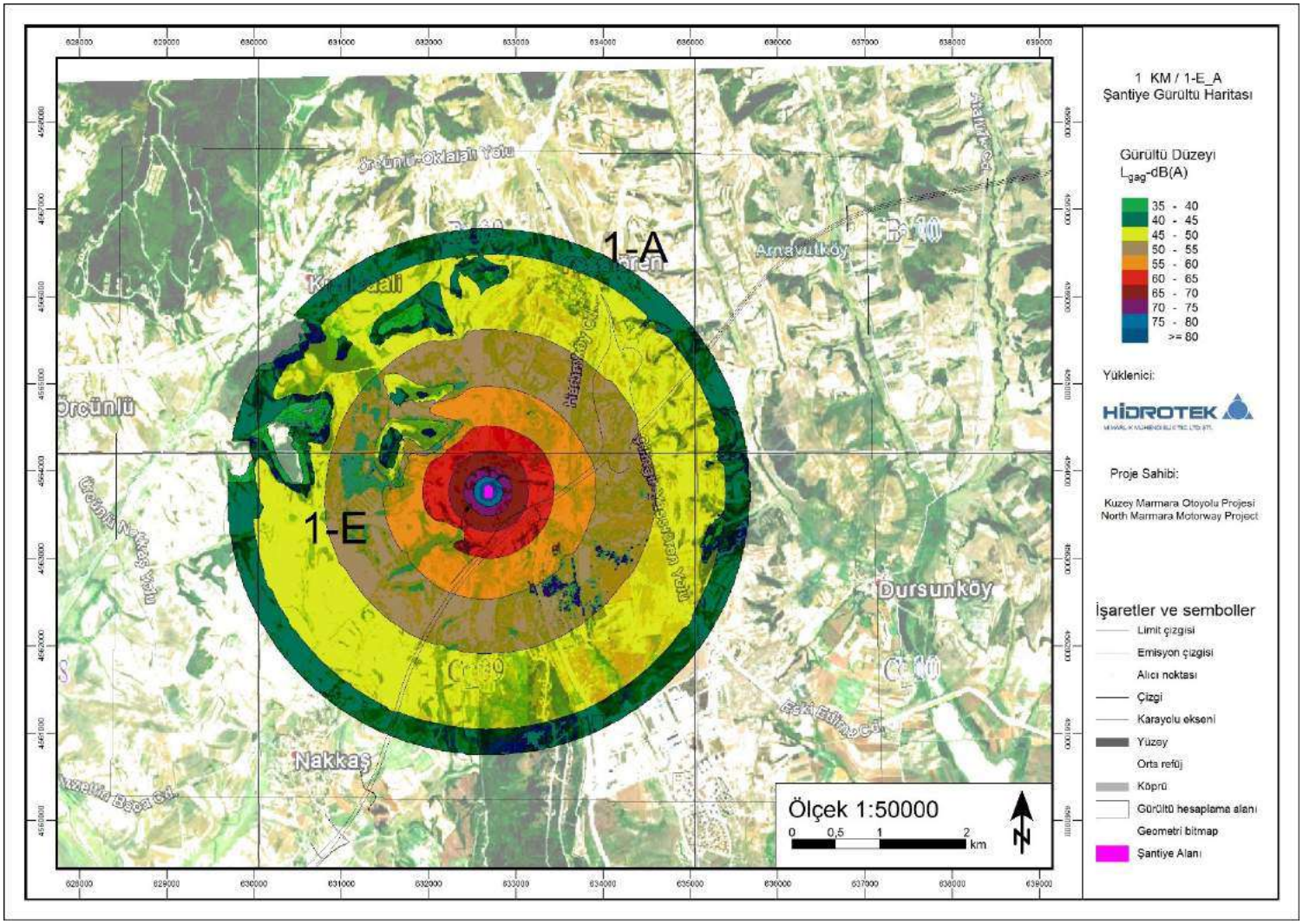

Figure 5.93 Lden noise map for part 1E-A

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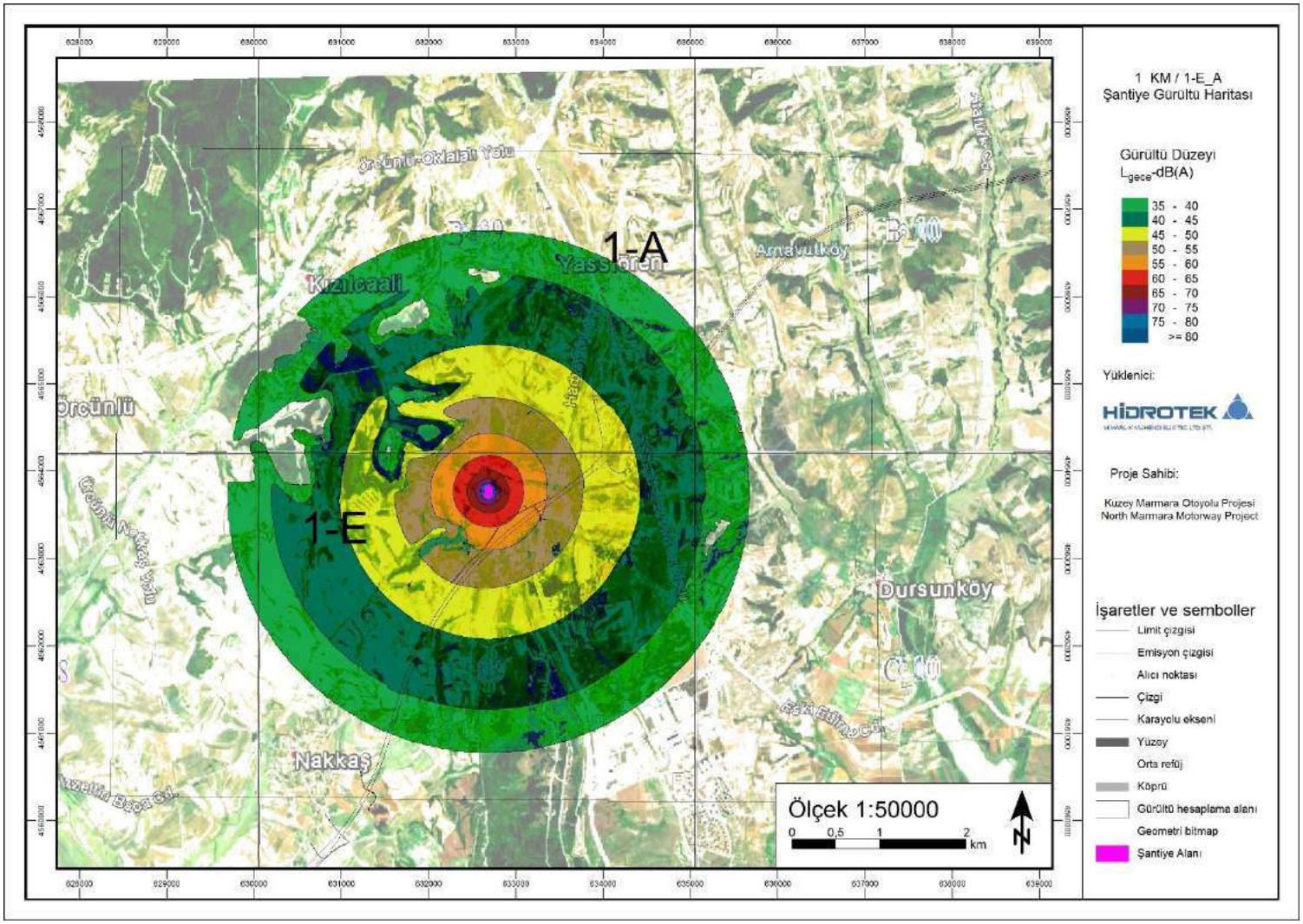

Figure 5.94 Ln noise map for part 1E-A

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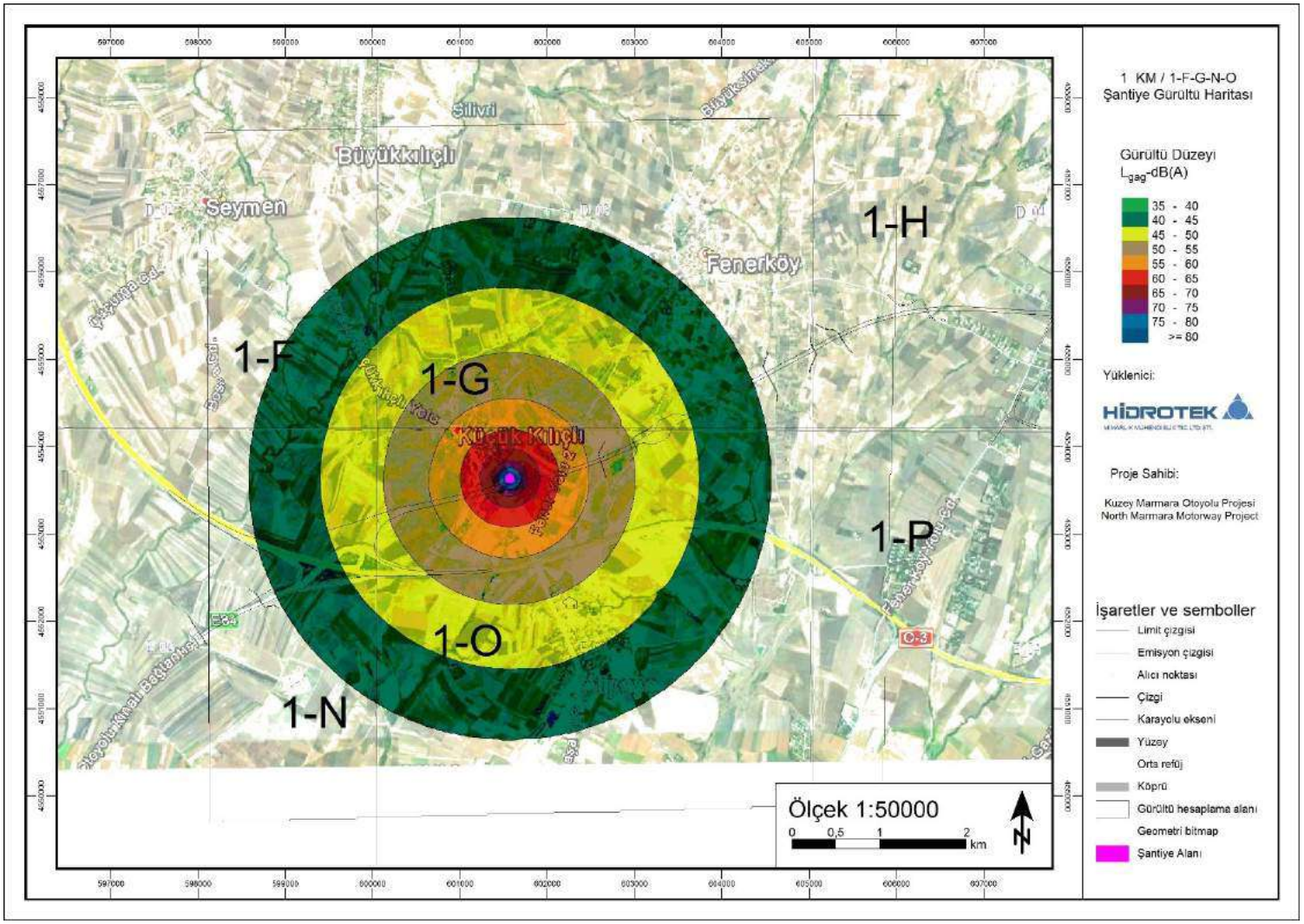

Figure 5.95 Lden noise map for part 1 F-G-O

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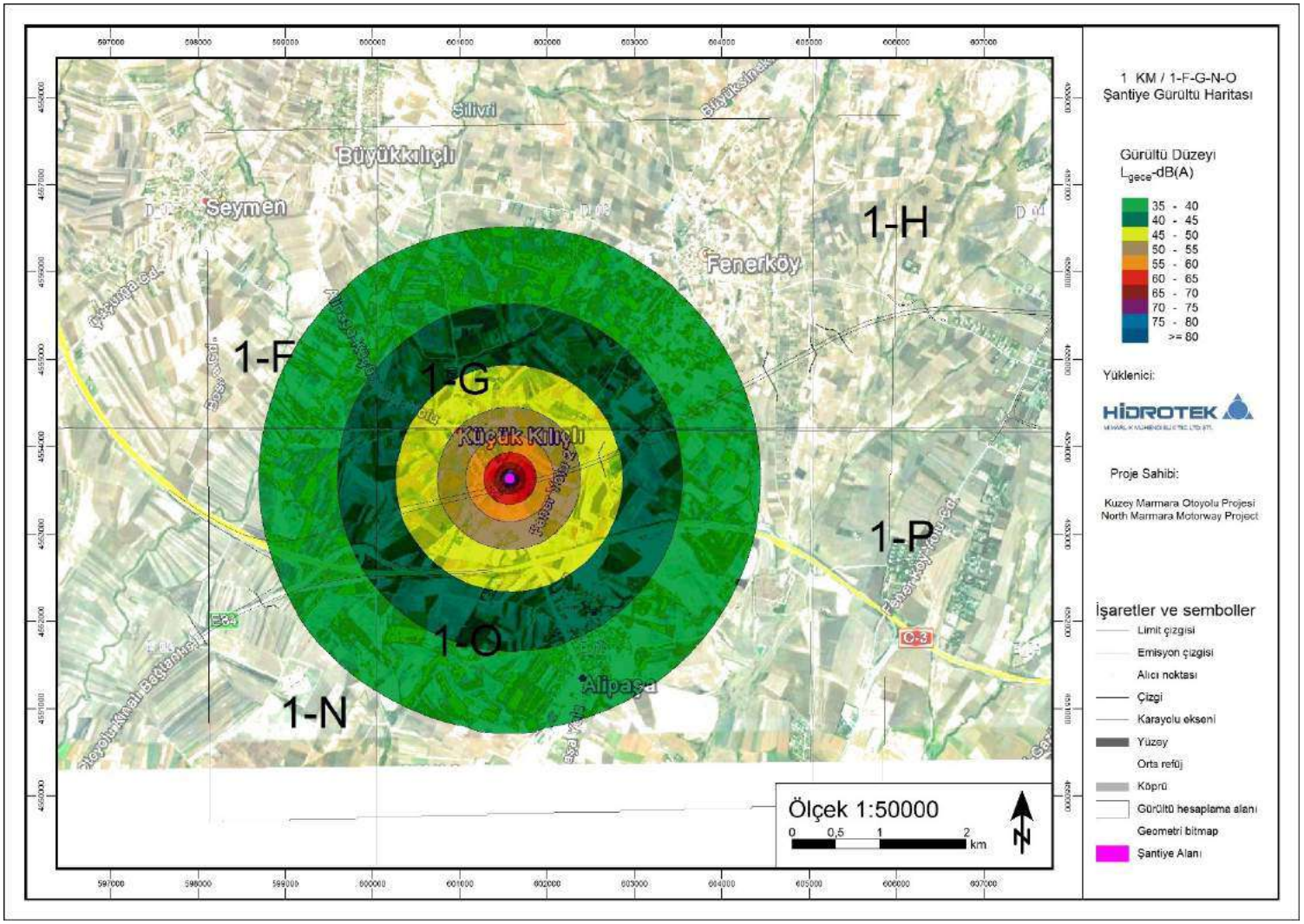

Figure 5.96 Ln noise map for part 1 F-G-O

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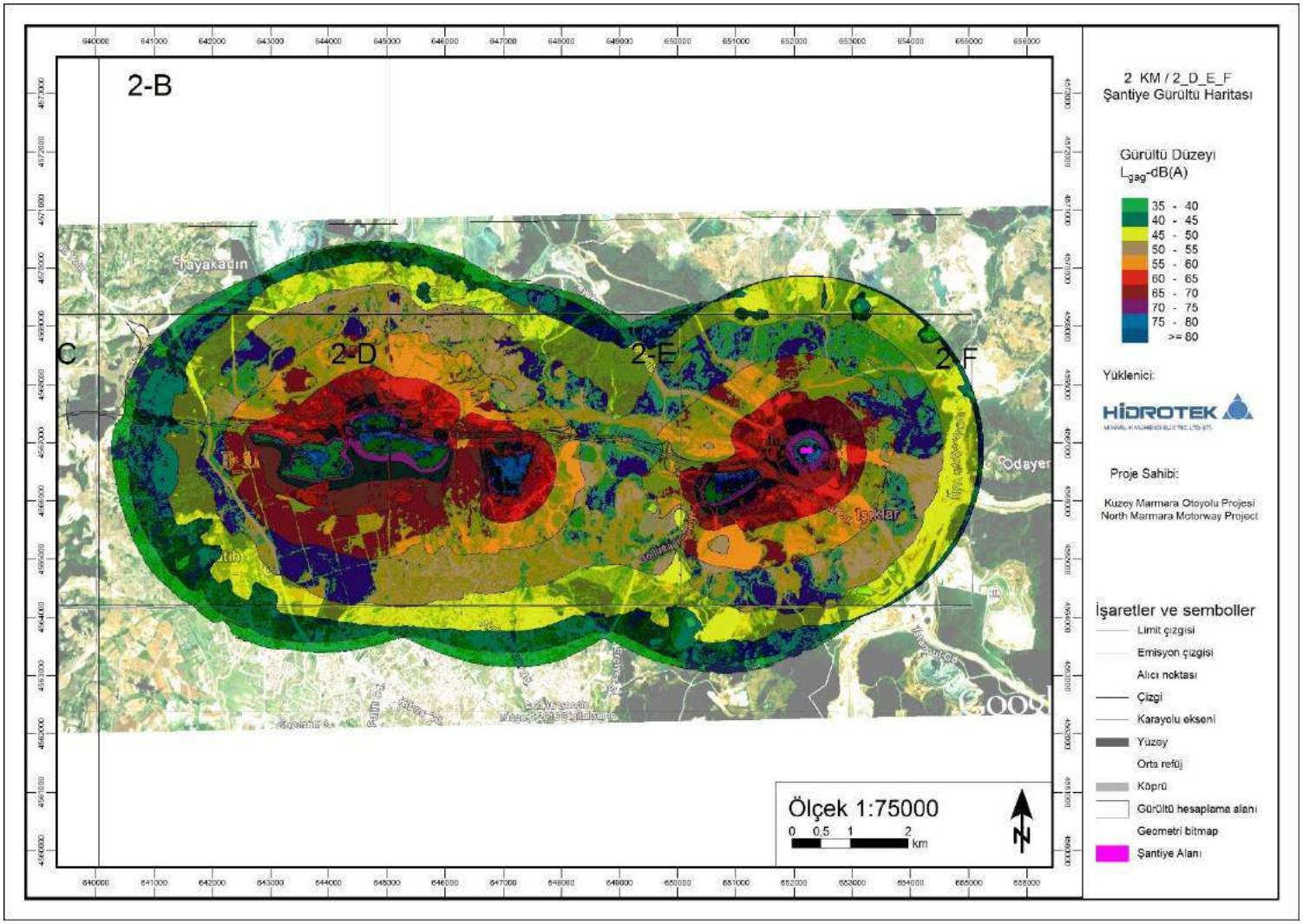

Figure 5.97 Lden noise map for part 2 D-E-F

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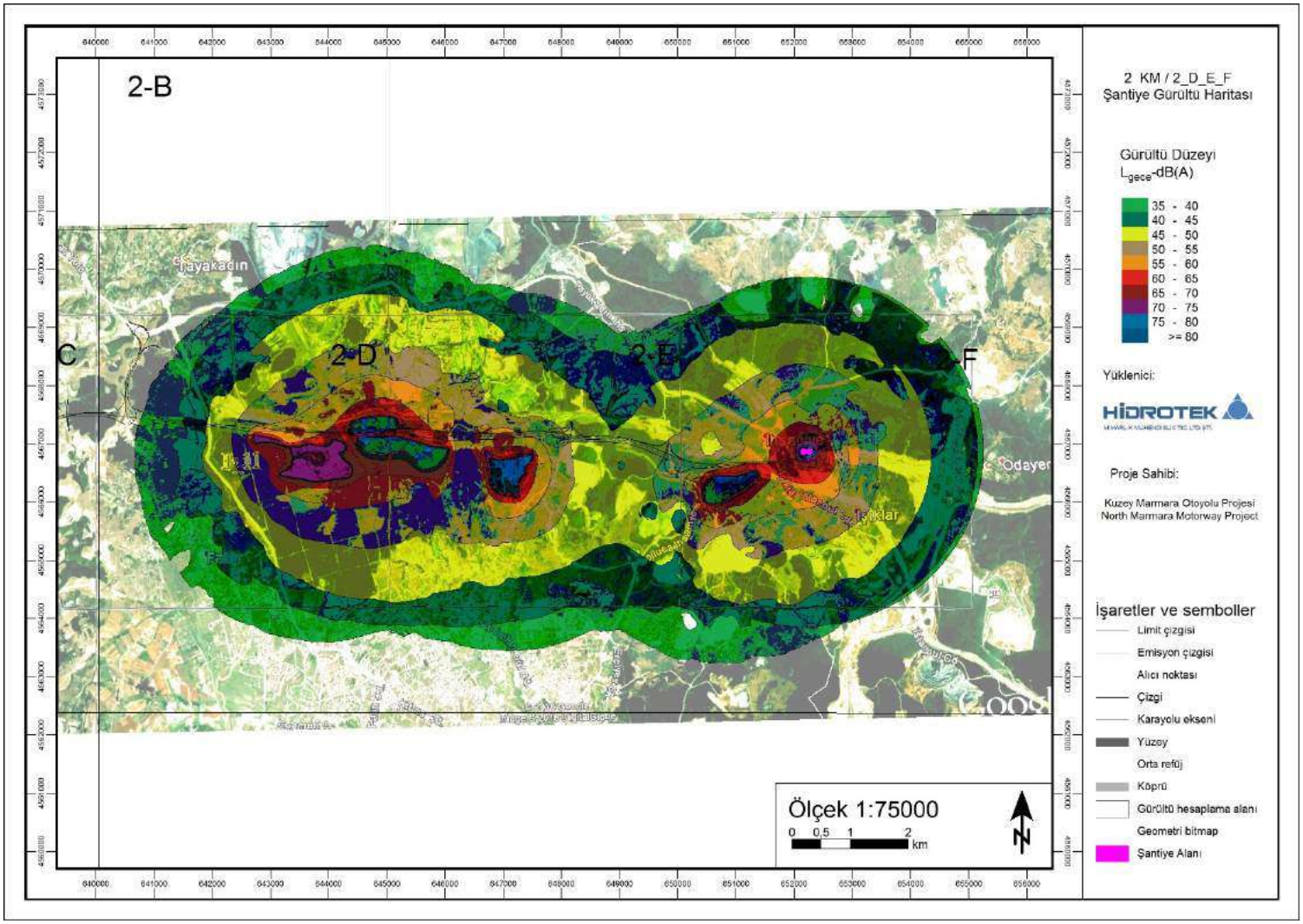

Figure 5.98 Ln noise map for part 2 D-E-F

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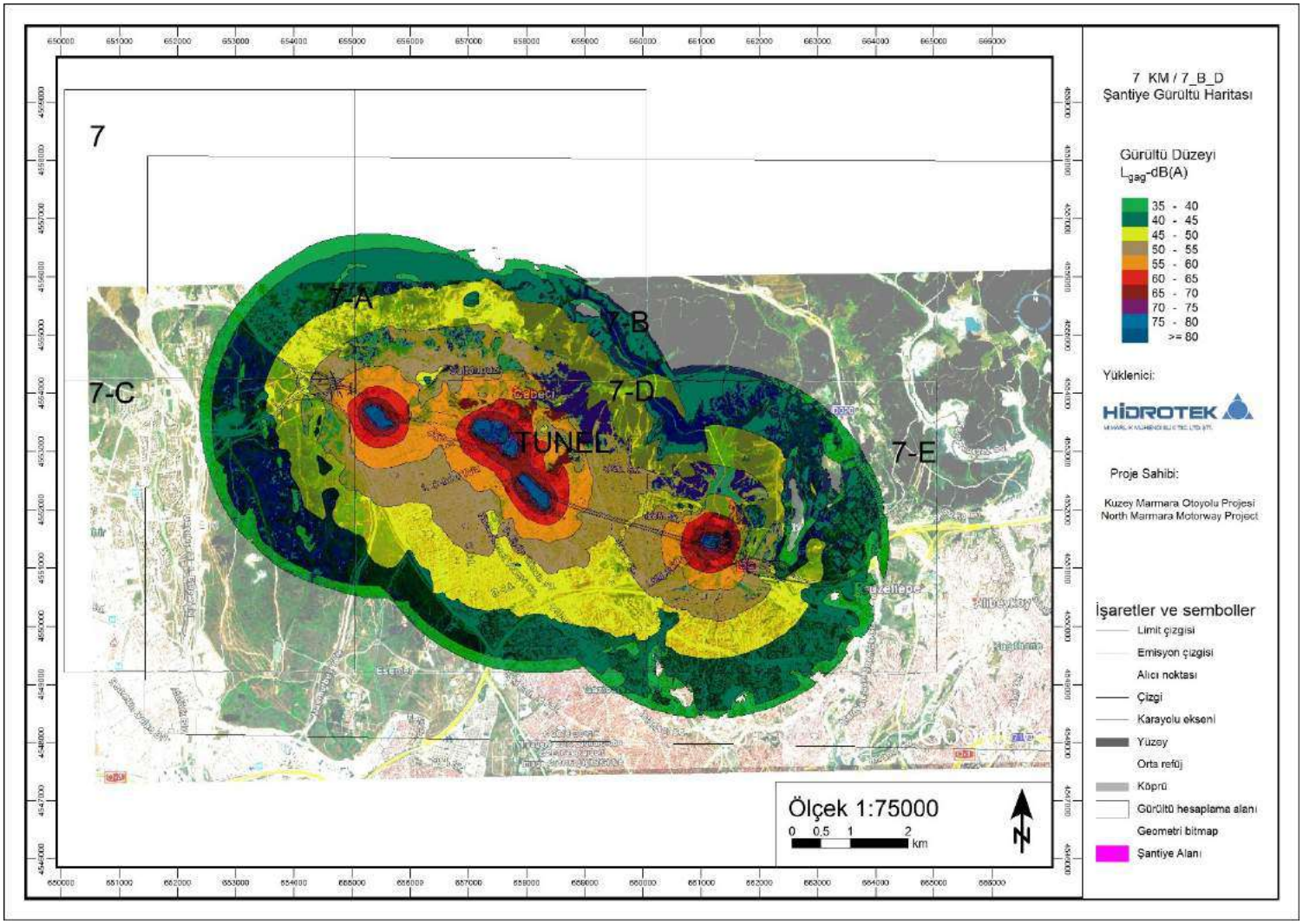

Figure 5.99 Lden noise map for part 7 B-D

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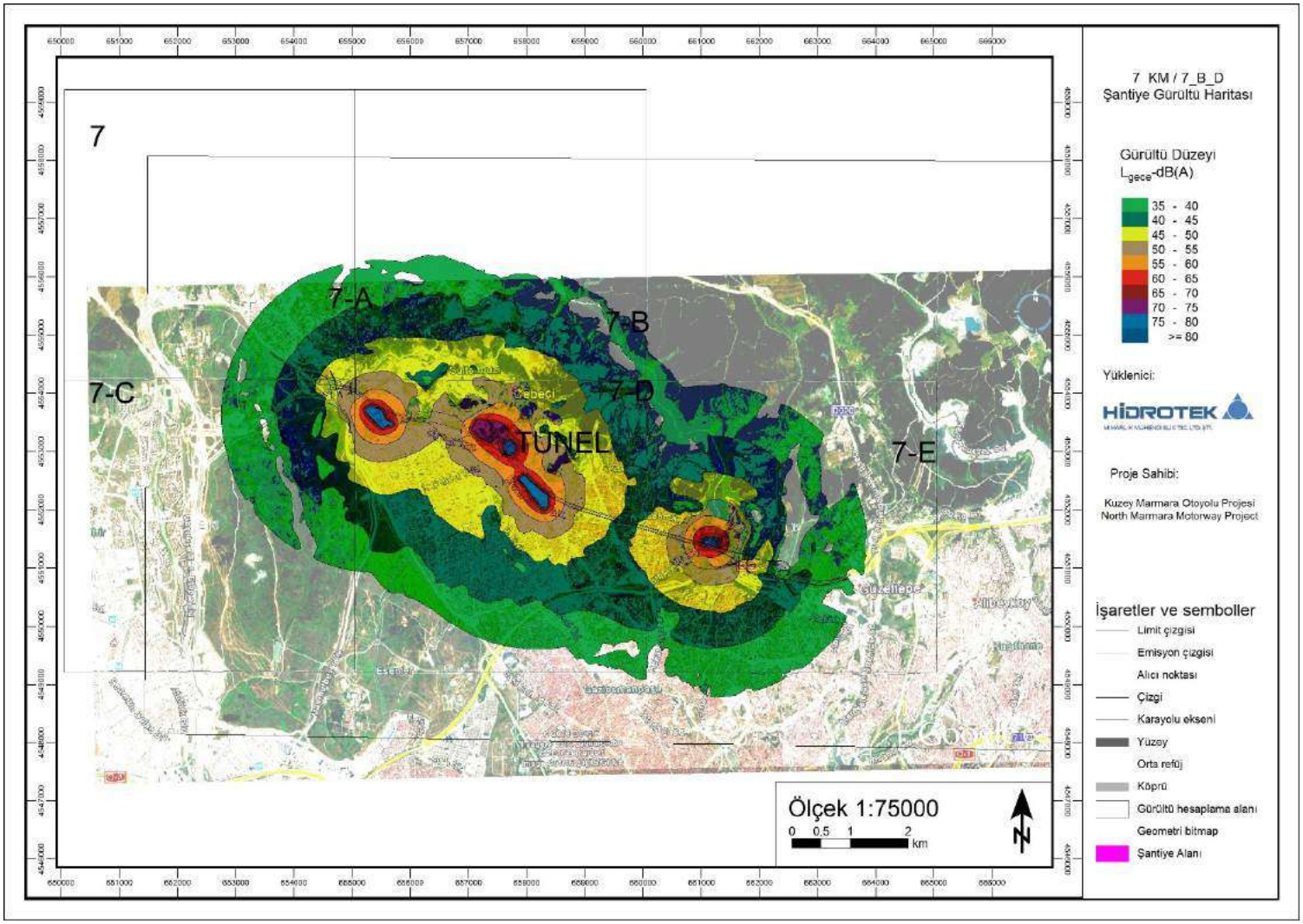

Figure 5.100 Ln noise map for part 7 B-D

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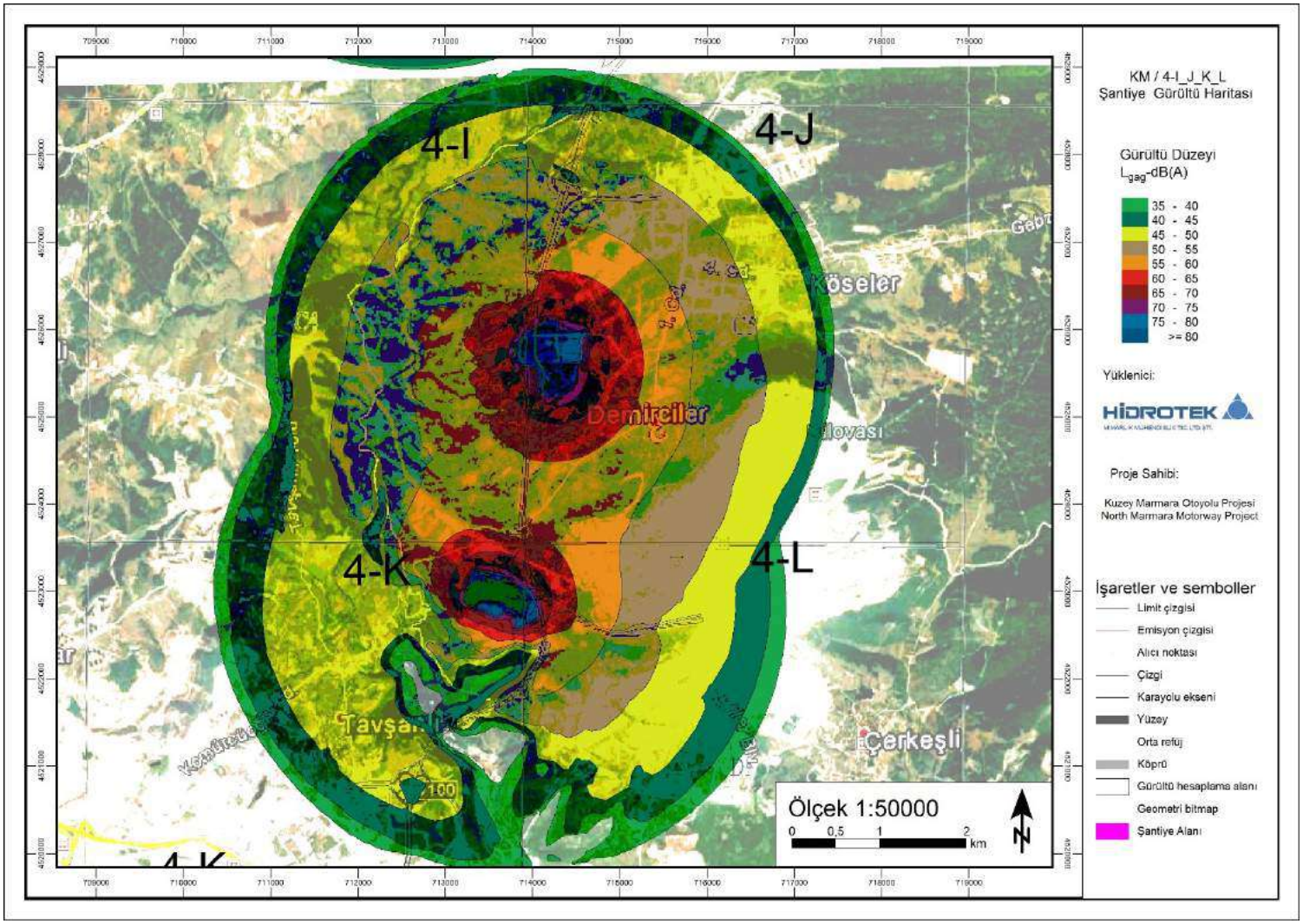

Figure 5.101 Lden noise map for part 4 J-K-L

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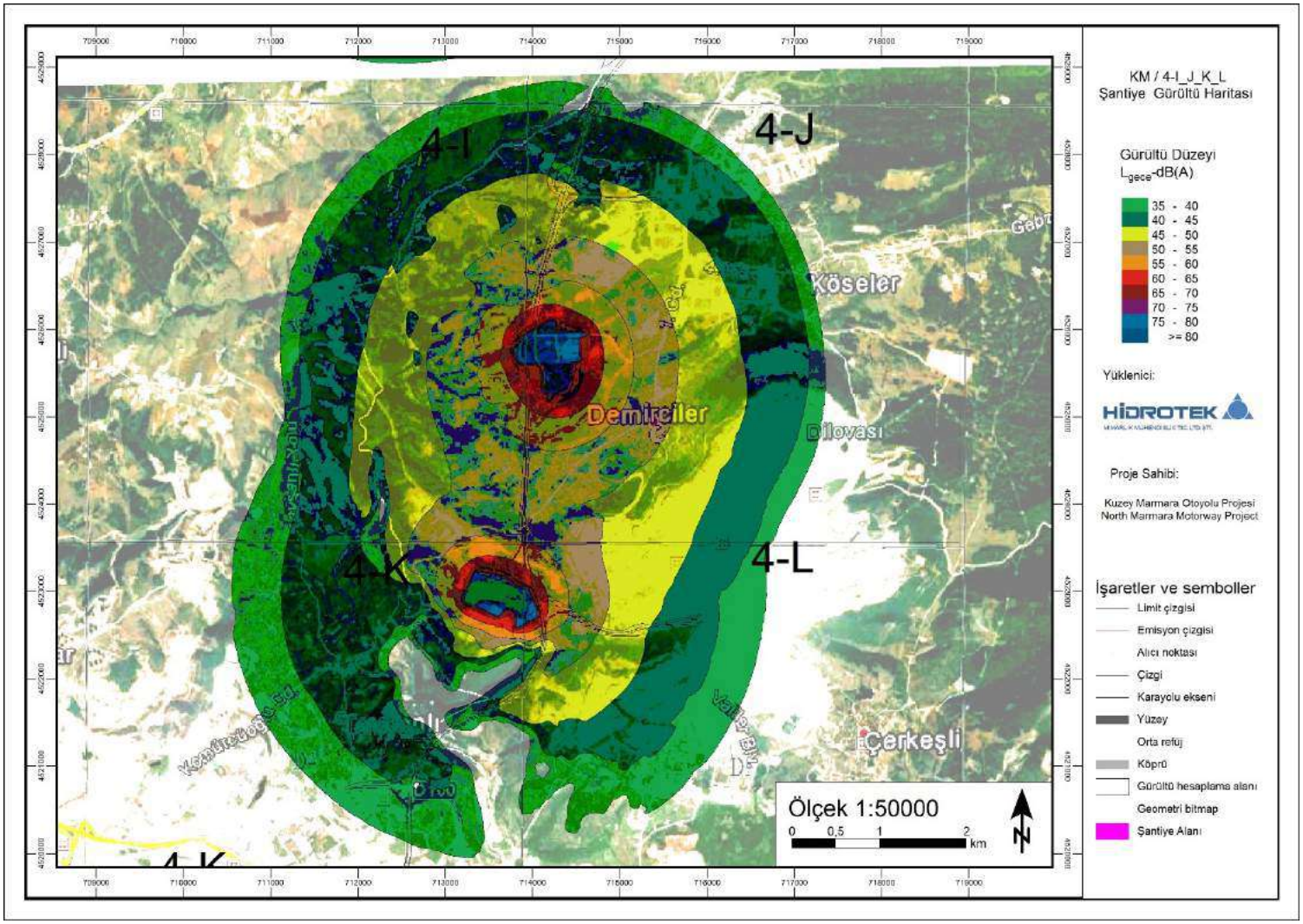

Figure 5.102 Ln noise map for part 4 J-K-L

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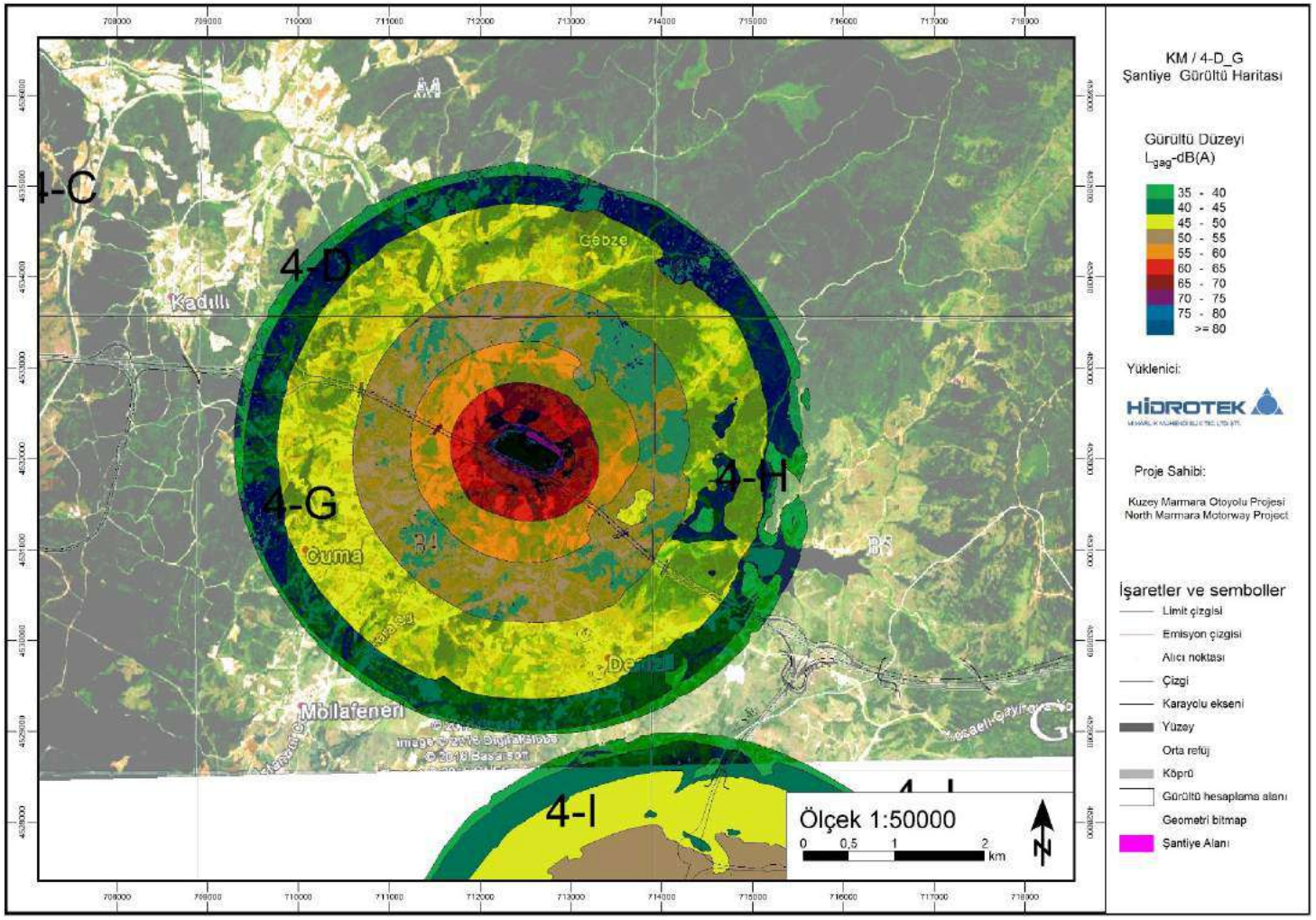

Figure 5.103 Lden noise map for part 4 D-G

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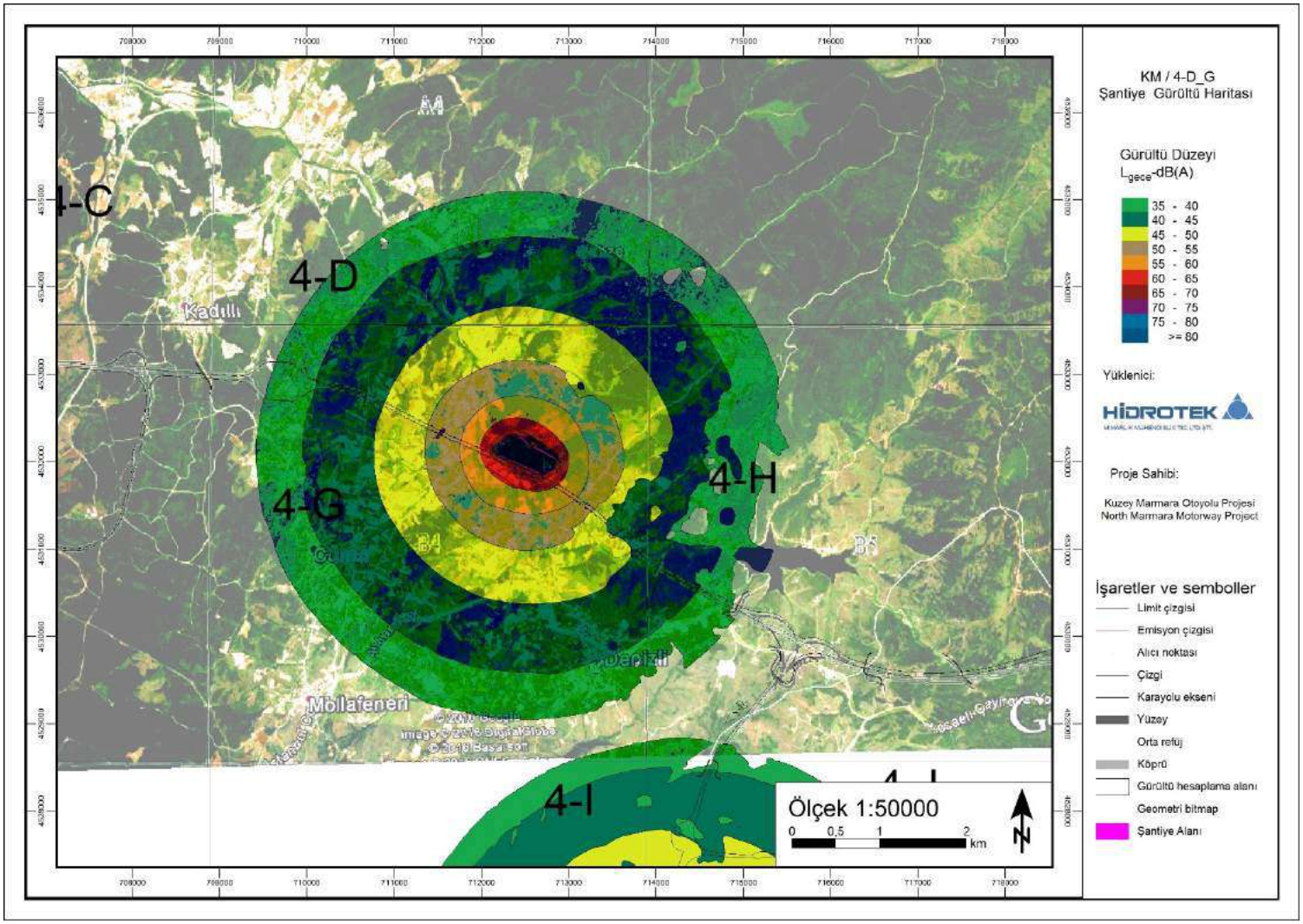

Figure 5.104 Ln noise map for part 4 D-G

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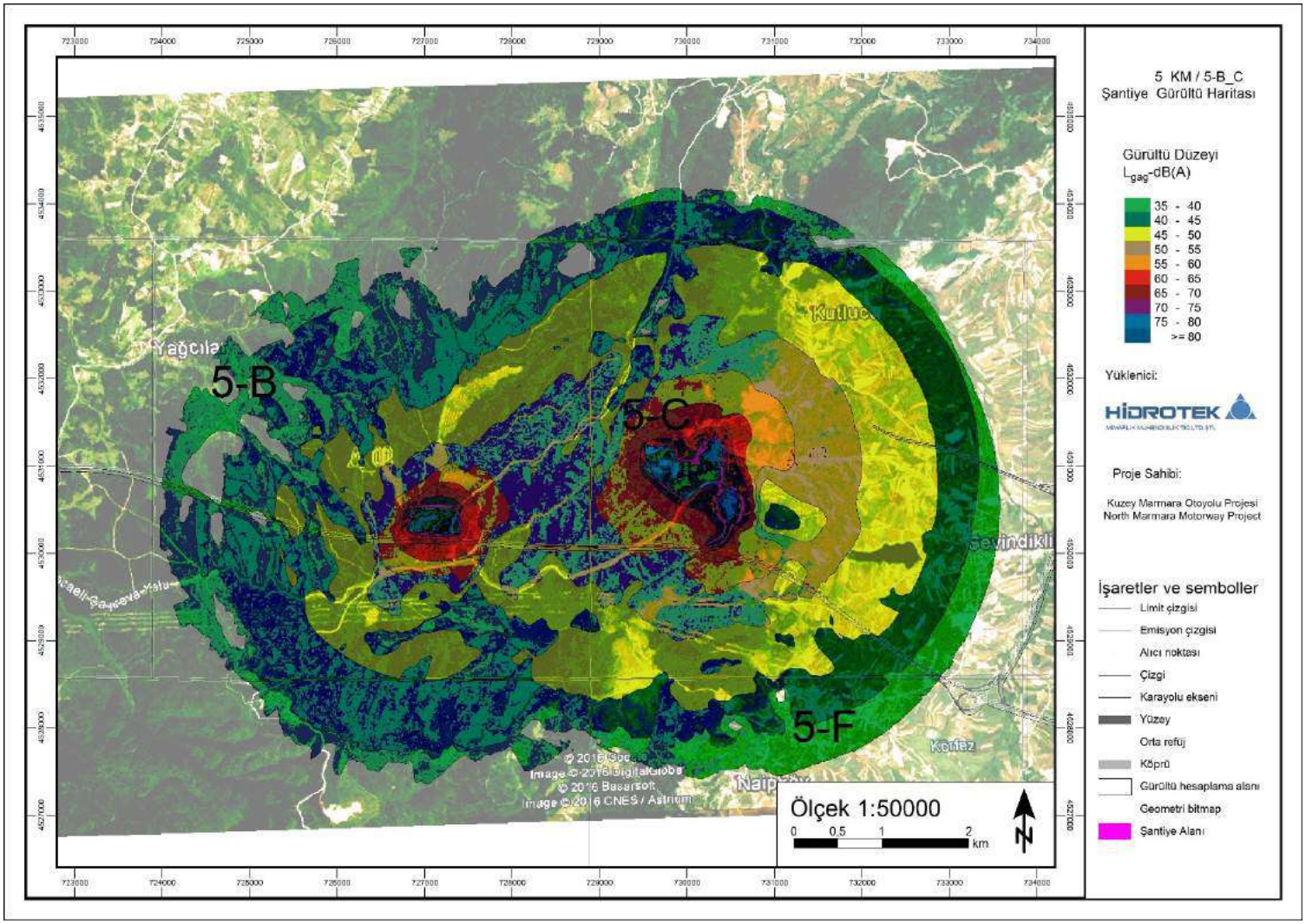

Figure 5.105 Lden noise map for part 5 B-C

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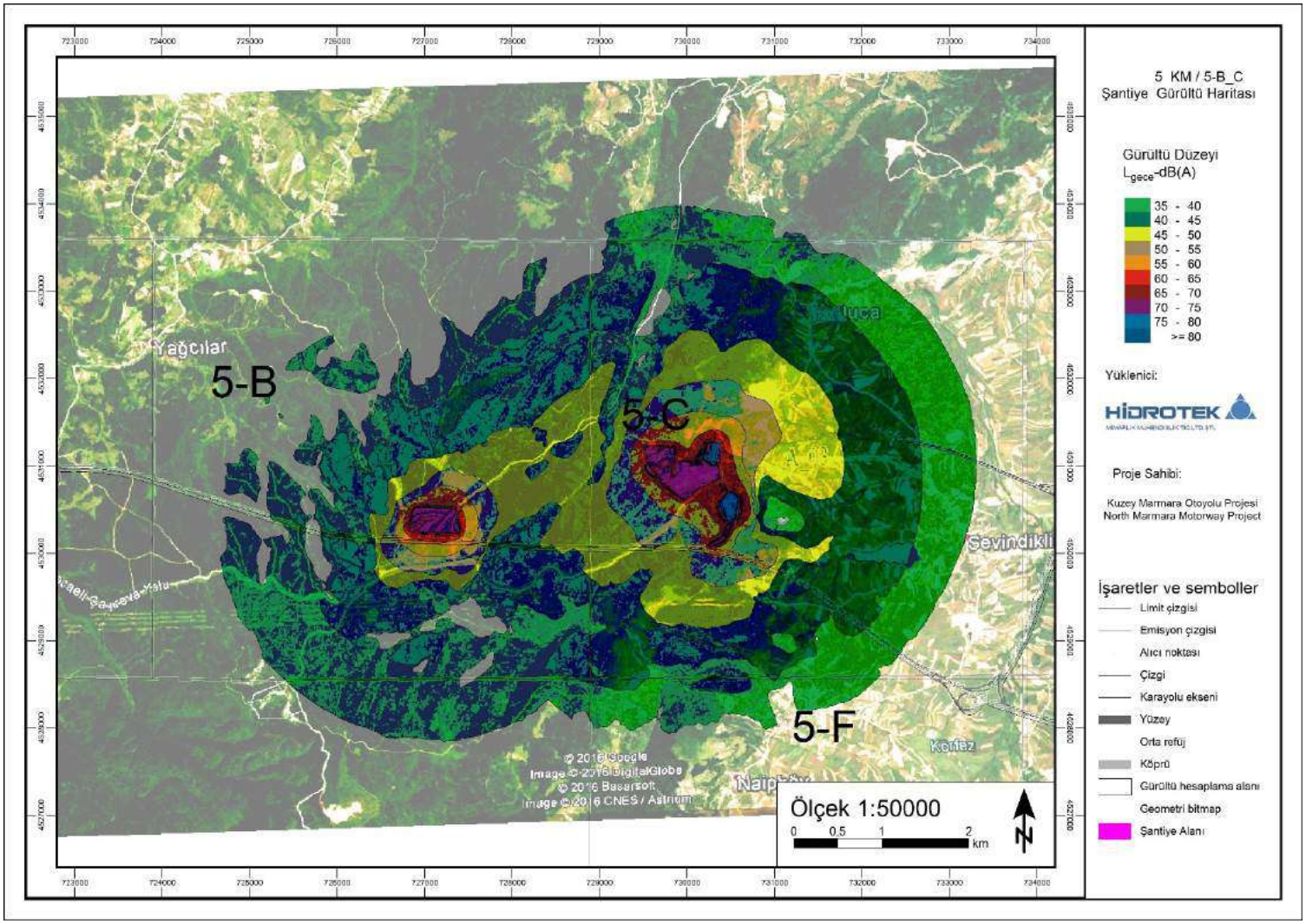

Figure 5.106 Ln noise map for part 5 B-C

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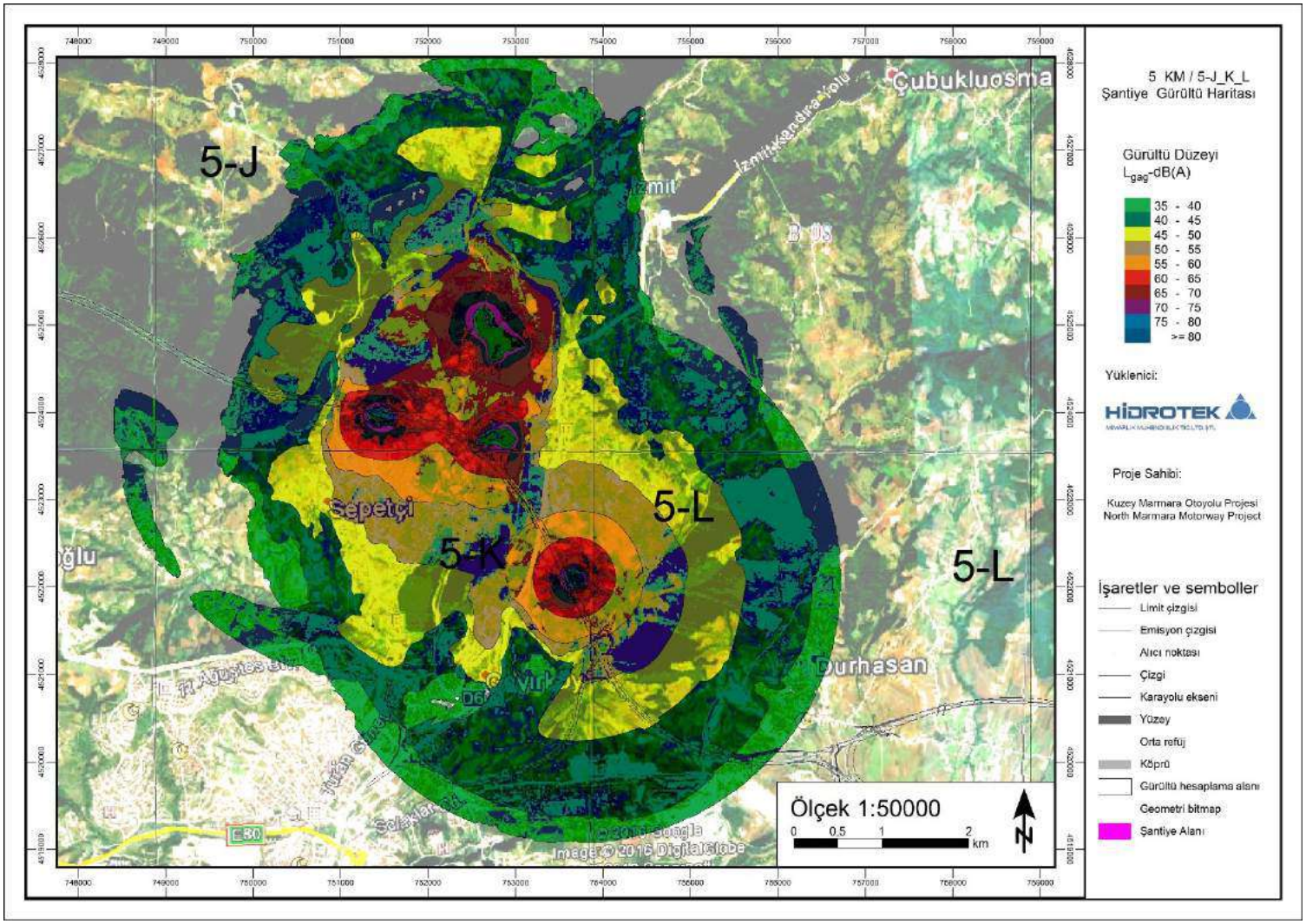

Figure 5.107 Lden noise map for part 5 J-K-L

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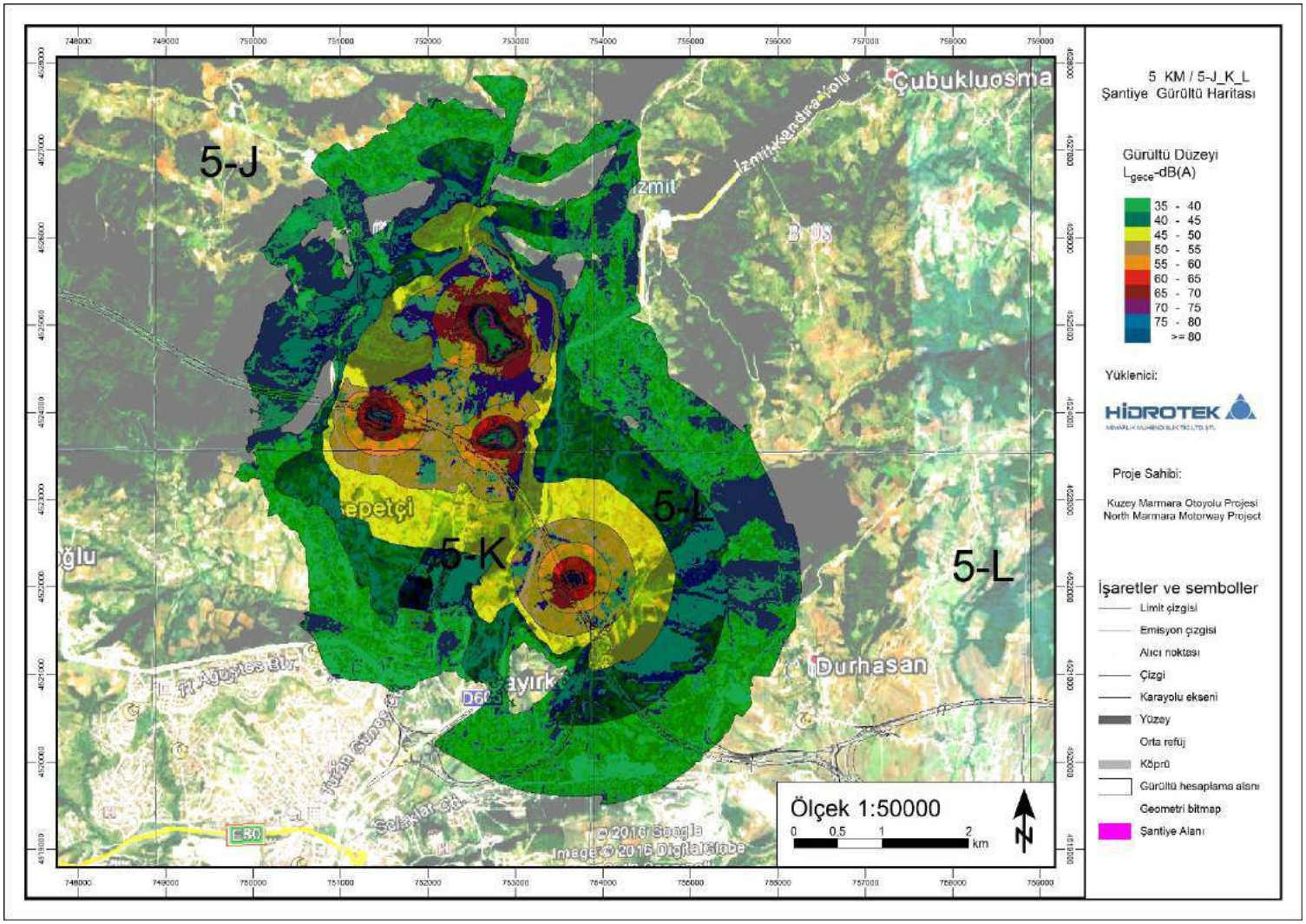

Figure 5.108 Ln noise map for part 5 J-K-L

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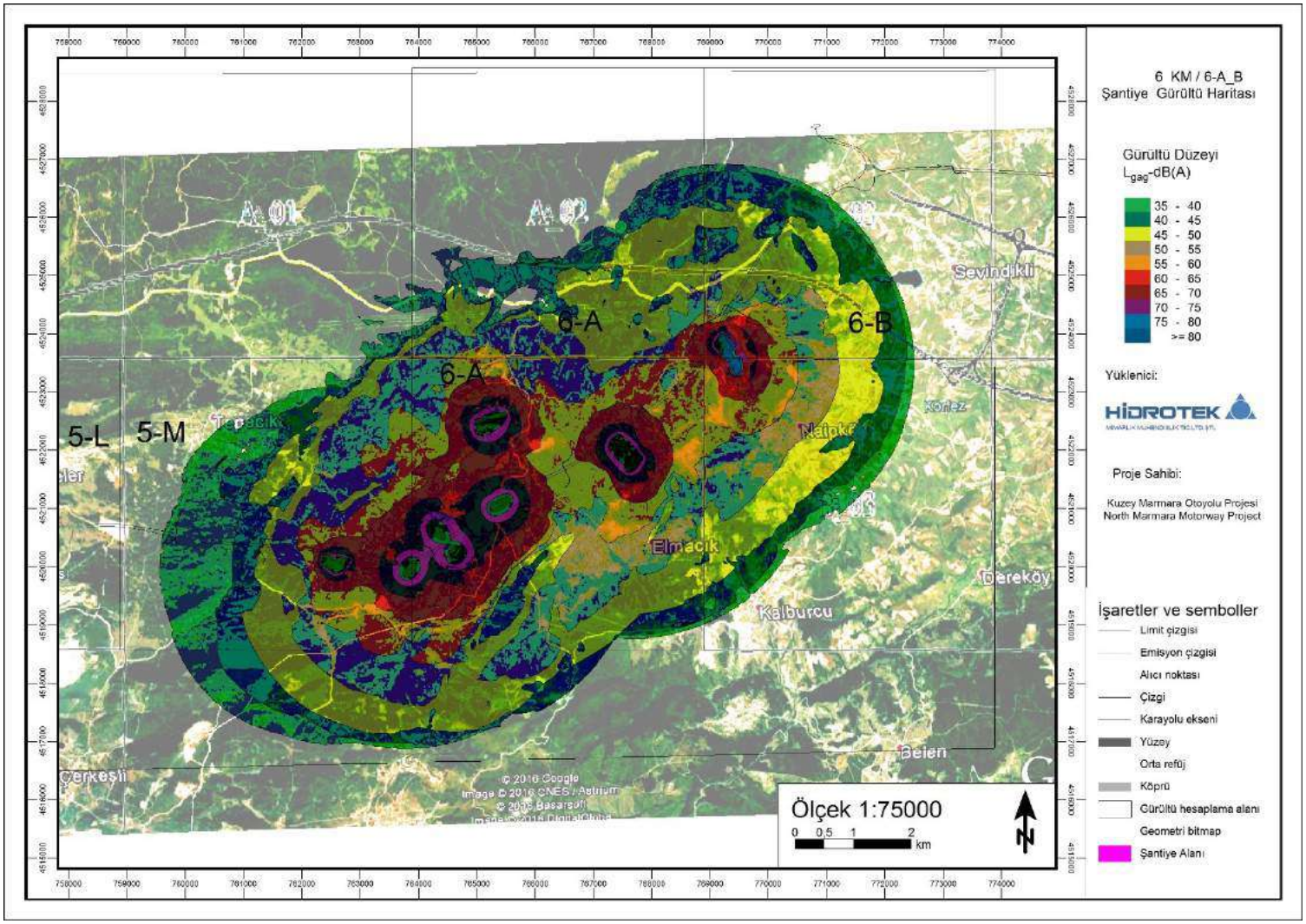

Figure 5.109 Lden noise map for part 6 A-B

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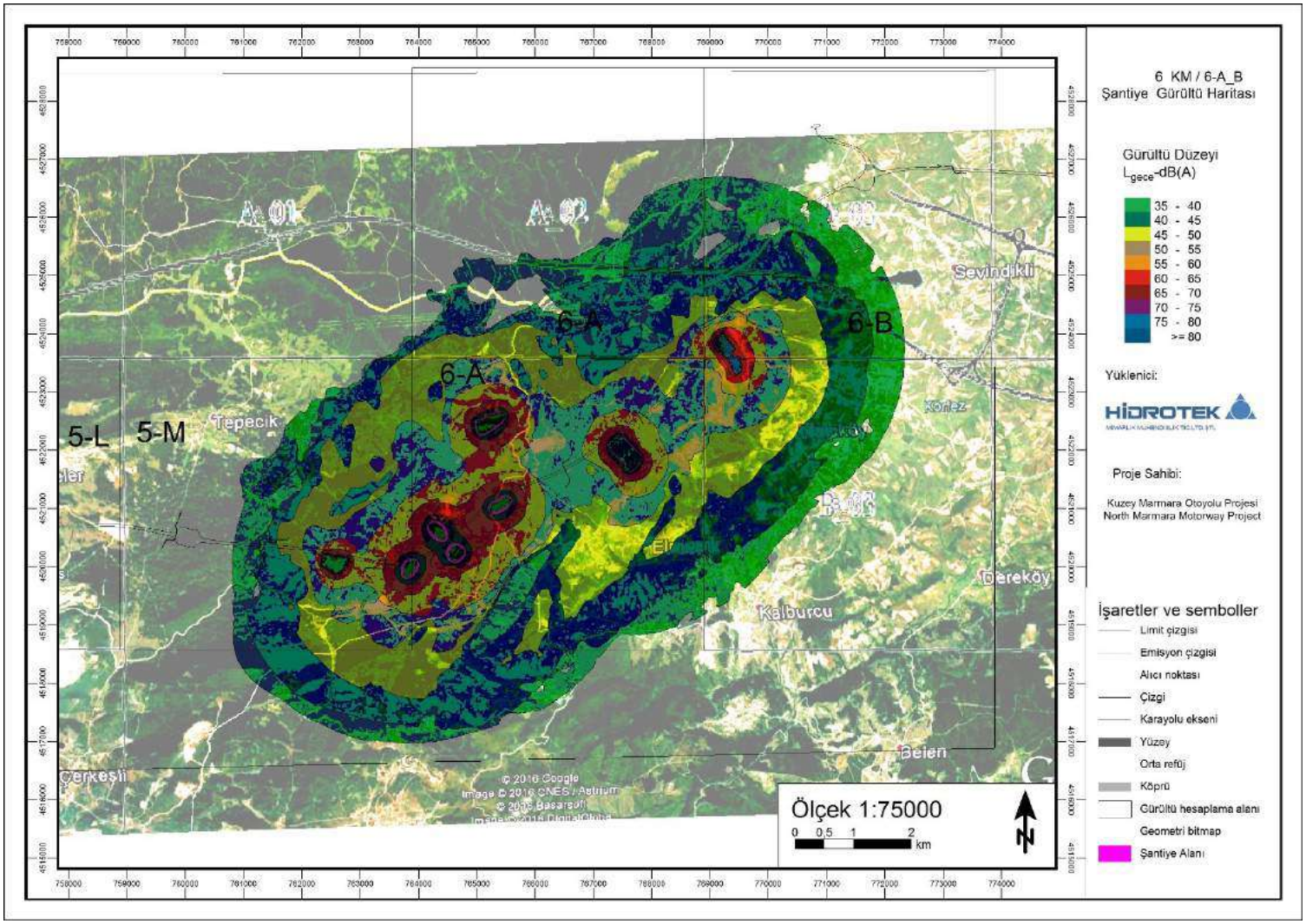

Figure 5.110 Ln noise map for part 6 A-B

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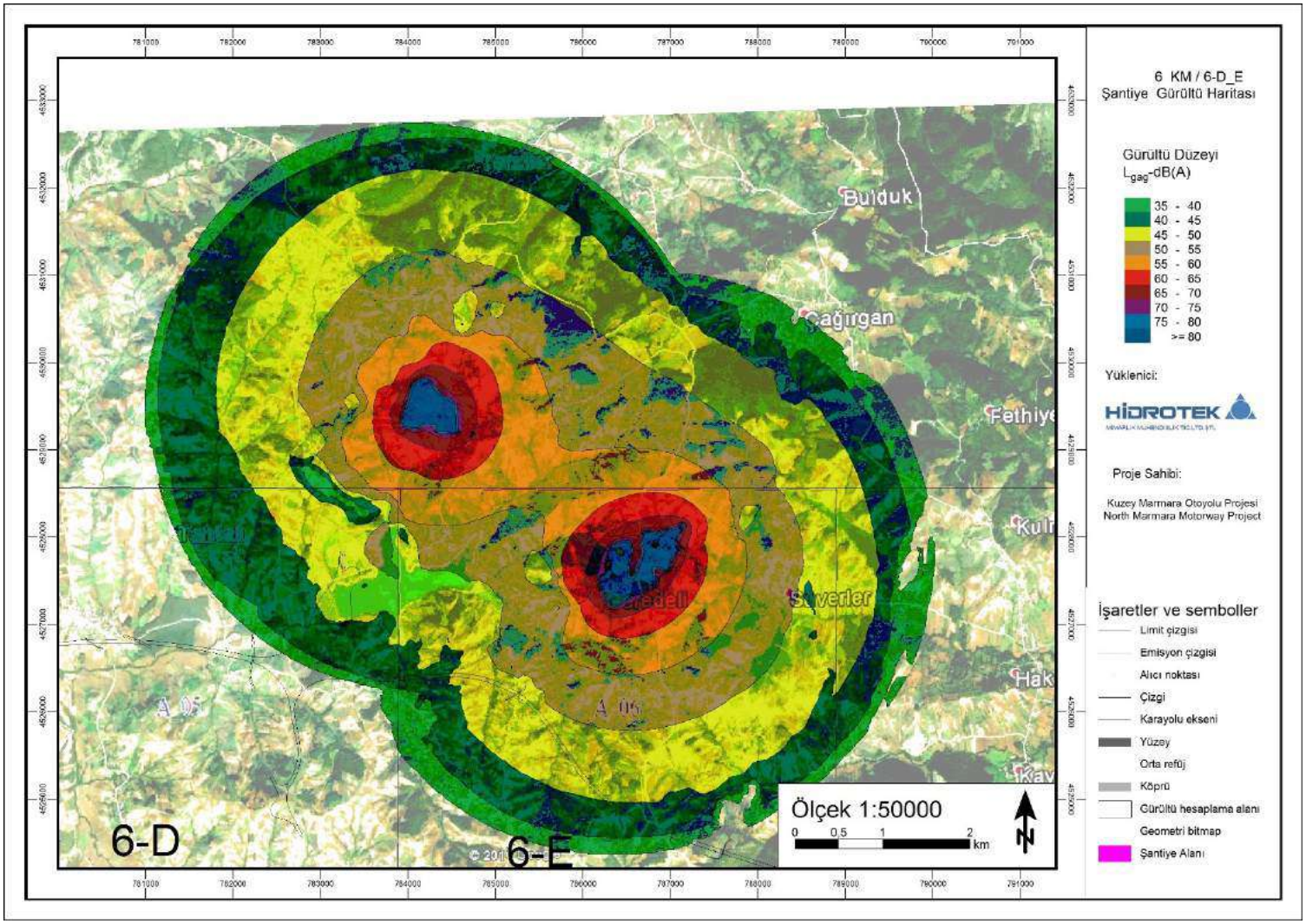

Figure 5.111 Lden noise map for part 6 D-E

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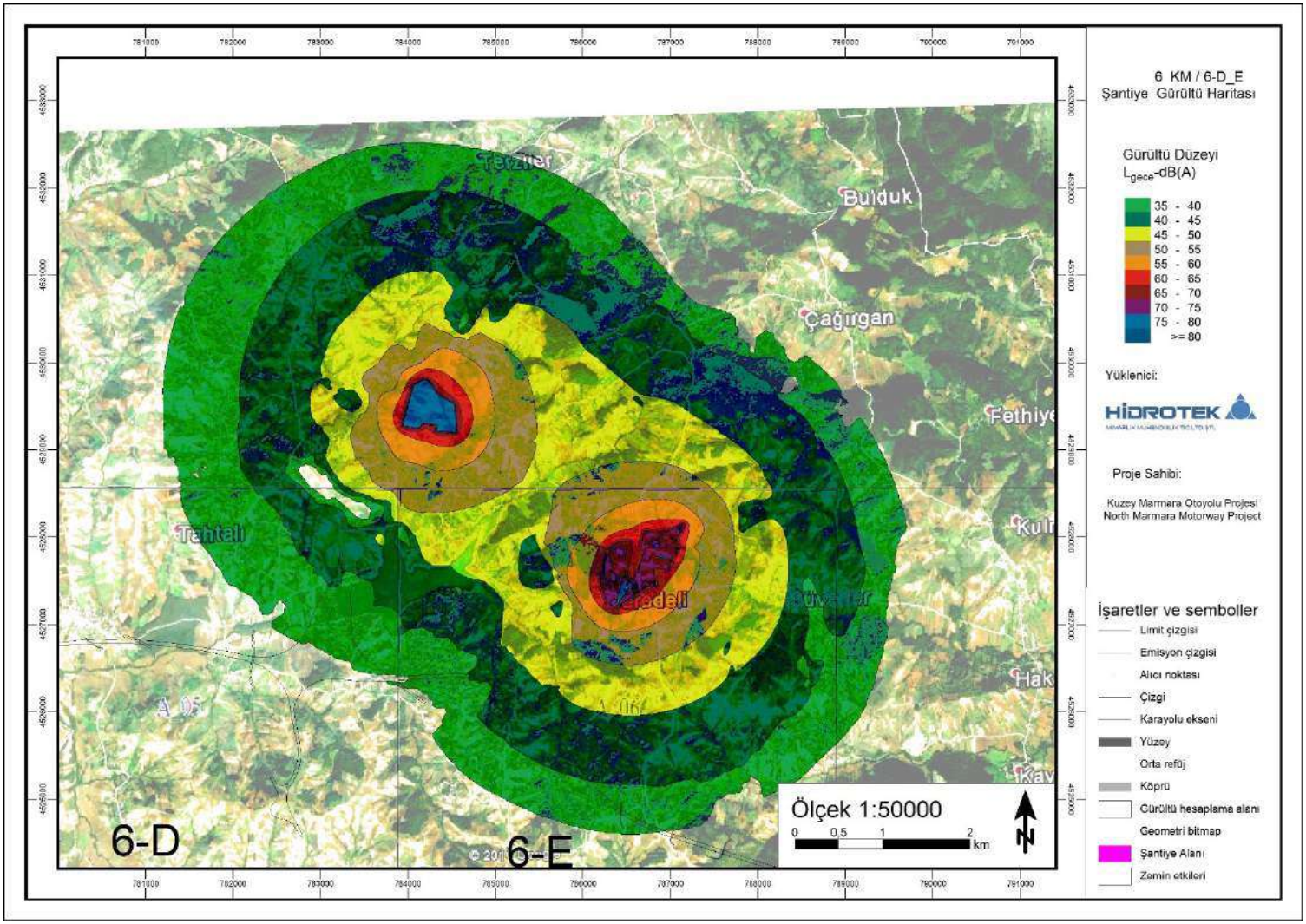

Figure 5.112 Ln noise map for part 6 D-E

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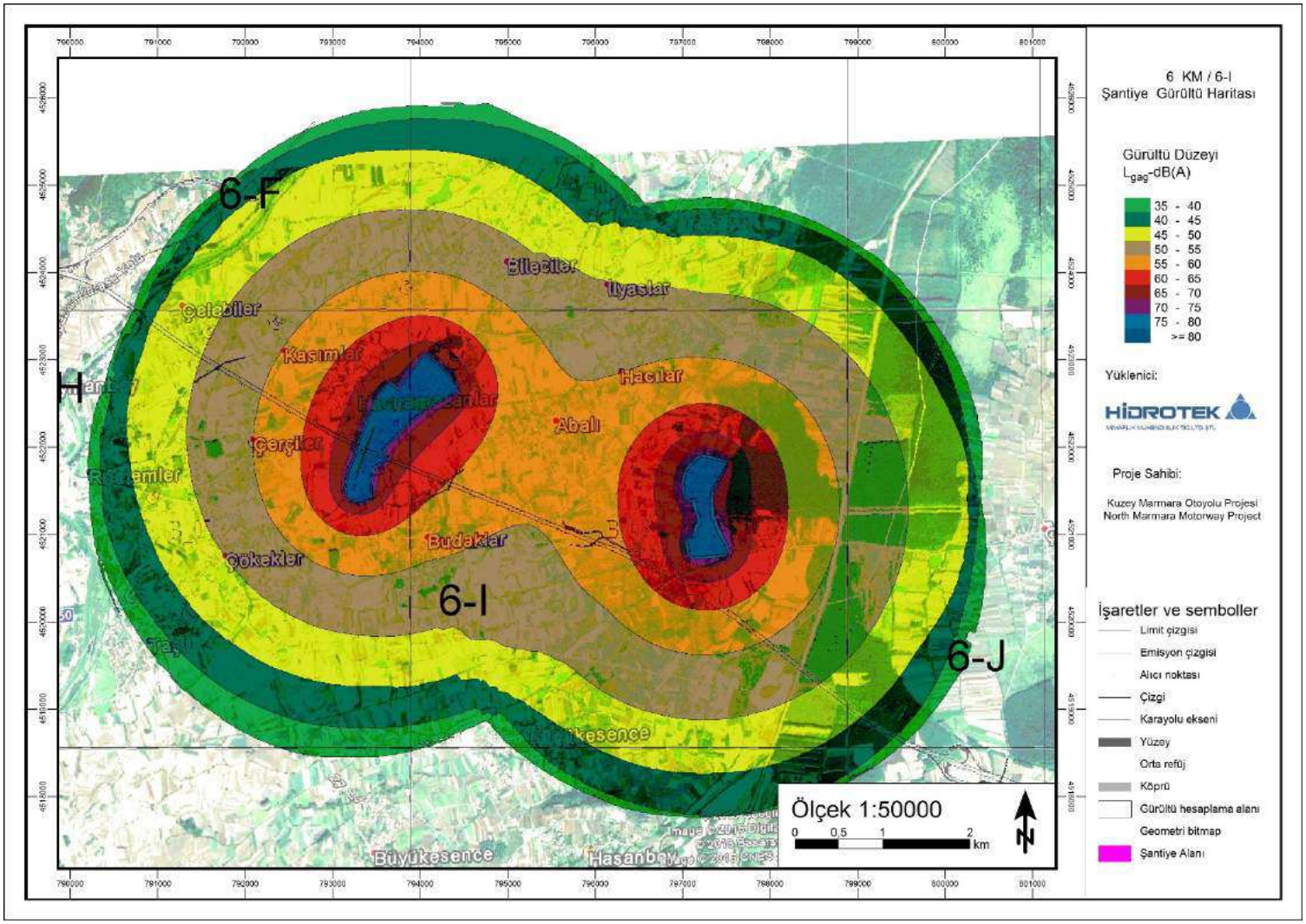

Figure 5.113 Lden noise map for part 6I

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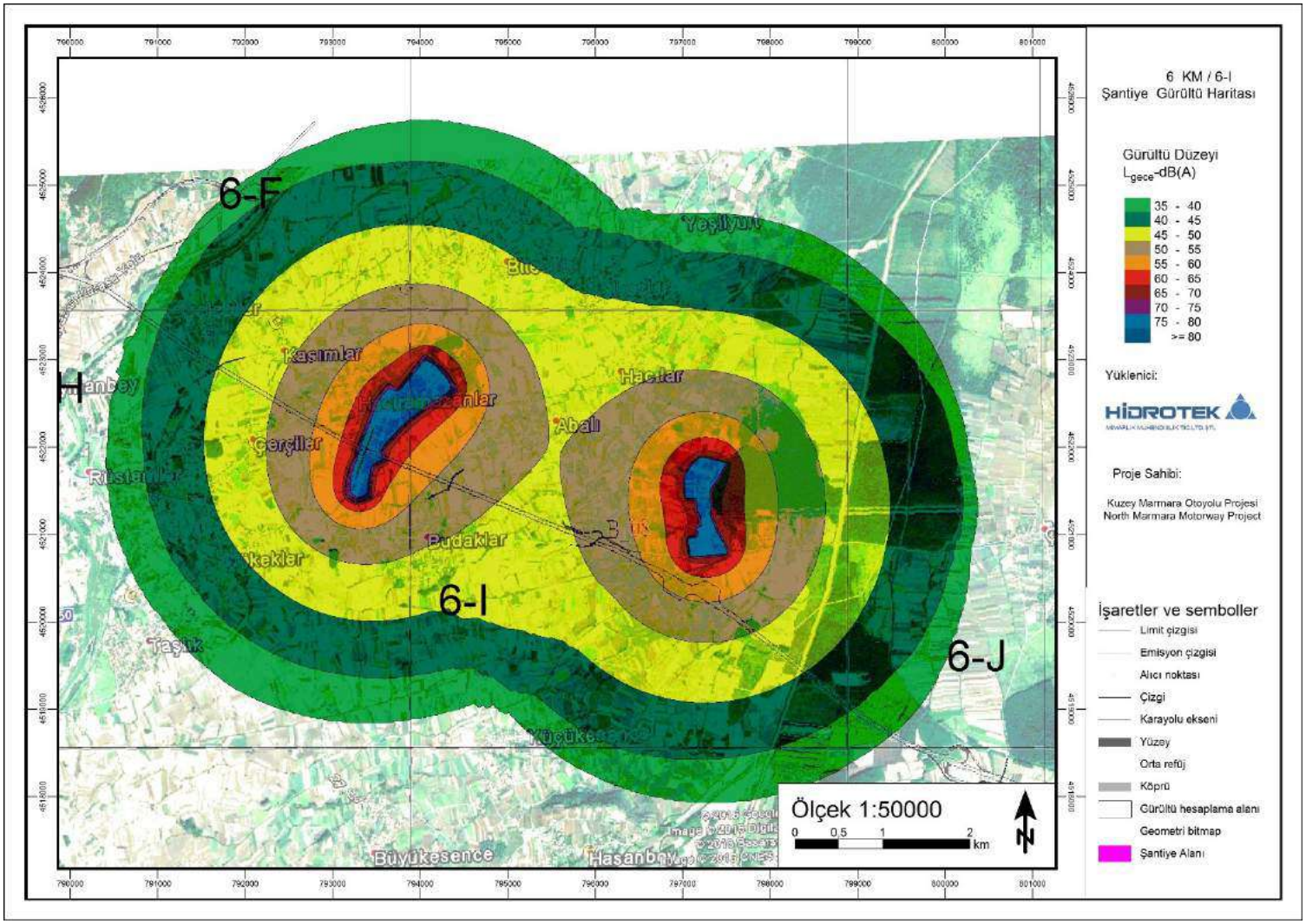

Figure 5.114 Ln noise map for part 6I

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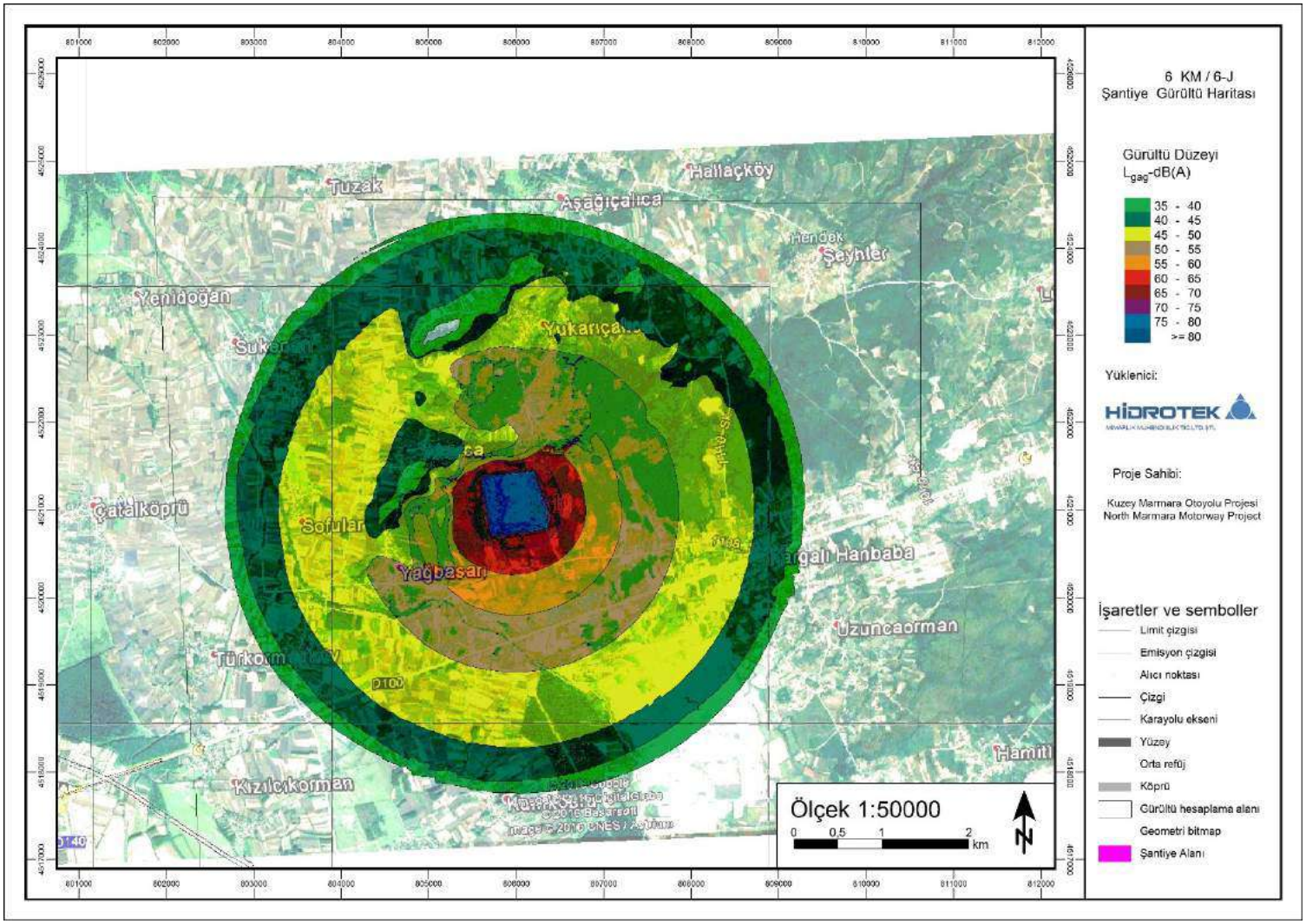

Figure 5.115 Lden noise map for part 6J

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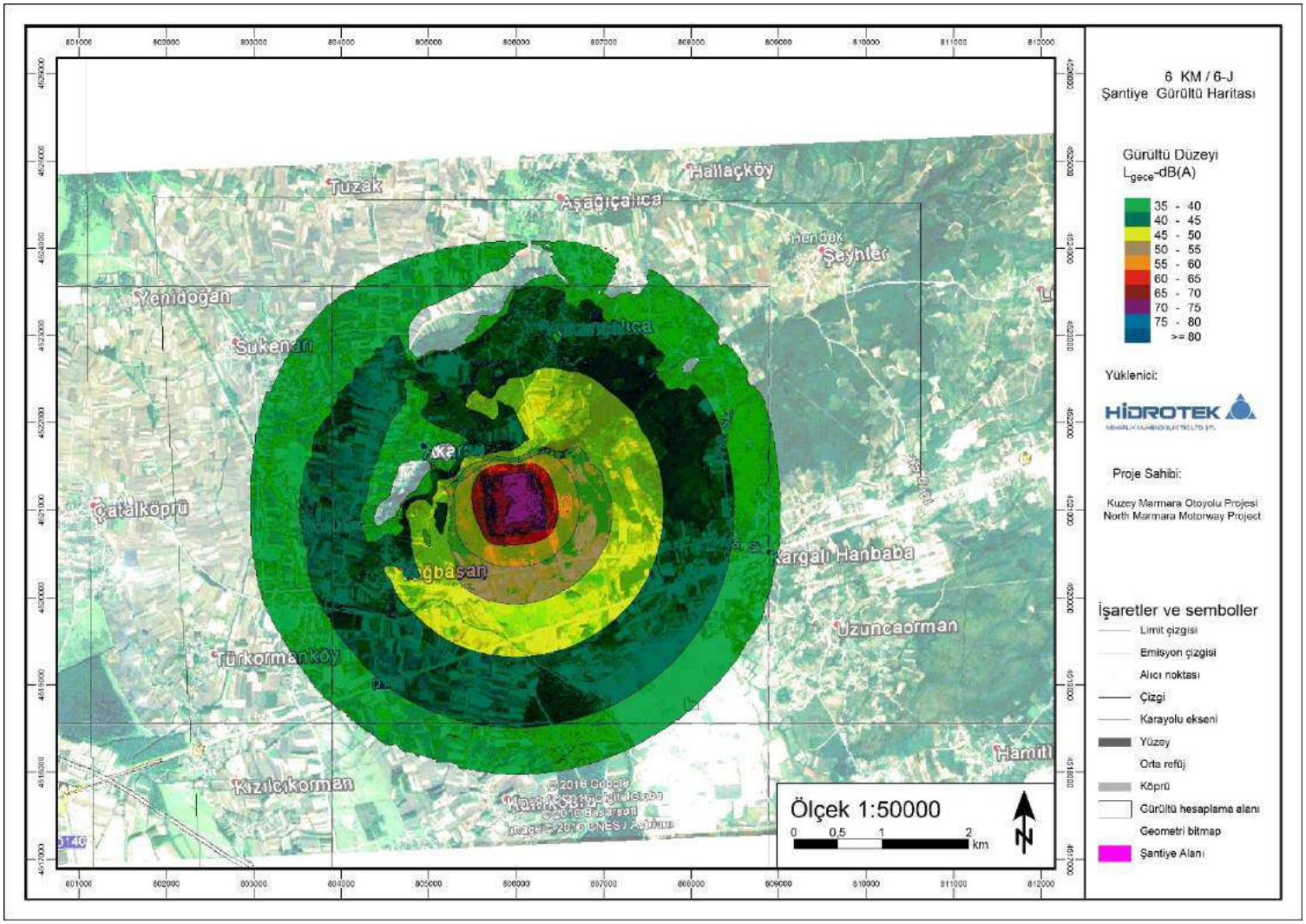

Figure 5.116 Ln noise map for part 6J

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Lden: Day – Evening – Night noise

Ln: Night noise

6 ACTION PLAN

Noise emission effects of North Marmara Motorway Project is studied within TNR by using SoundPLAN V 7.4 (64 bit) software. Foreseen traffic data are used for noise level estimates. Noise levels are measured at 24 points on the highway and virtual receiver assignment is implemented each point to calculate the potential noise levels.

A more detailed noise action plan implementation needs to be carried out by using TNR criteria in the impact assessment of 10 from 24 locations for year 2027.

6.1 Action Plan Implementation

Noise barrier is selected as the applicable action plan for identified 10 locations. The characteristics of the selected noise barriers are given below for information.

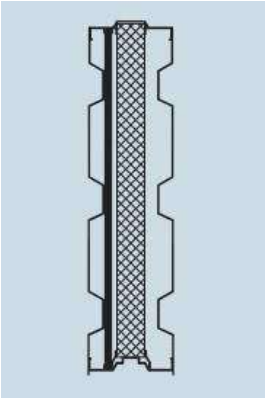

Figure 6.1 One-side absorber noise barrier

All of the acoustic test reports

According to the method

EN ISO 354:2005 : Measuring sound absorption in the tinnitus chamber

According to test reports made by accredited laboratories;

MINIMUM CHARACTERISTICS OF ALUMINUM NOISE BARRIER:

Sound absorption :DL_a ≥ 9 dB A4
Classification of sound insulation performances : DL_R ≥ 25dB B3
Weight : ≥ 25 kg/m^2

P.S : These features are minimum.

The noise levels from virtual receivers of noise action plan for locations when implemented with the SoundPLAN 7.4 (64 Bit) program are given in Figure 6.2.

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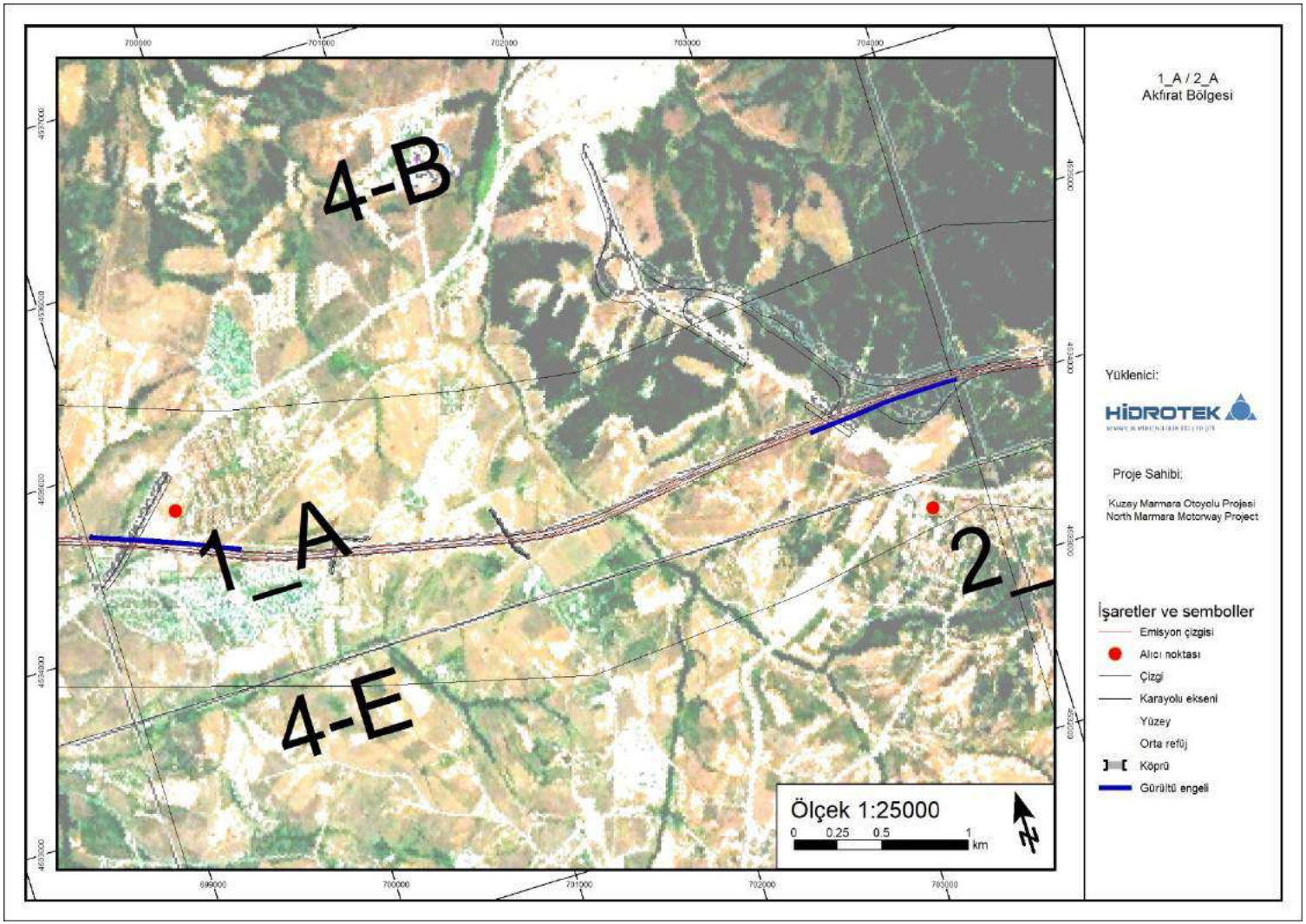

Figure 6.2 Akfırat

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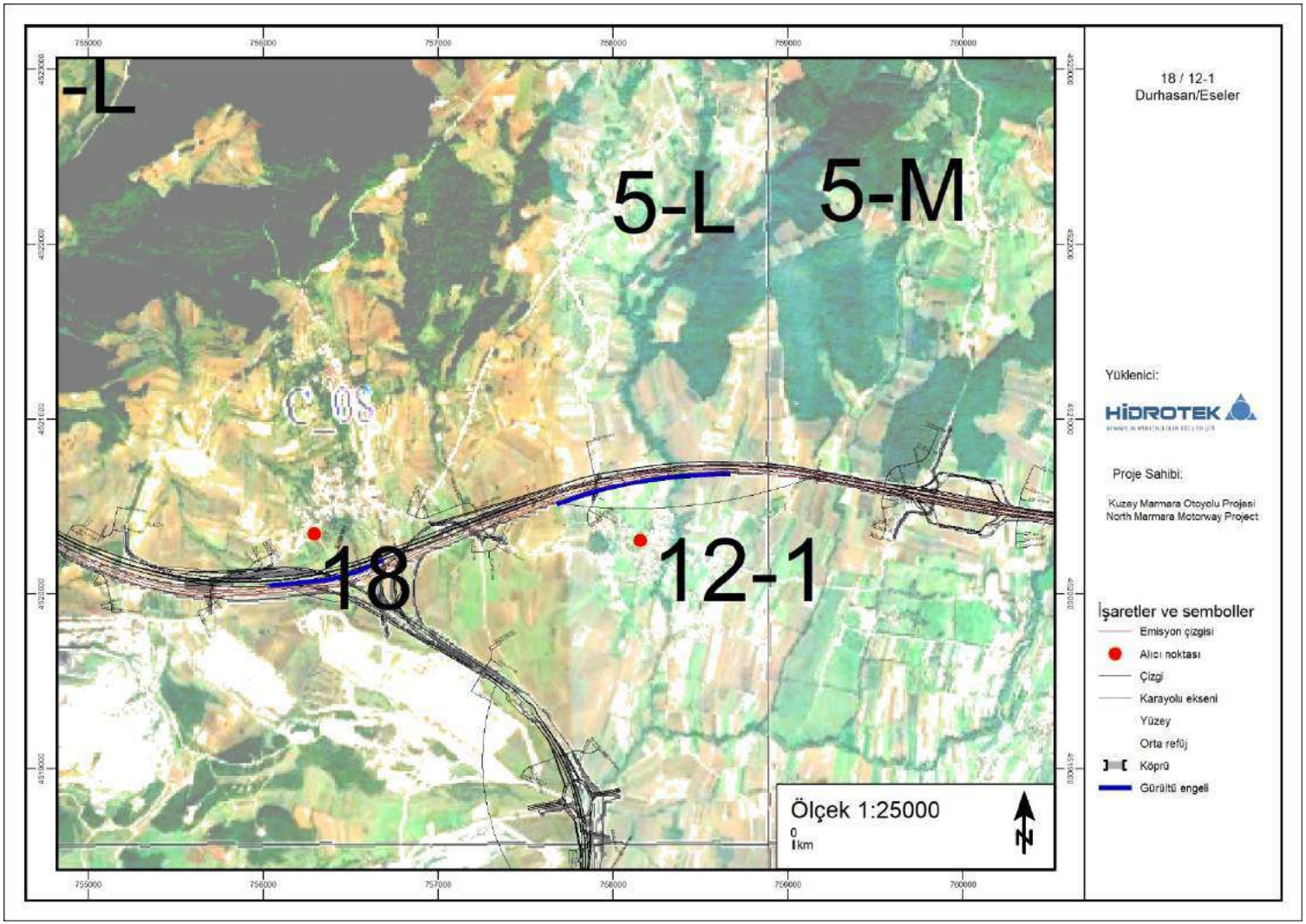

Figure 6.3 Durhasan/Eseler

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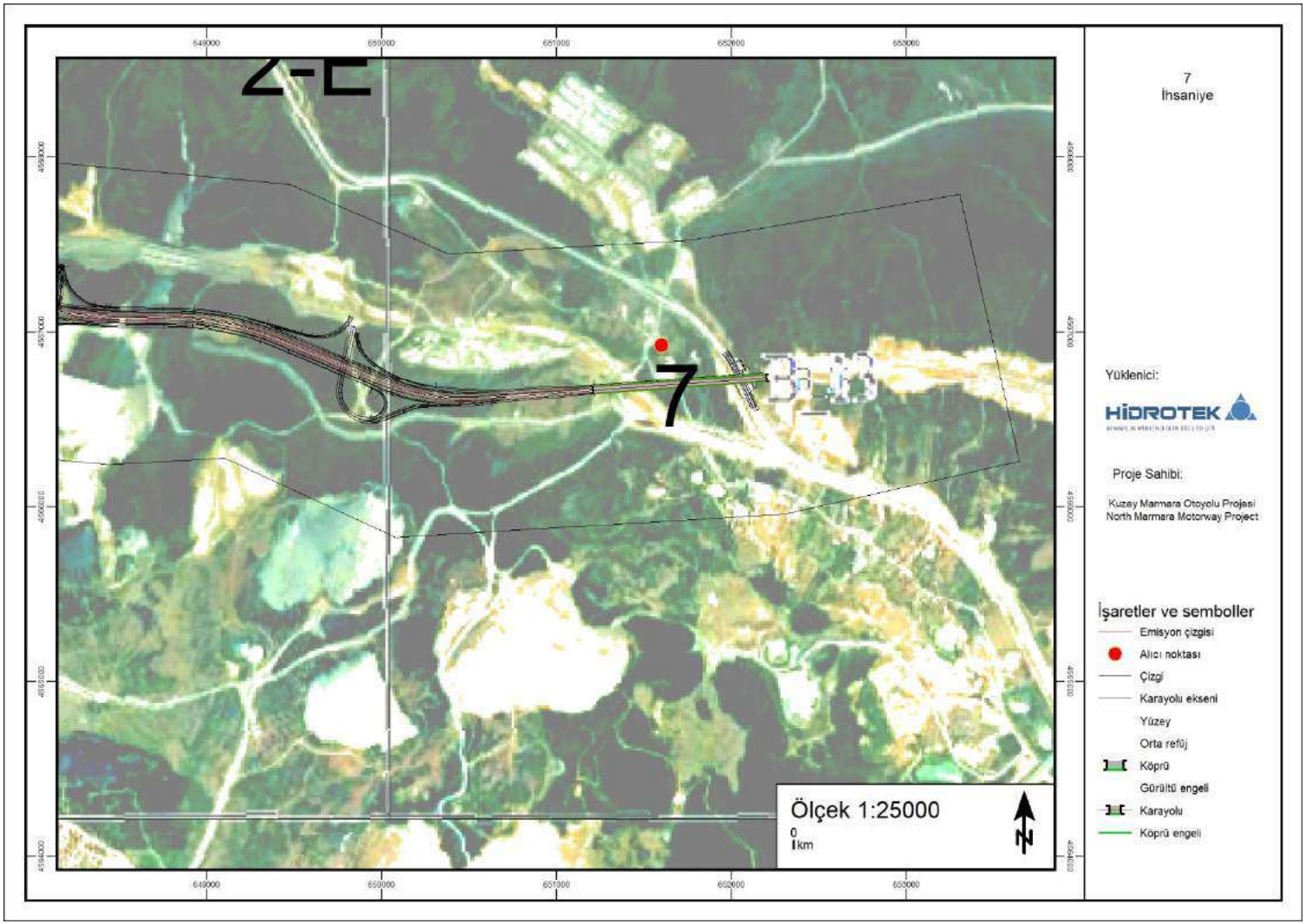

Figure 6.4 İhsaniyer

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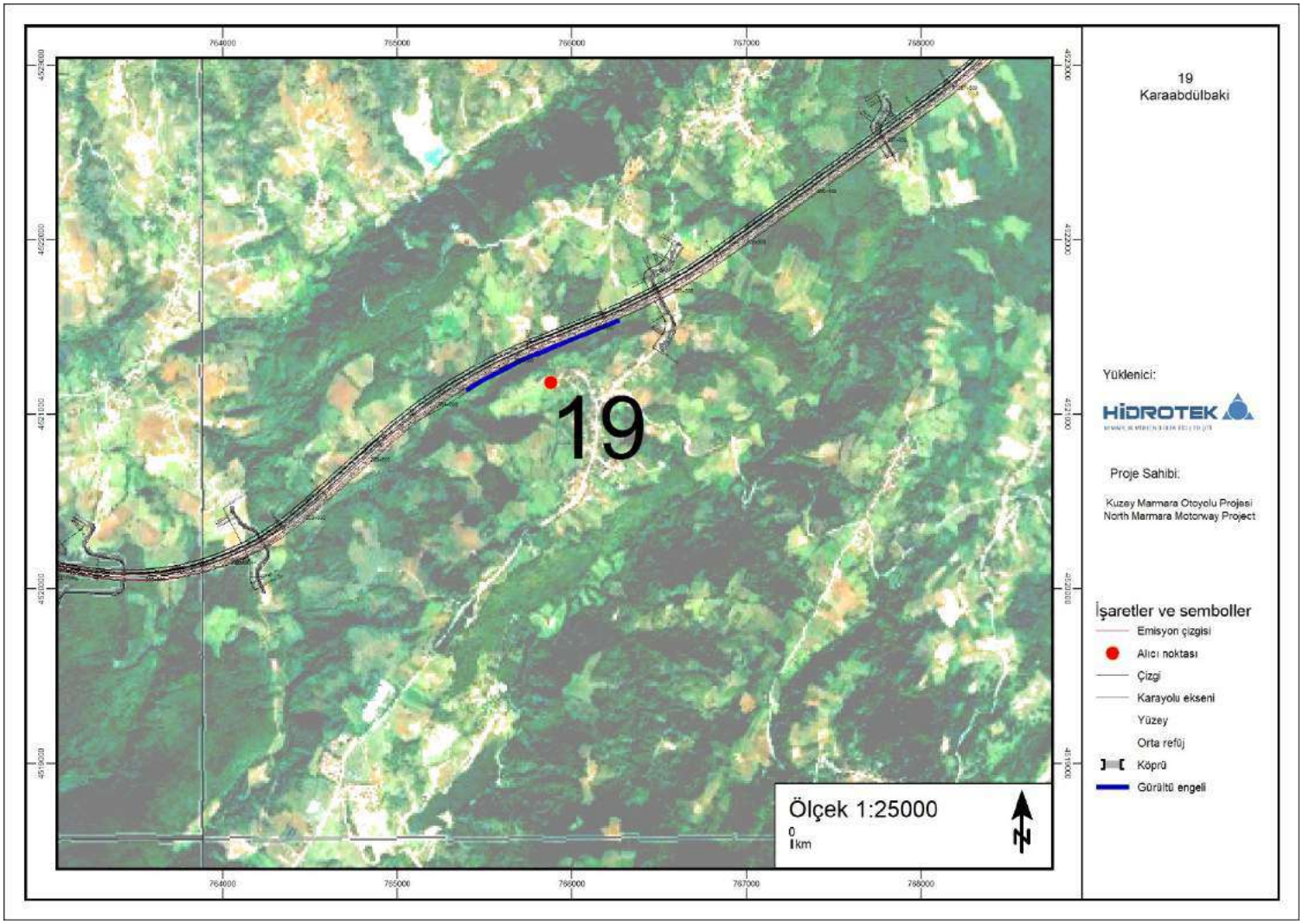

Figure 6.5 Karaabdülbaki

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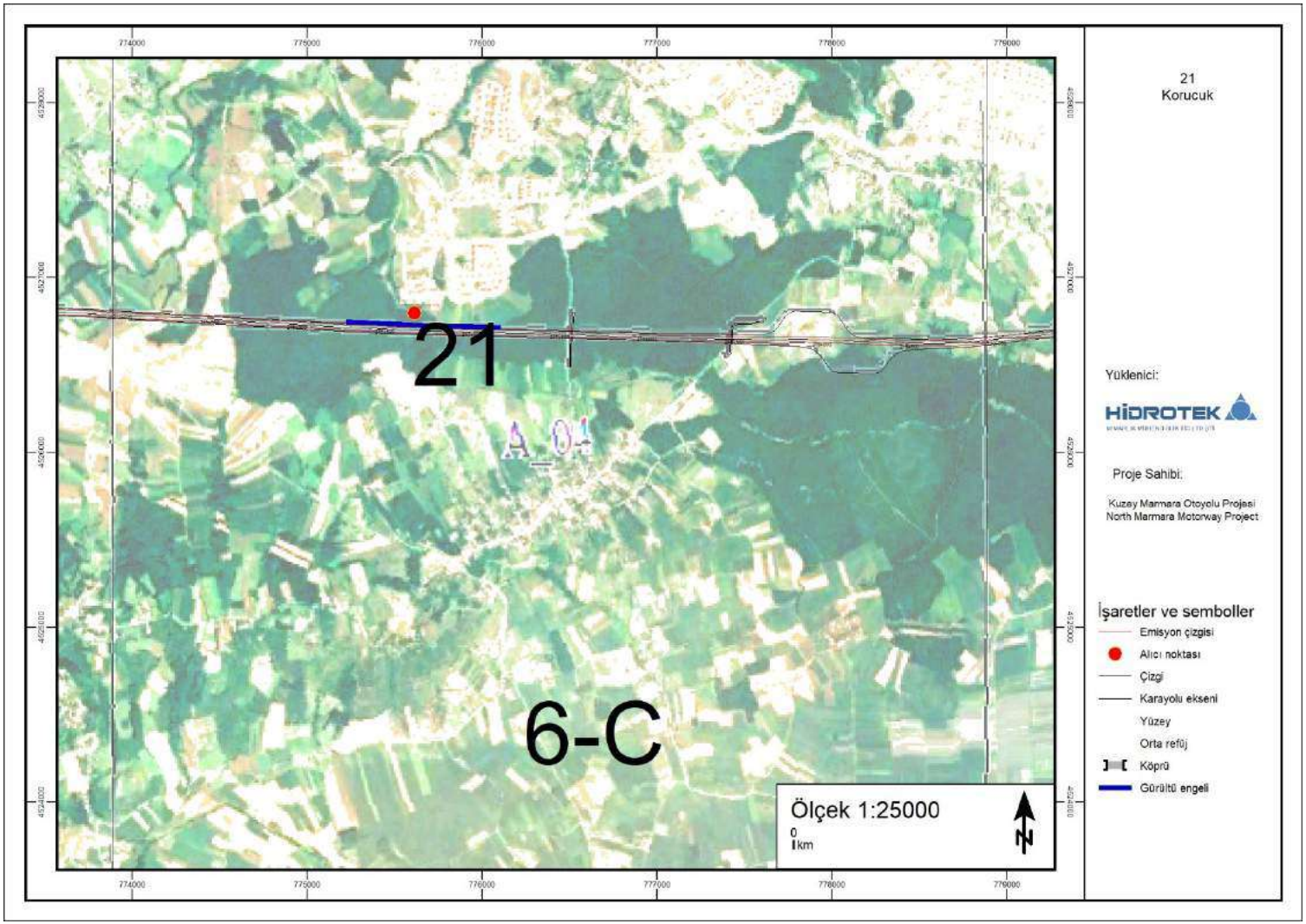

Figure 6.6 Korucuk

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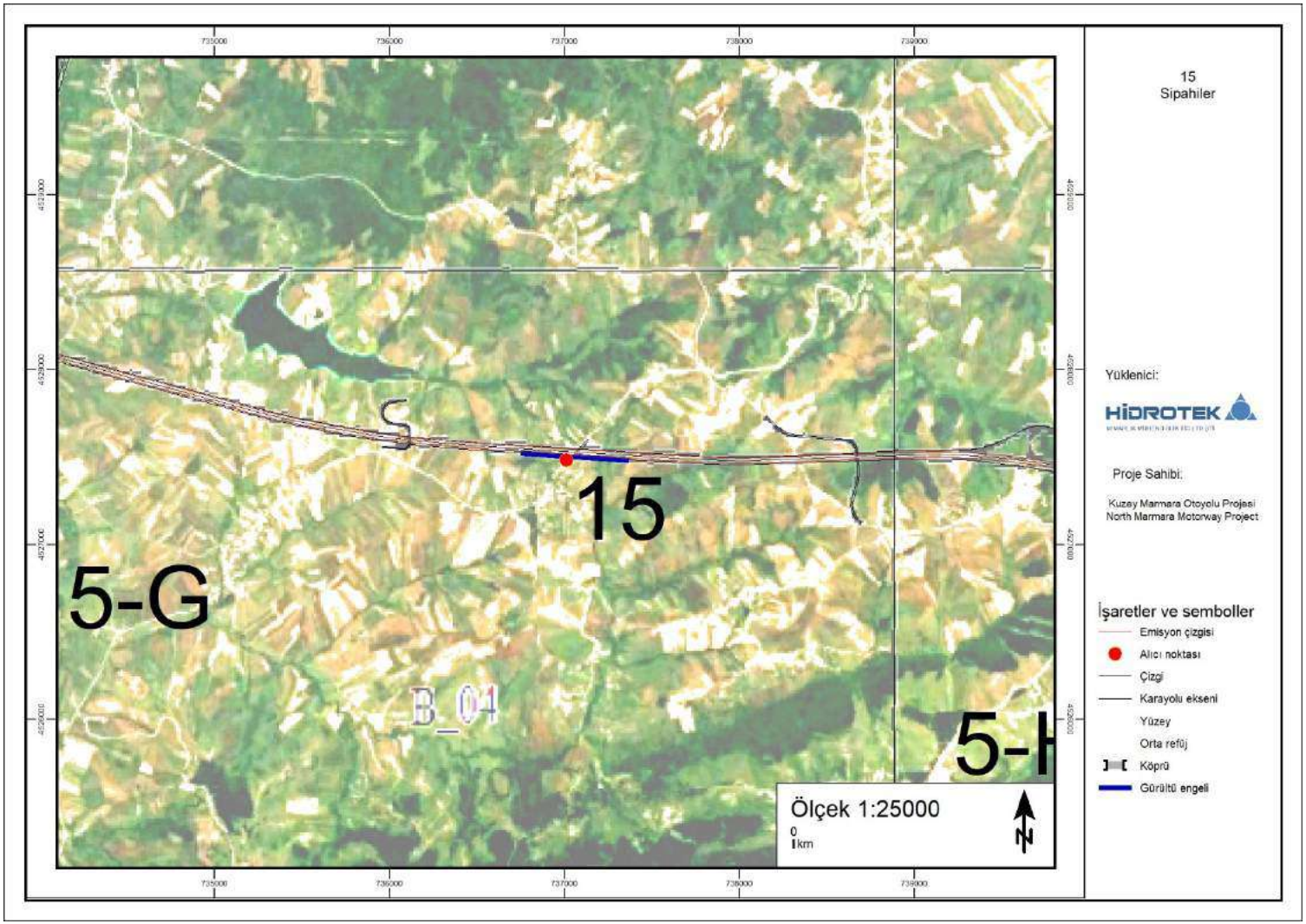

Figure 6.7 Korucuk

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				Current State				Action Planned Stiuation				m^2	Length	Height	Direction
No	Location	X m	Y m	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)	Lden dB(A)	Ld dB(A)	Le dB(A)	Ln dB(A)		m	m	
18	Durhasan	250,082.50	4,520,124.07	65.20	58.60	60.70	58.50	58.7	52.2	54.2	51.9	2500	625	4	İstanbul
19	Karaabdülbaki	259,704.48	4,520,305.08	62.50	57.20	58.20	55.40	58.3	52.4	53.9	51.4	3000	1000	3	Ankara
21	Korucuk	269,796.42	4,525,241.07	65.80	59.80	61.30	58.90	49.7	42.9	45	43	3000	857	3.5	İstanbul
7	İhsaniye	651,600.46	4,566,923.38	62.10	55.20	55.70	55.70	61.1	54.2	54.7	54.7	4000	1143	3.5	Edirne
9	Sultangazi	660,842.42	4,551,423.40	71.70	67.00	67.50	64.50	69.2	64.5	65	62	8000	1450	5.5	Edirne
10	Kurnaköy	696,716.23	4,536,081.56	71.80	67.10	67.50	64.60	69.3	64.6	65	62	8000	1450	5.5	İstanbul
15	Sipahiler	737,013.01	4,527,481.61	75.70	70.10	71.30	68.70	61.8	56	57.4	54.9	2500	625	4	Ankara
1_A	Akfirat	699.419,00	4.534.658,00	72.80	67.30	68.20	65.80	61	55.2	56.4	54.2	3500	875	4	İstanbul
2_A	Akfirat	703.566,00	4.533.409,00	64.90	58.50	60.10	58.20	58.2	52	53.5	51.5	3500	875	4	Ankara
12_1	Eseler	251.938,00	4.519.957,00	64.90	58.50	60.10	58.20	53.6	47.1	49	46.8	3000	1000	3	Ankara

Figure 6.8 Comparison chart

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7 RESULTS

Noise emission effects of North Marmara Motorway Project is studied within TNR by using SoundPLAN V 7.4 (64 bit) software. Foreseen traffic data are used for noise level estimates. Noise levels are measured at 24 points on the highway and virtual receiver assignment is implemented each point to calculate the potential noise levels.

By using TNR for year 2027, the noise action plan was implemented in 10 out of 24 locations. So in 8 of these locations, the results below the limit values stated in our regulation were obtained. The size of the noise barrier to be placed in this area is 25.000 m^2. Approximate quantities for the regions is shown in Figure 6.7.

For Sultangazi and Kurnaköy, it is not possible to reach the limit values stated in the regulation. These areas will be affected by other noise sources during operation as they are located between the other link roads. Further studies are required when link roads for these zones are taken into operation.

Hediye TAN Environmental Engineer Acoustics Specialist	Ali AKDAĞ Electronics and Communication Engineer Acoustics Specialist

ABBREVİATİONS

Lden:Lday-evening-night

Ln: Lnight

TNR: Turkish Noise Regulations

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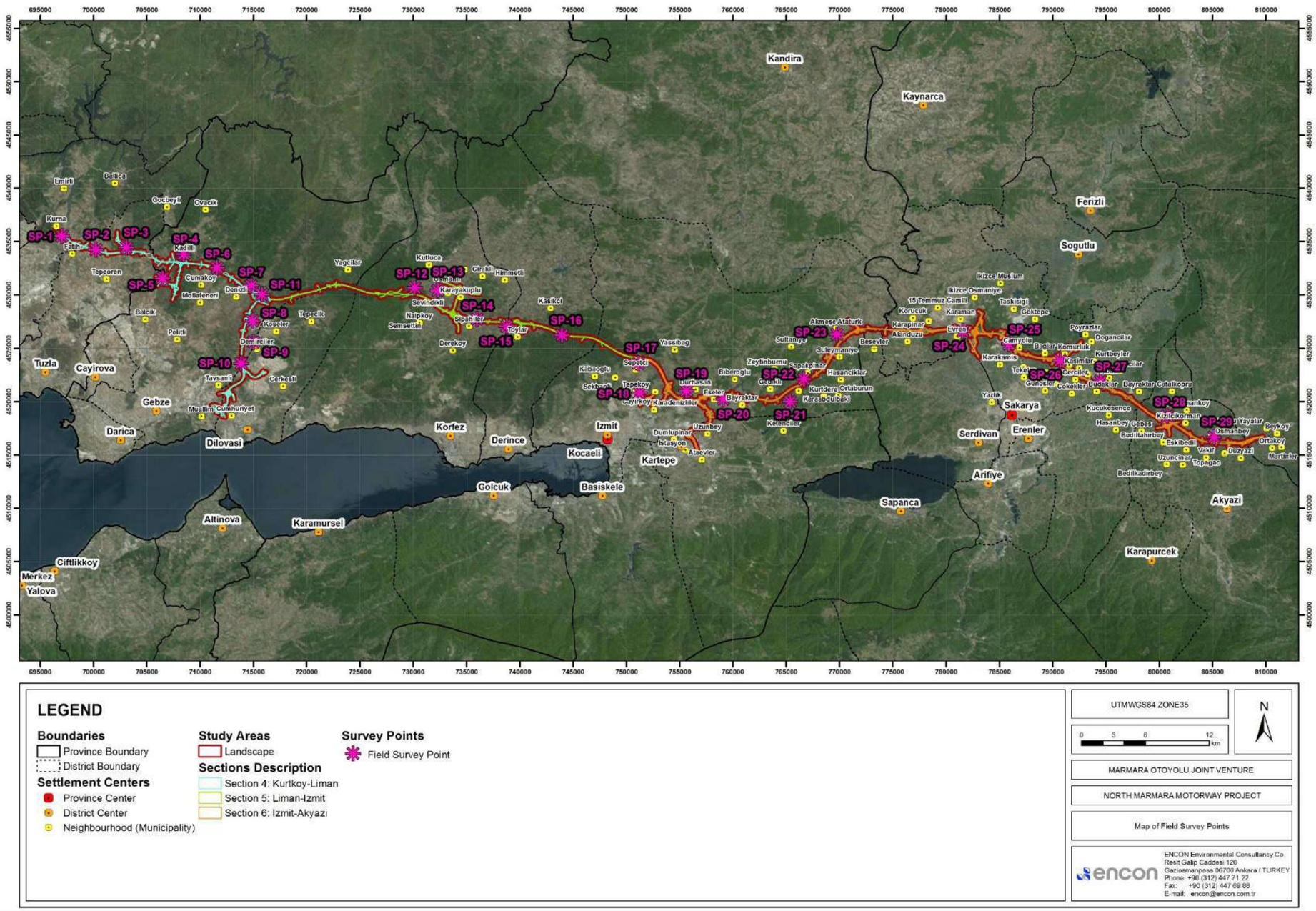
ANNEX-9

LANDSCAPE FIELD SURVEY POINTS

Annex-9. Landscape Field Survey Points

Annex 9.1. Map of Field Survey Points



Annex 9.2. Panoramic Views of the Field Survey Points

Survey Point 1 (Section 4)

Survey Point 2 (Section 4)

Survey Point 3 (Section 4)

Survey Point 4 (Section 4)

Survey Point 5-in west direction (Section 4)

Survey Point 5-in east direction (Section 4)

Survey Point 6 (Section 4)

Survey Point 7 (Section 4)

Survey Point 8 (Section 4)

Survey Point 9 (Section 4-Liman Access Road)

Survey Point 10 (Section 4-Liman Access Road)

Survey Point 10 (Section 4-Liman Access Road)

Survey Point 11 (Section 5)

Survey Point 12 (Section 5-Quarry and Camp Site)

Survey Point 13 (Section 5)

Survey Point 14 (Section 5)

Survey Point 15 (Section 5)

Survey Point 16 (Section 5)

Survey Point 17 (Section 5)

Survey Point 18 (Section 5)

Survey Point 19 (Section 5)

Survey Point 20 (Section 6)

Survey Point 21 (Section 6)

Survey Point 22 (Section 6)

Survey Point 23 (Section 6)

Survey Point 24 (Section 6)

Survey Point 25 (Section 6)

Survey Point 26 (Section 6)

Survey Point 27 (Section 6)

Survey Point 28 (Section 6)

Survey Point 29 (Section 6)

ANNEX-10

ARCHAEOLOGY AND IMMOVABLE CULTURAL HERITAGE REPORT

NORTH MARMARA MOTORWAY PROJECT ESIA ARCHAEOLOGICAL REPORT

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http://www.regio.com.tr

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Annex 10: Archaeological Maps

GLOSSARY

Anatolian Seljuks	Definition for Seljuk tribes who established a Turkish state in Anatolian territories. Seljuk commander Kutalmışoğlu Süleyman Şah (Süleyman Şah I) led the conquests in western Anatolia, captured İznik in 1075 and declared it as the capital city and established Anatolian Seljuk state. Anatolian Seljuk State, which was founded when İznik became capital, existed until İlhanids overthrown the last Anatolian Seljuk ruler in 1318.
Access Road	A section of a motorway in the junction area allowing connection of vehicle roads with each other not covering the junction itselfed and reserved for one way traffic.
Bithynia	The name of the eastern part of the Bosporus in ancient sources. The Kingdom, which was established by Bithyns of Thracian origin in 377 BCE with the capital city of Nicaea and survived until 64 BCE is also named after the same toponym.
Byzantine Period	The period during when the Byzantine Empire reigned as the successor of the Roman Empire throughout the Late Antiquity and Medieval Age and ended in 1453 when Istanbul was conquered by the Ottomans.
Byzantium	The ancient city which was established on the area that is occupied by the Topkapi Palace and Hagia Sophia on the Thracian side of Bosporus, which separates Europe from Asia. Sarayburnu and its hinterland formed the core of Byzantium. The city have developed and extended to the area, which today roughly covers Eminönü and Fatih districts. Today, this area, where the historic traces of Istanbul can be observed, is called “the Historic Peninsula”.
Early Bronze Age	The period, which roughly covers between 3200 BCE and 2000 BCE in Anatolia. It is divided into three sub-periods as Early Bronze Age I, Early Bronze Age II and Early Bronze Age III.
Hellenistic Period	The period during when the Hellenic civilization spread to the entire known world. Hellenic civilization first appeared in the Island of Crete and diffused first into the neighbouring islands and then to Greek Peninsula. Hellenic civilization existed in the form of city-states. Hellenic civilization spread to a vast geography during the Hellenistic period that started when Alexander the Great ended the Persian dominion in Anatolia and unified these city-states into the large Greek Empire.
Hittite	Hittite Kingdom was the state which ruled in Anatolia between 1700 BCE and 1200 BCE.
Scythians	Scythians were nomadic people, who lived in the east of Europe (Crimea and Pontic steppes) and in the region covering Tengri Mountains and Fargana Valley in the Central Asia, between the 8th century BCE and 3rd century BCE.
Chalcolithic Period	The period in the Anatolian history during which copper was used in addition to stone tools. It covers the interval between 5500 BCE and 3000 BCE.
Bunker	A type of fortification, which provides larger field of view built on elevated grous for machine gun and artillery shooting while providing protectionom light weapon and hand grenade attacks.

Conservation Site	The sites for protection of conservation of cultural and natural assets or their preservation in the historic environment. In certain conditions, protection of single building or a landscape is not sufficient. The building or natural formation may be negatively affected by activities, transformations, and developments around them. For this reason, an area which can be called a buffer zone or a temporary transition zone is formed around the protected cultural and natural assets and construction and physical interventions are restricted in this area.
Cultural Inventory	The database, which is formed as a result of documentation of movable and immovable cultural assets by government institutions.
Cultural Assets	All movable and immovable assets dated to prehistoric and historic periods that are associated with science, culture, religion and fine arts or those that became subject to social life in the historic period. Cultural assets which carry authentic scientific or cultural values can be found on surface, underground or underwater.
Cultural Heritage	General definition for monuments and artefacts which were created by previous generations and believed to possess universal values. It is divided into two as tangible and intangible cultural heritage.
Late Bronze Age	The name of the period which covers the interval between 1750 BCE and 1200 BCE.
Lydia	The name of the ancient region located between Gediz and Menderes rivers in the western Anatolia.
Mycenaean	The general name of the civilization and people, which dominated the Mainland Greece and the Aegean Islands between 1400 and 1200 BCE. The people are also known as Achaeans.
Mesolithic (Epipalaeolithic)	The word Mesolithic is the combination of Ancient Greek words Mesos (middle) and lithos (stone). It means the Middle Stone Age (22.000-10.000 BCE).
Necropolis	The epithet of areas that include cemeteries and mass graves. It is derived from the ancient Greek words necro(s) and polis meaning “the land of dead”.
Neolithic Period	The period in human history when hunter-gatherer life style ended and mankind started sedentary agricultural life. During this period many animal species were domesticated, villages, and cities were established as a result of production and pottery were started to be produced in order to store foods. It is also called the Neolithic Age. Neolithic Age is divided into two phases called as Pre-Pottery Neolithic and Pottery Neolithic (8000-5500 BCE). It is also known as the New Stone Age.
Middle Bronze Age	It is the second phase of the Bronze Age and covers the time span between 2000 BCE and 1750 BCE in Anatolia.
Palaeolithic Period	The period, which started around 2 million years ago and ended in 10000 BCE.

Persian Period	The period between 533 BCE and 334 BCE, during which Persians ruled in Anatolia and Iran.
Project Impact Area/Corridor	The sections, which remained under the influence of all types of construction activities (cleavage, infilling, stocking, explosion activities etc.) within NMM project. Within the scope of this project, as far as cultural heritage is concerned the impact corridor is defined as the 400-m strip with the construction main axis in the middle. Project Impact Area/Corridor encompasses the Project Construction Area/Corridor.
Project Route	The route, which covers all main motorway course including the access roads within the scope of the project.
Project Construction Area/Corridor	The areas, where all types of construction activities (cleavage, infilling, stocking, explosion activities etc.) causing direct influence on corresponding assets are implemented within NMM project. This area/corridor is encompassed by the 400 m impact area/corridor.
Redoubt	A type of an entrenchment, which is constructed and equipped with weapons for the defence of a specific area.
Roman Civilization	The civilization, which started in the city-state of Rome that was established in the 9th century BCE in the Italian Peninsula and became an empire that surrounded all Mediterranean Sea. It was divided into two as the Eastern Roman (Byzantine) Empire and Western Roman Empire by the Emperor Theodosius in 395 CE. The Byzantine (Eastern Roman) Empire has survived until the conquest of Istanbul in 1453.
Site	Site is a general definition covering the cities and city remains, which reflect the social, economic, architectural and similar features of their period; places, which include ample amount of cultural assets, became a subject of social life or witnessed important historic events; and places, which were documented with their natural properties and require protection.
Thracia	The name of the western part of the Bosporus in ancient sources. Its modern name is Thrace.
Thracians	The name of people, which have inhabited the Thrace, Bulgaria, and Northern Greece until the 4th century BCE.
Tumulus	The monumental graves, which are built with accumulation of soil and look like a hill.
Vault	A type of masonry, which is constructed in convex shape or semi-cylindrical with stone or brick. It is used in doors or ceilings.

ABBREVIATIONS

BCE	Before Common Era
c.	Century
CE	Common Era
EBRD	European Bank for Reconstruction and Development
ESIA	Environmental and Social Impact Assessment
GIS	Geographical Information Systems
GPS	Global Positioning System
ICOMOS	International Council on Monuments and Sites
IFC	International Finance Corporation
KM	Kilometre
KVKBKM	Directorate of Regional Conservation Board for Conservation of Cultural Assets
M	Metre
NMM	North Marmara Motorway
OUV	Outstanding Universal Value
RT	Republic of Turkey
WHS	World Heritage Sites

1. INTRODUCTION

This document is prepared for identifying the current status of archaeological and immovable cultural heritage within the scope of the North Marmara Motorway Project Environmental and Social Impact Assessment studies and defining possible influences of the project construction activities on the archaeological assets and immovable cultural heritage located within the project impact area.

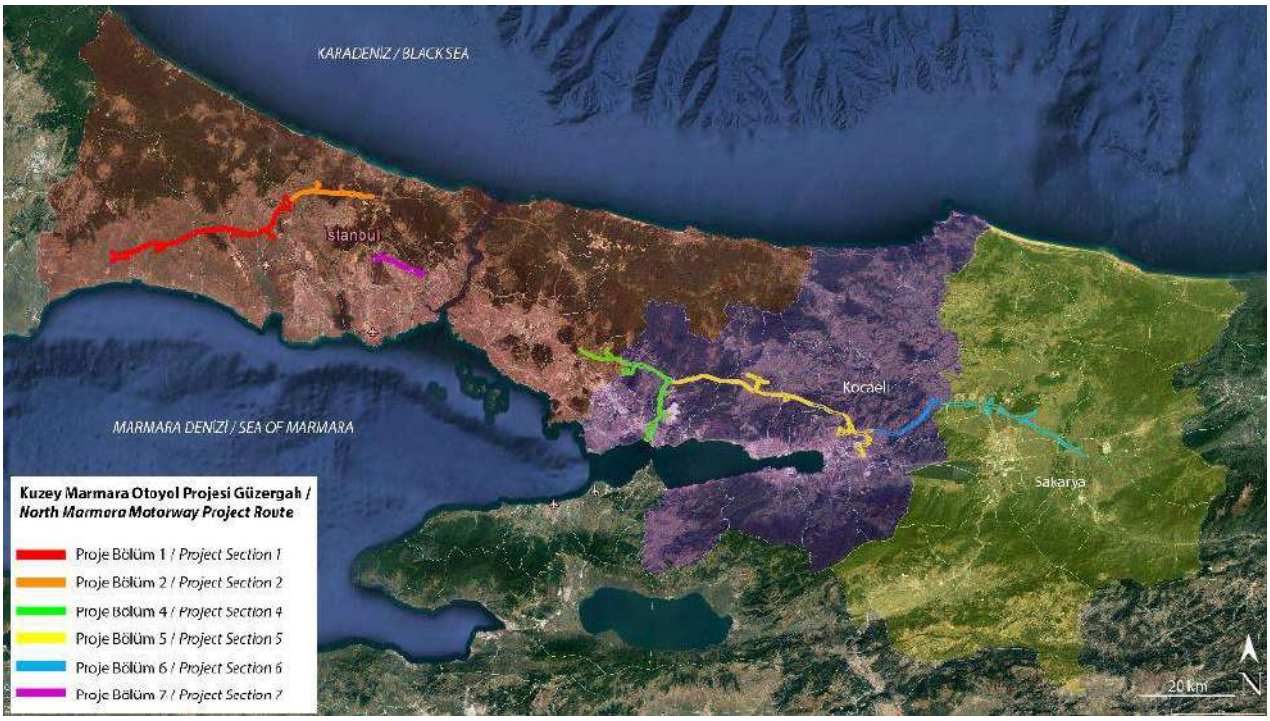
1.1. Aim

The main objectives of the studies on the archaeological and immovable cultural assets, which were conducted within the scope of the Environmental and Social Impact Assessment over the 400 m impact corridor of project route (which covers the Project construction area) including the access roads are as following:

- Identifying the exact location and properties of potential cultural heritage located on the motorway construction route and its impact area (access roads etc.) as well as developing plans and strategies to mitigate the possible negative impacts of the construction activities on these areas;
- Providing information about the identified sites to official authorities and relevant project departments in order to prevent delays in motorway construction activities to help to prepare project activity plan (including the construction schedule) avoiding possible delays;
- Developing mitigation measures, which are compatible with the legal procedures and board decisions for the sites that are registered by the Ministry of Culture and Tourism, if any, or which are in the process of registration as well as those that were identified within the scope of this study and may have archaeological importance;
- Collecting the information about the sites located on the project construction route in compliance with scientific methods and contributing to the archaeological and cultural inventory of Turkey by sharing this information with relevant Regional Boards for Conservation of Cultural Assets.

1.2. Scope

The approximate length of the main project route, which is planned to be constructed between the City of Sakarya, Akyazı District and Istanbul, Silivri District is 190,4 km. The total length of the access roads of the Project on the other hand, is approximately 84 km (Map 1).



Map 1: North Marmara Motorway Project Route

Works for identifying the archaeological and cultural heritage assets that are possibly be located on the North Marmara Motorway Project route and necessary impact assessment studies were conducted within the corridor, which is in the same length with the construction impact area, including the access roads, covering the project route. The project route including the access roads was divided into 6 main sections. These sections where the studies were held are presented in Table 1.

Table 1: The Project Route and Corresponding Sections

Section	Km	City	Districts
6	251+143-241+250	Sakarya	Akyazı
	241+250-215+500		Adapazarı
	215+500-187+000	Kocaeli	İzmit
5	187+000-183+250	Kocaeli	İzmit
	183+250-175+500		Derince
	175+500-162+500		Körfez
	162+500-156+500		Gebze
	156+500-151+500		Dilovası
4	151+500-139+500	Kocaeli	Gebze
	139+500-132+750	İstanbul	Tuzla
	132+751-129+650		Pendik
7	71+250-69+500	İstanbul	Eyüp
	69+501-62+500		Sultangazi
	62+501-60+400		Esenler
2	58+000-55+750	İstanbul	Eyüp
	55+750-40+500		Arnavutköy
1	40+500-32+600	İstanbul	Arnavutköy
	32+600-19+000		Çatalca
	19+000-0+000		Silivri

2. APPLICABLE LEGISLATION AND STANDARDS

In Turkey, movable and immovable cultural and natural assets are protected and should be conserved as per the "Law on Preservation of Cultural and Natural Assets", 2863 (amended by law numbered 3386), published in the Official Gazette numbered 18113 and dated 23 July 1983. According to the Law, essential assets which are identified as cultural and natural heritage under legal protection are defined as follows:

- Natural and immovable cultural assets belonging to 19th Century and before;
- Any immovable cultural asset constructed after the end of the 19th Century but categorized as "a significant asset which requires preservation" by the Ministry of Culture and Tourism;
- Immovable cultural assets located within the Protection Sites (in the Law, Protection Sites are defined as ancient sites and ruins which reflect the main social, economic or architectural characteristics of their era. Protection Sites may also be locations where fundamental historical events took place or areas containing considerable natural or cultural assets with natural or

cultural features requiring preservation); structures, buildings or places that have witnessed significant historical events during the Turkish Independence War or the foundation of the Turkish Republic, regardless of time and registration; and all dwellings and buildings that have been used by Mustafa Kemal ATATURK without considering their time of construction or status of registration.

In addition to the Law on Preservation of Cultural and Natural Assets, some regulations govern the procedures about the protection and preservation of cultural and natural assets. The most predominant one being the Principle Decision (No. 658, issued 5 November 1999) which states that all archaeological sites need to be classified and protected according to their significant features. Three main categories are determined relevant to archaeological sites as:

- **1st Degree Archaeological Sites:** Areas requiring highest level of protection. They should be preserved except for scientific excavations. The area should be free of any type of buildings and construction. All kinds of construction, excavation, and modification activities are prohibited. However, for exceptional cases such as the necessity for essential infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team
- **2nd Degree Archaeological Sites:** Areas requiring medium level of protection. They should be preserved based on the conditions of protection and utilisation set by the Regional Preservation Boards. Additional construction is prohibited. As the 1st Degree Sites, for exceptional cases such as necessity for infrastructure construction among others, Regional Preservation Boards may permit such activities based on the approval of the relevant museum and the head of the scientific excavation team.
- **3rd Degree Archaeological Sites:** Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the coverage of test pits before taking any decision.

In addition to the regulations mentioned above, the following guidelines were taken into consideration during the study:

- International Finance Corporation-IFC, Performance Standard 8
- European Bank for Reconstruction and Development- EBRD, Environmental and Social Policy, PR08, Cultural Heritage
- UK Department for Transport, Design Manual for Roads and Bridges Part 2 HA 208/07 Cultural Heritage
- Guidance on Heritage Impact Assessments for Cultural World Heritage Properties, International Council on Monuments and Sites (ICOMOS) January 2011.

3. ROLES AND RESPONSIBILITIES

As mentioned above, according to the Law on the Conservation of Cultural and Natural Assets no: 2863, all cultural and natural properties requiring protection are considered as state property. As stated in the same law, the Ministry of Culture and Tourism and its local branches (Boards for Conservation of Cultural Assets, Museums) are the main national government institutions who have the authority of conducting studies for the identification and registration of cultural assets and defining the conditions of conservation and use of these sites. Within the scope of the North Marmara Motorway Project, regional boards for conservation of cultural assets presented in Table 2 are the sole competent authority in this regard. The project is legally bound to follow the decision taken or shall be taken by the conservation boards.

Table 2: Regional Boards for Conservation of Cultural Assets and Their Areas of Responsibility on the Project Route

NMM PROJECT ROUTE AND RELEVANT AUTHORITIES					
Section	**Km**	**City**	**District**	**Regional Board for Conservation of Cultural Assets**	**Annex**
6	251+143-241+250	Sakarya	Akyazı	Kocaeli Regional Board for Conservation of Cultural Heritage	Annex 1
	241+250-215+500		Adapazarı		
	215+500-187+000	Kocaeli	İzmit		
5	187+000-183+250	Kocaeli	İzmit	Kocaeli Regional Board for Conservation of Cultural Heritage	
	183+250-175+500		Derince		
	175+500-162+500		Körfez		
	162+500-156+500		Gebze		
	156+500-151+500		Dilovası		
4	151+500-139+500	Kocaeli	Gebze	Kocaeli Regional Board for Conservation of Cultural Heritage	
4	139+500-132+750	İstanbul	Tuzla	İstanbul Regional Board No: 5 for Conservation of Cultural Heritage	
	132+751-129+650		Pendik		
7	71+250-69+500	İstanbul	Eyüp	İstanbul Regional Board No:1 for Conservation of Cultural Heritage	
7	69+501-62+500		Sultangazi		
7	62+501-60+400		Esenler		
2	58+000-55+750		Eyüp		
	55+750-40+500		Arnavutköy		
1	40+500-32+600		Arnavutköy		
	32+600-19+000		Çatalca		
	19+000-0+000		Silivri		

As the project management body, the North Marmara Motorway Project is also responsible for conservation of immovable cultural assets in case of discovery, as well as preparation and implementation of plans minimizing the negative impact of the construction activities over these assets and establishing communication with the government institutions. In this respect, the project management is liable to implement a Cultural Heritage Management Plan (ANNEX 1) and a Chance Find Procedure (ANNEX 2) covering the construction activities and their impacts on the archaeological and immovable cultural assets located within the boundaries of the project construction and its impact area.

4. METHODOLOGY

The impact assessment studies considering the archaeological and immovable cultural assets located on the project route and project impact area were conducted in five phases:

a) Desktop Studies,
b) Field Surveys,
c) Archaeological Potential Modelling,
d) Impact Assessment,
e) Reporting.

4.1. Desktop Studies

In this phase of the studies, the archaeological publications on the project route and its impact area were collected and reviewed to assess the archaeological potential of the region where the project route is located. In addition, by contacting relevant regional boards for conservation of cultural assets (Table 2), existence of archaeological or immovable cultural assets, which were previously registered in the project area and its vicinity were examined. The sources of information used during the literature review are as follows:

- Academic publications
- Historic maps
- Reports on the previous Cultural Heritage Studies and Results of Field Surveys
- Inventory records of Museums and Conservation Boards

4.2. Field Surveys

During the field surveys, which were conducted along the North Marmara Motorway Project in order to identify possible archaeological and immovable cultural assets, the methods of "Field(Route) Walking", "Intensive Field Survey", and Extensive Field Survey" were implemented. These works were conducted within the 400m corridor, which encompasses the construction impact area, along the motorway project route. The details of the Field (Route) Walking, Intensive Field Survey, and Extensive Field Survey are presented in the following paragraphs.

4.2.1. Field Walking

The "Field Walking" was used as the main research method during the field survey conducted within the 400 m corridor of the Motorway Project route. The field survey was realized mainly within the project construction corridor and the area which is considered as its impact area (400 m corridor in total including the 200m right and 200m left of the construction axis). During the field survey, the field survey team leader walked alongside the main axis of the motorway construction using a GPS device, while the two specialists of the archaeology team walked at both edges of the 400 m corridor. The instant

communication between the members of the field team, who moved forward in parallel, was provided by walkie-talkies. During the field walking, all archaeological traces (ceramic shards spread to the surface, architectural elements or traces, graves or traces of graves, mounds, tumuli, etc.) observed on the surface were noted on the Field Find Forms (ANNEX 3) and Archaeological Status Table (ANNEX 4). In case archaeological traces were encountered in a region, the method of Intensive Field Survey, which is defined below, was used to collect the data.

4.2.2. Intensive Field Survey

This method was followed when an archaeological site was encountered within the boundaries of 400 m impact corridor. The aim of this method is to determine the width of the archaeological site, identifying its association with the project route on the map, revealing the area of distribution of archaeological surface findings and completing entire documentation, which would aid in interpreting the history of the site on the basis of archaeological artefacts on the surface. During this activity, by taking sufficient number of GPS coordinates (at least four different points) from each site, surface area of the site in current geography, and its location were determined. Moreover, detailed photographs of each site were taken from different angles and archived to be used in the reports. The area was divided into 10x10 m wide squares in the north-south direction and the samples of archaeological material such as pottery, stone tool shards etc. on the surface were systematically documented (photographing, etc). During all these works, the “Field Find Form” (ANNEX 3) and “Archaeological Status Table” (ANNEX 4), which were prepared by the research team, were filled separately for each site and all information related to the observations made in every site were recorded in these forms. In addition to the daily reports, these forms were also used as reference sources in preparation of the impact assessment report and its annexes after the survey. By processing the GPS ccordinates which were taken on site (WGS 1984, 6 degree TM) in the Esri ArcGIS software, the locations of the sites in association with the motorway construction area were prepared in digital media and used as base in impact assessment studies.

4.2.3. Extensive Field Survey

Greater part of the works for identifying the archaeological and immovable cultural assets within the 400 m corridor alongside the motorway route was completed by using the method of field walking. In cases when walking was not possible (private property requiring permission, flood basins, forested/bush lands and places where walking is impossible due to the geographical features) (Table 3) the method of “Extensive Field Survey” was followed. In this method, in order to determine the presence of archaeological and immovable cultural assets, the archaeological traces on the surface were observed from the most accessible points of the areas, where the field walking could not be conducted. The archaeological data retrieved from desk research and the results of archaeological potential modelling were taken into consideration in estimating the observed areas. For the sections, where the field survey

was conducted using this method, the “Archaeological Potential Modelling” works were also implemented in order to develop risk projection for these sections.

4.3. Archaeological Potential Modelling

As mentioned previously, the field surveys were conducted within the 400 m impact corridor alongside the construction axis in the form of field walking as much as possible. However, in the cases, when field walking could not be done due to certain restrictions (such as the areas, which are covered with snow or vegetation; the areas, where water streams block the route etc), “archaeological potential modelling” studies were conducted in the areas that may possess potential archaeological or cultural heritage. The detailed information on the sections where modelling were conducted is given in the Table 3.

Table 3: The Areas where Archaeological Potential Modelling was conducted and Km Intervals

The Areas Where Archaeological Potential Modelling was Conducted and Km Intervals			
Start Km	**Finish Km**	**Start Km**	**Finish Km**
241+000	239+000	187+500	175+500
236+000	234+000	192+000'nin 4km (Access Road)	
230+000	229+500	166+500	150+616
228+500	228+000	149+350	148+500
226+000	225+500	144+500	141+500
226+750	225+000	142+500	142+250
225+000	222+000	137+000	138+500
221+500	220+000	71+256	60+400
218+550	216+580	57+500	47+000
216+580	215+650	47+000	45+300
207+000	205+500	26+100	24+500
202+000	200+000	23+500	21+000
192+500	187+500	15+000	0+000

The possible locations of potential archaeological sites within the project construction and impact area were attempted to be detected by using the modelling maps presented in Annex 5. The model developed was implemented by using the ESRI ArcGIS software for the kilometre intervals given in the Table 3, within a corridor of 400 m wide, which covers the project construction and impact area. Five predictive parameters were taken into consideration in the modelling, namely: existence of water supply and proximity to water supplies, slope of the terrain, land classification (forest land, pasture land, arable land, irrigated farming land etc.), proximity to ancient roads and known archaeological settlements, and proximity to modern settlements. Each parameter was divided into sub-categories and associated with grade points. Positively weighed values were defined as positive impacts and negatively weighed values were identified as negative impacts in the evaluation. For instance, in classification of terrain, while the forest land was graded with -2 point, dry farming land was given +2 point. Because there are many ancient settlements etc around and nearby modern villages at present, this modelling was built upon the hypothesis that the modern inhabited locations have similar environmental conditions with the ancient inhabited locations.

After defining the grade points of sub-categories, the project construction and its impact area was divided into the grids having the sizes of 500X400 m. For each square, the grade points corresponding to

the sub-categories associated with the character of the area were summed and, in the end, positive and negative total grade points were obtained for every grid.

The grids with positive grade points were identified as the “Areas of High Archaeological Potential”, while those with negative grade points were defined as the “Areas of Low Archaeological Potential”. The predictive parameters and sub-categories that were taken into consideration in modelling and corresponding grade points are presented in Table 4:

Table 4: Predictive Parameters and Sub-Categories Taken into Consideration in Modelling

Predictive Parameters	Predictive Sub-category	Critical Value	Predictive Weight
Hydrology/ Proximity to Water	Stream Order 1	750 m	2
	Stream Order 2	1000 m	2
	Stream Order 3	1000 m	1
	Stream Order 4	1000 m	2
	Stream Order 5	1500 m	-1
	Stream Order 6	1750 m	-2
	Lake/Sea Order 7	2 km	3
Slope	Slope	0-10	0
	Slope	10-90	-5
Land Classification	Patch Agriculture	Yes	2
	Fruit Tree Grove	Yes	2
	Arable Non-Irrigated	Yes	2
	Arable Irrigated	Yes	-2
	Forest Area	Yes	-2
	Grasslands	Yes	-2
	Barren Land	Yes	-2
	Wetlands or Water	Yes	-4
	Industry/Built Area	Yes	-4
	City Area	Yes	-4
	Proximity to wetlands	1 km	2
Proximity to Rural/Ancient Roads	Proximity to rural and or ancient roads	1 km	2
Proximity to Mountain Base	Proximity to mountain base	0-2 km	2

4.4. Impact Assessment

The project activities may have certain irreversible impacts on the sites, which were identified within the project route construction and the impact corridor. The influence of the construction activities on the identified sites and the degree of importance of the sites were identified in accordance with the criteria proposed in the "Guidance on Heritage Impact Assessments for Cultural World Heritage Properties", which is also suggested to be used by the Ministry of Culture and Tourism in order to properly assess the impact of the construction projects on cultural heritage sites. The information on the results of assessment are presented in chapter 5 General Evaluation and Conclusion of this report and in table format in Annex 6.

4.5. Reporting

The data about the archaeological or immovable cultural assets located within the motorway route construction site and impact area (400 m) were collected directly from the field surveys and from Regional Boards for Conservation of Cultural Assets (ANNEX 8a, 8b, 8c). These data were evaluated in GIS and the relationship between these sites (including the sites previously registered by the Ministry of Culture and Tourism) and project route construction and impact corridor and other impact areas were investigated; the degree of importance and vulnerability of the sites, impact of the construction activities on these sites and possible mitigation methods to be followed in the construction phase were determined and reporting works were finalized.

5. BASELINE

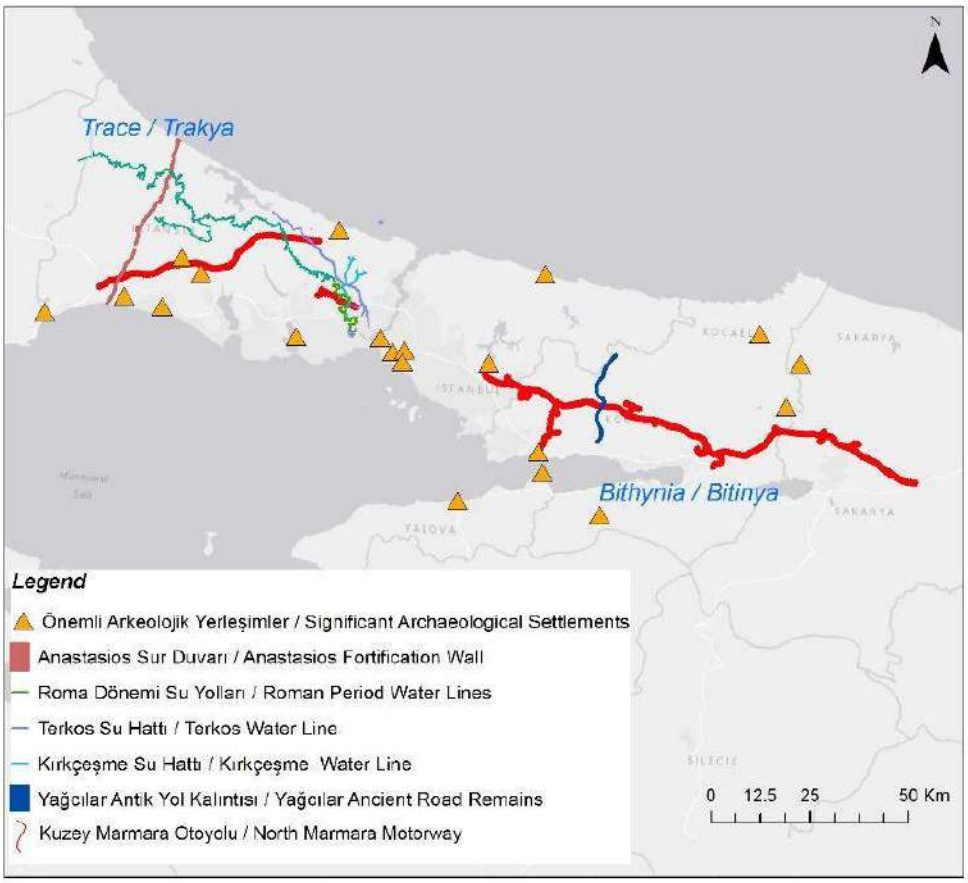
5.1. Archaeological and Historical Background

The route of the North Marmara Motorway Project is located in a geography, which witnesses almost all historical periods of Anatolia. The exact locations, numbers, and conditions of archaeological and immovable heritage of the region are not clearly known at present because of intense migration, rapid and unplanned urbanization, industrial facilities covering large territories and the limited number of studies on the cultural inventory of the region.

Within the scope of the North Marmara Motorway Project (NMMP) archaeological and cultural impact assessment studies, the historical geography of the project impact area and its close vicinity was studied based on the information retrieved from literature reviews and archives of the regional conservation boards.

According to the ancient sources, the geography which the project route is located covers two different regions. In the ancient sources, the eastern side of the Bosporus was named “Bithynia”, and the western side was called “Thrace”. The Bosporus is the borderline separating the two regions.

For this reason, the historical background of the project route was investigated in accordance with the ancient definitions. (Map 2).



Map 2: North Marmara Motorway Project Route, Archaeological and Historic Sites

THRACE REGION

In general scholarship, Thrace is defined as the region located between Macedonia and Bosporus. The "**1st, 2nd, and 7th Sections**" of NMMP are located within the borders of the Thrace region.

Thrace is composed of large plains and arable lands. Apart from these flatlands, the main heights are Mons Aticus (Istranca Mountains) in the north, Hieron Oros (meaning Holy Mountain, modern name is Ganos Mountain) in the south and Koru Mountains (the ancient name is not known)[1] in the southwest. While the highlands are covered with intense forest vegetation, interior parts and plains near the coastline are covered with steppes. These plains are very inhabitable because of their suitability to agricultural production. Lumber, which is produced in forestlands, is one of the important trade goods.[2] While the eastern part of the region displays Black Sea climatic conditions of heavy rainfall, a very large part near the Marmara Sea features a climate called Marmara transition climate, which resembles the climate of the Mediterranean. In the interior parts between these two climatic belts, which is isolated from the sea, continental climatic conditions are observed.

The rivers of the region, flowing in the north-south direction are Tonzos (Tunca), Ardeskos (Arda), Hebros (Meriç). Agrianes (Ergene) flows in the east-west direction. In addition to these, there are minor rivers. These are: Arzos (Çorlu Stream), Tearos (Kaynarca), Apsinthos (Derbent Creek), Melas (Kavak Stream), Athyra (Çekmece Creek), Kydaris (Alibey Creek), and Barbyses (Kağıthane Creek). Apart from these rivers, the lakes located in the region are Delkos (Terkos) and Stentaris (Gala)[3].

There are important mining areas in the region. It is known since the antiquity that, there are copper and zinc mines in Mons Asticus (Istranca Mountains); copper mines in Dereköy, Şükrüpaşa and Armutveren; iron mines in Demirköy and gold mines near Rezve Creek.

Agricultural production has a crucial role in the economy of the region. Ancient historians Herodotus and Xenophon mention that barley, wheat, and hemp were cultivated in the region.[4] The Thrace region, which was very advanced in viniculture, was also famous for vine production. In terms of livestock, sheep and horse breeding is important in the region.[5] It is known that fishery is an important means of living in the coastal districts. Ancient historian Strabo states that Keras (Haliç) was rich in terms of tuna fish and Atlantic bonito.[6]

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[1] Sevin, 2000:18
[2] Sevin, 2000: 19
[3] Sevin, 2000: 19
[4] Sevin, 2000: 19
[5] Sevin, 2000: 19
[6] Sevin, 2000: 19

Important settlements were established in the Palaeolithic, Neolithic and Chalcolithic periods in the Thrace region. Balkan Peninsula is very suitable for human habitation for its climatic and geographical conditions since the 4th geological era (Quaternary).[7] The ancient settlements in Eskice Ridge near Büyükçekmece Lake and Kefken and Gümüş Dere near Kilyos confirm this information. The findings unearthed from those settlements together with those found in Yarımburgaz Cave explain the diffusion of mankind from the Near East to Europe. There were very few settlements in Thrace in the Palaeolithic Period. The most important Palaeolithic settlement is Yarımburgaz Caves, which include a natural place for habitation and defence. Findings belonging to the further phases of the Palaeolithic Period were encountered in Ağaçlı Village located near the Black Sea coastline in the north of Kemerburgaz. These sites are Mesolithic (Epi-Palaeolithic) Period settlements discovered on the fossilized dunes stretching alongside the Black Sea coast.[8] It is revealed that there were a multitude of habitations around the Black Sea, which was a fresh water lake in this period, when the present climatic conditions start to become dominant in the region. The richest findings dated to this period are collections of "small" tools found in the dunes of Ağaçlı. This collection, which is named "Ağaçlı Culture", constitutes the richest finding set belonging to this period in Turkey.[9]

It is known that the number of settlements in Thrace increased after this period. Some of the known prehistoric settlements are Hoca Çeşme Mound, Toptepe, Aşağı Pınar, Kanlıgeçit, and Çardakaltı. During the 7th and 6th millennia, the Balkan Peninsula and Carpathian region were inhabited by the Neolithic farmers coming from the Near East. During this period, Marmara was an important junction point.[10] Menteşe, Ilıpınar, Fikirtepe and Pendik were among the most important archaeological settlements in Marmara dated to this period, which was one of the most important turning points in the human history and named "agricultural revolution".[11]

Scientific literature suggest that a new wave of immigrants from the Central Anatolia and Aegean regions arrived at the region at the end of the Neolithic Period; the local cultures developed and continued their existence but eventually left their place to the newcomers in the beginning of the Chalcolithic Period. It was revealed through the field surveys and excavations conducted in the region that all the settlements in Thrace were demolished by fire at the end of the Chalcolithic Period.[12]

Gladina Locality within the provincial boundaries of Büyükçekmece District, Kanallı Bridge (Kınalı Bridge) near Silivri District and Selimpaşa Mound located within the municipal boundaries of Selimpaşa Municipality, Silivri are among the important Early Bronze Age settlements in Thrace. In addition to that,

[7] Erzen, 1994:35
[8] TAY 1
[9] Özdoğan,2000: 309.
[10] Hoddinott, 1981: 15.
[11] Özdoğan,2000: 310.
[12] Özdoğan, 2000: 310.

traces of the Early Bronze Age were encountered in the necropolis area above İncegiz Caves, which are located in a deep valley in the north of Çatalca District and in Kartepe (Karatepe) Caves, which are located in mountainous and forested terrain in the northeast of Dağyenice Village.[13]

The 2nd Millenium BCE (the Middle and Late Bronze Ages) is the period during which empires such as Hittites and Mycenaean flourished in Anatolia and Aegean region. On the other hand, although it was believed until recently that the entire Thrace was inhabited only by nomadic communities, discovery of ceramics and figurines belonging to the Hittite Period in the excavations conducted in Bathonea (Küçükçekmece, İstanbul) revealed the existence of Hittite civilization in Thrace.[14] In around 1200s BCE Thrace was inhabited by Thracian tribes coming from the north.[15] It is known that, by the 8th century BCE, the Thracian settlements continued their existence as Hellenized colonies.[16] In the 4th century BCE, an independent Thracian state was established in the region.[17] In order to eliminate an unrest that took place in the region, Alexander the Great launched a military campaign in 333 BCE. After Alexander's death, the region became autonomous.[18] In the 1st century BCE, Thrace fell under the Roman influence and eventually became a Roman Province in 45 BCE. In the Roman Period, **"Via Egnatia,"** the main road connecting the centre of the Empire, Rome with Anatolia passed through this region.[19]

In 333 CE, Roman emperor Constantine the Great (Constantine I), with an anticipation that the Empire could not be governed through Rome, renamed Byzantium after his name as Constantinople and declared it the Capital of the empire, and with this act he caused the empire to be divided into two as the Eastern and Western Roman Empires. [20] This division is at the same time considered the most important event in the establishment of the Byzantine Empire. After the division of the Roman Empire, Thrace left in the boundaries of the Eastern Roman Empire (Byzantine Empire). In 394 CE, Theodosius I unified the Eastern and Western Roman Empires for the last time, however, right after the death of Theodosius I, in 395 CE, the Roman Empire was divided into two as the Eastern and Western Roman Empires again for the last time.

In the Byzantine Period, great defensive systems were constructed in the region. Silivri, with its ancient name Selymbria or Selybria, was known as the citadel protecting the Istanbul road throughout the Byzantine Period.[21] In addition to Silivri Citadel, the defensive system named Anastasian Wall were commissioned by the Byzantine Emperor Anastisus I (491-518) in order to protect Constantinople from

[13] Aydıngün, 2014: 22
[14] Aydıngün 2015 b:31
[15] Erzen, 1994: 28-30.
[16] Sevin, 2000: 22
[17] Erzen, 1994: 94 – 98
[18] Sayar, 2008: 61.
[19] Aydıngün, 2015a:164
[20] Sayar, 2008:62.
[21] Eyice, 1969:354

the invasions coming from Thrace. It is known that the Anastasian Wall, which was 56 km long, started in the Black Sea coast, passed through Fenerköy and Kurfalı villages and ended in the Marmara Sea.

Although their traces have not been identified yet, Hagias Spyrion Church and Fatih (Hunkar) Mosque are among the most important Byzantine Period buildings in the region. Fatih (Hunkar) Mosque was the biggest church of the Silivri Citadel but after the conquest of Silivri in 1453 it was converted to a mosque by Sultan Mehmed the Conqueror. Fatih Mosque started to ruin and disappeared after 1920s, its minaret was demolished in 1960s, and its stones were used as spolia in other buildings.[22] Although it is known that important monuments from the Byzantine Period were located in Silivri, Selim Paşa and close vicinity, most of them were demolished because of the rapid urbanization.

The region remained under the control of the Byzantine Empire until the 14th century and then it was taken over by the Ottoman Empire after the conquest of Istanbul in 1453.

Apart from the ancient ruins, there are trenches and military bunkers constructed for defence purposes in the Balkan Wars and the World War II in the region. The "Çatalca Entrenchment Line" which was constructed in 1877 was controlling an area of totally 50km between Terkos in the north and Büyükçekmece Lake in the south, in 35-40 km west of Istanbul. The outposts and fortifications forming the entrenchment line were constructed intermittently in a 6,5 km long corridor. There were 10 redoubts in total through the defence line. The redoubts were equipped with machine guns and light artilleries. The redoubts were constructed on the top of hills. Below the redoubts, armouries were constructed. Underground telephone and telegram lines provided communication between the redoubts and with the hinterland.[23] Another important defence line in the region was "Çakmak Line". It was constructed as an entrenchment line as a precaution against possible German invasions during the World War II by the government of the period from the Black Sea to Marmara, parallel to the Anastasian Wall and Çatalca Entrenchment Line. It was named "Çakmak Line" after Marshall Fevzi Çakmak, the Chief of General Staff of the period. Çakmak Line was composed of two lines of bunkers, trenches, and outposts starting from Durusu Lake and ending in Büyükçekmece Lake. Some of the bunkers, trenches and outposts are located within the impact area of the NMM project route.

[22] Eyice 1969:355-356

[23] Akyüz 2012:131-136

BITHYNIA REGION

The ancient Bithynia region covered Anatolian side of Istanbul, the provinces of Kocaeli, Yalova, Sakarya, Düzce and Bolu and greater parts of the provinces of Bartın, Zonguldak and Bursa. Kocaeli is located in the centre of the Bithynia region. In the ancient sources, the borders of Bithynia are defined as the Bosporus and the Marmara Sea (Propontis) in the west, Black Sea (Pontus Euxinus) in the north, Bartın Stream (Parthenius) in the east and Orhaneli River (Rhyndacus) in the south.[24] The region was named after "Bithyni Tribe" of Thracian origin, which left the Thrace in order to escape from the Scythians and took shelter in Anatolia.[25] **The 4th, 5th, and 6th sections of the NMM Project are located within the borders of Bithynia Region.**

The traces of the Palaeolithic and subsequently the Mesolithic (Epi-Palaeolithic) Period in the region were discovered in Parganlı-Kerpe (Kocaeli, Kandıra), Kefken-Cebeci (Kocaeli, Kandıra), İbonun Rampası (Yalova, Akköy), Çallıca (Yalova, Çınarcık), İçerenköy (İstanbul, Kadıköy), Göksu (İstanbul, Ümraniye, Dudullu), Hacet Creek (İstanbul, Pendik), Fikirtepe (İstanbul, Kadıköy), Domalı-Alaçalı (İstanbul, Şile), Ağadere (Sakarya, Kaynarca), Dağazlı 1st and 2nd Localities (Sakarya, Kaynarca) and Ayıyatağı Locality (Sakarya, Kaynarca). Stone hand axes and sharp objects were discovered in these settlements.[26]

At present, the traces of the Neolithic Period are accumulated in the coastline leading to the Marmara Sea and around İznik Lake. Fikirtepe, Pendik-Temenye and Tuzla settlements, which were recently discovered to be in association with the European side of Istanbul via the Neolithic Period findings unearthed during the Marmaray construction works, were marine-based, interesting and authentic local civilizations. On the other hand, it was revealed that, there was a unique culture different from previous civilizations in the settlements located around the Iznik Lake despite of certain relationships.[27] The traces of the Neolithic Period in the region and its close vicinity were encountered in Dudullu (İstanbul, Ümraniye), İçerenköy (İstanbul, Kadıköy), Fikirtepe (istanbul, Kadıköy), Tuzla (İstanbul), Temenye (istanbul, Pendik), Göztepe (Yalova), Ilıpınar (Bursa, Orhangazi), Yüğücek (İznik), Barcın Mound (Bursa, Yenişehir), Marmarcık (Bursa, Yenişehir), Menteşe (Bursa,Yenişehir), and Tepetarla (Kartepe, Kocaeli).

Although scarce, findings dated to the Chalcolithic Period and Early Bronze Age were identified in the region. Most of the findings of these periods are from around İznik Lake. In addition to these settlements, findings dated to these periods were discovered in the excavations conducted in the vicinity of Karamursel within the boundaries of Kocaeli and nearby Geyve within the provincial borders of Sakarya. On the other hand, the traces of Chalcolithic Period in the region and its close vicinity were

[24] Beksaç 2015: 41-45
[25] Güçlü 2007:3
[26] TAY I
[27] Beksaç 2015:43

identified in Ilıpınar (Bursa, Orhangazi). The traces of the Early Bronze Age, which followed the Chalcolithic Period, were detected in Elmabahçesi Locality in Taraklı Distric of Sakarya.[28]

The region was inhabited by the Thracian tribes between 1200 and 700 BCE. The region, which was annexed to Lydia until the 7th century BCE, fell under the Persian rule around 513 BCE. After Alexander the Great defeated the Persian army near river Granicus (Biga River) (334 BCE), the region became independent in 326 BCE. Chalcedon (Kadıköy), Chrysopolis (Üsküdar), Lybissa (Diliskelesi), Dacibyza (Gebze), Nicomedeia (İzmit), Kalpe (Kerpe), Olbia (Başiskele), Astacos (Gölcük), Prainetos (Karamürsel), Pylai-Strobilos (Çiftlikköy/Karakilise), Drepanon (Hersek), Chios-Prusias ad Mare (Gemlik), Apameia/Myrleia (Mudanya), Prusa ad Olympium (Bursa), Helicore-Nikaia (İznik), Prusias ad Hypium (Konuralp), Bithynion-Claudiupolis (Bolu), Dia-Diospolis (Akçakoca), Teion-Tieion-Tion (Filyos/Hisarönü), Herakleia (Ereğli), Otroia (Yenişehir), Modrene (Mudurnu), Malagina (Mekece), Agrilion (Bilecik), and Kabaia (Geyve) were among the most important ancient cities in the region.

Because of the harbours for marine trade, rich water resources, fertile agricultural lands and being located in the vicinity of important trade routes, the region has been intensively inhabited since the ancient periods. Sangarios (Sakarya River), Aisepos (Gönen Stream), Hypios (Melen stream), Makestos (Susurluk-Simav Stream), Parthenios (Bartın Stream), Siberis (Aladağ Stream), Psillis (Ağva), Kalpas (probably Anadere stream near Kefken, Lykos-Rhyndakos (Orhaneli Stream), Rhebas (Riva), Kaleks (Gülünç Stream), Billaios (Filyos Stream), Artanos (Hiciz Creek), Askania (İznik Lake), Sophon /Sunensis (Sapanca Lake), and Apolyont (Ulubat Lake) are among the most important fresh water resources in the region. On the other hand, Olympos of Mysia (Uludağ), Astacus (Samanlı Mountains), and Sophon (Kartepe) are the most prominent heights of the region. In addition to the settlements, there are ruins of road networks, bridges, defensive outposts and fortifications, and harbours belonging to the Roman Period in the region which was annexed to the Roman Empire in 74 BCE. The “Roman Road” ruins, which is located in Yağcılar Village nearby Kandıra District of Kocaeli and also situated on the NMM Project route, is one of the significant remains of this period. In the 6th century, in the reign of the Byzantine emperor Justinian (527-565), important buildings were constructed and development activities were conducted in Sakarya and its vicinity. “Justinian Bridge” (Karaaptiler Köyü, Sakarya), which was constructed on Sakarya River (Sangarios), is one of the most important monuments of this period. In addition, it is known that, during this period important defensive buildings were constructed in

[28] TAY II

settlements such as Çobankale (Geyve, Sakarya) , Paşalar (Pamukova, Adapazarı) and Mekece (Pamukova, Adapazarı) in the region.[29]

The region, which was ruled by the Byzantine Empire between the 5th and 11th centuries, was conquered by Anatolian Seljuk state in 1078. In 1354, except for Istanbul (Constantinople), the entire region came under the control of the Ottoman Empire.

One of the most important settlements in Bithynia region throughout its history has been İzmit (Kocaeli). Izmit has been a centre of attraction in all periods because of its geographical position, its natural harbour (İzmit Bay), forests, and convenience for transportation. There are important Ottoman buildings in İzmit, such as "Orhan Mosque", which was constructed by Suleyman Paşa, son of Orhan Gazi, in the 14th century; "Akçakoca Mosque", which is located in Akçakoca Neigbourhood, Yukarı Pazar and was constructed between 1327 and 1328 by Akçakoca, who conquered İzmit region; and "Imaret Mosque", which was constructed in the city centre in the 16th century. It is known that, following the conquest of İzmit in the 14th century, many military, civil and administrative buildings, majority of which were religious, civil and water structures, were constructed in İzmit and its vicinity in the Ottoman Period.

The NMM Project route also passes through the provincial borders of Sakarya (Adapazarı) that is located in the east of the ancient Bithynia region. In Adapazarı (Sakarya) region, which was limitedly inhabited in the antiquity and medieval periods because Sakarya River frequently changes its bed and because of the marshlands in the area, the number of settlements increased after the 16th century as a result of the removal of forested areas and bush lands. Katip Çelebi in his "Cihannuma", which he wrote in the 17th century, mentions Sakarya as a popular place. It is known that a great devastation took place in the region in 1640 as a result of flooding of Sakarya River. This flood caused disappearing of many historic buildings.[30]

In his famous "Seyahatname", Evliya Çelebi presents information on settlements such as Sapanca and Hendek and describes Sarı Rüstem Paşa Mosque, Pertev Paşa Han in the region and important Ottoman monuments in Geyve. The region, which was occupied by Greek forces in March 1921, was liberated in June 1921.

5.2. Field Survey Findings

The field surveys were conducted in the project route and impact area between January 23rd 2017 and March 2nd 2017. Four different definitions were developed as a result of the observations that were made by taking the surface materials into consideration. The definitions about the sites and general

[29] Çetin, 1999:6
[30] Çetin 1999:7-8

mitigation methods about the sites, which were proposed within the report are presented in the table below:

Table 5: Site Definitions and Proposed General Mitigation Methods

Site Definitions	Type of the Surface Material	Size of the Site Taken into Consideration	Intensity Rate of the Surface Material	Proposed General Mitigation Methods
Potential Archaeological Site	Ceramic, roof tile, architectural stone block, glass object shards, stone object shards, metal object shards, bone etc.	10x10m.	Between 1-10 pieces (Low Intensity)	Archaeological Monitoring
Archaeological Site	* Ceramic, roof tile, architectural stone block, glass object shards, stone object shards, metal object shards, bone etc. **Architectural Remains etc.	10x10m.	*Between 10-100 pieces (High Intensity) ** 1 tumulus, 1 wall, 1 cistern etc.	Archaeological Monitoring Following the decisions of the Conservation Board Avoiding physical intervention Test or salvage excavation
Historic/Other Sites	Sites including the remains of Bridge, Redoubt, Bunker, Entrenchment, Grave etc.			Archaeological Monitoring Following the decisions of the Conservation Board Avoiding physical intervention
Registered Sites/Sites in the Process of Registration	Sites that are protected by the Law no: 2863 or those in the process of being covered by this law.			Following the decisions of Conservation Board Avoiding physical intervention Archaeological Monitoring

In the following paragraphs, the sites which were identified during field surveys are presented in detail by their location. While the sites are described, the decisions of the regional boards for cultural assets related to the registered sites along the project route are also mentioned briefly. In addition to the opinions given by the government institutions, the results of impact assessment analyses were mentioned as recommended preventive mitigation proposals. The decisions of regional boards, which were taken within the scope of the Law no: 2863, are official decisions that are to be compulsorily followed by the project management.

SAKARYA

The interval between 251+143 km and 215+500 km of the Section 6 of the project route is located within the provincial borders of Sakarya (Table 6).

Table 6: North Marmara Motorway Sakarya City Route

NORTH MARMARA MOTORWAY PROJECT ROUTE SAKARYA CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
6	251+143-241+250	Sakarya	Akyazı
	241+250-215+500		Adapazarı

8 sites in total were identified in the 35+643 km route and its vicinity within the provincial boundaries of Sakarya. Among those sites, 5 are identified as potential archaeological sites, 2 as archaeological sites and 1 as a historic/other site (Table 7). There is neither a registered site nor a site in registration process within the provincial borders of Sakarya (Annexes 3, 4, 6).

Table 7: Archaeological/Immovable Cultural Heritage Sites in the Province of Sakarya

NAME OF THE SITE	Registration Status		City	District/Neighborhood	Approximate Distance (km)
	Registered	Non-Registered			
Osmanbey Potential Archaeological Site		x	Sakarya	Akyazı/Osmanbey	250+520-246+827
Çayırlar Locality Archaeological Site		x	Sakarya	Adapazarı/Budaklar	238+720-239+127
Budaklar Potential Archaeological Site		x	Sakarya	Adapazarı/Budaklar	236+747-236+850
Çelebiler Potential Archaeological Site		x	Sakarya	Adapazarı/Çelebiler	232+970-233+550
Kömürlük Modern Cemetery		x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 1+500
Kömürlük Potential Archaeological Site		x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 0+250-1+150
Besihane Potential Archaeological Site		x	Sakarya	Adapazarı/Çamyolu	229+000-239+450
Azizbey Hill		x	Sakarya	Adapazarı/Çamyolu	226+550-226+670

The sites named "**Osmanbey**" between the 250+520 and 246+827 km points, "**Budaklar**" between the 236+747 and 236+850 km points, "**Çelebiler**" between the 232+970 and 233+550 km points,

"**Kömürlük**" between the 0+250-1+150 km points of the access road belonging to the 232+000 km and "**Besihane**" between the 229+000 and 239+450 km points of the project route were identified. On the surfaces of all these sites, scant number of ceramic shards from the Late Ottoman Period were observed. Because all the sites are located in the construction site or its impact area, archaeological monitoring in the aforesaid kilometre intervals during the project construction activities is suggested as an expert opinion.

Çayırlar Locality is located between the 238+720 and 239+127 km points of the project route, 2 km east of Budaklar neighborhood. Ample amount of glazed and non-glazed ceramic shards and two pieces of glass bracelet from the Byzantine Period were encountered on the surface of the site. The site is located within the construction site of the access road at the 238+700 km point. For this reason, archaeological monitoring in the aforesaid kilometre intervals during the project construction activities is suggested as an expert opinion.

There is a "family cemetery" belonging to "**Turk"** family at 1+500 km point of the access road that is located at the 232+000 km point of the project route. The cemetery is 1 m away from the construction corridor. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.

Azizbey Hill, which was discovered around the 226+500 kilometre is most possibly a settlement dated to late 19th century and early 20th century. Ceramic and roof tile shards and remains of the stone foundations of a building, which were possibly dated to this period, were encountered on the surface of the site.

All information about the sites was delivered to Kocaeli Regional Board for Conservation of Cultural Assets but the Conservation Board did not take any conservation or research decision regarding the sites. In spite of this, it is suggested that archaeological monitoring should be conducted around the sites throughout the construction activities.

KOCAELİ

The entire project route between 215+500 km point of the Section 6 and 139+500 km point of the Section 4 is located within the provincial borders of Kocaeli (Table 8).

Table 8: North Marmara Motorway Kocaeli City Route

NORTH MARMARA MOTORWAY PROJECT ROUTE KOCAELİ CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
6	215+500-187+000	Kocaeli	İzmit
5	196+700-183+250		İzmit
	183+250-175+500		Derince
	175+500-162+500		Körfez
	162+500-156+500		Gebze
	156+500-151+500		Dilovası
4	151+500-139+500		Gebze

27 sites in total were identified alongside this route, which is 76 km long. Of these sites, 25 were discovered for the first time during the field surveys within the scope of the project and 2 were cultural sites that were registered by the Ministry of Culture and Tourism. Of the 25 sites, which were discovered during the field surveys, 5 are defined as potential archaeological sites, 18 as archaeological sites and 2 as historic/other sites (Table 9) (ANNEX 3, 4, 6).

Table 9: Archaeological/Immovable Cultural Heritage Sites in the City of Kocaeli

NAME OF THE SITE	Registration Status		City	District/Village	Approximate Distance (km)
	Registered	Non-Registered			
Süloğlu Bridge		X	Kocaeli	İzmit/Akmeşe	214+700
Deredağ Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	213+750-213+950
Adaparmak Ridge Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	212+300-212+600
Kabaklı Locality Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	211+950-212+150
Köprübaşı Hill Potential Archaeological Site		X	Kocaeli	İzmit/Akmeşe	210+500-210+550
Mancarcı Locality Potential Archaeological Site		X	Kocaeli	İzmit/Mancarcı	199+560-199+780
Gedikli 1 Archaeological Site		X	Kocaeli	İzmit/Bayraktar	198+950-199+100
Gedikli 2 Archaeological Site		X	Kocaeli	İzmit/Bayraktar	198+600-198+810
Biberoğlu Archaeological Site		X	Kocaeli	İzmit/Bayraktar	197+970-198+060
İğriköz Creek Archaeological Site		X	Kocaeli	İzmit/Bayraktar	197+560-197+640
Doruk Archaeological Site		X	Kocaeli	İzmit/Eseler	195+700-196+000
Kesimahlar Archaeological Site		X	Kocaeli	İzmit/Çayırköy	195+000 access road km 1+000
Solaklar Archaeological Site		X	Kocaeli	İzmit/Eseler	193+460-194+000
Çayırköy Archaeological Site		X	Kocaeli	İzmit/Çayırköy	192+300-192+500
Kocaeli RBCCA Registered Site No: 1	x		Kocaeli	İzmit/Çayırköy	192+000 On the Access Road
Toylar Archaeological Site		X	Kocaeli	Körfez/Toylar	174+150-174+370
Sipahiler 1 Archaeological Site		X	Kocaeli	Körfez/Sipahiler	171+690-171+850
Sipahiler 2 Archaeological Site		X	Kocaeli	Körfez/Sipahiler	171+220-171+330
Kocadere Archaeological Site		X	Kocaeli	Körfez/Sipahiler	170+000-170+100
Martılar Archaeological Site		X	Kocaeli	Körfez/Martılar	169+000 access road km 41+750+ 42+800
Yağcılar Historic Road Remains (Kocaeli RBCCA Registered Site No: 2)	x		Kocaeli	İzmit/Yağcılar Mah.	161+800
Demirciler Archaeological Site		X	Kocaeli	Dilovası/Demirciler	150+000 access road km 1+200
Uluyan 1 Archaeological Site		X	Kocaeli	Gebze/Denizli	149+950-150+000
Uluyan 2 Archaeological Site		X	Kocaeli	Gebze/Denizli	149+700-149+850
Karapınar (Molla Fenari) Archaeological Site		X	Kocaeli	Gebze/Molla Fenari	147+550- 147+900
Cumaköy Cemetery		X	Kocaeli	Gebze/Cumaköy	145+750
Kuzgunçay Tumulus		X	Kocaeli	Gebze/Cumaköy	144+100

Süloğlu Bridge is located nearby 214+700 km point of the project, 4 km west of Akmeşe Atatürk neighbourhood near the provincial borders of Kocaeli and Sakarya. Some of the piers of the bridge are

demolished and sunken in the creek. Remains of a masonry stone wall belonging to the bridge were discovered in the North bank of the creek. Moreover, remains of a retaining wall, which was probably built to prevent floods damaging the bridge by decreasing their magnitude, were discovered in the southern bank of the creek. Although no information on the bridge could be retrieved from relevant sources, with respect to its architectural properties, it was dated to the late 19th century and early 20th century. Between the 213+750 and 213+950 km points of the project route the site named "**Deredağ**", between the 212+300 and 212+600 km points "**Adaparmak**", between 211+950 and 212+150 km points "**Kabaklı**", 210+500 and 210+550 km points "**Köprübaşı"** and between 199+560 and 199+780 km points "**Mancarcı**" were discovered. Ample amount of roof tile shards and small quantity of ceramic shards from the Late Ottoman Period were encountered on the surfaces of these sites. Apart from these, no architectural remains were detected in these sites. This situation points to the probability of use of wooden architecture in these sites.

The site named **Gedikli 1** is located between 198+950 and 199+100 km points of the project route. The site is composed of three different hills. Plenty of ceramic and roof tile shards were discovered on the surface of the site. **Gedikli 2,** on the other hand, is located between the 198+600 and 198+810 km points of the project route. Ample number of ceramic shards and roof tile belonging to the ancient period were observed on the surface of the site. Plenty of ceramic and roof tile shards were observed on the surface of **Biberoğlu** archaeological site, which is located between the 197+970 and 198+060 km points of the project route. Similar to other sites, ample amount of ceramic, and roof tile shards were encountered on the surface of **Solaklar** site**,** which is located between 193+460 and 194+000 km points of the project route. Additionally, some cut stone, which might belong to the buildings, were observed. The ceramics encountered on the surface of the site are most probably dated to the Byzantine Period. Human bones, mineral cinders and a bronze coin from the Roman Period were also discovered on the surface of the site. The legend of the coin reads "Caesar Augustus". The coin was delivered to the Directorate of Kocaeli Archaeology and Ethnography Museum on February 3rd 2017against a document of receipt (ANNEX 9, ANNEX 3).

İğriköz Creek is located between the 197+560 and 197+640 km points of the project route. Plenty of ceramic bowl and roof tile shards, which exhibited the features of the Late Roman Period, were observed on the surface of the site. On the other hand, on the surface of **Doruk** archaeological site, which is located between 195+700 and 196+000 km points of the project route, glazed ceramics and capstones for graves that are dated to the Byzantine Period were encountered. **Kesimahlar** archaeological site is, on the other hand, located on the 1st km of the access road at the 195+000 km of the project route. Human carved rock surfaces, rows of stone foundation walls belonging to buildings, ample amount of ceramic, and roof tile shards that are dated to the Roman or Byzantine Period were

observed on the surface of the site. **Çayırköy**, another archaeological site, is located between 192+300 and 192+500 km points of the project route. Pieces of terracotta water pipe roof tile and ceramic shards were observed on the surface of the site. Some of the ceramic shards were glazed and dated to the Byzantine Period. There is a well in the southwest of the site.

Glazed and non-glazed ceramic and roof tile shards dated to the Byzantine Period were discovered on the surfaces of the archaeological sites of **"Toylar"** which is located between the 174+150 and 174+370 km points and **Sipahiler 1,** which is located between the 171+690-171+850 km points of the project route. Furthermore, on the surface of **Kocadere** archaeological site, which is located between the 170+000 and 170+100 km points of the project route, plenty of glazed and non-glazed ceramic and roof tile shards, which are dated to the Byzantine Period, were observed. Moreover, mineral cinders were also encountered on the surface of the site. **Martılar** archaeological site is located between the 41+750 and 42+800 km points of the access road that is situated at the 169+000 km point of the project route. Ceramic shards and roof tiles dated to the Byzantine Period were observed on the surface of the site. Moreover, sarcophagi and column parts from the Roman Period, which were used as spolia, were encountered in the Martılar Village that covers the site.

Demirciler archaeological site is located within the construction impact area at the 1+200 km point of the access road nearby the 150+000 km point of the project route. Illegal excavation pits were observed in the northwestern part of the site. Around one of these pits, architectural cut stones and some ceramic and roof tile shards were encountered. The site of **Uluyan 1**, which is located between 149+950 and 150+000 km points of the project route, is probably a "tumulus" type monumental grave. Roof tile and ceramic shards were observed on the surface of the site. It was noted that the top part of the site was damaged as a result of illegal excavations. **Uluyan 2** is located nearby the site of Uluyan 1, between 149+700 and 149+850 km points of the project route. On the surface of the site, which is located within the construction corridor, ample amount of roof tiles and remains of foundations of buildings were observed. On the other hand, in the site of **Karapınar (Molla Fenari),** which is located between the 147+550 and 147+900 km points of the project route, plenty of ceramic shards, remains of a historic road, remains of foundations that were built with brickdust mortar and plenty of roof tiles were encountered. **Kuzgunçay Tumulus** was identied at the 144+100 km point of the project route, within the construction impact area. There are illegal excavation pits on the tumulus.

The information about the sites was evaluated by Kocaeli Regional Board for Conservation of Cultural Assets and with decision no: 2887 dated March 21st 2017, the council decided to conduct excavation, test pit and geophysical studies under the supervision of the Kocaeli Archaeological Museum at the

archaeological sites of Gedikli 2, Biberoğlu, Solaklar, Sipahiler 1, Sipahiler 2 and Karapınar (Molla Fenari). The decision says that results of these studies shall be submitted to the board for the final decision and any physical intervention shall be avoided in due course (ANNEX 8).

As an expert opinion, it is suggested to conduct archaeological monitoring in the sites of Deredağ, Adaparmak, Kabaklı, Köprübaşı Tepesi, Mancarcı Mevkii, Gedikli 1, Toylar, Martılar, Uluyan2, Süloğlu Köprüsü, İğriköz Deresi, Doruk, Kesimahlar, Çayırköy, Kocadere, Demirciler and Uluyan; and any physical intervention should be avoided in the Süloğlu Köprüsü, İğriköz Deresi, Doruk, Kesimahlar, Çayırköy, Kocadere, Demirciler and Uluyan archaeological sites which are outside of the project construction corridor and within project impact corridor.

Cumaköy Cemetery, where graves from the 18th and 19th centuries are located was identified during the studies at the 145+750 km point of the project route. The cemetery is located within the project impact area and outside of the project construction corridor. As an expert opinion, conducting archaeological monitoring and avoiding physical intervention to the site are suggested.

There are also two sites, which were previously registered by Kocaeli Regional Board for Conservation of Cultural Assets, in the part of the project remaining within the provincial borders of Kocaeli. Of these sites, the first one is the remains of a "water channel" located in the impact corridor of the access road at 192+000 km point of the project route within the borders of Çayırköy Neigbourhood of Izmit District, Kocaeli. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets, which was taken on January 24th 2017, the borders of the expropriation area of the motorway project should be revised and removed outside the area of the water channel. Currently, the border of expropriation area of the project is 35 m far from the water canal and the board should be notified accordingly.

Another registered site on the project route is "**Yağcılar Historic Road Remains 1st Degree Archaeological Site"**, which is located between 161+850 and 161+900 km points. The historic site is located in the construction corridor. By the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets, which was taken on January 24th 2017 it was instructed that the alternative alterations of the project which ensure continuity of the motorway without damaging the historic area should be prepared and officially submitted to the conservation board (ANNEX 8e).

İSTANBUL

Between "139+500 and 129+650 km points" of the Section 4, "71+250 - 60+400 km" points of the Section 7, "58+000 - 40+500 km" points of the Section 2 and 40+500 - 0+000 km" points of the Section 1

of the project route is located within the borders of the districts of Tuzla, Pendik, Eyüp, Sultangazi, Esenler, Arnavutköy, Çatalca and Silivri of the Istabul province (Table 10).

Table 10: North Marmara Motorway Route within İstanbul Province

NORTH MARMARA MOTORWAY PROJECT ISTANBUL CITY AND ITS DISTRICTS			
Section	**Km**	**City**	**Districts**
4	139+500-132+750	İstanbul	Tuzla
	132+751-129+650		Pendik
7	71+250-69+500		Eyüp
	69+501-62+500		Sultangazi
	62+501-60+400		Esenler
2	58+000-55+750		Eyüp
	55+750-40+500		Arnavutköy
1	40+500-32+600		Arnavutköy
	32+600-19+000		Çatalca
	19+000-0+000		Silivri

There are totally 155 sites identified on the project route and within its impact area in Istanbul. Of these sites, 148 were identified for the first time during the field surveys within the scope of the project (non-registered sites), and 7 are cultural assets registered or in the process of registration by the Ministry of Culture. Of the 148 sites, which were discovered for the first time during the field surveys of the project, 5 are defined as potential archaeological sites, 14 as archaeological sites and 129 as historic/other sites (Table 11) (ANNEX 3, 4, 6).

Table 11: Archaeological/Immovable Cultural Heritage Sites in the City of İstanbul

NAME OF THE SITE	Registration Status		City	District/Neighborhood	Approximate Distance (km)
	Registered	Non-Registered			
Akfırat III Archaeological Site		x	İstanbul	Tuzla/Akfırat	138+900-139+180
Akfırat I Archaeological Site		x	İstanbul	Tuzla/Akfırat	135+500-135+900
Akfırat II Archaeological Site		x	İstanbul	Tuzla/Akfırat	135+190-135+450
Tepeören Potential Archaeological Site		x	İstanbul	Tuzla/Tepeören	134+390-134+480
Kırkçeşme Water Tunnel	x		İstanbul	Sultangazi/Gazi	68+900-69+400

Line					
Roman Aquaducts B	x		İstanbul	Sultangazi/Gazi	68+700-68+800
Terkos Kağıthane Water Transmission Line	x		İstanbul	Arnavutköy	57+600-58+850
İhsaniye Cemetery		x	İstanbul	Çatalca/ihsaniye	59+900
Roman Aquaducts A	x			Arnavutköy/Tayakadın	51+300-51+900
Tayakadın Archaeological Site		x	İstanbul	Arnavutköy/Tayakadın	48+800 access road
Baklalı I Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road south section.
Baklalı II Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road north section.
Yassıören I Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	43+100-43+350
Çakmak Line Historic Military Fortifications	x		İstanbul	Arnavutköy/Yassıören, Nakkaş	42+800-32+500
Yassıören II Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	42+350-42+440
Concrete Bunker 1		x	İstanbul	Arnavutköy/Yassıören	40+500
Concrete Bunker 2		x	İstanbul	Arnavutköy/Yassıören	40+500
Concrete Bunker 3		x	İstanbul	Arnavutköy/Yassıören	40+400
Concrete Bunker 4		x	İstanbul	Arnavutköy/Yassıören	40+400
Concrete Bunker 5		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 6		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 7		x	İstanbul	Arnavutköy/Yassıören	40+171
Concrete Bunker 8		x	İstanbul	Arnavutköy/Yassıören	40+171
Nakkaş Military Shooting Range		x	İstanbul	Arnavutköy/Yassıören	39+825-40+116
Concrete Bunker 9		x	İstanbul	Arnavutköy/Yassıören	39+863
Concrete Bunker 10		x	İstanbul	Arnavutköy/Yassıören	39+873
Concrete Bunker 11		x	İstanbul	Arnavutköy/Yassıören	39+850
Concrete Bunker 12		x	İstanbul	Arnavutköy/Yassıören	39+781
Concrete Bunker 13		x	İstanbul	Arnavutköy/Yassıören	39+726
Concrete Bunker 14		x	İstanbul	Arnavutköy/Yassıören	39+720
Concrete Bunker 15		x	İstanbul	Arnavutköy/Yassıören	39+750
Concrete Bunker 16		x	İstanbul	Arnavutköy/Yassıören	39+740
Concrete Bunker 17		x	İstanbul	Arnavutköy/ Yassıören	39+660
Concrete Bunker 18		x	İstanbul	Arnavutköy/Yassıören	39+660
Concrete Bunker 19		x	İstanbul	Arnavutköy/Yassıören	39+660
Nakkaş Potential Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600
Nakkaş II Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330
Concrete Bunker 20		x	İstanbul	Arnavutköy/Nakkaş	38+000
Nakkaş III Archaeological		x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900

Site					
Concrete Bunker 34		x	İstanbul	Arnavutköy/Nakkaş	37+850
Concrete Bunker 35		x	İstanbul	Arnavutköy/Nakkaş	37+700
Concrete Bunker 21		x	İstanbul	Arnavutköy/Nakkaş	37+400
Örenbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360
Concrete Bunker 33		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 32		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 31		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 30		x	İstanbul	Arnavutköy/Nakkaş	37+250
Concrete Bunker 22		x	İstanbul	Arnavutköy/Nakkaş	36+900
Concrete Bunker 29		x	İstanbul	Arnavutköy/Nakkaş	37+000
Concrete Bunker 28		x	İstanbul	Arnavutköy/Nakkaş	36+900
Concrete Bunker 27		x	İstanbul	Arnavutköy/Nakkaş	36+850
Concrete Bunker 26		x	İstanbul	Arnavutköy/Nakkaş	36+800
Concrete Bunker 23		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 24		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 25		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 38		x	İstanbul	Arnavutköy/Nakkaş	36+700
Concrete Bunker 39		x	İstanbul	Arnavutköy/Nakkaş	36+701
Concrete Bunker 40		x	İstanbul	Arnavutköy/Nakkaş	36+702
Concrete Bunker 41		x	İstanbul	Arnavutköy/Nakkaş	36+703
Concrete Bunker 45		x	İstanbul	Arnavutköy/Nakkaş	36+300
Concrete Bunker 44		x	İstanbul	Arnavutköy/Nakkaş	36+270
Concrete Bunker 43		x	İstanbul	Arnavutköy/Nakkaş	36+240
Concrete Bunker 42		x	İstanbul	Arnavutköy/Nakkaş	36+230
Concrete Bunker 46		x	İstanbul	Arnavutköy/Nakkaş	35+700access road
Yeşilbayır – Nakkaş Road Historic Bridge		x	İstanbul	Arnavutköy/Nakkaş	35+701
Concrete Bunker 47		x	İstanbul	Arnavutköy/Nakkaş	35+350
Concrete Bunker 48		x	İstanbul	Arnavutköy/Nakkaş	35+162
Concrete Bunker 49		x	İstanbul	Arnavutköy/Nakkaş	35+120
Concrete Bunker 50		x	İstanbul	Arnavutköy/Nakkaş	35+121
Concrete Bunker 51		x	İstanbul	Arnavutköy/Nakkaş	35+095
Concrete Bunker 52		x	İstanbul	Arnavutköy/Nakkaş	35+036
Concrete Bunker 53		x	İstanbul	Arnavutköy/Nakkaş	35+010
Concrete Bunker 54		x	İstanbul	Arnavutköy/Nakkaş	35+050
Concrete Bunker 55		x	İstanbul	Arnavutköy/Nakkaş	35+050
Yeşilbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 62		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 61		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 60		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 59		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 58		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 57		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road

Warrior Fountain		x	İstanbul	Arnavutköy/Nakkaş	34+600 on the access road
Concrete Bunker 63		x	İstanbul	Arnavutköy/Nakkaş	34+410
Concrete Bunker 64		x	İstanbul	Arnavutköy/Nakkaş	34+230
Concrete Bunker 74		x	İstanbul	Arnavutköy/Nakkaş	34+210
Concrete Bunker 65		x	İstanbul	Arnavutköy/Nakkaş	34+237
Concrete Bunker 66		x	İstanbul	Arnavutköy/Nakkaş	34+230
Concrete Bunker 68		x	İstanbul	Arnavutköy/Nakkaş	34+198
Concrete Bunker 71		x	İstanbul	Arnavutköy/Nakkaş	34+194
Concrete Bunker 76		x	İstanbul	Arnavutköy/Nakkaş	34+170
Concrete Bunker 77		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 75		x	İstanbul	Arnavutköy/Nakkaş	34+160
Concrete Bunker 67		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 91		x	İstanbul	Arnavutköy/Nakkaş	34+195
Concrete Bunker 69		x	İstanbul	Arnavutköy/Nakkaş	34+120
Concrete Bunker 70		x	İstanbul	Arnavutköy/Nakkaş	34+115
Concrete Bunker 78		x	İstanbul	Arnavutköy/Nakkaş	34+072
Concrete Bunker 79		x	İstanbul	Arnavutköy/Nakkaş	34+108
Concrete Bunker 72		x	İstanbul	Arnavutköy/Nakkaş	34+073
Concrete Bunker 73		x	İstanbul	Arnavutköy/Nakkaş	34+040
Vault Structure		x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000
Concrete Bunker 80		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 81		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 83		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 90		x	İstanbul	Arnavutköy/Nakkaş	34+000
Concrete Bunker 82		x	İstanbul	Arnavutköy/Nakkaş	33+986
Concrete Bunker 92		x	İstanbul	Arnavutköy/Nakkaş	33+960
Concrete Bunker 93		x	İstanbul	Arnavutköy/Nakkaş	33+941
Concrete Bunker 94		x	İstanbul	Arnavutköy/Nakkaş	33+930
Concrete Bunker 88		x	İstanbul	Arnavutköy/Nakkaş	33+894
Concrete Bunker 89		x	İstanbul	Arnavutköy/Nakkaş	33+930
Concrete Bunker 84		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 85		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 86		x	İstanbul	Arnavutköy/Nakkaş	33+880
Concrete Bunker 87		x	İstanbul	Arnavutköy/Nakkaş	33+900
Concrete Bunker 95		x	İstanbul	Arnavutköy/Nakkaş	33+890
Concrete Bunker 96		x	İstanbul	Arnavutköy/Nakkaş	33+880
Concrete Bunker 102		x	İstanbul	Arnavutköy/Nakkaş	33+875
Concrete Bunker 100		x	İstanbul	Arnavutköy/Nakkaş	33+830
Concrete Bunker 101		x	İstanbul	Arnavutköy/Nakkaş	33+856
Concrete Bunker 99		x	İstanbul	Arnavutköy/Nakkaş	33+844
Concrete Bunker 97		x	İstanbul	Arnavutköy/Nakkaş	33+830
Concrete Bunker 98		x	İstanbul	Arnavutköy/Nakkaş	33+567
Concrete Bunker 103		x	İstanbul	Arnavutköy/Nakkaş	33+500
Concrete Bunker 104		x	İstanbul	Arnavutköy/Nakkaş	33+357
Concrete Bunker 108		x	İstanbul	Arnavutköy/Nakkaş	33+340
Concrete Bunker 105		x	İstanbul	Arnavutköy/Nakkaş	33+312

Concrete Bunker 107		x	İstanbul	Arnavutköy/Nakkaş	33+312
Concrete Bunker 106		x	İstanbul	Arnavutköy/Nakkaş	33+313
Concrete Bunker 110		x	İstanbul	Arnavutköy/Nakkaş	33+291
Concrete Bunker 109		x	İstanbul	Arnavutköy/Nakkaş	33+271
Concrete Bunker 111		x	İstanbul	Arnavutköy/Nakkaş	33+258
Concrete Bunker 112		x	İstanbul	Arnavutköy/Nakkaş	33+197
Concrete Bunker 113		x	İstanbul	Arnavutköy/Nakkaş	33+197
Concrete Bunker 114		x	İstanbul	Arnavutköy/Nakkaş	33+122
Concrete Bunker 115		x	İstanbul	Arnavutköy/Nakkaş	33+095
Concrete Bunker 119		x	İstanbul	Arnavutköy/Nakkaş	33+057
Concrete Bunker 117		x	İstanbul	Arnavutköy/Nakkaş	33+020
Concrete Bunker 116		x	İstanbul	Arnavutköy/Nakkaş	33+036
Concrete Bunker 118		x	İstanbul	Arnavutköy/Nakkaş	32+940
Concrete Bunker 120		x	İstanbul	Arnavutköy/Nakkaş	32+855
Concrete Bunker 121		x	İstanbul	Arnavutköy/Nakkaş	32+792
Concrete Bunker 122		x	İstanbul	Arnavutköy/Nakkaş	32+700
Concrete Bunker 123		x	İstanbul	Arnavutköy/Nakkaş	32+643
Concrete Bunker 124		x	İstanbul	Arnavutköy/Nakkaş	32+610
Concrete Bunker 126		x	İstanbul	Arnavutköy/Nakkaş	32+610
Concrete Bunker 125		x	İstanbul	Arnavutköy/Nakkaş	32+580
Concrete Bunker 127 and Fortification Wall		x	İstanbul	Arnavutköy/Nakkaş	32+530
Umurtepe Kartepe 2nd Degree Archaeological Site	x		İstanbul	Çatalca	21+800-21+100
Karamurat Archaeological Site		x	İstanbul	Çatalca/İnceğiz	20+230-19+660
Gedik Ali Paşa Archaeological Site		x	İstanbul	Silivri/Kadıköy	18+500-18+680
Kadıköy Archaeological Site		x	İstanbul	Silivri/Kadıköy	16+850-17+080
Gazitepe Potential Archaeological Site		x	İstanbul	Silivri/Gazitepe	15+920-16+036
Anastasian Walls	x		İstanbul	Silivri/fenerköy	5+000-5+100
Küçükkılıç Tumulus		x	İstanbul	Silivri/Küçükkılıç	2+860-2+940

Akfırat III archaeological site is located between the 138+900 and 139+180 km points, **Akfırat II** is located between 135+190-135+450 km points, and **Akfırat I** is located between 135+500-135+900 km points of the project route. On the surfaces of all sites, ceramic and roof tile shards, which were dated to the Byzantine Period, were observed. In addition, architectural building stones were encountered in the site of Akfırat III. Akfırat I is located within the project impact are while Akfırat III and II are located within the project construction corridor.

Between the 134+390-134+480 km points of the project route the site of **Tepeören** is located**.** Scarce amount of ceramic and roof tile shards from the Byzantine Period were observed on the surface of the

site. **İhsaniye Cemetery**, where modern graves in addition to the graves from the 19th century were located was identified nearby 59+900 km point. İhsaniye Cemetery is located under the planned a viaduct and Tepeören site is located within the project construction corridor.

On the surface of **Tayakadın** Archaeological Site, which is located within the project construction corridor, nearby Tayakadın Junction of the access road at 48+800 km point of the project, ample amount of ceramic and roof tile shards were observed. The ceramic shards include glazed and embossed ceramics that may be dated to the Byzantine Period.

Baklalı I site is located in the south and **Baklalı II** in the north of the access road at 47+850 km point of the project route. Ample amount of glazed and non-glazed ceramics from the Byzantine Period and roof tile shards were encountered on the surfaces of both sites. Moreover, cut stones, which might be used in architecture, were discovered on the surfaces of the sites.

Yassıören I potential archaeological site is located between the 43+100 and 43+350 km points, **Yassıören II** is located between the 42+350 and 42+440 km points, and **Nakkaş** is located between 39+500 and 39+600 km points of the project route. All of these sites are located within the construction corridor. Small number of ceramic and roof tile shards, which may be dated to the Byzantine Period, were encountered on their surfaces.

Nakkaş II site is located between the 38+150 and 38+330 km points, **Nakkaş III** is located between 37+780 and 37+900 km points and **Örenbayır** is located between the 36+980 and 37+360 km points of the project route. Nakkaş II ve III are located within the project impact area and ample amount of ceramic and roof tile shards and architectural stones were encountered on their surfaces. Örenbayır, on the other hand, is located within the project construction corridor. Ceramic and roof tile shards, terracotta water pipes and glass object shards from the Byzantine Period were discovered on its surface.

Yeşilbayır-Nakkaş Road Historic Bridge is located nearby 35+700 km point and **Yeşilbayır** site is located nearby the access road at the 34+600 km point of the project route. Both sites are located outside the construction corridor but inside the project impact area. Glazed ceramic shards dated to the Ottoman Period were encountered on the surface of Yeşilbayır site. Yeşilbayır-Nakkaş Road Historic Bridge is partially intact. The bridge was built in the Roman Period with stone masonry. Its length is approximaterly 14,5 m and its width is 4,61 m. The arches of the bridge are single centred semicircles. It is probably a part of the historic road network named "Via Egnetia" connecting Istanbul (Constantinople in antiquity) with Europe, which was commissioned by the Emperor Constantine in the first half of the 4th century CE.[31]

[31] Kıraç 2015:434-435

Karamurat is located between the 19+660 and 20+230 km points, **Gedik Ali Paşa** is located between the 18+500-18+680 km points, **Kadıköy** is located between 16+850 and 17+080 km points, **Gazitepe** is located between the 15+920 and 16+036 km points and **Küçükkılıç** is located between 2+860 and 2+940 km points of the project route. Of these sites, Karamurat, Gedik Ali Paşa, Gazitepe and Küçükkılıç are located within the construction corridor while Kadıköy is located within the construction impact area. Küçükkılıç is a tumulus type monumental grave. Illegal excavation pits in various sizes were observed on the slopes of the tumulus. Parts of cut stones were encountered around an illegal excavation pit dug on the top of the tumulus. On the surfaces of the other sites plenty of ceramic and roof tile shards dated to the Byzantine Period and architectural stone blocks were observed. In addition, terracotta plates, grindstones pieces, and shards of marble sculptures were encountered. With respect to the surface finds, these sites were identified as settlements from the Byzantine Period.

124 Concrete Bunkers, 1 fountain, 1 vault structure and a historic military shooting range, which are supposed to belong to these bunkers, were identified in the section starting at 40+450 km points and stretching to the 32+400 km point of the project route.

The bunkers were built with different construction styles in different plans. There are bunkers, which are formed with concrete and there are those built with laying rubble stones between the concrete posts. Most of the bunkers are built in square plan with four corners. The bunkers built in this plan are usually sited on a 3x3 m area. There are also bunkers with “T”, “L” and “Trefoil” shaped plans. These bunkers are larger than square ones and include fixatures for artilleries and heavy machine guns. Instruction boards including information on shooting range and angles were encountered in the Bunker no: 46. Certain architectural features such as basements and iron gate systems working with pulleys were observed in some of the larger bunkers. The geographical data about this historic defense line, which was built during the World War II, was collected from field during the field survey. It was identified that, 33 of the bunkers (no: 9, 10, 12, 13, 14, 26, 35, 46, 47, 48, 49, 50, 51, 52, 53, 61, 62, 63, 64, 68, 71, 74, 76, 77, 75, 84, 85, 86, 88, 100, 117, 118 and 122) are located within the construction corridor. Besides, the historic remains named **Concrete Bunker no: 127 and Fortification Wall,** which is located at the 32+500 km point of the project route is also located in the construction corridor.

There are other architectural remains, which are not bunker but part of the Çakmak Line, in this section of the project route. **Nakkaş Military Shooting Range** is located between 39+825 and 40+116 km points of the project route. The site is 240 m in length and 70 m in width. The shooting range is accessed through two concrete stairways located in the western facade. It was most probably used as a military training facility or meeting place during the World War II Period. There is also a historic fountain named “Warrior Fountain” on the access road at the 34+600 km point of the project route. According to its inscription plate, the building was commissioned by one Zeki Sidal in 1942. Another building remains in the area is the **“Vault Structure”**, located between 33+950-34+000 km points. The building is covered

with soil. However, its vaulted entrance, which was built with tile, is still visible. There are also 5 registered cultural assets in the parts of project within the borders of Istanbul. These assets are "**Kırkçeşme Water Tunnel Line**" (km 68+900-69+400), "**Roman Aquaducts B**" (km 68+700-68+800), "**Terkos Kağıthane Water Transmission Line**" (km 57+600-58+850), "**Roman Aquaducts A**" (km 51+300-51+900), "**Çakmak Line Historic Military Fortifications**[32]" (km 32+500-42+800), **Umurtepe Kartepe 2nd Degree Archaeological Site**" (km 21+100- 21+800) and "**Anastasian Walls**[33]" (km 5+000-5+100). In compliance with the decisions no: 2203-I and 2003-II of İstanbul Regional Board no: I for Conservation of Cultural Assets, taken on January 12th 2017, physical interventions must be avoided in the sections where these sites overlap with the project construction area. In accordance with the decisions of the Board, it is required that documentation studies about the sites should be conducted under the supervision of relevant museum directorate and the prepared documents should be submitted to the Board for further evaluation. It is strongly suggested that any physical intervention to these sites should be avoided prior to the issuing of the official board decision concerning the aforementioned sites in sections overlapping with the project construction site and all project construction activities should be conducted in accordance with the official decision, which shall be made by the Board following the completion of required documentation. It is also suggested that archaeological monitoring should be conducted during all construction activities around the sites (ANNEX 8c).

Of the sites mentioned previously, Akfırat II and III, Tayakadın, Örenbayır, Concrete Bunkers and Fortifications (no: 9, 10, 12, 13, 14, 26, 35, 46, 47, 48, 49, 50, 51, 52, 53, 61, 62, 63, 64, 68, 71, 74, 76, 77, 75, 84, 85, 86, 88, 100, 117, 118,122 and 127), Nakkaş Military Shooting Range, Vault Structure, Warrior Fountain, Karamurat, Gedik Ali Paşa and Küçükkılıç Tumulus are located within the project construction corridor. It is suggested that the construction activities in these sites should be conducted in compliance with the outcomes of the field surveys, which will be held with Istanbul Regional Board no: 1 for Conservation of Cultural Assets in April 2017. It is suggested that any physical intervention to these sites should be avoided and archaeological monitoring should be conducted during the construction activities around these sites.

As an expert opinion, it is suggested that physical interventions should be avoided and archaeological monitoring should be conducted in Akfırat I, Baklalı I and II, Nakkaş II and III, Yeşilbayır-Nakkaş Historic Bridge, Yeşilbayır, Kadıköy and the sites of Concrete Bunkers and fortifications, which are located outside the construction corridor but inside the project impact area.

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32 Çakmak Line is a defense line, which was built in Çatalca by Fevzi Çakmak for the purpose of resisting a possible German attack in the Thrace border. The line was built before the World War II started. It stretches from Marmara Sea to the Black Sea and was constructed as two lines starting nearby Terkos Lake (Durusu) ending in Büyükçekmece.

33 The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea.

As an expert opinion, it is suggested that archaeological monitoring should be conducted in the sites of Tepeören, Yasıören I and II, Nakkaş and Gazitepe, which are located in the Istanbul section of the project route.

In addition to modern graves, there are graves from the Ottoman Period in İhsaniye Cemetery, which is located within the project construction corridor. For this reason, it is suggested that any physical intervention to the graves should be avoided. If physical intervention is inevitable, the graves should be moved to a suitable place in accordance with legal procedures and religious customs, and archaeological monitoring should be conducted around the site during the construction activities.

6. GENERAL EVALUATION AND CONCLUSION

The field surveys were started at the 251+143 km point of the project route in Section 6, on January 23rd 2017. The study was suspended due to heavy weather conditions and snow on January 26th 2017 and resumed on February 13th 2017 and finalized at 0+000 km point of the project route in the Section 1, on March 2nd 2017.

As a result of field surveys, presence of **190** sites within the impact corridor of the project route was identified. Among these, **181 new sites, which are not recorded** in the inventories of relevant Regional Boards for Conservation of Cultural Assets, working with the Ministry of Culture, were discovered during the field survey. Of these sites, **128** are military bunkers, fortifications, fountain and similar structures, belonging to the Çakmak Line, and a historic bridge. During the desktop research, the information retrieved from the conservation boards were studied and **9 sites**, which were registered or in registration process by the conservation boards located within the impact area of the project route were identified (ANNEX 3, 4, 6).

Numerical distribution of the sites, which were identified within the impact corridor (400 m) of the project route are presented in the Table 12 with respect to the project sections:

Table 12: The Sites within the Project Impact Corridor and Their Distribution with respect to the Sections

Section	Potential Archaeological Site	Archaeological Site	Registered Sites/Sites in the Process of Registration	Historic/Other Site	Total Number of Sites
6	10	10	1	2	23
5	-	5	1	-	6
4	1	8	-	1	10
7	-	-	2	-	2
2	1	3	2	1	7
1	3	8	3	128	142
TOTAL					**190**

The distribution of the sites, which are located within the project construction area and may be affected negatively by the project activities, are given in the Table 13:

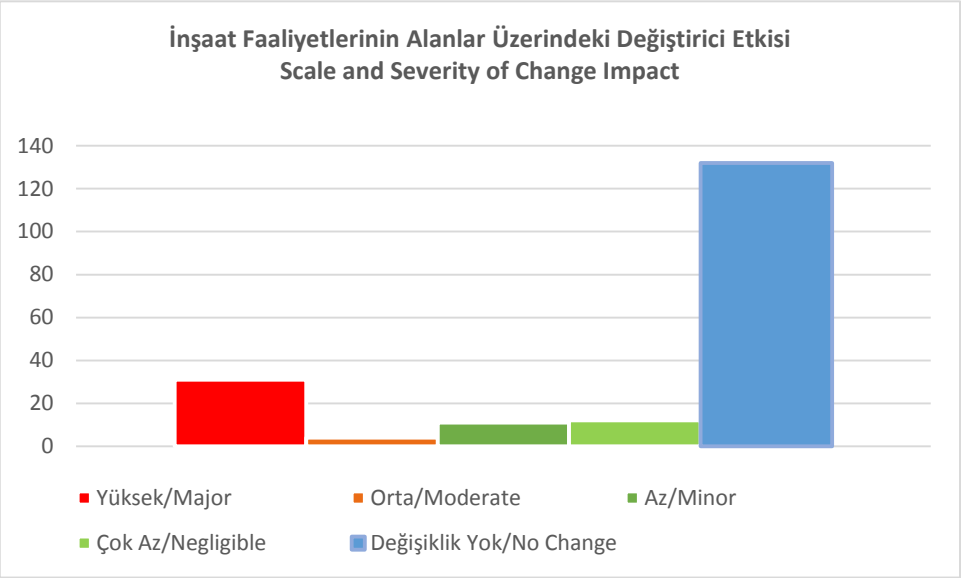
Table 13: The Distribution of Sites that may Directly be Affected Negatively by the Project Construction Activities

Section	Potential Archaeological Site	Archaeological Site	Registered Sites/Sites in the Process of Registration	Historic/Historic/Another Site	Total Number of Sites
6	9	5	-	-	14
5	-	4	1	-	5
4	1	5	-	-	6
7	-	-	2	-	2
2	1	1	2	1	5
1	3	4	3	37	47
TOTAL					**79**

The negative impact of the construction activities on the archaeological and cultural heritage sites which are located within the project construction corridor and impact area were assessed considering sizes of the identified sites and the size of the sections which may be damaged as the result of construction activities in reference to the Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (HIACWHP)[34] and the outcomes of this assessment are presented in ANNEX 7. When the general assessment of the negative impacts of the project on the identified sites are considered; it was identified that the project activities do not cause any change in 132 sites. The proportion of change that is caused by the project construction activities on the sites, which are located on the project route and in the impact corridor was estimated “Negligible” for 12 sites, “Minor” for 11 sites, “Moderate” for 4 sites, and “Major” for 31 sites (Table 14, ANNEX 7).

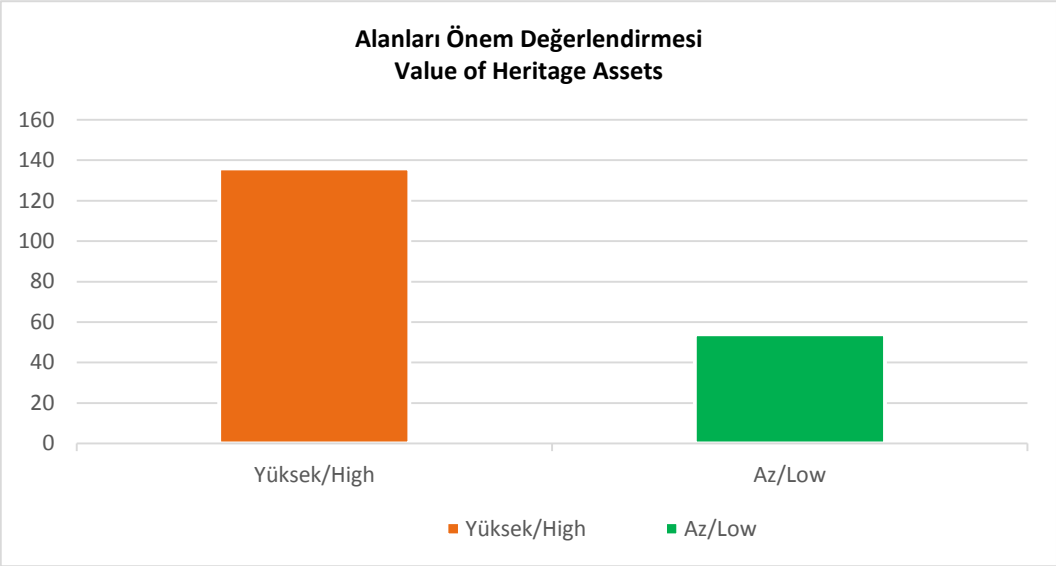
[34] ICOMOS, 2009

Table 14: Sites to be Affected and Impact of Construction Activities on Sites



Among the 190 sites that were identified to be located within the project construction site and construction impact corridor, there are registered sites, there are sites in the process of registration and sites which have potential for archaeological and historic research. As the result of the assessment which was made in accordance with Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (HIACWHP),[35] the value of 136 sites were assessed as "High" while 54 as "Low" (Table 15, ANNEX 7).

Table 15: Assessment of the Sites Located within the Project Construction and Impact Corridor



[35] ICOMOS, 2009

These assessment studies concerning the sites were made taking into consideration all the opinions and information retrieved from relevant regional boards for conservation of cultural assets by April 3rd 2017 (ANNEX 8a-8e).

During the field surveys on the project route, on the areas where field walking method could not be followed due to certain reasons, "Archaeological Potential Modelling" was conducted (see Section 4.3. Archaeological Potential Modelling). The maps indicating the levels of archaeological potential of the sites, where these modelling studies were conducted, were prepared and presented in the ANNEX 5. The probabilities of existence of archaeological or immovable cultural heritage assets, which were estimated as the result of these modelling studies with respect to km intervals are presented in the Table 16. The sites, which were marked "Very High, High and Moderate Risk" are the sections of the project route, where "the probability of encountering with chance finds" is high. It is strongly suggested that the cultural heritage management plan and chance find procedures should be followed especially in these sites during the construction activities.

Table 16: Potential Archaeological Risk Scales for Not Surveyed Sections of the Project Construction and Impact Corridor

Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale	Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale	Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale	Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale	Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale	Başlangıç Km From KP	Bitiş Km To KP	Risk Oranı Risks Scale
Kısım 1- SECTION 1			Kısım 2- SECTION 2			Kısım 4- SECTION 4			Kısım 5- SECTION 5			Kısım 6- SECTION 6			Kısım 7- SECTION 7		
0+000	0+500	Düşük / Low	42+500	43+000	Düşük / Low	137+000	138+000	Düşük / Low	150+500	160+500	Düşük / Low	200+000	200+500	Çok Yüksek/ Very High	60+400	66+700	Düşük / Low
0+500	3+500	Orta / Moderate	43+000	43+500	Orta / Moderate	141+500	144+500	Düşük / Low	160+500	161+500	Çok Yüksek/ Very High	200+500	202+000	Düşük / Low	67+000	67+200	Yüksek/ High
3+500	4+500	Düşük / Low	43+500	44+000	Düşük / Low	146+500	147+000	Düşük / Low	161+500	163+500	Orta / Moderate	202+000	204+000	Orta / Moderate	67+200	68+000	Orta / Moderate
4+500	5+000	Orta / Moderate	44+000	45+000	Orta / Moderate	148+500	149+000	Düşük / Low	163+500	165+500	Düşük / Low	204+000	204+500	Düşük / Low	68+200	69+000	Yüksek/ High
5+000	5+500	Düşük / Low	45+000	45+500	Düşük / Low				165+500	166+000	Orta / Moderate	204+500	206+000	Orta / Moderate	69+000	71+250	Düşük / Low
5+500	8+000	Orta / Moderate	45+500	46+500	Orta / Moderate				166+000	167+500	Düşük / Low	206+000	206+500	Düşük / Low			
8+000	10+500	Düşük / Low	46+500	48+000	Düşük / Low				167+500	168+000	Orta / Moderate	206+500	207+500	Orta / Moderate			
10+500	12+500	Orta / Moderate	48+000	49+000	Orta / Moderate				168+000	169+500	Düşük / Low	207+500	208+000	Düşük / Low			
12+500	13+000	Düşük / Low	49+000	51+500	Düşük / Low				169+500	171+000	Orta / Moderate	213+500	214+000	Düşük / Low			
13+000	15+000	Orta / Moderate	51+500	52+000	Çok Yüksek/ Very High				173+500	174+500	Orta / Moderate	214+700	215+250	Düşük / Low			
21+500	22+000	Düşük / Low	52+000	53+000	Düşük / Low				179+500	188+500	Düşük / Low	215+600	216+600	Orta / Moderate			
22+000	23+000	Orta / Moderate	53+000	54+000	Yüksek/ High				188+500	189+000	Orta / Moderate	216+600	217+600	Yüksek/ High			
24+500	26+000	Düşük / Low	56+500	58+000	Düşük / Low				189+000	190+000	Düşük / Low	217+600	218+100	Orta / Moderate			
									190+000	191+000	Orta / Moderate	218+100	218+600	Düşük / Low			
									191+000	191+500	Yüksek/ High	219+000	219+500	Düşük / Low			
									191+500	192+000	Çok Yüksek/ Very High	220+000	220+500	Orta / Moderate			
									192+000	192+500	Düşük / Low	220+500	221+500	Orta / Moderate			
												222+000	222+500	Düşük / Low			
												222+500	223+500	Orta / Moderate			
												223+500	225+500	Düşük / Low			
												225+500	226+000	Orta / Moderate			
												226+000	226+500	Düşük / Low			
												228+000	228+500	Orta / Moderate			
												229+000	229+500	Düşük / Low			
												229+500	230+000	Yüksek/ High			
												232+000	233+000	Yüksek/ High			
												234+000	236+000	Orta / Moderate			
												239+000	239+500	Orta / Moderate			
												239+500	240+500	Yüksek/ High			
												240+500	242+000	Orta / Moderate			
												242+000	242+500	Yüksek/ High			

In compliance with the legislation, the information about the archaeological and historic sites on the project route and within the impact area, which was collected as a result of field surveys, was delivered to relevant conservation boards and the official decision processes for these sites were started. In this respect, all field data were delivered to the Kocaeli[36] Regional Board for Conservation of Cultural Assets and Istanbul Regional Boards no: 1[37] and no: 5[38] for Conservation of Cultural Assets by the Regional Directorate no: 1 of Higways. Immediately after the delivery of field data to the conservation boards, additional field surveys were planned together with Kocaeli Regional Board for Conservation of Cultural Assets and these surveys were realized between March 8th 2017 and March 9th 2017. As the result of these field surveys, the conservation board made assessment on the concerning sites and issued the official decision no: 2887 on March 21st 2017 requiring that that additional research should be conducted in certain sites[39] identified on the project route under the supervision of the Directorate of Kocaeli Museum, the results should be delivered to the conservation board and meantime any physical intervention to the sites should be avoided (ANNEX 9).

During the period when this report was prepared, the additional field surveys with Istanbul Regional Boards no: 1 and 5 had not yet been realized.

[36] Correspondance no: E-62716 of March 22nd 2017.
[37] Correspondance no: E-94335 of March 30th 2017.
[38] Correspondance no: E-94338 of March 30th 2017.
[39] Gedikli, Biberoğlu, Solaklar, Sipahiler 1, Sipahiler 2 ve Karapınar (Molla Fenari)

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Annex 1 - Cultural Heritage Management Plan

NORTH MARMARA MOTORWAY PROJECT
CULTURAL HERITAGE MANAGEMENT PLAN

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Appendix 1: Archaeological and Cultural Heritage Site List within Project Construction and Project Impact Area

LIST OF ABBREVIATIONS

CHMP	Cultural Heritage Management Plan
ICOMOS	International Council of Monuments and Sites
IFA	Institute of Field Archaeologists
No	Number
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. INTRODUCTION

North Marmara Motorway Project has carried out an impact assessment for cultural heritage within the project area in line with local legislation and the EBRD's PR 8. The purpose of this Cultural Heritage Management Plan (CHMP) is to **preserve the *archaeological and* cultural heritage** within the scope of the North Marmara Motorway Project and to minimize possible project impacts.

The impact mitigation on the potential and existing archaeological and cultural heritage sites within the project impact area is possible by developing and implementing a management plan. Therefore, the construction activities within the scope of the project should be conducted in compliance with this management plan.

2. SCOPE

This Cultural Heritage Management Plan applies to all project activities that have the potential to cause an impact on the cultural heritage. This includes especially all construction activities of the project and cultural protection measures, such as the Chance Find procedures applicable for the Project.

2.1. Sources of Impact

- General project construction activities (soil stripping, excavation, trenching, cutting, blasting, drilling etc.)
- Construction of motorway, access roads, culverts, tunnels, viaducts and another infrastructure works of the motorway project;
- Site preparation and infrastructure installation;
- Quarries, soil storage, waste storage and similar storage areas construction or their preparation,
- Construction of main or fly camps;
- Site rehabilitation and restatement.

3. OBJECTIVES

The general objectives of this Management Plan are to:

- Outline the applicable standards with regards to the protection of cultural heritage;
- Identify the actual and potential sources of impact on Cultural Heritage;
- Establish effective plans and procedures for managing and mitigating impacts to cultural heritage sites.
- Define roles and responsibilities;
- Define monitoring and reporting procedures;
- Define training requirements.

4. LEGISLATION FRAMEWORK

In this section, the legislation framework related to the management of cultural heritage is summarized.

4.1. Local Laws and Legislation

In Turkey, the movable and immovable cultural and natural assets are under protection as dictated by the "**Law on Preservation of Cultural and Natural Assets", 2863**, which was published in the Official Gazette numbered 18113 and dated 23 July 1983. The cultural and natural heritage, which is protected by the aforementioned Law, are identified as:

- Natural properties which require protection and immovable assets which were built before the end of the 19th century;
- Any immovable cultural asset constructed after the end of the 19th century but categorized as "a significant asset which requires preservation" by the Ministry of Culture and Tourism;
- Immovable cultural assets located within the boundaries of Protection Sites; Structures, buildings or places that have witnessed significant historical events during the Turkish Independence War or the foundation of the Turkish Republic, regardless of their period and registration status; and all dwellings and buildings that have been used by Mustafa Kemal ATATURK without considering their period of construction or registration status.

In addition to Law no: 2863 on Preservation of Cultural and Natural Assets, there are some regulations and principle decisions governing the management of cultural and natural assets. According to the Principle Decision no: 658 taken on November 5th 1999, on "Archaeological Sites, Conditions of Protection and Usage", the archaeological sites are classified into three main categories:

1st Degree Archaeological Sites: Areas requiring highest level of protection, with the exception of scientific excavations aiming their protection. Neither construction nor development are allowed in these sites. All kinds of construction, excavation, and modification activities are prohibited within the boundaries of these sites. However, for exceptional cases such as the necessity for infrastructure construction, Regional Preservation Boards may permit such activities based on the approval of the relevant museum directorate and the head of the scientific excavation team

2nd Degree Archaeological Sites: Sites which require medium level of protection. They should be preserved based on the conditions of protection and utilisation set by the Regional Preservation Boards. Additional construction is prohibited. Similar to the 1st Degree Sites, for exceptional cases such as necessity for infrastructure construction among others, Regional Preservation Boards may permit such activities based on the approval of the relevant museum directorate and the head of the scientific excavation team.

3rd Degree Archaeological Sites: Lowest level of protection area. Construction is permitted based on the decisions of Regional Preservation Boards. Before applying for a construction permit, test pit excavations should be conducted and the outcomes of these excavations should be reviewed by the relevant museum and, if present, the head of the scientific excavation team. Reviews should be submitted to Regional Preservation Boards. The Boards may ask for extension of the scope of test pits before taking any decision.

Furthermore, Implementation Guidelines for Field Surveys, Test Pits and Excavation Works on Cultural and Natural Assets (Ministry approval number 94949537-160.99-51264, dated 13.03.2013) define the procedures for salvage excavations, archaeological test pits and other studies.

4.2. International Standards

EBRD's policy on tangible and intangible cultural heritage is set out in Performance Requirement 8 (PR8). The objectives of PR 8 are:

- To support the conservation of cultural heritage in the context of EBRD-financed projects;
- To protect cultural heritage from adverse impacts of project activities;
- To promote the equitable sharing of benefits from the use of cultural heritage; and
- To promote the awareness of, and appreciation of, cultural heritage where possible.

The cultural heritage findings within the project impact area that were given as Appendix 1 of this plan.

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5. ROLES AND RESPONSIBILITIES

Marmara Otoyol Construction JV. will be responsible for the preparation and implementation of the environmental and social impact assessment based management plans, which are project specific. These plans shall be practical, detailed procedures for use in the field. Marmara Otoyol Construction JV. will ensure the implementation of the commitments stated in the ESIA, project specific plans and also shall comply with all relevant project standards, statutory requirements, permit and licence conditions and secure all applicable permits and licences.

5.1. Management of Cultural Heritage

The basic definitions regarding the management of cultural heritage are given in the following bullets:

- Ministry of Culture and Tourism is the responsible authority.
- Kocaeli Archaeology and Ethnography Museum and İstanbul Archaeological Museum Directorates are responsible to provide experts for the sites within 24 hours after being informed and to officially identify the Chance Find (described in Appendix 2). Museum directorates are responsible for the excavation of chance find areas. Museum Directorates will follow the directions and decisions of the relevant Regional Preservation Boards of Cultural Assets (Table 1).

Table 1: Sections of North Marmara Motorway Project and Responsible Regional Preservation Boards of Cultural Assets and Museums

SECTIONS OF NORTH MARMARA MOTORWAY PROJECT AND RESPONSIBLE REGIONAL PRESERVATION BOARDS OF CULTURAL ASSETS and MUSEUMS					
Section	**Km**	**Province**	**District**	**Regional Preservation Boards**	**Museums**
6	251+143-241+250	Sakarya	Akyazı	Kocaeli Regional Preservation Board of Cultural Assets	Kocaeli Archaeology and Ethnography Museum
	241+250-215+500		Adapazarı		
	215+500-187+000	Kocaeli	İzmit		
5	187+000-183+250	Kocaeli	İzmit		
	183+250-175+500		Derince		
	175+500-162+500		Körfez		
	162+500-156+500		Gebze		
	156+500-151+500		Dilovası		
4	151+500-139+500	Kocaeli	Gebze		

4	139+500-132+750	İstanbul	Tuzla	İstanbul Preservation Board of Cultural Assets No.5	İstanbul Archaeological Museum
	132+751-129+650		Pendik		
7	71+250-69+500	İstanbul	Eyüp	İstanbul Preservation Board of Cultural Assets No.1	
7	69+501-62+500		Sultangazi		
7	62+501-60+400		Esenler		
2	58+000-55+750		Eyüp		
	55+750-40+500		Arnavutköy		
1	40+500-32+600		Arnavutköy		
	32+600-19+000		Çatalca		
	19+000-0+000		Silivri		

- The Preservation Boards of Cultural Assets are the only decision maker on any intervention, which would be made on the site after the chance find.
- Marmara Otoyol Construction JV is responsible for the management of all cultural heritage assets during the construction phase of the Project and implementation of related management plan and the chance find procedure.
- Marmara Otoyol Construction JV should mobilize cultural heritage/archaeological monitoring expert/s for the monitoring of ground disturbance activities within project including impact areas. They are also responsible for the monitoring of the implementation of the Cultural Heritage Management Plan (CHMP) and the Chance Find Procedure.
- Marmara Otoyol Construction JV will ensure that Chance Find Procedure is adequately enforced during all ground disturbance activities.
- In case of any further actions is required to identify the Chance Find (test pit or salvage excavation, other needed services), Marmara Otoyol Construction JV will mobilize an archaeology team (including necessary expertise and other workpower) and provide the necessary equipment.
- Marmara Otoyol Construction JV is responsible for giving necessary training to the field staff about the implementation of the chance find procedure.
- Marmara Otoyol Construction JV will record all chance finds on the Chance Find Report Form and on the Chance Find Register as per the Chance Find Procedure given in Appendix 2.

5.2. Management Structure and Responsibilities

Marmara Otoyol Construction JV is responsible for the management of the plan and implementing of the procedures about cultural heritage and archaeological aspects of the North Marmara Motorway Project. The monitoring archaeologist/s of the project will train the employees about cultural heritage and the chance find procedure. Monitoring of the construction works will also be the responsibility of the monitoring archaeologist/s.

- The Project Manager will be in charge of the all work team.
- • The Environmental Manager will be in charge of the cultural heritage/archaeological monitoring expert/s and their daily, weekly and monthly activities. Cultural heritage and archaeological monitoring reports (daily, weekly and monthly) will be submitted to Environmental Manager by monitoring expert/s.The cultural heritage/archaeological monitoring expert/s will work with the equipment operators and have authority to stop the work. The archaeologist will accompany all ground disturbance activities of the project. The cultural heritage/archaeological monitoring expert/s will instruct the operator to stop the work in case of a chance find. Continuation of the ground disturbance activities after a chance find will also be under the authority of the cultural heritage/archaeological monitoring expert/s. The cultural heritage/archaeological monitoring expert/s will submit scheduled progress reports and special reports of chance finds to the Environmental Manager.

6. TRAINING, REPORTING AND MONITORING

6.1. Training

The cultural heritage/archaeological monitoring expert/s will provide cultural heritage training to all project staff including the implementation of the chance find procedure as part of their Environmental Training.

The expert/s will receive Environmental Training as well as specialized training for the procedures to follow for all ground disturbed activities. These trainings will be repeated periodically. The expert/s and the site management will periodically ***meet*** once a month or when deemed necessary. The records of the training such as attendee list, the presentation made during the training, etc. will be kept by the experts as hard copy and electronical copy.

6.2. Reporting

The cultural heritage/archaeological monitoring expert/s will record all chance finds on the Chance Find Report Form and the Chance Find Register as per the Chance Find Procedure given in Appendix 2. The register will be kept up to date by the experts. The Chance Find Report Form will be kept in hard copy and as electronical copy (scanned version) at the project camp. A summary of the status of chance finds will be reported by the experts to Environmental Manager on a weekly basis.

6.3. Monitoring

The function of the archaeological monitoring process will be as follows:

- Provide advice to define the areas where the construction activities may continue or shall be stopped due to archaeological/movable/immovable cultural heritage findings.
- To record archaeological/cultural heritage features observed on, and close to the existing project related areas.
- To record archaeological/cultural heritage features discovered during project construction activities.
- To provide advice in the form of a 'preliminary assessment' to the relevant department on the significance and implications of new archaeological discoveries on the project construction areas.

All ground disturbance activities will be monitored by cultural heritage/archaeological monitoring expert/s during the construction activities. In case of encountering any archaeological/cultural heritage findings, the Chance Find Procedure described in Appendix 2 will be initiated.

The schedule for monitoring will be developed in coordination with the construction schedule. Monitoring activities will be implemented daily. The monitoring schedule will be dictated by the construction schedule as

determined by the construction/operation management. There is no sampling based work associated with the Cultural Heritage Management Plan.

7. ARCHAEOLOGICAL/CULTURAL HERITAGE FINDINGS

The procedure given in Appendix 2 that must be followed in case of encountering a chance find is based on national legislation and provisions of international standards and best practices. Description of the significance levels of the findings is given below. The significance of the archaeological/cultural heritage finding may vary upon the assessment of the Kocaeli Archaeology and Ethnography Museum and İstanbul Archaeological Museum Directorates.. Regardless of the level of significance, in case of a finding the construction activities shall be ceased in the field where the finding is discovered and the findings shall be reported to the relevant museum expert. Following the completion of investigation of the relevant Museum Directorate, the necessary arrangements, such as the identification of the boundaries of the archaeological/cultural heritage asset/site (finding), its protection by taking necessary measures, notification of workers in order to prevent any physical intervention, will be implemented.

7.1. Minor Significance

This type of findings is comprised of a finding isolated from its environment or findings in notably small sizes which may be found by chance. In this case, chance find procedure (Appendix 2) will be followed.

7.2. Moderate Significance

This type of findings is small scale findings in groups or single findings with medium size architectural elements such as tombs. In this case, chance find procedure (Appendix 2) will be followed. In order to prevent a possible damage, necessary arrangements must be made to determine the boundaries of the archaeological remains to keep the construction equipment out of access.

7.3. Major Significance

This type of findings is comprised of findings with great importance such as a settlement area, a tumulus, a mound or a big necropolis (wide graveyard areas with archaeological characteristics) and the construction activities must be immediately stopped and chance find procedure (Appendix 2) will be followed. This type of chance find may cover the entire construction site and the relevant project areas such as camp sites, quarries, soil stock area etc. that the entrance and exit of the construction equipment and vehicles cannot be managed without giving any damage to the archaeological remains.

8. REFERENCES

- General Directorate of Preservation of Cultural and Historical Heritage, “Law on Protection of Cultural and Natural Assets (1) Law No. 2863”, 1983.
- ICOMOS (International Council of Monuments and Sites) “Guidance on Impact Assessment for Cultural World Heritage”, January 2011.
- IFA (Institute of Field Archaeologists) Standard and Guidance for the Collection, “Documentation, Conservation and Research of Archaeological Materials”, 2001.
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- IFA (Institute of Field Archaeologists) 1994, “Standard and Guidance for an Archaeological Field Evaluation” (revised 1999)
- UNESCO, “Convention Concerning the Protection of the World Cultural and Natural Heritage”, November 1972.

Appendix 1.1: Archaeological and Cultural Heritage Site List within Project Construction and Project Impact Area

CULTURAL HERITAGE SITE LIST WITHIN PROJECT CONSTRUCTIN AND PROJECT IMPACT AREA											
No.	NAME OF THE SITE	Registration Status		City	Province/ Village	Approximate Distance (km)	On the Main Axis	On the Access Road	Within Construction Cooridor of the Motorway Route	Outside the Construction Corridor, Within the 400 m. Impact Corridor	Approximate Distance to the Construction Impact Area
		Registered	Unregistered								
SECTION 6											
1	Osmanbey Potential Archaeological Site		x	Sakarya	Akyazı/ Osmanbey	250+520-246+827	x		x		0
2	Çayırlar Locality Archaeological Site		x	Sakarya	Adapazarı/ Budaklar	238+720-239+127	x	x	x		0
3	Budaklar Potential Archaeological Site		x	Sakarya	Adapazarı/ Budaklar	236+747-236+850	x		x		0
4	Çelebiler Potential Archaeological Site		x	Sakarya	Adapazarı/ Çelebiler	232+970-233+550	x		x		0
5	Kömürlük Modern Cemetery		x	Sakarya	Adapazarı/ Kömürlük	232+000 access road km 1+500		x		x	1
6	Kömürlük Potential Archaeological Site		x	Sakarya	Adapazarı/ Kömürlük	232+000 access road km 0+250-1+150		x	x		0
7	Besihane Potential Archaeological Site		x	Sakarya	Adapazarı/ Çamyolu	229+000-239+450	x		x		0
8	Azizbey Hill		x	Sakarya	Adapazarı /Çamyolu	226+550-226+670	x			x	17
9	Süloğlu Bridge		x	Kocaeli	İzmit/ Akmeşe	214+700	x			x	58
10	Deredağ Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	213+750-213+950	x		x		0
11	Adaparmak Ridge Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	212+300-212+600	x	x		x	100
12	Kabaklı Locality Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	211+950-212+150	x		x		0
13	KöprübaşıHill Potential Archaeological Site		x	Kocaeli	İzmit/ Akmeşe	210+500-210+550	x		x		0
14	Mancarcı Locality Potential Archaeological Site		x	Kocaeli	İzmit/ Mancarcı	199+560-199+780	x		x		0
15	Gedikli 1 Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	198+950-199+100	x		x		0
16	Gedikli 2 Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	198+600-198+810	x		x		0
17	Biberoğlu Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	197+970-198+060	x		x		0
18	İğriköz Creek Archaeological Site		x	Kocaeli	İzmit/ Bayraktar	197+560-197+640	x			x	2
19	Doruk Archaeological Site		x	Kocaeli	İzmit/ Eseler	195+700-196+000	x			x	32
20	Kesimahlar Archaeological Site		x	Kocaeli	İzmit/ Çayırköy	195+000 access road km 1+000		x	x		7
21	Solaklar Archaeological Site		x	Kocaeli	İzmit/ Eseler	193+460-194+000	x		x		0
22	Çayırköy Archaeological Site		x	Kocaeli	İzmit/ Çayırköy	192+300-192+500	x			x	25

23	Kocaeli RBCCA Registered Site No:1	x		Kocaeli	İzmit/ Çayırköy	192+000 on the access road		x		x	34
Section 5											
24	Toylar Archaeological Site		x	Kocaeli	Körfez/ Toylar	174+150-174+370	x		x		0
25	Sipahiler 1 Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	171+690-171+850	x		x		0
26	Sipahiler 2 Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	171+220-171+330	x		x		0
27	Kocadere Archaeological Site		x	Kocaeli	Körfez/ Sipahiler	170+000-170+100	x			x	87
28	Martılar Archaeological Site		x	Kocaeli	Körfez/ Martılar	169+000 access road km 41+750+ 42+800		x	x		0
29	Yağcılar Historic Road Remains (Registered Site No: 2 of Kocaeli RBCCA)	x		Kocaeli	İzmit/ Yağcılar	161+800	x		x		0
Section 4											
30	Demirciler Archaeological Site		x	Kocaeli	Dilovası/ Demirciler	150+000 Access Road KM 1+200		x		x	75
31	Uluyan 1 Archaeological Site		x	Kocaeli	Gebze/ Denizli	149+950-150+000		x		x	60
32	Uluyan 2 Archaeological Site		x	Kocaeli	Gebze/ Denizli	149+700-149+850		x	x		0
33	Karapınar (Molla Fenari) Archaeological Site		x	Kocaeli	Gebze/ Molla Fenari	147+550-147+900	x		x		0
34	Cumaköy Cemetery		x	Kocaeli	Gebze/ Cumaköy	145+750	x			x	1
35	Kuzgunçay Tumulus		x	Kocaeli	Gebze/ Cumaköy	144+100	x			x	22
36	Akfırat III Archaeological Site		x	İstanbul	Tuzla/ Akfırat	138+900-139+180	x		x		0
37	Akfırat I Archaeological Site		x	İstanbul	Tuzla/ Akfırat	135+500-135+900	x			x	5
38	Akfırat II Archaeological Site		x	İstanbul	Tuzla/ Akfırat	135+190-135+450	x		x		0
39	Tepeören Potential Archaeological Site		x	İstanbul	Tuzla/ Tepeören	134+390-134+480	x	x	x		0
Section 7											
40	Kırkçeşme Water Tunnel Line	x		İstanbul	Sultangazi/ Gazi	68+900-69+400	x		x		0
41	Roman Aqueducts B	x		İstanbul	Sultangazi/ Gazi	68+700-68+800	x		x		0
Section 2											
42	Terkos Kağıthane Water Transmission Line	x		İstanbul	Arnavutköy	57+600-58+850	x		x		0
43	İhsaniye Cemetery		x	İstanbul	Çatalca/ İhsaniye	57+280	x		x		0
44	Roman Aqueducts A	x		İstanbul	Arnavutköy/Tayakadın	51+300-51+900	x		x		0
45	Tayakadın Archaeological Site		x	İstanbul	Arnavutköy/Tayakadın	48+800 access road		x	x		0
46	Baklalı I Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road Southern Part		x		x	99

47	Baklalı II Archaeological Site		x	İstanbul	Arnavutköy/Baklalı	47+850 access road Northern Part		x		x	29
48	Yassıören Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	43+100-43+350	x			x	177
Section 1											
49	Çakmak Line Historic Military Entrenchments	x		İstanbul	Arnavutköy/Yasıören, Nakkaş	42+800-32+500	x		x	x	0
50	Yassıören II Potential Archaeological Site		x	İstanbul	Arnavutköy/Yassıören	42+350-42+440	x		x		0
51	Military Bunker 1		x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	1
52	Military Bunker 2		x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	76
53	Military Bunker 3		x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	134
54	Military Bunker 4		x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	191
55	Military Bunker 5		x	İstanbul	Arnavutköy/Yassıören	40+171				x	193
56	Military Bunker 6		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	134
57	Military Bunker 7		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	99
58	Military Bunker 8		x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	11
59	Nakkaş Military Shooting Range		x	İstanbul	Arnavutköy/Yassıören	39+825-40+116	x		x		0
60	Military Bunker 9		x	İstanbul	Arnavutköy/Yassıören	39+863	x		x		0
61	Military Bunker 10		x	İstanbul	Arnavutköy/Yassıören	39+873	x		x		0
62	Military Bunker 11		x	İstanbul	Arnavutköy/Yassıören	39+850	x			x	52
63	Military Bunker 12		x	İstanbul	Arnavutköy/Yassıören	39+781	x		x		0
64	Military Bunker 13		x	İstanbul	Arnavutköy/Yassıören	39+726	x		x		0
65	Military Bunker 14		x	İstanbul	Arnavutköy/Yassıören	39+720	x		x		0
66	Military Bunker 15		x	İstanbul	Arnavutköy/Yassıören	39+750	x			x	4
67	Military Bunker 16		x	İstanbul	Arnavutköy/Yassıören	39+740	x			x	24
68	Military Bunker 17		x	İstanbul	Arnavutköy/ Yassıören	39+660	x			x	72
69	Military Bunker 18		x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	114
70	Military Bunker 19		x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	122
71	Nakkaş Potential Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600	x		x		0
72	Nakkaş II Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330	x			x	50
73	Military Bunker 20		x	İstanbul	Arnavutköy/Nakkaş	38+000	x			x	179
74	Nakkaş III Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900	x			x	176
75	Military Bunker 34		x	İstanbul	Arnavutköy/Nakkaş	37+850	x			x	8
76	Military Bunker 35		x	İstanbul	Arnavutköy/Nakkaş	37+700	x		x		0
77	Military Bunker 21		x	İstanbul	Arnavutköy/Nakkaş	37+400	x			x	260
78	Örenbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360	x		x		0
79	Military Bunker 33		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	112
80	Military Bunker 32		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	114
81	Military Bunker 31		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	77
82	Military Bunker 30		x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	75

83	Military Bunker 22		x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	124
84	Military Bunker 29		x	İstanbul	Arnavutköy/Nakkaş	37+000	x			x	115
85	Military Bunker 28		x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	91
86	Military Bunker 27		x	İstanbul	Arnavutköy/Nakkaş	36+850	x			x	10
87	Military Bunker 26		x	İstanbul	Arnavutköy/Nakkaş	36+800	x		x		0
88	Military Bunker 23		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	40
89	Military Bunker 24		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	49
90	Military Bunker 25		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	58
91	Military Bunker 38		x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	92
92	Military Bunker 39		x	İstanbul	Arnavutköy/Nakkaş	36+701	x			x	103
93	Military Bunker 40		x	İstanbul	Arnavutköy/Nakkaş	36+702	x			x	108
94	Military Bunker 41		x	İstanbul	Arnavutköy/Nakkaş	36+703	x			x	131
95	Military Bunker 45		x	İstanbul	Arnavutköy/Nakkaş	36+300	x			x	118
96	Military Bunker 44		x	İstanbul	Arnavutköy/Nakkaş	36+270	x			x	87
97	Military Bunker 43		x	İstanbul	Arnavutköy/Nakkaş	36+240	x			x	55
98	Military Bunker 42		x	İstanbul	Arnavutköy/Nakkaş	36+230	x			x	30
99	Military Bunker 46		x	İstanbul	Arnavutköy/Nakkaş	35+700 access road		x	x		0
100	Historic Bridge on Yeşilbayır – Nakkaş Road		x	İstanbul	Arnavutköy/Nakkaş	35+701				x	147
101	Military Bunker 47		x	İstanbul	Arnavutköy/Nakkaş	35+350	x	x	x		0
102	Military Bunker 48		x	İstanbul	Arnavutköy/Nakkaş	35+162	x		x		0
103	Military Bunker 49		x	İstanbul	Arnavutköy/Nakkaş	35+120	x		x		0
104	Military Bunker 50		x	İstanbul	Arnavutköy/Nakkaş	35+121	x		x		0
105	Military Bunker 51		x	İstanbul	Arnavutköy/Nakkaş	35+095	x		x		0
106	Military Bunker 52		x	İstanbul	Arnavutköy/Nakkaş	35+036	x		x		0
107	Military Bunker 53		x	İstanbul	Arnavutköy/Nakkaş	35+010	x		x		0
108	Military Bunker 54		x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	20
109	Military Bunker 55		x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	54
110	Yeşilbayır Archaeological Site		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	1
111	Military Bunker 62		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
112	Military Bunker 61		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
113	Military Bunker 60		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	3
114	Military Bunker 59		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	24
115	Military Bunker 58		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	50
116	Military Bunker 57		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	141
117	Savaşçı Fountain		x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0
118	Military Bunker 63		x	İstanbul	Arnavutköy/Nakkaş	34+410	x		x		0
119	Military Bunker 64		x	İstanbul	Arnavutköy/Nakkaş	34+230	x		x		0
120	Military Bunker 74		x	İstanbul	Arnavutköy/Nakkaş	34+210	x		x		0
121	Military Bunker 65		x	İstanbul	Arnavutköy/Nakkaş	34+237	x			x	31
122	Military Bunker 66		x	İstanbul	Arnavutköy/Nakkaş	34+230	x			x	21

123	Military Bunker 68		x	İstanbul	Arnavutköy/Nakkaş	34+198	x		x		0
124	Military Bunker 71		x	İstanbul	Arnavutköy/Nakkaş	34+194	x		x		0
125	Military Bunker 76		x	İstanbul	Arnavutköy/Nakkaş	34+170	x		x		0
126	Military Bunker 77		x	İstanbul	Arnavutköy/Nakkaş	34+195	x		x		0
127	Military Bunker 75		x	İstanbul	Arnavutköy/Nakkaş	34+160	x		x		0
128	Military Bunker 67		x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	105
129	Military Bunker 91		x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	172
130	Military Bunker 69		x	İstanbul	Arnavutköy/Nakkaş	34+120	x			x	100
131	Military Bunker 70		x	İstanbul	Arnavutköy/Nakkaş	34+115	x			x	105
132	Military Bunker 78		x	İstanbul	Arnavutköy/Nakkaş	34+072	x			x	3
133	Military Bunker 79		x	İstanbul	Arnavutköy/Nakkaş	34+108	x			x	53
134	Military Bunker 72		x	İstanbul	Arnavutköy/Nakkaş	34+073	x			x	68
135	Military Bunker 73		x	İstanbul	Arnavutköy/Nakkaş	34+040	x			x	43
136	Vaulted Structure		x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000	x		x		0
137	Military Bunker 80		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	20
138	Military Bunker 81		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	45
139	Military Bunker 83		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	90
140	Military Bunker 90		x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	140
141	Military Bunker 82		x	İstanbul	Arnavutköy/Nakkaş	33+986	x			x	90
142	Military Bunker 92		x	İstanbul	Arnavutköy/Nakkaş	33+960	x			x	148
143	Military Bunker 93		x	İstanbul	Arnavutköy/Nakkaş	33+941	x			x	136
144	Military Bunker 94		x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	172
145	Military Bunker 88		x	İstanbul	Arnavutköy/Nakkaş	33+894	x		x		0
146	Military Bunker 89		x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	90
147	Military Bunker 84		x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0
148	Military Bunker 85		x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0
149	Military Bunker 86		x	İstanbul	Arnavutköy/Nakkaş	33+880	x		x		0
150	Military Bunker 87		x	İstanbul	Arnavutköy/Nakkaş	33+900	x			x	11
151	Military Bunker 95		x	İstanbul	Arnavutköy/Nakkaş	33+890	x			x	165
152	Military Bunker 96		x	İstanbul	Arnavutköy/Nakkaş	33+880	x			x	141
153	Military Bunker 102		x	İstanbul	Arnavutköy/Nakkaş	33+875	x			x	181
154	Military Bunker 100		x	İstanbul	Arnavutköy/Nakkaş	33+830	x		x		0
155	Military Bunker 101		x	İstanbul	Arnavutköy/Nakkaş	33+856	x			x	15
156	Military Bunker 99		x	İstanbul	Arnavutköy/Nakkaş	33+844	x			x	4
157	Military Bunker 97		x	İstanbul	Arnavutköy/Nakkaş	33+830	x			x	127
158	Military Bunker 98		x	İstanbul	Arnavutköy/Nakkaş	33+567	x			x	58
159	Military Bunker 103		x	İstanbul	Arnavutköy/Nakkaş	33+500	x			x	129
160	Military Bunker 104		x	İstanbul	Arnavutköy/Nakkaş	33+357	x			x	128
161	Military Bunker 108		x	İstanbul	Arnavutköy/Nakkaş	33+340	x			x	77
162	Military Bunker 105		x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	30
163	Military Bunker 107		x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	11
164	Military Bunker 106		x	İstanbul	Arnavutköy/Nakkaş	33+313	x			x	15
165	Military Bunker 110		x	İstanbul	Arnavutköy/Nakkaş	33+291	x			x	78
166	Military Bunker 109		x	İstanbul	Arnavutköy/Nakkaş	33+271	x			x	61
167	Military Bunker 111		x	İstanbul	Arnavutköy/Nakkaş	33+258	x			x	71

168	Military Bunker 112		x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	84
169	Military Bunker 113		x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	30
170	Military Bunker 114		x	İstanbul	Arnavutköy/Nakkaş	33+122	x			x	62
171	Military Bunker 115		x	İstanbul	Arnavutköy/Nakkaş	33+095	x			x	55
172	Military Bunker 119		x	İstanbul	Arnavutköy/Nakkaş	33+057	x			x	26
173	Military Bunker 117		x	İstanbul	Arnavutköy/Nakkaş	33+020	x		x		0
174	Military Bunker 116		x	İstanbul	Arnavutköy/Nakkaş	33+036	x			x	10
175	Military Bunker 118		x	İstanbul	Arnavutköy/Nakkaş	32+940	x		x		0
176	Military Bunker 120		x	İstanbul	Arnavutköy/Nakkaş	32+855	x			x	87
177	Military Bunker 121		x	İstanbul	Arnavutköy/Nakkaş	32+792	x			x	45
178	Military Bunker 122		x	İstanbul	Arnavutköy/Nakkaş	32+700	x		x		0
179	Military Bunker 123		x	İstanbul	Arnavutköy/Nakkaş	32+643	x			x	66
180	Military Bunker 124		x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	88
181	Military Bunker 126		x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	127
182	Military Bunker 125		x	İstanbul	Arnavutköy/Nakkaş	32+580	x			x	113
183	Military Bunker 127 and Parapet		x	İstanbul	Arnavutköy/Nakkaş	32+530	x		x		0
184	Umurtepe Kartepe 2nd Degree Archaeological Site	x		İstanbul	Çatalca	21+800-21+100	x		x		0
185	Karamurat Archaeological Site		x	İstanbul	Çatalca/ İnceğiz	20+230-19+660	x		x		0
186	Gedik Ali Paşa Archaeological Site		x	İstanbul	Silivri/ Kadıköy	18+500-18+680	x		x		0
187	Kadıköy Archaeological Site		x	İstanbul	Silivri/ Kadıköy	16+850-17+080	x			x	53
188	Gazitepe Potential Archaeological Site		x	İstanbul	Silivri/ Gazitepe	15+920-16+036	x		x		0
189	Anastasian Walls	x		İstanbul	Silivri/ Fenerköy	5+000-5+100	x		x		0
190	Küçükkılıç Tumulus		x	İstanbul	Silivri/ Küçükkılıç	2+860-2+940	x		x		0

Annex 2 – Chance Find Procedure

CHANCE FIND PROCEDURE	**17 Pages** **Including Cover Page and Appendices**
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1. INTRODUCTION

Marmara Otoyol Construction JV. is responsible for the management and protection of archaeological and heritage sites/resources within the North Marmara Motorway Project construction and project impact area. Many archaeological and cultural heritage assets have been encountered within the project construction and impact area during the ESIA studies. Suggestions to protect cultural heritage assets and sites encountered within the project impact area were described on the ESIA. However, there is still a possibility of encountering some unknown archaeological sites and cultural heritage assets as a Chance Find during project activities.

1.1 Purpose

The purpose of this document is to outline the procedure and respective responsibilities in relation to the management of Chance Finds during project construction works.

The procedure applies to all project activities within the project impact areas (main route of motorway, access roads, culverts, tunnel, viaduct, quarries, soil storage areas, waste storages, camp sites etc.) and other project related areas.

1.2 Definitions

CHANCE FIND	Potential cultural heritage objects, features or sites that are identified outside of a formal site reconnaissance, normally as a result of construction monitoring.
MUSEUM DIRECTORATES	Kocaeli Archaeology and Ethnography Museum İstanbul Archaeological Museum
REGIONAL PRESERVATION BOARDS	Kocaeli Regional Preservation Board of Cultural Assets İstanbul Preservation Board of Cultural Assets No.5 İstanbul Preservation Board of Cultural Assets No.1
PROJECT	North Marmara Motorway Project
SHALL AND MUST	Indicates mandatory requirements.
SHOULD	Indicates that a provision is not mandatory, but recommended as good practice.

1.3 Abbreviations

Abbreviation	Definition
CHMP	Cultural Heritage Management Plan
E&S	Environmental and Social
ESIA	Environmental and Social Impact Assessment

1.4 References

STANDARDS, LEGISLATIONS and LAWS
Ministry of Culture and Tourism, Law No:2863, **Preservation of Cultural and Natural Assets**
Ministry of Culture and Tourism, Principle Decision No: 658, **Archaeological Sites, Conditions of Protection and Usage**
European Bank for Reconstruction and Development- EBRD, Environmental and Social Policy, **PR08, Cultural Heritage**

2. ROLES AND RESPONSIBILITIES

Marmara Otoyol Construction JV. is responsible to comply with the procedure with all its units during the project construction activities. All employees involved in construction works will be trained for the implementation of the procedure.

Project Role	Responsibilities
Site Manager	Ensure E&S issues are being adequately addressed on site by all related departments. Support E&S site, provides adequate resources on site to implement E&S monitoring and inspection activities.
E&S Manager	Preparation or revision of E&S documentation, plans and procedures as required. Participation in the identification process of significant impacts for the project, and assisting to develop relevant preventive and corrective actions. Coordination of environmental and social information flow. Ensuring that E&S mitigation measures are implemented and controlled during the project construction activities. Developing and implementation of an environmental and social audit program and sharing lessons learned between all related departments and staff. Manages site based environmental inspectors, community liaison officers and cultural heritage/archaeological monitoring expert/s. Maintain effective communication with the construction and project management team. Ensure the ESIA mitigation measures, through on-site daily inspection, advice and assistance to site construction and project management and personnel on all environmental, social and cultural heritage matters. Day-to-day monitoring of construction activities as they related to E&S performance. Raise NCR or Corrective Actions as required, and track closure. Participate in audits relating to E&S matters. Plan and Manage the environmental and social trainings for all project staff for Cultural Heritage Preservation and related procedures. Daily reporting of E&S issues in construction activities to Site Management.

	Weekly reporting of E&S issues in construction activities to Site Management. Participate to meetings related to Cultural Heritage issues.
Cultural Heritage/Archaeological Monitoring Expert/s	Provides advice in the form of a 'preliminary assessment' to the site and E&S managers on the significance and implications of new archaeological discoveries in the project activity areas. Ensures Chance Find Procedure is followed, Conducts and documents pre-construction surveys Records archaeological features discovered during pre-construction and ground disturbance activities. Determines the needs for cultural heritage resources protection and implement mitigation measures. Has the authority to stop ground disturbance activities to investigate potential chance finds. Ensures that the relevant cultural heritage signs are displayed where and when required. Implements chance find procedure and provides expertise during a chance find. Delivers cultural heritage preservation trainings to all project staff. Issues non-compliances when required and ensures all corrective actions are completed in a timely manner Provides daily field and monitoring reports to the E&S manager Conforms to all requirements of the archaeological/cultural heritage assets recommendations in the ESIA

3. CHANCE FIND PROCESS

The following table outlines the step by step process to be followed upon a chance find discovery.

<table>
<tr><td colspan="2">STEP 1 – After the discovery of a chance find:
• All work must cease at the location where discovery is made
• A temporary buffer zone around the chance find will be put in place
• Cultural Heritage/Archaeological Monitoring Expert/s will be on site during all construction or ground disturbance activities
• The Cultural Heritage/Archaeological Monitoring Expert/s contacts site management and museum archaeologist <u>immediately</u>
• The Cultural Heritage/Archaeological Monitoring Expert/s properly secures chance find site: flagging, no-entry signs etc.
• Protection of site: chance find should not be moved, removed or further disturbed</td></tr>
<tr><td colspan="2">STEP 2 - Recording
• The Cultural Heritage/Archaeological Monitoring Expert/s fills out Chance Find Form Part A and sends a copy to E&S manager within 24 hours
• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record</td></tr>
<tr><td colspan="2">STEP 3 – Contact with local authority
• The Cultural Heritage/Archaeological Monitoring Expert/s notifies the relevant Museum Directorate for the chance find</td></tr>
<tr><td colspan="2">STEP 4 – Authority’s decision
• The relevant Museum archaeologist decides that the following actions for chance find area.</td></tr>
<tr><td>STEP 4 A – No significance to site
• The museum archaeologist declares that the site is considered to be of no significance
• The Cultural Heritage/Archaeological Monitoring Expert/s informs relevant managers
• The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Part B of Chance Find form and sends a copy to E&S manager within 24 hours
• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record
• No further actions required
• This step closes out the chance find procedure
• Construction activities may resume</td><td>STEP 4 B – Significance to site
• The museum archaeologist declares that the site is considered to be of significance
• Museum directorate archaeologist decides on further actions and informs the Cultural Heritage/Archaeological Monitoring Expert/s The Cultural Heritage/Archaeological Monitoring Expert/s informs relevant managers.
• Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Part B of Chance Find form
• Proceed to Step 5</td></tr>
</table>

STEP 5 – Site investigation • Project personnel follows the relevant Archaeology Museum directorate archaeologist's instructions		
• After field investigation, Museum archaeologist declares **<u>the site has minor significance</u>** • The Cultural Heritage/Archaeological Monitoring Expert/s inform their managers • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours • The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her records • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume***	• After field investigation, Museum archaeologist declares **<u>the site has moderate significance</u>** • Further studies such as test pit / salvage excavations or remote sensing investigation are to be completed • Museum directorate archaeologist provides instructions, and/or supervision for the studies • The Cultural Heritage/Archaeological Monitoring Expert/s informs their managers • Under the supervision of the museum archaeologist, project management provides a study team. The team will be composed of qualified archaeologists other experts and workers. • Once the excavation is completed, the study team provides a report to the museum directorate, • The museum directorate reports the study outcomes to the relevant Regional Preservation Board of Cultural Assets. • The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the project management. • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours • The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure	• After field investigation, Museum archaeologist declares **<u>the site has major significance</u>** • Salvage excavation is to be completed • Site is to be treated according to Turkish archaeological regulations "Law on the Conservation of Cultural and Natural Property (2863) 21.07.1983 • Museum directorate archaeologist provides instructions, and/or supervision for test pit/salvage archaeological excavation • The Cultural Heritage/Archaeological Monitoring Expert/s inform their managers • Under the supervision of the museum archaeologist, project management provides a salvage excavation team. The team will be composed of qualified archaeologist and workers. • Once the excavation is completed, salvage excavation team provides a report to museum directorate • The relevant Regional Preservation Board of Cultural Assets officially confirms completion of recovery and informs the project management. • Site will be officially recorded and protected according to Turkish regulations • The Cultural Heritage/Archaeological Monitoring Expert/s inform to the related managers. • The Cultural Heritage/Archaeological Monitoring Expert/s records the decision on Chance Find Form Part C and sends a copy to E&S manager within 24 hours

	• ***Construction activities may resume***	• The Cultural Heritage/Archaeological Monitoring Expert/s retains a copy of Chance Find form for his/her record • No further actions required • This step closes out the chance find procedure • ***Construction activities may resume or preventive further actions are need to be taken***

It is important to note that in case human remains are found, all project team and the local authorities will be immediately notified.

4. MONITORING AND REPORTING

The Cultural Heritage/Archaeological Monitoring Expert/s will visually monitor all construction or other ground disturbance activities for evidence of presence of cultural heritage items.

Chance Finds will be recorded on the Chance Find Report form (see Appendix 1). All Chance Find Report forms will be kept in hard copy at the camp and will also be scanned and saved electronically after completion of each section of the form.

Chance Finds will be recorded in the Chance Find Register (see Appendix 2) which will be kept up to date by Cultural Heritage/Archaeological Monitoring Expert/s. It will be reviewed in regular E&S meetings (weekly or monthly).

APPENDIX 2.1 – CHANCE FIND REPORT FORM

RASLANTISAL BULUNTU RAPOR FORMU

PART A **BÖLÜM A**			
Project Location: *Proje Sahası*	District (İlçe): Village (Köy):	Date: *Tarih*	Form No:
Name of person reporting chance find: *Rastlantısal buluntuyu rapor eden kişinin ismi*			
Was work stopped in the immediate vicinity of the chance find? ☐ Yes ☐ No *Rastlantısal buluntunun tam çevresinde iş durduruldu mu? Evet Hayır*			
Was a buffer zone created to protect the chance find? ☐ Yes ☐ No *Rastlantısal buluntuyu korumak için tampon bölge oluşturuldu mu? Evet Hayır*			
NOTIFICATION ***BİLDİRİM***			
Site manager and E&S manager contacted ☐ Yes ☐ No *Saha Müdürü ve Çevre müdürü ile irtibata geçildi Evet Hayır*			
CHANCE FIND DETAILS ***RASLANTISAL BULUNTU AYRINTILARI***			
GPS coordinates *GPS koordinatları*	Photo record ☐ Yes ☐ No (HD quality – no cell phone photos) *Fotoğraf kaydı Evet Hayır* *(HD kalitesinde – cep telefonu fotoğrafı değil)* If not, explain why: *Yok ise nedenini açıklayınız* Other records ☐ Yes ☐ No Specify (drawings, HD quality videos, etc.): *Diğer kayıtlar Evet Hayır* *Belirtin (çizimler, HD kalite videolar, vb.)*		
Description of chance find: *Rastlantısal buluntunun tanımı*			
Description of site and vegetation: (e.g. surface sediment type, ground surface visibility, distance to			

closest watercourse, etc.)
Sahanın ve bitki örtüsünün tanımı: (örn. Yüzey sediman türü, yüzey zemin görünürlüğü, en yakın suyoluna olan mesafe, vb.)

PART B
BÖLÜM B

NOTIFICATION OF MUSEUM DIRECTORATE ARCHAEOLOGIST
MÜZE MÜDÜRLÜĞÜ ARKEOLOĞUNA BİLDİRİ

Monitoring archaeologist contacted museum directorate archaeologist ☐ Yes ☐ No
Arkeolog müze müdürlüğü arkeoloğu ile irtibata geçti. *Evet* *Hayır*

Date of notification:
Bildirim tarihi

Name of museum directorate and Name of museum archaeologist:
Müze müdürlüğü ve Müze müdürlüğü arkeoloğunun ismi

Contact number of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun iletişim numarası

DECISION OF MUSEUM DIRECTORATE ARCHAEOLOGIST
MÜZE MÜDÜRLÜĞÜ KARARI

Date of site visit:
İlk saha ziyaret tarihi:

☐ Site of no significance - Construction to proceed with no further action – End of chance find procedure *Önemsiz saha – İnşaat daha fazla araştırma yapılmadan devam edilebilir – rastlantısal buluntu prosedürün sonu.* Date of notice to resume work: *İşe başlama tarihi bildirisi*	☐ Site of significance - Further actions required *Önemli saha – Ek araştırma gerekmektedir* Please Fill out Part C *Lütfen Bölüm C'yi doldurun.*

Name of museum directorate archaeologist:
Müze müdürlüğü arkeoloğunun ismi
Contact information:
İletişim numarası

Site manager and E&S manager contacted ☐ Yes ☐ No
Saha Müdürü ve Çevre müdürü ile irtibata geçildi Evet Hayır

PART C
BÖLÜM C

FURTHER FIELD INVESTIGATION *EK SAHA ARAŞTIRMASI*		
☐ Site of minor significance *Önemsiz saha*	☐ Site of moderate significance *Az önemli saha*	☐ Site of major significance *Çok önemli saha*
Describe additional work to be conducted: *Yapılması gereken ek işlerin tanımları*		
Date started: *Başlangıç tarihi*	Date completed: *Bitiriş tarihi*	
Date of notice to resume work: *İşe başlama tarihi bildirisi*		
Name of museum directorate archaeologist: *Müze müdürlüğü arkeoloğunun ismi:* Contact information: *İletişim numarası*		
Construction manager contacted *İnşaat müdürü ile irtibata geçildi*	☐ Yes *Evet*	☐ No *Hayır*

APPENDIX 2.2 – CHANCE FIND REGISTER

DATE OF FIND	SUMMARY OF CHANCE FIND	NAME OF AUTHORITY NOTIFIED	ACTION TAKEN	CHANCE FIND FORM COMPLETED	STATUS OPEN OR CLOSED	REMARKS

APPENDIX 2.3 – CONTACT INFORMATION

Museum Directorate	Address	Phone	Fax	E-Mail
Kocaeli Arkeoloji ve Etnografya Müzesi Kocaeli Archaeology and Ethnography Museum	Eski Gar Binası, Demiryolu Caddesi Kemalpaşa, KOCAELİ	(0262) 321 22 74	(0262) 325 53 54	kocaelimuzesi@kultur.gov.tr
İstanbul Arkeoloji Müzeleri İstanbul Archaeological Museums	İstanbul Arkeoloji Müzeleri Alemdar Cad. Osman Hamdi Bey Yokuşu Sk, 34122, Gülhane / Fatih, İSTANBUL	(0212) 520 77 40	(0212) 527 43 00	info@istanbularkeoloji.gov.tr

PRESERVATION BOARD	RESPONSIBILITY AREAS	ADDRESS	PHONE	FAX	E-MAIL
Kocaeli Regional Preservation Board of Cultural Assets	Düzce, Kocaeli, Sakarya,Yalova	Kozluk Mah. İstasyon Cad. TCDD Eski Gar Binası Kat:2 İzmit / KOCAEL	(0262) 323 29 26 (0262) 321 67 33	(0262) 323 29 36	ktvk41@kultur.gov.tr
İstanbul Preservation Board of Cultural Assets No.5	Adalar, Ataşehir , Çekmeköy , Kadıköy, Kartal, Maltepe, Pendik, Sancaktepe, Sultanbeyli, Tuzla, Ümraniye	Hobyar Mah. Büyük Postane Cad. No:72 Kat:4 Sirkeci-FATİH / İSTANBUL	(0212) 512 09 20 (0212) 528 31 13	(0212) 528 31 13	istanbulkurul5@kultur.gov.tr
İstanbul Preservation Board of Cultural Assets No.1	Arnavutköy, Avcılar, Bağcılar, Bahçelievler, Bakırköy, Başakşehir, Bayrampaşa, Beylikdüzü, Büyükçekmece, Çatalca, Esenler, Esenyurt, Eyüp, Gaziosmanpaşa, Güngören, Kağıthane, Küçükçekmece,Silivri, Sultangazi	Hobyar Mahallesi Büyük Postane Caddesi No:34 Kat:2 Sirkeci/ İSTANBUL	(0212) 512 26 36 (0212) 528 24 78	(0212) 512 26 36	istanbulkurul1@kultur.gov.tr

Annex 3 – Field Survey Forms

NORTH MARMARA MOTORWAY PROJECT

SECTION 6

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Osmanbey
Date: 23.01.2017
CITY: Sakarya
Form No: 1
PROVINCE: Akyazı
VILLAGE: Osmanbey

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
299946	4513046	298321	4512364
299921	4512389	298112	4513016
296200	4513201	296771	4513948

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located at the south of Osmanbey and Kızılcıkorman villages and between 250+520 and 246+827 kilometre points of the project route. It was observed that the surface finds spread to a wide area. Surface finds include glazed ceramic shards from the Late Ottoman Period and several metal nails. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Glazed Potsherd

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çayırlar Mevkii
Date: 24.02.2017
CITY: Sakarya
Form No: 2
PROVINCE: Adapazarı
VILLAGE: Budaklar
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
290151	4517940	289854	4518144
289896	4517979	290168	4518147

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2 km east of Budaklar Village and between the 238+720 and 239+127 kilometre points of the project route. Various glazed and non-glazed ceramic shards and two glass bracelets from the Byzantine Period were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Budaklar
Date: 24.01.2017
CITY: Sakarya
Form No: 3
PROVINCE: Adapazarı
VILLAGE: Budaklar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
288008 288068	4518815 4518846	287972 287996	4518886 4518947

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located between the 236+747 and 236+850 kilometre points of the project route. Some ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From The Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çelebiler
Date: 24.01.2017
CITY: Sakarya
Form No: 4
PROVINCE: Adapazarı
VILLAGE: Çelebiler

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
285231 284736	4520506 4520782	285190 284789	4520626 4520950

SITE TYPE: Archaeological Potantial Site

PERIOD: Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Çelebiler Village. Ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kömürlük Modern Cemetery **Date:** 24.01.2017
CITY: Sakarya **Form No:** 5
PROVINCE: Adapazarı
VILLAGE: Kömürlük

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
285229 285236	4522356 4522355	285233 285225	4522369 4522367

SITE TYPE: Modern Cemetry

PERIOD: Modern

CODE: CHA001

DESCRIPTION: The site is a family cemetery located within the boundaries of Kömürlük Village and belongs to "Türk" family. It is located between the point 232+000 of the project route and 1+500 kilometre point of the access road heading to Poyrazlar Village in the north. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Modern Cemetery

General View From the Modern Cemetery

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kömürlük
Date: 24.01.2017
CITY: Sakarya
Form No: 6
PROVINCE: Adapazarı
VILLAGE: Kömürlük

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
284142 285001	4521381 4522433	284100 285003	4521910 4521856

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Kömürlük Village and on the access road starting at the 232+000 kilometre point of the project route and heading to Poyrazlar Village. Ceramic shards, which might be dated to the Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Besihane
Date: 25.01.2017
CITY: Sakarya
Form No: 7
PROVINCE: Adapazarı
VILLAGE: Çamyolu
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
280900 281503	4522090 4522111	281520 281093	4522010 4522204

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 500 m southeast of Çamyolu Village and between 229+450 and 229+000 kilometre points of the project route. Sporadic ceramic shards, which are supposed to belong to the Late Ottoman Period, were encountered in the plains in the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Azizbey Hill
Date: 25.01.2017
CITY: Sakarya
Form No: 8
PROVINCE: Adapazarı
VILLAGE: Çamyolu

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
279699 279677	4524141 4524149	279490 279742	4523949 4523977

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: Some ceramic and roof tile shards and foundation remains of a rectangular building which may be dated to the Late Ottoman Period were encountered on the site surface. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Süloğlu Bridge
Date: 13.02.2017
CITY: Kocaeli
Form No: 9
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
267758 267754	4525300 4525274	267738 267766	4525281 4525286

SITE TYPE: Historical Bridge

PERIOD: Late Ottoman/Early Republician Period

CODE: CHA003

DESCRIPTION: The Bridge is located 4 kilometres west of Akmeşe Atatürk neighbourhood and nearby the provincial borders of Kocaeli and Sakarya. Some part of the piers of the bridge is demolished and sunken in the creek. Remains of a wall belonging to the bridge were discovered in the northern bank of the creek. On the other hand, remains of a retaining wall, which was possibly built to decrease the magnitude of flooding, were discovered on the southern bank of the creek. There is a modern bridge approximately 2 m above the level of bridge. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Bridge

General View From the Bridge

General View From the Bridge

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Deredağ
Date: 13.02.2017
CITY: Kocaeli
Form No: 10
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
267051 266929	4521469 4525520	266979 267109	4525594 4525525

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is a potential archaeological site. It is located 4 km west of Akmeşe Atatürk neighbourhood. Some ceramic shards, which ma be dated to the Late Ottoman Period, were discovered on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Adaparmak Sırtı
Date: 14.02.2017
CITY: Kocaeli
Form No: 11
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
265545 265572	4525443 4525688	265737 265399	4522647 4525509

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 2,5 kilometres south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kabaklı Mevkii **Date:** 14.02.2017
CITY: Kocaeli **Form No:** 12
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
265353 265178	4525097 4525081	265320 265230	4525170 4525187

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1 kilometre south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Köprübaşı Tepesi **Date:** 14.02.2017
CITY: Kocaeli **Form No:** 13
PROVINCE: İzmit
VILLAGE: Akmeşe Atatürk

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
264054 264044	4524293 4524259	264002 263996	4524303 4524272

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1 kilometre south of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Mancarcı Mevkii
Date: 15.02.2017
CITY: Kocaeli
Form No: 14
PROVINCE: İzmit
VILLAGE: Mancarcı

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
255185 255006	4519839 4519868	255195 255015	4519773 4519767

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is a potential archaeological site. It is located 1 km south-west of Mancarcı Neighbourhood and 1 km north-east of Bayraktar Neighbourhood. Plenty of ceramic and roof tile shards were discovered on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedikli 1 **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 15
PROVINCE: İzmit
VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
254513	4519857	254423	4519743
254480	4519887	254374	4519747
254423	4519885	254480	4519970
254534	4519998	254600	4519960

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005/CHA006

DESCRIPTION: The site covers three different hills located 500 m north of Bayraktar Neighbourhood. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedikli 2 **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 16
PROVINCE: İzmit
VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
254250 254111	4519960 4519870	254232 254036	4519851 4520012

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site covers three different hills located 500 m north of Bayraktar Neighbourhood. Plenty of roof tile and ceramic shards were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Biberoğlu
Date: 15.02.2017
CITY: Kocaeli
Form No: 17
PROVINCE: İzmit
VILLAGE: Bayraktar
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
253450	4520175	253471	4520044
253491	4520189	253428	4520075
253538	4520197	253571	4520232
253607	4520215		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

General View From the Site

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

Archaeological Findings

SITE NAME: İğriköz Deresi **Date:** 15.02.2017
CITY: Kocaeli **Form No:** 18
PROVINCE: İzmit
VILLAGE: Bayraktar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
253125	4520253	253070	4520366
253044	4520274	253084	4520365

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Doruk
Date: 15.02.2017
CITY: Kocaeli
Form No: 19
PROVINCE: İzmit
VILLAGE: Eseler
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
251470 251170	4520520 4520295	251480 251141	4520358 4520419

SITE TYPE: Archaeological Site

PERIOD: Byzantine - Late Ottoman Period

CODE: CHA005/CHA006

DESCRIPTION: The site is located 200 metre north of Eseler Neighbourhood. Glazed ceramics and stone blocks, which might be grave caps, from the Late Ottoman and Byzantine Periods were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kesimahlar
Date: 15.02.2017
CITY: Kocaeli
Form No: 20
PROVINCE: İzmit
VILLAGE: Çayırköy

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
250917	4518449	251306	4518564
251390	4518494	250920	4518680
251402	4518501	251176	4518465
251366	4518533		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located 1.5 kilometre east of Ataturk Neighbourhood, west of Kesimahlar Creek and nearby the 1st kilometre of the access road which is located nearby 195+000 kilometre point of the project route. Ample amount of archaeological ceramic and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Solaklar
Date: 15.02.2017
CITY: Kocaeli
Form No: 21
PROVINCE: İzmit
VILLAGE: Eseler
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
249498 249024	4519789 4520136	249470 249057	4519926 4519856

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005/CHA006

DESCRIPTION: The site is located 500 metre southwest of Durhasan Village. Glazed and non-glazed ceramic shards and roof tile shards were observed on the surface of the site. In addition to that, some rubble stones belonging to buildings, human bones and iron droos pieces were encountered. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çayırköy
Date: 15.02.2017
CITY: Kocaeli
Form No: 22
PROVINCE: İzmit
VILLAGE: Çayırköy
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 36

Easting	Northing	Easting	Northing
248007 248163	4520533 4520527	248061 247921	4520205 4520392

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 1.3 kilometre east of Çayırköy Neighbourhood. The archaeological materials intensely spread to a large area. Ample amount of terracotta water pipe and ceramic shards were encountered within the site. The ceramic shards also include glazed ceramic shards. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kocaeli KVKBKM 1 Nolu Tescilli Alan
CITY: Kocaeli
PROVINCE: İzmit
VILLAGE: Çayırköy

Date:

Form No: 23

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
751502	4520628	751502	4520561
751528	4520615	751473	4520573

SITE TYPE: Registered Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: It is the registered water channel remains. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, the water channel remains should be removed outside the boundaries of expropriated land of the Highway project.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

NORTH MARMARA MOTORWAY PROJECT

SECTION 5

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Toylar
Date: 02.03.2017
CITY: Kocaeli
Form No: 24
PROVINCE: Körfez
VILLAGE: Toylar

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
738353	4527691	738631	4527542
738535	4527732	738611	4527532
738602	4527704	738426	4527513
738638	4527613		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 2 kilometres south-east of Toylar neighbourhood. Glazed and non-glazed ceramic and roof tile shards and cut stone blocks belonging to buildings, which are dated to the Byzantine Period, were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Sipahiler 1 **Date:** 17.02.2017
CITY: Kocaeli **Form No:** 25
PROVINCE: Körfez
VILLAGE: Sipahiler Mahallesi

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
735959	4527577	736034	4527553
735985	4527732	736008	4527773
736102	4527603	736056	4527744

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Sipahiler 2 **Date:** 17.02.2017
CITY: Kocaeli **Form No:** 26
PROVINCE: Körfez
VILLAGE: Sipahiler Mahallesi

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
735701	4527848	735689	4527887
735634	4527909	735617	4527849
735477	4527835	735651	4527741
735478	4527725	735613	4527732
735489	4527691	735572	4527645
735484	4527633		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 800 metres north-east of Sıpahiler Neighbourhood and 800 metres south-east of Sıpahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

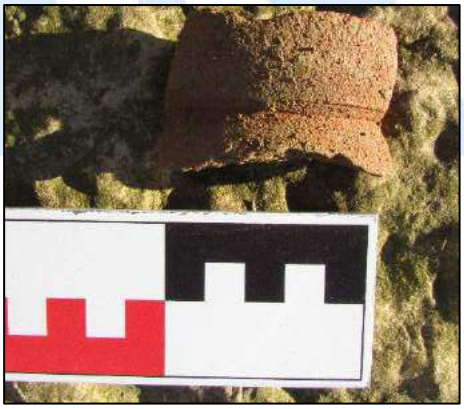
SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

FIELD SURVEY FORM

General View From the Site

Archaeological Findings



Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kocadere
Date: 02.03.2017
CITY: Kocaeli
Form No: 27
PROVINCE: Körfez
VILLAGE: Sipahiler

SECTION: 5

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
734319	4527805	734295	4527599
734184	4527764	734296	4527457
734384	4527707	734329	4527567
734171	4527631	734334	4527538
734452	4527641	734252	4527518
734407	4527527		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.2 kilometre north-west of Sıpahiler Neighbourhood. Plenty of ceramic and roof tile shards and drost pieces were encountered on the surface of the site. Among the ceramic shards, there are glazed ceramics dated to the Byzantine Period. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Martılar
Date: 16.02.2017
CITY: Kocaeli
Form No: 28
PROVINCE: Körfez
VILLAGE: Martılar

SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
734843	4530318	734975	4530280
735070	4530278	735143	4530238
735285	4530166	735409	4530148
735493	4530093	735622	4530062
735763	4530027	735917	4530014
734877	4530567	735888	4530521
735814	4530573	735616	4530576
735427	4530566		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005/ CHA006

DESCRIPTION: The site is in the vicinity of Martılar Village that is located 1 kilometre north-east of Karayakuplu Neighbourhood. Architectural material dated to the Roman Period that were also used as spolia were encountered in the vicinity of the village. It was noted that three temple formed sarcophagi were used as basins of the fountains in the village. In addition to that, 2 water cisterns were observed in the village. Moreover, pieces of column drums were encountered in the village. Because the surface was covered with snow during the field excursion, the project route could not be investigated thoroughly in this region. However, glazed ceramic shards were encountered within the project route corridor. Basing on these facts, it is safe to say that there are an ancient settlement and a Necropolis area in the locality. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

KMO ANADOLU
OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yağcılar Historic Road Remains **Date:**
CITY: Kocaeli **Form No:** 29
PROVINCE: Körfez
VILLAGE: Yağcılar Mahallesi
SECTION: 6

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing	Easting	Northing
727035	4531324	726069	4532293	726745	4532184	725522	4532719	726697	4532028
727007	4531315	726048	4532322	726693	4532430	725502	4532696	726668	4532038
726978	4531444	726010	4532323	726672	4532389	725376	4532851	726753	4532099
726952	4531429	725990	4532410	726620	4532367	725347	4532839	726726	4532115
726911	4531649	725959	4532408	726645	4532350	725365	4532904	726775	4532190
726888	4531629	725963	4532467	726563	4532301	725338	4532887	725718	4532573
726793	4531700	725939	4532448	726585	4532278	725243	4532993	725650	4532648
726759	4531691	725822	4532589	726404	4532219	725218	4532977	725638	4532620
726709	4531847	725784	4532570	726415	4532191	725145	4533272	725548	4532663
726671	4531849	725725	4532602	726335	4532222	725118	4533257	725516	4532654
725004	4533426	726165	4532366	726329	4532191	725045	4533408	726304	4532292
725000	4533418	726106	4532337	725037	4533440	725048	4533429	726268	4532295
725015	4533398	726187	4532396						

SITE TYPE: Registered Archaeological Site

PERIOD: Roman Period

CODE: CHA003

DESCRIPTION: The NMH project route orthogonally crosses the road. In compliance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, project proposals which ensure progressing of the highway project while providing continuity of the historic road for the area, where the Archaeological Site crosses with the project route, should be prepared and submitted to the conservation board through official channels, and then included in the boards agenda and discussed.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√			

NORTH MARMARA MOTORWAY PROJECT

SECTION 4

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Demirciler
Date: 18.02.2017
CITY: Kocaeli
Form No: 30
PROVINCE: Dilovası
VILLAGE: Demirciler

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
714858	4522873	714855	4522648
714993	4522869	714811	4522660
715028	4522764	714773	4522677
714915	4522708	714734	4522746
714896	4522649	714782	4522820
714890	4522643		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located approximately 1.5 kilometre west of Demirciler Neighbourhood. Some ceramic shards and few amount of roof tile shards belonging to the Ottoman Period were observed on the surface of the site. Moreover, an illegal excavation pit dug by hoarders was noted in the north-western part of the site. Some architectural cut stone blocks were encountered nearby this excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Illegal Excavation Trench

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Uluyan 1 **Date:** 19.02.2017
CITY: Kocaeli **Form No:** 31
PROVINCE: Gebze
VILLAGE: Denizli

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
715042 715014 715007	4529958 4529999 4529960	715039 715990	4529984 4529973

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA006

DESCRIPTION: The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

KMO ANADOLU
OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Illegal Excavation Trench

This form was developed by REGIO Archaeology Team for North Marmara Motorway Project

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Uluyan 2 **Date:** 19.02.2017
CITY: Kocaeli **Form No:** 32
PROVINCE: Gebze
VILLAGE: Denizli

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
714911	4529995	714931	4530019
714863	4530166	714964	4530134
714958	4530203	715003	4530164

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. In addition to the ample amount of ceramic and roof tile shards, remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Karapanır (Molla Fenari) **Date:** 19.02.2017
CITY: Kocaeli **Form No:** 33
PROVINCE: Gebze
VILLAGE: Molla Fenari

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
713484	4531384	713431	4531509
713330	4531386	713323	4531578
713268	4531562	713240	4531533
713265	4531414	713174	4531443
713144	4531497	713163	4531558
713202	4531583		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The site is located approximately 800 metres north of Molla Fenari Neighbourhood. In addition to ceramic and roof tile shards, traces of a road and remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Archaeological Monitoring	The Decisions of the Conservation Board Should be Followed		Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
√	√				

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Ancient Road

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Cumaköy Cemetery
Date: 19.02.2017
CITY: Kocaeli
Form No: 34
PROVINCE: Gebze
VILLAGE: Cumaköy

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
711463	4532340	711311	4532102
711493	4532306	711283	4532151
711544	4532151	711288	4532205
711458	4532110		

SITE TYPE: Cemetery

PERIOD: Old/Modern Period

CODE: CHA001/CHA002

DESCRIPTION: The site is located approximately 1.5 kilometre north-east of Cumaköy Neighbourhood. In addition to modern graves, there are graves from the Ottoman Period in the cemetery. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kuzgunçay Tumuli
Date: 19.02.2017
CITY: Kocaeli
Form No: 35
PROVINCE: Gebze
VILLAGE: Cumaköy

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
710018	4532837	710009	4532831
710013	4532817	710027	4532837
710025	4532825		

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA006

DESCRIPTION: The site is located approximately 1.5 kilometre north of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View

Illegal Excavation Trench

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Akfırat III
Date: 22.02.2017
CITY: İstanbul
Form No: 36
PROVINCE: Tuzla
VILLAGE: Akfırat

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
705098	4533547	705023	4533476
704971	7533559	704924	4533632
705108	4533780	705171	4533771
705216	4533651		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the east of Akfırat Neighbourhood. The northern and southern slopes of the site are surrounded by small creeks. Ceramic and roof tile shards dated to the Medieval Period were observed on the surface of the site. In addition to that, some stones, which were most possibly used in the building construction, were discovered on the southern slope of the site. The works should be continued in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets, regarding the site. It is suggested that, any physical intervention to the site should be avoided and all activities around the site should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Siteü

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Akfırat I
Date: 21.02.2017
CITY: İstanbul
Form No: 37
PROVINCE: Tuzla
VILLAGE: Akfırat

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
701667	4534145	701993	4534132
701815	4534033	702033	4534191
701980	4534053	701950	4534268

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the west of Akfırat Neighbourhood. Ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Akfırat II
Date: 21.02.2017
CITY: İstanbul
Form No: 38
PROVINCE: Tuzla
VILLAGE: Akfırat

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
701650	4533756	701531	4534111
701603	4533663	701451	4534026
701409	4534027	701406	4533617
701331	4533849		

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located in the west of Akfırat Neighbourhood. Ample amount of ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. There is a water source, which is still in use, in its north-eastern part. The activities should be conducted in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Tepeören
Date: 21.02.2017
CITY: İstanbul
Form No: 39
PROVINCE: Tuzla
VILLAGE: Tepeören

SECTION: 4

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
700636 700564	4534002 4534061	700685 700605	4534153 4534176

SITE TYPE: Archaeological Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located within the boundaries of Tepeören Neighbourhood, Tuzla District. Ceramic shards, which are most possibly dated to the Medieval Period, were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

NORTH MARMARA MOTORWAY PROJECT

SECTION 7

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kırkçeşme Water Tunnel Line
Date:
CITY: İstanbul
Form No: 40
PROVINCE: Sultangazi
VILLAGE: Gazi

SECTION: 7

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Water Tunnel Line (Registered)

PERIOD: Late Ottoman

CODE: CHA003

DESCRIPTION: The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+900 and 69+400 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Tunnel Line

Tunnel Line

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Roman Aqueducts B
CITY: İstanbul
PROVINCE: Sultangazi
VILLAGE: Gazi

Date:
Form No: 41

SECTION: 7

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Archaeological Site (Aqueducts)

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: Su Yolu, İstanbul I Numaralı Kültür Varlıklarını Koruma Bölge Kurulu tarafından tescil aşamasındadır. Su Yoluna ait Kültür Bakanlığından elde edilen coğrafi bilgi sistemi verileri dikkate alındığında, Alibeyköy Barajının güneyindeki kısmında projenin 68+500 - 69+500 kilometreleri arasında yer aldığı belirlenmiştir. Su yolunun proje inşaat sahası ile çakıştığı kesimlerde, alana fiziki müdahalede bulunulmaması ve kurulun almış olduğu kararlar (12.01.2017 gün ve 2203 sayılı) doğrultusunda hareket edilerek ilgili Müze denetiminde tespit çalışmalarının yapılması, tespitli alanlarıın onaylı halihazırlarının çıkarılarak paftalara işlenmesi, 3 boyutlu modelleme çalışmaların yapılması ve ilgili dökümantasyonun hazırlanarak resmi yollardan kurula iletilmesi gerekmektedir. Bu çalışmaların tamamlanmasından sonra kurul tarafından alınacak resmi karara uygun olarak projenin uygulanması önemle tavsiye edilmektedir. Ayrıca alan çevresinde yürütülecek her türlü inşaat çalışması süresince arkeolojik nitelikli izleme çalışmalarının yürütülmesi de önerilmektedir.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

NORTH MARMARA MOTORWAY PROJECT

SECTION 2

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Terkos Kağıthane Water Transmission Line

Date:

CITY: İstanbul

Form No: 42

PROVINCE: Arnavutköy

VILLAGE:

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

Please check the MoCT Data

SITE TYPE: Registered Archaeological Site (Water Transmission Line)

PERIOD:

CODE: CHA003

DESCRIPTION: The water transmission line isregistered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water transmission line crosses with the project route in the northwest-southeast direction between 54+500 and 56+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: İhsaniye Cemetery **CITY:** İstanbul **PROVINCE:** Çatalca **VILLAGE:** İhsaniye	**Form No:** 43
SECTION: 2	

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
651456 651497	4566674 4566733	651519 651540	4566698 4566787

SITE TYPE: Cemetery

PERIOD: Old/ Modern

CODE: CHA001

DESCRIPTION: The cemetery is located approximately 500 m south of İhsaniye Neighbourhood, nearby 59+900 kilometre point of the project route. In addition to modern graves, there are graves dated to the Ottoman Period in the cemetery. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in accordance with the legal procedures and religious practices. It is also suggested that archaeological monitoring should be implemented in the site during the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Roma Aqueducts A
Date:
CITY: İstanbul
Form No: 44
PROVINCE: Arnavutköy
VILLAGE: Tayakadın

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The aqueducts are registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the aqueducts are located between 51+300 and 51+900 kilometre points of the project route. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Tayakadın
Date: 23.02.2017
CITY: İstanbul
Form No: 45
PROVINCE: Arnavutköy
VILLAGE: Tayakadın

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
640753	4568995	670729	4569004
640684	4569032	640724	4569096
640643	4569268	640555	4569114

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of ceramic and roof tile shards were encountered in Tayakadın Archaeological Site, which is located in Tayakadın junction (nearby 48+800 access road). Amon the ceramic shards, there are those, which are glazed and reliefed. It is required that the activities should be carried on in accordance with the official decision, which will be taken by İstanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that any physical intervention to the site should be avoided prior to the decision of the Conservation Board and all activities in the site should be implemented under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Baklalı I
Date: 24.02.2017
CITY: İstanbul
Form No: 46
PROVINCE: Arnavutköy
VILLAGE: Baklalı

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
639633	4567176	639762	4567215
639685	4567211	639599	4566983
639581	4567018	639776	4567043

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located in the southern part of the access road at 47+850 kilometres of the project route. Ample amount of glazed ceramic shards, limestone blocks that were supposed to belong to buildings and human bones, which are dated to the Byzantine Period, were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

KMO ANADOLU
OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Siteü

Archaeological Findings

This form was developed by REGIO Archaeology Team for North Marmara Motorway Project

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Baklalı II
Date: 24.02.2017
CITY: İstanbul
Form No: 47
PROVINCE: Arnavutköy
VILLAGE: Baklalı

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
639436	4567791	639497	4568064
639516	4567911	639509	4567804
639279	4567991		

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located in the northern part of the access road at the 47+850 kilometre point of the project route. Ample amount of glazed ceramic and roof tile shards were encountered on the surface of the site. In addition to that, better preserved roof tiles, pithoi shards and cut lime stone blocks were observed in the eastern part of the site. There are two fountains in the north-eastern part of the site. All information about the site will be delivered to Istanbul Regional Board for Conservation of Cultural Assets No: 1. For this reason, the project activities should be implemented in accordance with the decisions, which will be taken by the Conservation Board regarding the site. It is suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

KMO ANADOLU
OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU
YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI
ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

This form was developed by REGIO Archaeology Team for North Marmara Motorway Project

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yassıören
Date: 24.02.2017
CITY: İstanbul
Form No: 48
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 2

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
635307 635327	4565958 4565889	635157 635208	4565841 4565738

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2 kilometre south-east of Yassıören Neighbourhood. Ceramic and roof tile shards were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

NORTH MARMARA MOTORWAY PROJECT

SECTION 1

FIELD SURVEY FORMS

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Çakmak Line Historic Military Entrenchments

Date:

CITY: İstanbul

Form No: 49

PROVINCE: Arnavutköy

VILLAGE: Yassıören/Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Registered Historical Site

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The historic defence line (redoubts and Military Bunkers) was constructed during the World War II. It is registered by Istanbul Board for Conservation of Cultural Assets no: 1. The geographical information regarding the historic defence line, which is composed of the data collected by REGİO during the field surveys and the data retrieved from the related conservation board, was evaluated together. According to the studies, it was revealed out that there are 127 different Bunkers, redoubts and fortification structures located within the project impact corridor. Within the scope of this report, detailed information about the elements of this defence system are given below. All data regarding the sites will also be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Properties. In accordance with the decision no: 2203 of Istanbul Regional Board No: 1 for Conservation of Cultural Properties taken on January 12th 2017 regarding the historic defence line, it is required that any physical intervention around the section where the it crosses with the project route must be avoided; approved current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√	√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yassıören II
Date: 24.02.2017
CITY: İstanbul
Form No: 50
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
635035 635131	4564929 4565021	634886 634895	4565015 4565094

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 1 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 51
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633494 633496	4563681 4563684	633499 633500	4563682 4563685

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 2 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 52
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633530 633537	4563608 4563608	633536 633529	4563602 4563601

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker3 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 53
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633528 633536	4563545 4563544	633534 633529	4563534 4563534

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker4 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 54
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633510 633506	4563473 4563473	633505 633512	4563467 4563466

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker5 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 55
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633109 633108	4563791 4563796	633102 633104	4563797 4563791

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker6 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 56
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633133 633136	4563745 4563737	633620 633136	4563744 4563754

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker7 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 57
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633144 633139	4563711 4563710	633141 633145	4563703 4563703

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker8 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 58
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633175 633179	4563632 4563633	633182 633177	4563628 4563625

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş Military Shooting Range **Date:** 24.02.2017
CITY: İstanbul **Form No:** 59
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633048 633067	4563293 4563234	633256 633263	4563438 4563361

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Shooting Range, which is thought to be a part of the Çakmak Line. It is approximately in the sizes of 150x80 metre. There is a stairway and a stone wall attached to this stairway in the upper part of the shooting range. It is suggested that the decisions that will be made or have been made by the Conservation Board should be followed. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker9 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 60
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633006 633000	4563413 4563409	633002 633007	4563401 4563402

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker10 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 61
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633022 633028	4563391 4563389	633021 633021	4563401 4563401

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker11 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 62
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
633072 633066	4563225 4563223	633065 633062	4563226 4563229

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker is currently demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker12 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 63
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632934 632929	4563374 4563386	632919 632923	4563380 4563369

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 25 square meters and polygonal shaped. The frame of the Military Bunker is entirely built with concrete. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker13 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 64
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632886 632877	4563351 4563348	632875 632889	4563339 4563339

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker14 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 065
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632886 632877	4563330 4563326	632883 632890	4563319 4563323

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker15 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 66
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
640753	4568995	670729	4569004
640684	4569032	640724	4569096
640643	4569268	640555	4569114

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA005

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker16 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 67
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632953 632960	4563175 4563178	632961 632954	4563171 4563167

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker17 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 68
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632960 632957	4563126 4563118	632961 632970	4563114 4563119

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Different from other Bunkers, the Military Bunker is in triangular shape and has larger window openings. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker18 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 69
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632981 632988	4563099 4563095	632983 632978	4563092 4563094

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker19 **Date:** 24.02.2017
CITY: İstanbul **Form No:** 70
PROVINCE: Arnavutköy
VILLAGE: Yassıören

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632997 632999	4563095 4563091	633003 633001	4563093 4563095

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş
Date: 24.02.2017
CITY: İstanbul
Form No: 71
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
632761 632840	4563181 4563182	632849 632757	4563148 4563128

SITE TYPE: Archaeological Potantial Site

PERIOD: Late Ottoman Period

CODE: CHA005

DESCRIPTION: Sporadic ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the surface of the site. These archaeological materials might be transported here from another site via soil erosion etc. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş II
Date: 25.02.2017
CITY: İstanbul
Form No: 72
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631879	4562298	631894	4562169
631957	4562254	631804	4562138
631790	4562289	631860	4562110

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.7 kilometre north-east of Baklalı Neighbourhood. ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the top of the site. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker20 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 73
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631680 631678	4562008 4562004	631672 631674	4562007 4562001

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Nakkaş III
Date: 25.02.2017
CITY: İstanbul
Form No: 74
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631633 631600 631584	4561917 4561952 4561793	631560 631519	4561908 4561895

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1.5 kilometre north-east of Baklalı Neighbourhood. Ceramic and roof tile shards and some lime stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is suggested that any physical intervention to the site should be avoided during the construction activities and archaeological monitoring should be conducted in this location throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker34 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 75
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631861 631861	4561751 4561755	631856 631855	4561752 4561756

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker35 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 76
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631742 631741	4561666 4561677	631732 631730	4561677 4561664

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

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General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker21 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 77
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631441 631444	4561411 4561411	631444 631441	4561407 4561407

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Örenbayır
Date: 25.02.2017
CITY: İstanbul
Form No: 78
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631319	4561340	631563	4561063
631294	4561284	631613	4561198
631331	4561152	631674	4561280
631333	4561044	631703	4561382

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The archaeological site is located 1 kilometre east of Nakkaş Neighbourhood. Ceramic, roof tile, terracotta water pipe and glass bracelet shards and some architectural cut lime stone blocks, which may be dated to the Byzantine Period, were observed on the surface of the site. All information about the site will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker33 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 79
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631779 631780	4561194 4561191	631782 631776	4561190 4561188

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker32 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 80
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631772 631775	4561173 4561174	631776 631773	4561171 4561169

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker31 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 81
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631724	4561117	631718	4561117
631723	4561121	631719	4561115

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker30 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 82
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631711 631712	4561102 4561104	631709 631711	4561104 4561110

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. Its sizes are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker22 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 83
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631340 631345	4560949 4560950	631338 631343	4560957 4560959

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 4x3m. The Military Bunker is "L" shaped. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker29 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 84
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631681 631683	4560903 4560902	631682 631677	4560894 4560892

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker28 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 85
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631639 631646	4560863 4560865	631648 631639	4560863 4560858

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker27 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 86
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631525 631528	4560805 4560804	631529 631523	4560800 4560799

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker26 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 87
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631511 631509	4560797 4560794	631514 631514	4560791 4560794

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker23 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 88
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631396 631399	4560766 4560769	631402 631399	4560764 4560762

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker24 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 89
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631380 631385	4560745 4560742	631384 631379	4560740 4560741

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker25 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 90
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631369 631365	4560736 4560737	631367 631372	4560740 4560738

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker38 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 91
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631592 631601	4560672 4560675	631606 631598	4560666 4560661

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker39 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 92
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631612 631607	4560636 4560640	631606 631601	4560636 4560635

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker40 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 93
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631604 631610	4560614 4560616	631612 631606	4560610 4560607

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker41 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 94
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631618 631625	4560586 4560589	631629 631619	4560589 4560579

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker45 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 95
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631128 631137	4560376 4560384	631144 631134	4560360 4560356

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker44 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 96
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631156 631145	4560331 4560332	631143 631152	4560340 4560345

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker43 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 97
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631176 631169	4560306 4560318	631158 631162	4560314 4560305

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker42 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 98
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631186 631173	4560278 4560277	631167 631181	4560288 4560291

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The gaps of the frame are built with stone masonry. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker46 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 99
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630863 630892	4559918 4559901	630900	4559945

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From Bunker

Koruganın İç Mekânından Genel Görünüm

Koruganın İç Mekanda Bulunan Atış Planı

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Historic Bridge on Yeşilbayır – Nakkaş Road

Date: 25.02.2017

CITY: İstanbul

Form No: 100

PROVINCE: Arnavutköy

VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631161	4559616	631174	4559603
631157	4559612	631170	4559597

SITE TYPE: Historical/Other

PERIOD: 19-20. Century

CODE: CHA003

DESCRIPTION: This well preserved, historic, arched bridge is located 1 kilometre south of Nakkaş Neighbourhood,within the construction impact area. The bridge, which was constructed in the Roman Period is stone masonry. Its length is around 14,5 m and width is 4,61 m. The arches of the bridge are in the form of single-centred semicircles. It is a part of the historic road network, named "Via Egnatia", which was most possibly constructed by Emperor Constantine in the first half of the 4th century CE and connected İstanbul (ancient Constantinople) with Europe. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View

General View

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker47 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 101
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630694 630717	4559613 4559625	630729 630707	4559603 4559589

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker48 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 102
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630597 630600	4559452 4559452	630600 630597	4559456 4559456

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker49 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 103
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630630 630625	4559353 4559342	630634 630641	4559338 4559347

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker50 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 104
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630580 630580	4551431 4559434	630575 630574	4559433 4559429

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and its gaps were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker51 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 105
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630561 630557	4559397 4559392	630531 630554	4559394 4559399

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker52 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 106
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630509 630513	4559364 4559361	630505	4559358

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker53 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 107
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630475 630481	4559363 4559361	630479 630473	4559357 4559360

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker54 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 108
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630450 630460	4559434 4559440	630464 630456	4559434 4559428

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker55 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 109
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630454 630458	4559473 4559475	630461 630457	4559472 4559470

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Yeşilbayır
Date: 25.02.2017
CITY: İstanbul
Form No: 110
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630383 630483	4558526 4558554	630504 630412	4558477 4558468

SITE TYPE: Archaeological Site

PERIOD: Ottoman Period

CODE: CHA005

DESCRIPTION: The site is located 2 km south of Nakkaş Neighbourhood. Ample amount of ceramic and roof tile shards and architectural cut lime stone blocks, which may be dated to the Ottoman Period, were observed on the surface of the site. It was revealed out that the site stretches through the slopes and most possibly belonged to the Ottoman Period. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker62 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 111
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631618 631619	4557570 4557564	631624 631624	4557565 4557569

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and the gaps of the frame were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker61 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 112
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631595 631601	4557547 4557548	631602 631597	4557553 4557553

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker60 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 113
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631582 631584	4557498 4557495	631588 631588	4557496 4557500

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker59 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 114
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631581 631585	4557478 4557470	631582 631576	4557468 4557473

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker58 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 115
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631585 631592	4557435 4557428	631591 631584	4557417 4557422

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker57 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 116
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
631602 631588	4557305 4557290	631610 631618	4557274 4557292

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√		√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Savaşçı Fountain **Date:** 25.02.2017
CITY: İstanbul **Form No:** 117
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
630048 630043	4558892 4558900	630051 630045	4558899 4558904

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The historic fountain is located 2 kilometres south-west of Nakkaş Neighbourhood. The fountain was built on a water spring and bears the construction date and the name of the commissioner. Accordingly, the fountain was built by Zeki Sidal in 1942. In addition to these inscriptions, the fountain also bears the inscription of "Warrior's Fountain". The fountain is constructed with concrete rubble stones. All information about the fountain will be delivered to Istanbul Regional Board no 1 for Conservation of Cultural Assets. Therefore, the project activities around the fountain should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
	√	√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Front side

General View From the Back side

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker63 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 118
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629995	4559023	629991	4559026
629995	4559027	629991	4559020

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker64 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 119
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629789 629785	4559015 4559008	629792 629795	4559004 4559011

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker74 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 120
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629783 629796	4558981 4558973	629801 629789	4558980 4558987

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker65 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 121
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629764 629761	4559039 4559044	629755 629758	4559042 4559033

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. Tjhe Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker66 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 122
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629749 629745	4559041 4559037	629737 629741	4559042 4559050

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker68 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 123
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629748 629752	4559013 4559003	629760 629754	4559008 4559016

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker71 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 124
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629760 629773	4558974 4558967	629769 629755	4558960 4558968

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker76 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 125
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629768 629773	4558905 4558903	629775 629771	4558909 4558910

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker77 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 126
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629759 629754	4558887 4558888	629759 629763	4558875 4558875

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker75 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 127
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629735 629751	4558909 4558902	629751 629755	4558907 4558915

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker67 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 128
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629676 629677	4559085 4559091	629664 629663	4559099 4559086

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The structure is a Military Bunker, which belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker91 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 129
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629627 629633	4559166 4559173	629639 629632	4559168 4559162

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. The Bunker is in triangular shape. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker69 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 130
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629623 629618	4559085 4559082	629619 629613	4559088 4559087

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker70 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 131
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629608 629606	4559087 4559089	629598 629601	4559084 4559081

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker78 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 132
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629704 629699	4558841 4558845	629693 629696	4558839 4558935

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker79 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 133
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629716 629721	4558797 4558793	629716 629709	4558786 4558792

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker72 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 134
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629595 629599	4559039 4559046	629595 629590	4559049 4559045

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker73 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 135
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629547	4558993	629553	4558999
629551	4558992	629547	4559000

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Vaulted Structure **Date:** 25.02.2017
CITY: İstanbul **Form No:** 136
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629579 629600	4558891 4558876	629557 629584	4558870 4558850

SITE TYPE: Historical/Other

PERIOD: 19-20. Century

CODE: CHA003

DESCRIPTION: The structure is located 2 kilometres south-west of Nakkaş Neighbourhood. It is placed at the 34+000 kilometre point of the project route, within the boundaries of the construction area. The structure appears as a little hill, covered with soil, in the plain land. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General Wiew

Detail From Entrance

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker80 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 137
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629599 629601	4558793 4558793	629606 629603	4558797 4558799

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker81 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 138
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629613 629615	4558776 4558775	629614 629610	4558768 4558772

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker83 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 139
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629614 629617	4558728 4558724	629625 629621	4558728 4558732

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker90 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 140
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629481 629475	4559066 4559069	629477 629484	4559073 4559074

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker82 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 141
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629599 629599	4558727 4558721	629604 629604	4558722 4558728

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker92 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 142
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629447 629443	4559059 4559061	629439 629444	4559057 4559054

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line.The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker93 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 143
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629434 629425	4559037 4559041	629421 629432	4559035 4559032

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker94 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 144
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629396 629398	4559053 4559058	629393 629390	4559060 4559055

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker88 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 145
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629470 629469	4548902 4548897	629477 629476	4548896 4548903

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker89 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 146
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629431 629430	4558988 4558979	629422 629426	4558982 4558991

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker84 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 147
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629507 629514	4558822 4558818	629511 629503	4558811 4558816

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker85 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 148
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629492 629503	4558856 4558851	629497 629484	4558840 4558848

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 5x5m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

View From the Bunker Entrance

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker86 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 149
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629460 629455	4558886 4558883	629453 629458	4558890 4558892

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker87 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 150
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629448 629443	4558901 4558904	629440 629443	4558901 4558897

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker95 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 151
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629361 629359	4559028 4559031	629354 629354	4559029 4559026

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker96 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 152
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629350 629353	4559001 4558996	629349 629343	4558992 4558995

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m.. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker102 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 153
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629546 629555	4558616 4558608	629552 629544	4558602 4558607

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker100 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 154
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629459 629464	4558781 4558781	629467 629462	4558786 4558789

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is in the "T" form. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker101 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 155
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629456 629462	4558763 4558760	629463 629456	4558754 4558753

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker99 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 156
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629438 629440	4558769 4558765	629444 629444	4558766 4558770

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker97 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 157
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629342 629337	4558970 4558974	629341 629346	4558978 4558973

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker98 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 158
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629145 629129	4558832 4558845	629119 629140	4558827 4558819

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. Air ventilation channels were observed inside the Bunker. There is a trench wall constructed with rubble stones for defensive purposes in the north side of the Bunker. This trench stretches to the north for approximately 3 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker103 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 159
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629142	4558543	629129	4558550
629146	4558538	629119	4558534
629140	4558528	629130	4558523
629147	4558488	629135	4558474

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: The Military Bunker is located 2.5 kilometres southwest of Nakkaş Neighbourhood. The frame of the Military Bunker was built entirely with concrete. There are architectural configurations for installing cannons and machine guns inside the building. There is a reinforced stone wall trench in the south of the building, which is constructed for defensive purposes. This trench heads to the south for approximately 2.5 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

Stone wall trench in the south of the building

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker104 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 160
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
629019 629014	4558514 4558518	629009 629015	4558512 4558508

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The Military Bunker is "L" shaped. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker108 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 161
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628910 628907	4558757 4558763	628901 628904	4558762 4558754

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker105 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 162
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628938 628940	4558589 4558592	628938 628935	4558593 4558589

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker107 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 163
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628929 628933	4558605 4558605	628933 628929	4558609 4558609

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker106 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 164
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628925 628922	4558595 4558595	628919 628926	4558601 4558602

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. The frame of the Military Bunker, which is "T" shaped, was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker110 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 165
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628930 628934	4558533 4558529	628938 628935	4558533 4558538

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker109 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 166
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628921 628622	4558546 4558539	628915 628914	4558539 4558548

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker111 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 167
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628906 628903	4558528 4558530	628902 628904	4558527 4558525

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belong to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker112 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 168
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628855 628849	4558494 4558495	628851 628853	4558490 4558490

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker113 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 169
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628834 628831	4558539 4558546	628825 628826	4558545 4558539

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker114 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 170
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628777 628773	4558492 4558490	628773 628775	4558492 4558495

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker115 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 171
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628745 628743	4558492 4558495	628739 628742	4558491 4558488

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker119 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 172
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628642 628642	4558631 4558627	628652 628653	4558632 4558624

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker117 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 173
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628676 628678	4558548 4558545	628678 628680	4558550 4558549

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker116 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 174
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628675 628672	4558518 4558523	628675 628668	4558524 4558518

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker118 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 175
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628620 628618	4558529 4558533	628614 628616	4558532 4558529

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker120 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 176
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628428 628426	4558627 4558639	628436 628436	4558635 4558632

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 6x6m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker121 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 177
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628418 628414	4558576 4558587	628399 628396	4558588 4558572

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 4x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker122 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 178
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628378 628376	4558437 4558436	628374 628374	4558436 4558438

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker123 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 179
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628306 628304	4558375 4558375	628303 628305	4558378 4558379

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker124 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 180
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628284 628287	4558300 4558298	628289 628288	4558301 4558303

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker that belongs to to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker126 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 181
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628302 628305	4558268 4558267	628303 628299	4558263 4558263

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker125 **Date:** 25.02.2017
CITY: İstanbul **Form No:** 182
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628275 628279	4558272 4558274	628277 628276	4558269 4558271

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

General View From Bunker

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Military Bunker 127 and Parapet **Date:** 26.02.2017
CITY: İstanbul **Form No:** 183
PROVINCE: Arnavutköy
VILLAGE: Nakkaş

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
628173	4558167	628255	4558700
628163	4558168	628263	4558699
628163	4558175	628172	4558180
628177	4558179		

SITE TYPE: Historical/Other

PERIOD: 20. Century

CODE: CHA003

DESCRIPTION: It is a Military Bunker, which is a part of the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. Inside the Bunker, which is triangular, air ventilation channels are observable. There are configurations, which allow installing of canons and machine guns inside the building. There is a parapet heading in the north-south direction for approximately 2 km in the north of the Bunker. There are niches with approximately 2 m intervals on the western facade of this wall. This entrenchment wall is located within the project construction corridor. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is strongly suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From Bunker

Military Bunker& Parapet

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Umurtepe Kartepe 2nd Degree Archaeological Site

Date:

CITY: İstanbul

Form No: 184

PROVINCE: Çatalca

VILLAGE:

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing	Easting	Northing
617157	4558192	617692	4558433	617627	4557863
617126	4558252	617747	4558369	617592	4557846
617088	4558287	617780	4558320	617502	4557767
617087	4558330	617801	4558278	617419	4557750
617144	4558385	617812	4558201	617357	4557761
617171	4558457	617842	4558178	617265	4557820
617217	4558541	617865	4558143	617207	4557934
617284	4558568	617855	4558110	617181	4558027
617358	4558577	617813	4558078	617177	4558137
617479	4558561	617775	4557969		
617563	4558505	617667	4557895		

SITE TYPE: Registered Archaeological Site

PERIOD:

CODE: CHA005

DESCRIPTION: The site was registered as a 2nd Degree Archaeological Site by İstanbul Regional Board no: 2 for Conservation of Cultural Assets in accordance with the decision no: 4540 of the conservation Board, which was taken on August 21st 1997. According to the decision no 2203-II of Istanbul Regional Board no: 2 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kara Murat **Date:** 27.02.2017
CITY: İstanbul **Form No:** 185
PROVINCE: Çatalca
VILLAGE: İnceğiz

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
616197	4558219	615956	4558025
615996	4558274	615846	4558221
616199	4558184	615645	4558216
616060	4558070	615620	4558052

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gedik Ali Paşa
Date: 27.02.2017
CITY: İstanbul
Form No: 186
PROVINCE: Silivri
VILLAGE: Kadıköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
614728	4557838	614598	4557753
614733	4557722	614543	4557928
614682	4557929	614524	4557820

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Kadıköy
Date: 27.02.2017
CITY: İstanbul
Form No: 187
PROVINCE: Silivri
VILLAGE: Kadıköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
613301 613207	4556953 4556805	613394 613289	4556900 4556755

SITE TYPE: Archaeological Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is most probably a settlement from the Byzantine Period. Ample amount of ceramic and roof tile shards, terracotta plates, and grinding stone pieces were encountered on the surface of the site. In addition to that, cut stone blocks and architectural elements made of marble, which belonged to the buildings, were observed. It is suggested that any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√			√	

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√	√		

FIELD SURVEY FORM

General View From the Siteü

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Gazitepe
Date: 27.02.2017
CITY: İstanbul
Form No: 188
PROVINCE: Silivri
VILLAGE: Gazitepe

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
612342 612430	4556564 4556532	612316 612399	4556515 4556453

SITE TYPE: Archaeological Potantial Site

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The site is located 2.5 kilometres north-east of Kadıköy Neighbourhood. Sporadically spread ceramic shards from the Byzantine Period were observed on the surface of the site. It is strongly suggested all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
		√			

FIELD SURVEY FORM

General View From the Site

Archaeological Findings

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Anastasian Walls
Date: 28.02.2017
CITY: İstanbul
Form No: 189
PROVINCE: Silivri
VILLAGE: Fenerköy

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing

The documentation still continues in order to understand the extent of the archaeological site.

SITE TYPE: Sur Duvarı

PERIOD: Byzantine Period

CODE: CHA005

DESCRIPTION: The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea. According to the decision no 2203-II of Istanbul Regional Board no: 1 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, during the Conservation Boards decision making process, it is strongly suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

General View From the Site

General View From the Site

KMO ANADOLU OTOYOL İŞLETME A.Ş.
AVRUPA OTOYOLU YATIRIM VE İŞLETME A.Ş.
MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ

REGIO

FIELD SURVEY FORM

SITE NAME: Küçükkılıç Tumulus **Date:** 28.02.2017
CITY: İstanbul **Form No:** 190
PROVINCE: Silivri
VILLAGE: Küçük Kılıç

SECTION: 1

GPS COORDINATES (WGS 84-6°) UTM: 35

Easting	Northing	Easting	Northing
600049	4553149	600054	4553103
600033	4553139	600065	4553111
600024	4553121	600072	4553124
600033	4553104	600070	4553134

SITE TYPE: Archaeological Site

PERIOD: Roman Period

CODE: CHA005

DESCRIPTION: The structure is most probably a Thracian Tumulus. Illegal excavation trenches in various sizes were observed on its surface. Around the illegal excavation trench on the top, pieces of cut stone blocks were encountered. All information regarding the structure will be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

LOCATION OF SITES IN WITHIN THE PROJECT AREA

On the Main Axis	On the Access Road	Within Constraction Corridor of the Motorway Route	Outside the Constraction Corridor, Within the 400 m. Impact Corridor	Outside the Impact Corridor
√		√		

SUGGESTIONS

Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed
	√	√	√		

FIELD SURVEY FORM

General View From the Tumulus

Illegal Excavations on the Tumulus

Archaeological Findings

Annex 4 – Archeological Baseline Table

LOCATION OF SITES										LOCATION OF SITES IN WITHIN THE PROJECT AREA					SUGGESTIONS						TYPE OF THE ARCHAEOLOGICAL TRACES			
					Registration Status																			
No.	GIS CODE	NAME OF THE SITE	Field Survey Data	Information from the Ministry	Registered	Unregistered	City	Province/Village/ Neighborhood	Approximate Distance (km)	On the Main Axis	On the Access Road	Within Construction Corridor of the Motorway Route	Outside the Construction Corridor, Within the 400 m. Impact Corridor	Approximate Distance to the Construction Impact Area	Test or Salvage Excavation	The Decisions of the Conservation Board Should be Followed	Archaeological Monitoring	Physical Intervention Should be Avoided	Removal to Another Place	No Precaution Needed	Ceramic Shards	Architectural Remains	Other (Bone, Stone Tool, etc.)	DESCRIPTION OF THE SITE
Section 6																								
1	CHA005	Osmanbey Potential Archaeological Site	x			x	Sakarya	Akyazı/Osmanbey	250+520-246+827	x		x		0			x				x		x	The site is located at the south of Osmanbey and Kızılcıkorman villages and between 250+520 and 246+827 kilometre points of the project route. It was observed that the surface finds spread to a wide area. Surface finds include glazed ceramic shards from the Late Ottoman Period and several metal nails. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
2	CHA005	Çayırlar Locality Archaeological Site	x			x	Sakarya	Adapazarı/Budaklar	238+720-239+127	x	x	x		0			x				x		x	The site is located 2 km east of Budaklar Village and between the 238+720 and 239+127 kilometre points of the project route. Various glazed and non-glazed ceramic shards and two glass bracelets from the Byzantine Period were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
3	CHA005	Budaklar Potential Archaeological Site	x			x	Sakarya	Adapazarı/Budaklar	236+747-236+850	x		x		0			x				x			The site is located between the 236+747 and 236+850 kilometre points of the project route. Some ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
4	CHA005	Çelebiler Potential Archaeological Site	x			x	Sakarya	Adapazarı/Çelebiler	232+970-233+550	x		x		0			x				x			The site is located within the boundaries of Çelebiler Village. Ceramic shards, which might be dated to the Late Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
5	CHA001	Kömürlük Modern Cemetery	x			x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 1+500		x		x	1			x	x					x	The site is a family cemetery located within the boundaries of Kömürlük Village and belongs to "Türk" family. It is located between the point 232+000 of the project route and 1+500 kilometre point of the access road heading to Poyrazlar Village in the north. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in compliance with legal procedures and religious practices and archaeological monitoring should be conducted around the site throughout the construction activities.
6	CHA005	Kömürlük Potential Archaeological Site	x			x	Sakarya	Adapazarı/Kömürlük	232+000 access road km 0+250-1+150		x	x		0			x				x			The site is located within the boundaries of Kömürlük Village and on the access road starting at the 232+000 kilometre point of the project route and heading to Poyrazlar Village. Ceramic shards, which might be dated to the Ottoman Period, were observed on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
7	CHA005	Besihane Potential Archaeological Site	x			x	Sakarya	Adapazarı/Çamyolu	229+000-239+450	x		x		0			x				x			The site is located 500 m southeast of Çamyolu Village and between 229+450 and 229+000 kilometre points of the project route. Sporadic ceramic shards, which are supposed to belong to the Late Ottoman Period, were encountered in the plains in the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
8	CHA005/004	Azizbey Hill	x			x	Sakarya	Adapazarı/Çamyolu	226+550-226+670	x			x	17			x	x			x	x		Some ceramic and roof tile shards and foundation remains of a rectangular building which may be dated to the Late Ottoman Period were encountered on the site surface. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
9	CHA003	Süloğlu Bridge	x			x	Kocaeli	İzmit/Akmeşe	214+700	x			x	58			x	x				x		The Bridge is located 4 kilometres west of Akmeşe Atatürk neighbourhood and nearby the provincial borders of Kocaeli and Sakarya. Some part of the piers of the bridge is demolished and sunken in the creek. Remains of a wall belonging to the bridge were discovered in the northern bank of the creek. On the other hand, remains of a retaining wall, which was possibly built to decrease the magnitude of flooding, were discovered on the southern bank of the creek. There is a modern bridge approximately 2 m above the level of bridge. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any conservation or research decision regarding the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
10	CHA005	Deredağ Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	213+750-213+950	x		x		0			x				x			The site is a potential archaeological site. It is located 4 km west of Akmeşe Atatürk neighbourhood. Some ceramic shards, which ma be dated to the Late Ottoman Period, were discovered on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
11	CHA005	Adaparmak Ridge Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	212+300-212+600	x	x		x	100			x				x			The site is located 2,5 kilometres south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
12	CHA005	Kabaklı Locality Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	211+950-212+150	x		x		0			x				x			The site is located 1 kilometre south-east of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
13	CHA005	Köprübaşı Hill Potential Archaeological Site	x			x	Kocaeli	İzmit/Akmeşe	210+500-210+550	x		x		0			x				x			The site is located 1 kilometre south of Akmeşe Atatürk neighbourhood. Plenty of roof tile shards and small amount of ceramic shards dated to the Ottoman Period were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
14	CHA005	Mancarcı Locality Potential Archaeological Site	x			x	Kocaeli	İzmit/Mancarcı	199+560-199+780	x		x		0			x				x			The site is a potential archaeological site. It is located 1 km south-west of Mancarcı Neighbourhood and 1 km north-east of Bayraktar Neighbourhood. Plenty of ceramic and roof tile shards were discovered on the site surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
15	CHA005/ CHA006	Gedikli 1 Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	198+950-199+100	x		x		0			x				x			The site covers three different hills located 500 m north of Bayraktar Neighbourhood. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
16	CHA005	Gedikli 2 Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	198+600-198+810	x		x		0	x	x					x			The site covers three different hills located 500 m north of Bayraktar Neighbourhood. Plenty of roof tile and ceramic shards were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
17	CHA005	Biberoğlu Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	197+970-198+060	x		x		0	x	x					x			The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
18	CHA005	İğrikdz Creek Archaeological Site	x			x	Kocaeli	İzmit/Bayraktar	197+560-197+640	x			x	2			x	x			x			The site is located 1,5 kilometre north-west of Bayraklı Neighbourhood. Plenty of archaeological ceramic bowl and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
19	CHA005/ CHA006	Doruk Archaeological Site	x			x	Kocaeli	İzmit/Eseler	195+700-196+000	x			x	32			x	x			x		x	The site is located 200 metre north of Eseler Neighbourhood. Glazed ceramics and stone blocks, which might be grave caps, from the Late Ottoman and Byzantine Periods were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
20	CHA005	Kesimahlar Archaeological Site	x			x	Kocaeli	İzmit/Çayırköy	195+000 access road km 1+000		x	x		7			x	x			x	x	x	The site is located 1.5 kilometre east of Ataturk Neighbourhood, west of Kesimahlar Creek and nearby the 1st kilometre of the access road which is located nearby 195+000 kilometre point of the project route. Ample amount of archaeological ceramic and roof tile shards were discovered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
21	CHA005/ CHA006	Solaklar Archaeological Site	x			x	Kocaeli	İzmit/Eseler	193+460-194+000	x		x		0	x	x					x		x	The site is located 500 metre southwest of Durhasan Village. Glazed and non-glazed ceramic shards and roof tile shards were observed on the surface of the site. In addition to that, some rubble stones belonging to buildings, human bones and iron droos pieces were encountered. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
22	CHA005	Çayırköy Archaeological Site	x			x	Kocaeli	İzmit/Çayırköy	192+300-192+500	x			x	25			x	x			x			The site is located 1.3 kilometre east of Çayırköy Neighbourhood. The archaeological materials intensely spread to a large area. Ample amount of terracotta water pipe and ceramic shards were encountered within the site. The ceramic shards also include glazed ceramic shards. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
23	CHA005	Kocaeli KVKBKM Registered Site No:1		x	x		Kocaeli	İzmit/Çayırköy	192+000 on the access road		x		x	34			x	x			x	x	x	It is the registered water channel remains. In accordance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, the water channel remains should be removed outside the boundaries of expropriated land of the Highway project.
Section 5																								
24	CHA005	Toylar Archaeological Site	x			x	Kocaeli	Körfez/Toylar	174+150-174+370	x		x		0			x				x		x	The archaeological site is located 2 kilometres south-east of Toylar neighbourhood. Glazed and non-glazed ceramic and roof tile shards and cut stone blocks belonging to buildings, which are dated to the Byzantine Period, were encountered on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
25	CHA005	Sipahiler 1 Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	171+690-171+850	x		x		0	x	x					x	x		The site is located 800 metres north-east of Sipahiler Neighbourhood and 800 metres south-east of Sipahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
26	CHA005	Sipahiler 2 Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	171+220-171+330	x		x		0	x	x					x	x	x	The site is located 800 metres north-east of Sipahiler Neighbourhood and 800 metres south-east of Sipahiler Pond. Ample amount of ceramic and roof tile shards were observed in the site. On the other hand, in the western part of the site, cut stone blocks, which are supposed to belong to an architectural arrangement were observed. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
27	CHA005	Kocadere Archaeological Site	x			x	Kocaeli	Körfez/Sipahiler	170+000-170+100	x			x	87			x	x			x	x		The archaeological site is located 1.2 kilometre north-west of Sipahiler Neighbourhood. Plenty of ceramic and roof tile shards and drost pieces were encountered on the surface of the site. Among the ceramic shards, there are glazed ceramics dated to the Byzantine Period. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
28	CHA005/ CHA006	Martılar Archaeological Site	x			x	Kocaeli	Körfez/Martılar	169+000 access road km 41+750+ 42+800		x	x		0			x				x	x	x	The site is in the vicinity of Martılar Village that is located 1 kilometre north-east of Karayakuplu Neighbourhood. Architectural material dated to the Roman Period that were also used as spolia were encountered in the vicinity of the village. It was noted that three temple formed sarcophagi were used as basins of the fountains in the village. In addition to that, 2 water cisterns were observed in the village. Moreover, pieces of column drums were encountered in the village. Because the surface was covered with snow during the field excursion, the project route could not be investigated thoroughly in this region. However, glazed ceramic shards were encountered within the project route corridor. Basing on these facts, it is safe to say that there are an ancient settlement and a Necropolis area in the locality. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

29	CHA003	Yağcılar Historic Road Remains		x	x		Kocaeli	İzmit/Yağcılar Neighbourhood	161+800	x		x		0		x	x						x	The NMH project route orthogonally crosses the road. In compliance with the decision no: 2802 of Kocaeli Regional Board for Conservation of Cultural Assets taken on January 24th 2017, project proposals which ensure progressing of the highway project while providing continuity of the historic road for the area, where the Archaeological Site crosses with the project route, should be prepared and submitted to the conservation board through official channels, and then included in the boards agenda and discussed.
Section 4																								
30	CHA005	Demirciler Archaeological Site	x			x	Kocaeli	Dilovası/Demirciler	150+000 Access Road KM 1+200		x		x	75			x	x			x	x		The archaeological site is located approximately 1.5 kilometre west of Demirciler Neighbourhood. Some ceramic shards and few amount of roof tile shards belonging to the Ottoman Period were observed on the surface of the site. Moreover, an illegal excavation pit dug by hoarders was noted in the north-western part of the site. Some architectural cut stone blocks were encountered nearby this excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
31	CHA006	Uluyan 1 Archaeological Site	x			x	Kocaeli	Gebze/Denizli	149+950-150+000		x		x	60			x	x					x	The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
32	CHA005	Uluyan 2 Archaeological Site	x			x	Kocaeli	Gebze/Denizli	149+700-149+850		x	x		0			x				x	x		The site is located approximately 1 kilometre north-east of Denizli Neighbourhood. In addition to the ample amount of ceramic and roof tile shards, remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
33	CHA005	Karapınar (Molla Fenari) Archaeological Site	x			x	Kocaeli	Gebze/Molla Fenari	147+550- 147+900	x		x		0	x	x					x	x	x	The site is located approximately 800 metres north of Molla Fenari Neighbourhood. In addition to ceramic and roof tile shards, traces of a road and remains of foundation walls were observed on the surface of the site. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets. Kocaeli Regional Board for Conservation of Cultural Assets assessed this information in a meeting held on March 21st 2017. In accordance with the official decision no: 2887 of the conservation board, test and salvage excavations should be conducted in the site under the supervision of the Directorate of Kocaeli Museum. According to the results of the excavations, the conservation board will make the decision regarding the progress of the project in the site. It is suggested that the excavation works should be planned immediately and conducted with the support of NMH project and under the supervision of the Directorate of Kocaeli Museum.
34	CHA001/ CHA002	Cumaköy Cemetery	x			x	Kocaeli	Gebze/Cumaköy	145+750	x			x	1			x	x					x	The site is located approximately 1.5 kilometre north-east of Cumaköy Neighbourhood. In addition to modern graves, there are graves from the Ottoman Period in the cemetery. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
35	CHA006	Kuzgunçay Tumulus	x			x	Kocaeli	Gebze/Cumaköy	144+100	x			x	22			x	x					x	The site is located approximately 1.5 kilometre north of Denizli Neighbourhood. Due to its form, the site is considered to be a tumulus. Sporadic ceramic shards were encountered on the hill, upon which there is an illegal excavation pit. All information about the site were shared with Kocaeli Regional Board for Conservation of Cultural Assets and the Conservation Board did not take any decision regarding conservation or further research in the site. In spite of this, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
36	CHA005	Akfırat III Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	138+900-139+180	x		x		0		x	x	x			x			The site is located in the east of Akfırat Neighbourhood. The northern and southern slopes of the site are surrounded by small creeks. Ceramic and roof tile shards dated to the Medieval Period were observed on the surface of the site. In addition to that, some stones, which were most possibly used in the building construction, were discovered on the southern slope of the site. The works should be continued in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets, regarding the site. It is suggested that, any physical intervention to the site should be avoided and all activities around the site should be conducted under the supervision of an archaeologist.
37	CHA005	Akfırat I Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	135+500-135+900	x			x	5			x	x			x	x		The site is located in the west of Akfırat Neighbourhood. Ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.
38	CHA005	Akfırat II Archaeological Site	x			x	İstanbul	Tuzla/Akfırat	135+190-135+450	x		x		0		x	x	x			x	x		The site is located in the west of Akfırat Neighbourhood. Ample amount of ceramic shards and mineral drost pieces dated to the Medieval or Ottoman Period were observed on its surface. There is a water source, which is still in use, in its north-eastern part. The activities should be conducted in accordance with the official decision, which will be made by Istanbul 5th Board for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
39	CHA005	Tepeören Potential Archaeological Site	x			x	İstanbul	Tuzla/Tepeören	134+390-134+480	x	x	x		0			x				x			The site is located within the boundaries of Tepeören Neighbourhood, Tuzla District. Ceramic shards, which are most possibly dated to the Medieval Period, were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
Section 7																								
40	CHA003	Kırkçeşme Water Tunnel Line		x	x		İstanbul	Sultangazi/Gazi	68+900-69+400	x		x		0		x	x	x				x		The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+900 and 69+400 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
41	CHA005	Roman Aqueducts B		x	x		İstanbul	Sultangazi/Gazi	68+700-68+800	x		x		0		x	x	x					x	The water tunnel line is registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water tunnel line crosses with the project route in the north-south direction between 68+500 and 69+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
Section 2																								
42	CHA003	Terkos Kağıthane Water Transmission Line		x	x		İstanbul	Arnavutköy	57+600-58+850	x		x		0		x	x	x						The water transmission line isregistered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the water transmission line crosses with the project route in the northwest-southeast direction between 54+500 and 56+500 kilometre points. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
43	CHA001	İhsaniye Cemetery	x			x	İstanbul	Çatalca/İhsaniye	59+900	x		x		0		x	x	x					x	The cemetery is located approximately 500 m south of İhsaniye Neighbourhood, nearby 59+900 kilometre point of the project route. However, the Cemetery is located under the planned a viaduct. In addition to modern graves, there are graves dated to the Ottoman Period in the cemetery. It is suggested that any physical intervention to the graves should be avoided and if physical intervention is required, the graves should be removed to another place in accordance with the legal procedures and religious practices. It is also suggested that archaeological monitoring should be implemented in the site during the construction activities.
44	CHA005	Roman Aqueducts A		x	x		İstanbul	Arnavutköy/Tayakadın	51+300-51+900	x		x		0		x	x	x						The aqueducts are registered by Istanbul Board for Conservation of Cultural Assets no: 1. When the Geographical Information Systems data about the water tunnel, which was retrieved from the Ministry of Culture, is regarded, it can be deduced that the aqueducts are located between 51+300 and 51+900 kilometre points of the project route. It is required that any physical intervention around the section where the water tunnel line crosses with the project route must be avoided; the activities should be undertaken in accordance with the decisions of the conservation board (date January 12th 2017, no: 2203) under the supervision of concerning museum directorate; current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
45	CHA005	Tayakadın Archaeological Site	x			x	İstanbul	Arnavutköy/Tayakadın	48+800 access road		x	x		0		x	x	x			x			Ample amount of ceramic and roof tile shards were encountered in Tayakadın Archaeological Site, which is located in Tayakadın junction (nearby 48+800 access road). Amon the ceramic shards, there are those, which are glazed and reliefed. It is required that the activities should be carried on in accordance with the official decision, which will be taken by Istanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that any physical intervention to the site should be avoided prior to the decision of the Conservation Board and all activities in the site should be implemented under the supervision of an archaeologist.
46	CHA005	Baklalı I Archaeological Site	x			x	İstanbul	Arnavutköy/Baklalı	47+850 access road Southern Part		x		x	99			x	x			x	x	x	The site is located in the southern part of the access road at 47+850 kilometres of the project route. Ample amount of glazed ceramic shards, limestone blocks that were supposed to belong to buildings and human bones, which are dated to the Byzantine Period, were observed on its surface. It is strongly suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.
47	CHA005	Baklalı II Archaeological Site	x			x	İstanbul	Arnavutköy/Baklalı	47+850 access road Northern Part		x		x	29			x	x			x	x	x	The site is located in the northern part of the access road at the 47+850 kilometre point of the project route. Ample amount of glazed ceramic and roof tile shards were encountered on the surface of the site. In addition to that, better preserved roof tiles, pithoi shards and cut lime stone blocks were observed in the eastern part of the site. There are two fountains in the north-eastern part of the site. All information about the site will be delivered to Istanbul Regional Board for Conservation of Cultural Assets No: 1. For this reason, the project activities should be implemented in accordance with the decisions, which will be taken by the Conservation Board regarding the site. It is suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity and any physical intervention should be avoided.
48	CHA005	Yassıören Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Yassıören	43+100-43+350	x			x	177			x				x			The site is located 2 kilometre south-east of Yassıören Neighbourhood. Ceramic and roof tile shards were observed on its surface. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
Section 1																								
49	CHA003	Çakmak Line Historic Military Entrenchments		x	x		İstanbul	Arnavutköy/Yasıören, Nakkaş	42+800-32+500	x		x	x	0		x	x	x				x		The historic defence line (redoubts and Military Bunkers) was constructed during the World War II. It is registered by Istanbul Board for Conservation of Cultural Assets no: 1. The geographical information regarding the historic defence line, which is composed of the data collected by REGIO during the field surveys and the data retrieved from the related conservation board, was evaluated together. According to the studies, it was revealed out that there are 127 different Bunkers, redoubts and fortification structures located within the project impact corridor. Within the scope of this report, detailed information about the elements of this defence system are given below. All data regarding the sites will also be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Properties. In accordance with the decision no: 2203 of Istanbul Regional Board No: 1 for Conservation of Cultural Properties taken on January 12th 2017 regarding the historic defence line, it is required that any physical intervention around the section where the it crosses with the project route must be avoided; approved current state maps of identified areas should be drawn; 3D modelling works should be conducted; and related documentation should be prepared and submitted to the Conservation Board through official channels. It is strongly advised that after completion of these activities, the project should be implemented in compliance with the official decision, which will be made by the Conservation Board. It is also suggested that archaeological monitoring should be conducted during all construction activities in the site and its close vicinity.
50	CHA005	Yassıören II Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Yassıören	42+350-42+440	x		x		0			x				x	x		The site is located 1.9 kilometre south-east of Yassıören Neighbourhood. Large lime stone blocks, which might belong to architectural elements and ceramic and roof tile shards, which are most possibly dated to the Byzantine Period, were observed on the surface of the site. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
51	CHA003	Military Bunker 1	x			x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	1			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
52	CHA003	Military Bunker 2	x			x	İstanbul	Arnavutköy/Yassıören	40+500	x			x	76			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
53	CHA003	Military Bunker 3	x			x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	134			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
54	CHA003	Military Bunker 4	x			x	İstanbul	Arnavutköy/Yassıören	40+400	x			x	191			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. It was built with concrete frame and stone masonry. The stone walls are demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
55	CHA003	Military Bunker 5	x			x	İstanbul	Arnavutköy/Yassıören	40+171				x	193			x	x		x		x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
56	CHA003	Military Bunker 6	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	134			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
57	CHA003	Military Bunker 7	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	99			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
58	CHA003	Military Bunker 8	x			x	İstanbul	Arnavutköy/Yassıören	40+171	x			x	11			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

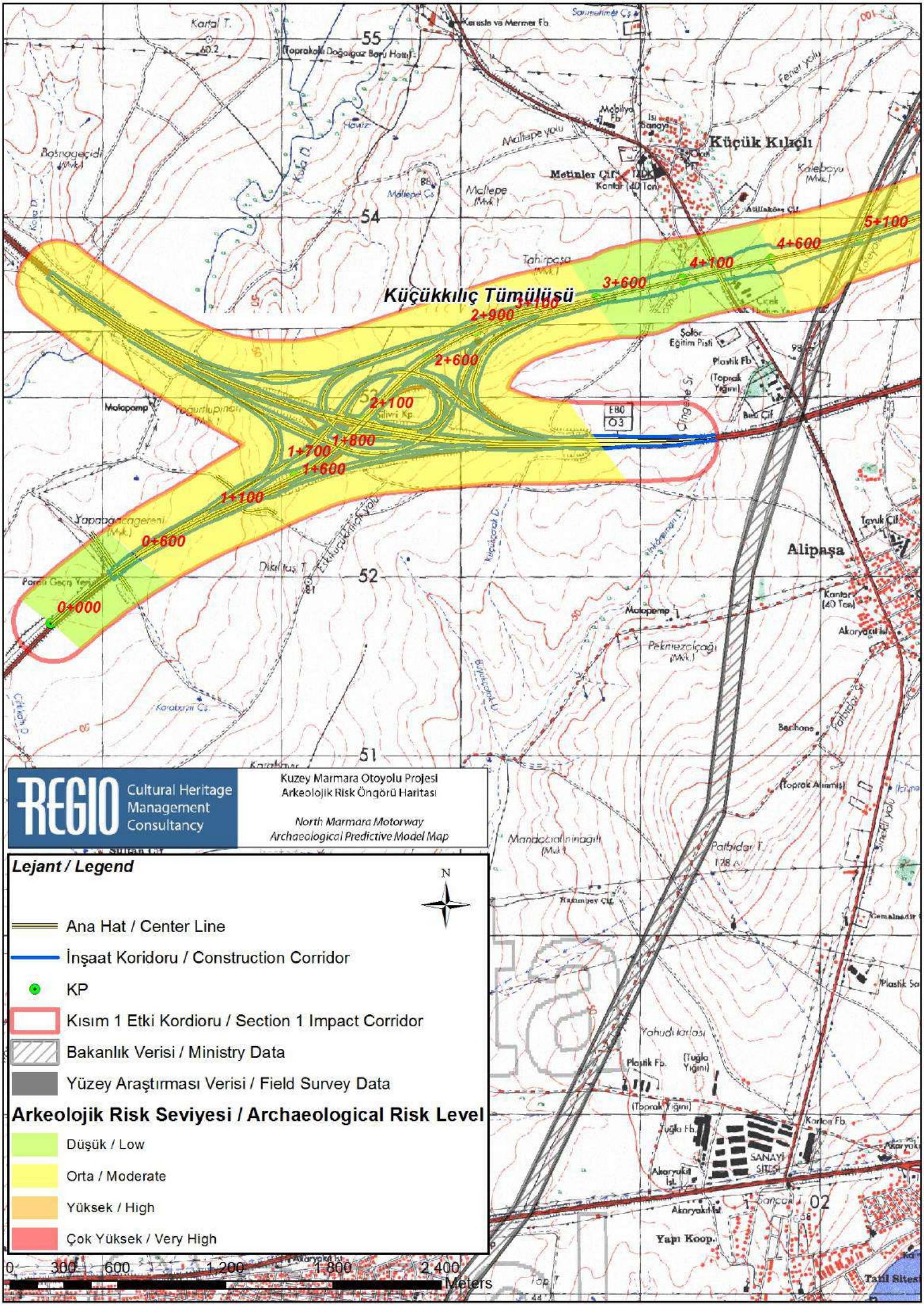
59	CHA003	Nakkaş Military Shooting Range	x			x	İstanbul	Arnavutköy/Yassıören	39+825-40+116	x		x		0		x	x	x				x		It is a Military Shooting Range, which is thought to be a part of the Çakmak Line. It is approximately in the sizes of 240x70 metre. There is a stairway and a stone wall attached to this stairway in the upper part of the shooting range. It is suggested that the decisions that will be made or have been made by the Conservation Board should be followed. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
60	CHA003	Military Bunker 9	x			x	İstanbul	Arnavutköy/Yassıören	39+863	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
61	CHA003	Military Bunker 10	x			x	İstanbul	Arnavutköy/Yassıören	39+873	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
62	CHA003	Military Bunker 11	x			x	İstanbul	Arnavutköy/Yassıören	39+850	x			x	52			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker is currently demolished. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
63	CHA003	Military Bunker 12	x			x	İstanbul	Arnavutköy/Yassıören	39+781	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 25 square meters and polygonal shaped. The frame of the Military Bunker is entirely built with concrete. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
64	CHA003	Military Bunker 13	x			x	İstanbul	Arnavutköy/Yassıören	39+726	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
65	CHA003	Military Bunker 14	x			x	İstanbul	Arnavutköy/Yassıören	39+720	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
66	CHA003	Military Bunker 15	x			x	İstanbul	Arnavutköy/Yassıören	39+750	x			x	4			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
67	CHA003	Military Bunker 16	x			x	İstanbul	Arnavutköy/Yassıören	39+740	x			x	24			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
68	CHA003	Military Bunker 17	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	72			x	x				x		It is a Military Bunker belonging to the Çakmak Line. Different from other Bunkers, the Military Bunker is in triangular shape and has larger window openings. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
69	CHA003	Military Bunker 18	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	114			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
70	CHA003	Military Bunker 19	x			x	İstanbul	Arnavutköy/Yassıören	39+660	x			x	122			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
71	CHA005	Nakkaş Potential Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	39+500-39+600	x		x		0			x				x			Sporadic ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the surface of the site. These archaeological materials might be transported here from another site via soil erosion etc. It is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
72	CHA005	Nakkaş II Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	38+150-38+330	x			x	50			x	x			x			The archaeological site is located 1.7 kilometre north-east of Baklalı Neighbourhood. ceramic and roof tile shards, which are dated to the Byzantine Period, were observed on the top of the site. It is suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
73	CHA003	Military Bunker 20	x			x	İstanbul	Arnavutköy/Nakkaş	38+000	x			x	179			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
74	CHA005	Nakkaş III Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	37+780-37+900	x			x	176			x	x			x			The archaeological site is located 1.5 kilometre north-east of Baklalı Neighbourhood. Ceramic and roof tile shards and some lime stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is suggested that any physical intervention to the site should be avoided during the construction activities and archaeological monitoring should be conducted in this location throughout the construction activities.
75	CHA003	Military Bunker 34	x			x	İstanbul	Arnavutköy/Nakkaş	37+850	x			x	8			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
76	CHA003	Military Bunker 35	x			x	İstanbul	Arnavutköy/Nakkaş	37+700	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
77	CHA003	Military Bunker 21	x			x	İstanbul	Arnavutköy/Nakkaş	37+400	x			x	260			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
78	CHA005	Örenbayır Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	36+980-37+360	x		x		0		x	x	x			x	x	x	The archaeological site is located 1 kilometre east of Nakkaş Neighbourhood. Ceramic, roof tile, terracotta water pipe and glass bracelet shards and some architectural cut lime stone blocks, which may be dated to the Byzantine Period, were observed on the surface of the site. All information about the site will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
79	CHA003	Military Bunker 33	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	112			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
80	CHA003	Military Bunker 32	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	114			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
81	CHA003	Military Bunker 31	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	77			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
82	CHA003	Military Bunker 30	x			x	İstanbul	Arnavutköy/Nakkaş	37+250	x			x	75			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. Its sizes are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
83	CHA003	Military Bunker 22	x			x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	124			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 4x3m. The Military Bunker is "L" shaped. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
84	CHA003	Military Bunker 29	x			x	İstanbul	Arnavutköy/Nakkaş	37+000	x			x	115			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
85	CHA003	Military Bunker 28	x			x	İstanbul	Arnavutköy/Nakkaş	36+900	x			x	91			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
86	CHA003	Military Bunker 27	x			x	İstanbul	Arnavutköy/Nakkaş	36+850	x			x	10			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
87	CHA003	Military Bunker 26	x			x	İstanbul	Arnavutköy/Nakkaş	36+800	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
88	CHA003	Military Bunker 23	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	40			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
89	CHA003	Military Bunker 24	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	49			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
90	CHA003	Military Bunker 25	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	58			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
91	CHA003	Military Bunker 38	x			x	İstanbul	Arnavutköy/Nakkaş	36+700	x			x	92			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
92	CHA003	Military Bunker 39	x			x	İstanbul	Arnavutköy/Nakkaş	36+701	x			x	103			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
93	CHA003	Military Bunker 40	x			x	İstanbul	Arnavutköy/Nakkaş	36+702	x			x	108			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
94	CHA003	Military Bunker 41	x			x	İstanbul	Arnavutköy/Nakkaş	36+703	x			x	131			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
95	CHA003	Military Bunker 45	x			x	İstanbul	Arnavutköy/Nakkaş	36+300	x			x	118			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
96	CHA003	Military Bunker 44	x			x	İstanbul	Arnavutköy/Nakkaş	36+270	x			x	87			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

97	CHA003	Military Bunker 43	x			x	İstanbul	Arnavutköy/Nakkaş	36+240	x			x	55			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
98	CHA003	Military Bunker 42	x			x	İstanbul	Arnavutköy/Nakkaş	36+230	x			x	30			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The gaps of the frame are built with stone masonry. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
99	CHA003	Military Bunker 46	x			x	İstanbul	Arnavutköy/Nakkaş	35+700 access road		x	x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
100	CHA003	Historic Bridge on Yeşilbayır – Nakkaş Road	x			x	İstanbul	Arnavutköy/Nakkaş	35+701				x	147			x	x				x		This well preserved, historic, arched bridge is located 1 kilometre south of Nakkaş Neighbourhood,within the construction impact area. The bridge, which was constructed in the Roman Period is stone masonry. Its length is around 14,5 m and width is 4,61 m. The arches of the bridge are in the form of single-centred semicircles. It is a part of the historic road network, named "Via Egnatia", which was most possibly constructed by Emperor Constantine in the first half of the 4th century CE and connected Istanbul (ancient Constantinople) with Europe. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
101	CHA003	Military Bunker 47	x			x	İstanbul	Arnavutköy/Nakkaş	35+350	x	x	x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. There are configurations, which allow installing of canons and machine guns inside the building. In addition to that, air ventilation channels can be observed inside the two-storied Bunker. The ground floor of the building was most possibly an ammunition storage and it is linked to the upstairs via elevators working with pulley system. Interior and exterior doors of the building are made of iron. There are still "Shooting Plans", which were prepared to provide orientation for the soldiers using the cannons and machine guns, in the upstairs. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
102	CHA003	Military Bunker 48	x			x	İstanbul	Arnavutköy/Nakkaş	35+162	x		x		0		x	x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
103	CHA003	Military Bunker 49	x			x	İstanbul	Arnavutköy/Nakkaş	35+120	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
104	CHA003	Military Bunker 50	x			x	İstanbul	Arnavutköy/Nakkaş	35+121	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and its gaps were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
105	CHA003	Military Bunker 51	x			x	İstanbul	Arnavutköy/Nakkaş	35+095	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
106	CHA003	Military Bunker 52	x			x	İstanbul	Arnavutköy/Nakkaş	35+036	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
107	CHA003	Military Bunker 53	x			x	İstanbul	Arnavutköy/Nakkaş	35+010	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
108	CHA003	Military Bunker 54	x			x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	20			x	x						It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
109	CHA003	Military Bunker 55	x			x	İstanbul	Arnavutköy/Nakkaş	35+050	x			x	54			x	x						It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
110	CHA005	Yeşilbayır Archaeological Site	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	1			x	x			x	x		The site is located 2 km south of Nakkaş Neighbourhood. Ample amount of ceramic and roof tile shards and architectural cut lime stone blocks, which may be dated to the Ottoman Period, were observed on the surface of the site. It was revealed out that the site stretches through the slopes and most possibly belonged to the Ottoman Period. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
111	CHA003	Military Bunker 62	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and the gaps of the frame were filled with stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
112	CHA003	Military Bunker 61	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The Militay Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
113	CHA003	Military Bunker 60	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	3			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
114	CHA003	Military Bunker 59	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	24			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
115	CHA003	Military Bunker 58	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	50			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
116	CHA003	Military Bunker 57	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x		x	141			x	x				x		It is a Military Bunker that belongs to the Çakmak Line. The Militay Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
117	CHA003	Savaşçı Fountain	x			x	İstanbul	Arnavutköy/Nakkaş	34+600 On the Access Road		x	x		0		x	x	x				x		The historic fountain is located 2 kilometres south-west of Nakkaş Neighbourhood. The fountain was built on a water spring and bears the construction date and the name of the commissioner. Accordingly, the fountain was built by Zeki Sidal in 1942. In addition to these inscriptions, the fountain also bears the inscription of "Warrior's Fountain". The fountain is constructed with concrete rubble stones. All information about the fountain will be delivered to Istanbul Regional Board no 1 for Conservation of Cultural Assets. Therefore, the project activities around the fountain should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
118	CHA003	Military Bunker 63	x			x	İstanbul	Arnavutköy/Nakkaş	34+410	x		x		0		x	x	x						It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
119	CHA003	Military Bunker 64	x			x	İstanbul	Arnavutköy/Nakkaş	34+230	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
120	CHA003	Military Bunker 74	x			x	İstanbul	Arnavutköy/Nakkaş	34+210	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
121	CHA003	Military Bunker 65	x			x	İstanbul	Arnavutköy/Nakkaş	34+237	x			x	31			x	x				x		It is a Military Bunker belonging to the Çakmak Line. TJhe Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
122	CHA003	Military Bunker 66	x			x	İstanbul	Arnavutköy/Nakkaş	34+230	x			x	21			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
123	CHA003	Military Bunker 68	x			x	İstanbul	Arnavutköy/Nakkaş	34+198	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
124	CHA003	Military Bunker 71	x			x	İstanbul	Arnavutköy/Nakkaş	34+194	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
125	CHA003	Military Bunker 76	x			x	İstanbul	Arnavutköy/Nakkaş	34+170	x		x		0		x	x	x				x		It is a Military Bunker, which is belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The Militay Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
126	CHA003	Military Bunker 77	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
127	CHA003	Military Bunker 75	x			x	İstanbul	Arnavutköy/Nakkaş	34+160	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
128	CHA003	Military Bunker 67	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	105			x	x				x		The structure is a Military Bunker, which belongs to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
129	CHA003	Military Bunker 91	x			x	İstanbul	Arnavutköy/Nakkaş	34+195	x			x	172			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 5x5m. The Bunker is in triangular shape. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
130	CHA003	Military Bunker 69	x			x	İstanbul	Arnavutköy/Nakkaş	34+120	x			x	100			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
131	CHA003	Military Bunker 70	x			x	İstanbul	Arnavutköy/Nakkaş	34+115	x			x	105			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.

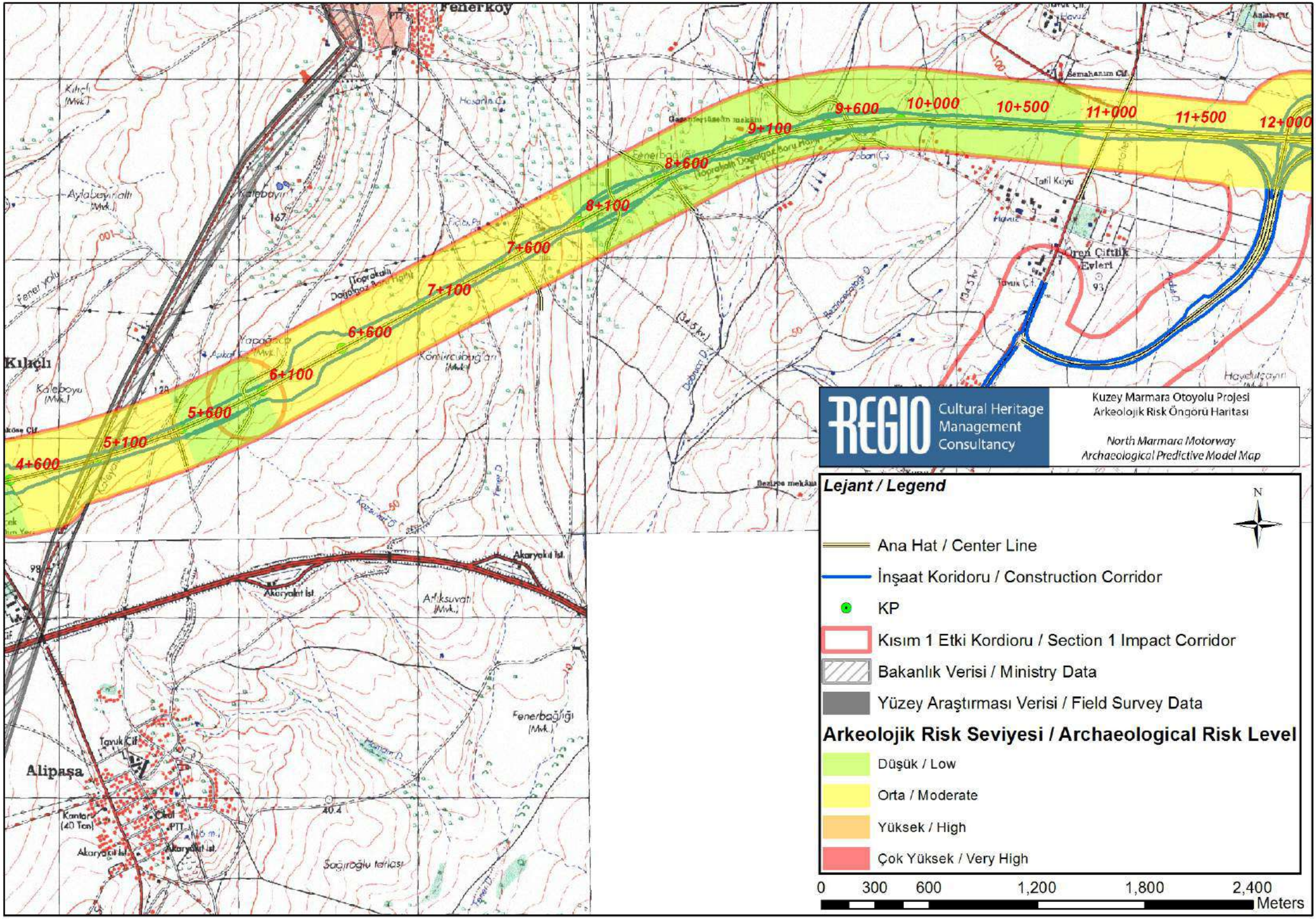
132	CHA003	Military Bunker 78	x			x	İstanbul	Arnavutköy/Nakkaş	34+072	x			x	3			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
133	CHA003	Military Bunker 79	x			x	İstanbul	Arnavutköy/Nakkaş	34+108	x			x	53			x	x			x		It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
134	CHA003	Military Bunker 72	x			x	İstanbul	Arnavutköy/Nakkaş	34+073	x			x	68			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
135	CHA003	Military Bunker 73	x			x	İstanbul	Arnavutköy/Nakkaş	34+040	x			x	43			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
136	CHA003	Vaulted Structure	x			x	İstanbul	Arnavutköy/Nakkaş	33+950-34+000	x		x		0		x	x	x			x		The structure is located 2 kilometres south-west of Nakkaş Neighbourhood. It is placed at the 34+000 kilometre point of the project route, within the boundaries of the construction area. The structure appears as a little hill, covered with soil, in the plain land. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
137	CHA003	Military Bunker 80	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	20			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
138	CHA003	Military Bunker 81	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	45			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
139	CHA003	Military Bunker 83	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	90			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
140	CHA003	Military Bunker 90	x			x	İstanbul	Arnavutköy/Nakkaş	34+000	x			x	140			x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
141	CHA003	Military Bunker 82	x			x	İstanbul	Arnavutköy/Nakkaş	33+986	x			x	90			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
142	CHA003	Military Bunker 92	x			x	İstanbul	Arnavutköy/Nakkaş	33+960	x			x	148			x	x			x		It is a Military Bunker, which belongs to the Çakmak Line.The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
143	CHA003	Military Bunker 93	x			x	İstanbul	Arnavutköy/Nakkaş	33+941	x			x	136			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
144	CHA003	Military Bunker 94	x			x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	172			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
145	CHA003	Military Bunker 88	x			x	İstanbul	Arnavutköy/Nakkaş	33+894	x		x		0		x	x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
146	CHA003	Military Bunker 89	x			x	İstanbul	Arnavutköy/Nakkaş	33+930	x			x	90			x	x			x		It is a Military Bunker that belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
147	CHA003	Military Bunker 84	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0		x	x	x			x		It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
148	CHA003	Military Bunker 85	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x		x		0		x	x	x			x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 5x5m. The Militay Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
149	CHA003	Military Bunker 86	x			x	İstanbul	Arnavutköy/Nakkaş	33+880	x		x		0		x	x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
150	CHA003	Military Bunker 87	x			x	İstanbul	Arnavutköy/Nakkaş	33+900	x			x	11			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
151	CHA003	Military Bunker 95	x			x	İstanbul	Arnavutköy/Nakkaş	33+890	x			x	165			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
152	CHA003	Military Bunker 96	x			x	İstanbul	Arnavutköy/Nakkaş	33+880	x			x	141			x	x			x		It is a Military Bunker that is a part of the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m.. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
153	CHA003	Military Bunker 102	x			x	İstanbul	Arnavutköy/Nakkaş	33+875	x			x	181			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
154	CHA003	Military Bunker 100	x			x	İstanbul	Arnavutköy/Nakkaş	33+830	x		x		0		x	x	x			x		It is a Military Bunker, which belongs to the Çakmak Line. It is in the "T" form. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
155	CHA003	Military Bunker 101	x			x	İstanbul	Arnavutköy/Nakkaş	33+856	x			x	15			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
156	CHA003	Military Bunker 99	x			x	İstanbul	Arnavutköy/Nakkaş	33+844	x			x	4			x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
157	CHA003	Military Bunker 97	x			x	İstanbul	Arnavutköy/Nakkaş	33+830	x			x	127			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
158	CHA003	Military Bunker 98	x			x	İstanbul	Arnavutköy/Nakkaş	33+567	x			x	58			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. Air ventilation channels were observed inside the Bunker. There is a trench wall constructed with rubble stones for defensive purposes in the north side of the Bunker. This trench stretches to the north for approximately 3 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
159	CHA003	Military Bunker 103	x			x	İstanbul	Arnavutköy/Nakkaş	33+500	x			x	129			x	x			x		The Militay Bunker is located 2.5 kilometres southwest of Nakkaş Neighbourhood. The frame of the Military Bunker was built entirely with concrete. There are architectural configurations for installing cannons and machine guns inside the building. There is a reinforced stone wall trench in the south of the building, which is constructed for defensive purposes. This trench heads to the south for approximately 2.5 km. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
160	CHA003	Military Bunker 104	x			x	İstanbul	Arnavutköy/Nakkaş	33+357	x			x	128			x	x			x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. The Military Bunker is "L" shaped. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
161	CHA003	Military Bunker 108	x			x	İstanbul	Arnavutköy/Nakkaş	33+340	x			x	77			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
162	CHA003	Military Bunker 105	x			x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	30			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
163	CHA003	Military Bunker 107	x			x	İstanbul	Arnavutköy/Nakkaş	33+312	x			x	11			x	x			x		It is a Military Bunker, which is a part of the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
164	CHA003	Military Bunker 106	x			x	İstanbul	Arnavutköy/Nakkaş	33+313	x			x	15			x	x			x		It is a Military Bunker that belongs to the Çakmak Line. The frame of the Militay Bunker, which is "T" shaped, was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
165	CHA003	Military Bunker 110	x			x	İstanbul	Arnavutköy/Nakkaş	33+291	x			x	78			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
166	CHA003	Military Bunker 109	x			x	İstanbul	Arnavutköy/Nakkaş	33+271	x			x	61			x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
167	CHA003	Military Bunker 111	x			x	İstanbul	Arnavutköy/Nakkaş	33+258	x			x	71			x	x			x		It is a Military Bunker that belong to the Çakmak Line. The Militay Bunker is approximately in the size of 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
168	CHA003	Military Bunker 112	x			x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	84			x	x			x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
169	CHA003	Military Bunker 113	x			x	İstanbul	Arnavutköy/Nakkaş	33+197	x			x	30			x	x			x		It is a Military Bunker, which is a part of the Çakmak Line. The Militay Bunker is approximately in the size of 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
170	CHA003	Military Bunker 114	x			x	İstanbul	Arnavutköy/Nakkaş	33+122	x			x	62			x	x			x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
171	CHA003	Military Bunker 115	x			x	İstanbul	Arnavutköy/Nakkaş	33+095	x			x	55			x	x			x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
172	CHA003	Military Bunker 119	x			x	İstanbul	Arnavutköy/Nakkaş	33+057	x			x	26			x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
173	CHA003	Military Bunker 117	x			x	İstanbul	Arnavutköy/Nakkaş	33+020	x		x		0		x	x	x			x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Militay Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
174	CHA003	Military Bunker 116	x			x	İstanbul	Arnavutköy/Nakkaş	33+036	x			x	10			x	x			x		It is a Military Bunker that belongs to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Militay Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
175	CHA003	Military Bunker 118	x			x	İstanbul	Arnavutköy/Nakkaş	32+940	x		x		0		x	x	x			x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.

176	CHA003	Military Bunker 120	x			x	İstanbul	Arnavutköy/Nakkaş	32+855	x			x	87			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. It is approximately in the size of 6x6m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
177	CHA003	Military Bunker 121	x			x	İstanbul	Arnavutköy/Nakkaş	32+792	x			x	45			x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. It is approximately in the size of 4x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
178	CHA003	Military Bunker 122	x			x	İstanbul	Arnavutköy/Nakkaş	32+700	x		x		0		x	x	x				x		It is a Military Bunker belonging to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The Military Bunker was built with concrete frame and stone masonry. It has one entrance and a window. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
179	CHA003	Military Bunker 123	x			x	İstanbul	Arnavutköy/Nakkaş	32+643	x			x	66			x	x				x		It is a Military Bunker belonging to the Çakmak Line. The Military Bunker is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
180	CHA003	Military Bunker 124	x			x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	88			x	x				x		It is a Military Bunker that belongs to to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
181	CHA003	Military Bunker 126	x			x	İstanbul	Arnavutköy/Nakkaş	32+610	x			x	127			x	x				x		It is a Military Bunker belonging to the Çakmak Line. It is approximately in the size of 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
182	CHA003	Military Bunker 125	x			x	İstanbul	Arnavutköy/Nakkaş	32+580	x			x	113			x	x				x		It is a Military Bunker, which belongs to the Çakmak Line. The sizes of of the Military Bunker are approximately 3x3m. The frame of the Military Bunker was built entirely with concrete. It is suggested that any physical intervention to the building should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
183	CHA003	Military Bunker 127 and Parapet	x			x	İstanbul	Arnavutköy/Nakkaş	32+530	x		x		0		x	x	x				x		It is a Military Bunker, which is a part of the Çakmak Line. Interior dimensions of the Bunker areapproximately 7x7m. Inside the Bunker, which is triangular, air ventilation channels are observable. There are configurations, which allow installing of canons and machine guns inside the building. There is a parapet heading in the north-south direction for approximately 2 km in the north of the Bunker. There are niches with approximately 2 m intervals on the western facade of this wall. This entrenchment wall is located within the project construction corridor. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. For this reason, the project activities should be conducted in accordance with the decision, which will be made by the Conservation Board. In addition to that, it is strongly suggested that archaeological monitoring should be conducted around the site throughout the construction activities.
184	CHA005	Umurtepe Kartepe 2nd Degree Archaeological Site		x	x		İstanbul	Çatalca	21+800-21+100	x		x		0		x	x	x						The site was registered as a 2nd Degree Archaeological Site by Istanbul Regional Board no: 2 for Conservation of Cultural Assets in accordance with the decision no: 4540 of the conservation Board, which was taken on August 21st 1997. According to the decision no 2203-II of Istanbul Regional Board no: 2 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
185	CHA005	Karamurat Archaeological Site	x			x	İstanbul	Çatalca/İnceğiz	20+230-19+660	x		x		0		x	x	x			x		x	Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
186	CHA005	Gedik Ali Paşa Archaeological Site	x			x	İstanbul	Silivri/Kadıköy	18+500-18+680	x		x		0		x	x	x			x		x	Ample amount of glazed and non-glazed ceramic shards and cut stone blocks, which are dated to the Byzantine Period, were observed on the surface of the site. It is supposed that the site, which stretches alongside the slope, is a settlement from the Byzantine Period. All information about the building will be delivered to Istanbul Regional Board No:1 for Conservation of Cultural Assets. It is strongly suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
187	CHA005	Kadıköy Archaeological Site	x			x	İstanbul	Silivri/Kadıköy	16+850-17+080	x			x	53			x	x			x	x	x	The site is most probably a settlement from the Byzantine Period. Ample amount of ceramic and roof tile shards, terracotta plates, and grinding stone pieces were encountered on the surface of the site. In addition to that, cut stone blocks and architectural elements made of marble, which belonged to the buildings, were observed. It is suggested that any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.
188	CHA005	Gaziteppe Potential Archaeological Site	x			x	İstanbul	Silivri/Gaziteppe	15+920-16+036	x		x		0			x				x			The site is located 2.5 kilometres north-east of Kadıköy Neighbourhood. Sporadically spread ceramic shards from the Byzantine Period were observed on the surface of the site. It is strongly suggested all activities should be conducted under the supervision of an archaeologist.
189	CHA005	Anastasian Walls		x	x		İstanbul	Silivri/Fenerköy	5+000-5+100	x		x		0		x	x	x			x	x		The Walls were commissioned by the Byzantine Emperor Anastasius I (491-518) in order to protect Istanbul (in antiquity, Constantinople) against the attacks from the Thrace. It is known that the Anastasian Wall, which is 56 km in length, started in the coast of Black Sea, passing through Fenerköy and Kurfalı Villages nearby Silivri District and reached to Marmara Sea. According to the decision no 2203-II of Istanbul Regional Board no: 1 for Conservation of Cultural Assets taken on January 12th 2017, it is required that the technical documentation regarding the site should be prepared immediately; and project activities should be implemented in accordance with the decision, which will be made by the conservation board, after the assessment of the concerning technical documentation. In addition to that, during the Conservation Boards decision making process, it is strongly suggested that any physical intervention to the site should be avoided and archaeological monitoring should be conducted around the site throughout the construction activities.
190	CHA005	Küçükkılıç Tumulus	x			x	İstanbul	Silivri/Küçükkılıç	2+860-2+940	x		x		0		x	x	x			x		x	The structure is most probably a Thracian Tumulus. Illegal excavation trenches in various sizes were observed on its surface. Around the illegal excavation trench on the top, pieces of cut stone blocks were encountered. All information regarding the structure will be delivered to Istanbul Regional Board No: 1 for Conservation of Cultural Assets. It is suggested that prior to the decision of the conservation board any physical intervention should be avoided and all activities should be conducted under the supervision of an archaeologist.

Annex 5 – Predictions Model Maps of Archaeological Potential



REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Küçükkılıç Tümülüsü
0+000
0+600
1+100
1+600
1+700
1+800
2+100
2+600
2+900
3+100
3+600
4+100
4+600
5+100
Küçük Kılıçlı
Alipaşa
Kereste ve Mermer Fb.
Kartal T.
Maltepe yolu
Metinler Çif.
Kantar (40 Ton)
Tahirpaşa
Motopomp
Yapabağacagereni
Dikilitaş T.
Eskikuçukkılıç yolu
Şilivri Kp.
Şoför Eğitim Pisti
Plastik Fb.
Besi Çif.
Tavuk Çif.
Akaryakıt İst.
Pekmezalçağı
Besihane
Patbidar T.
Mandacıalı ninağılı
Yahudi tarlası
Tuğla Fb.
SANAYİ SİTESİ
Yapı Koop.
Tatil Sitesi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Kılıçlı
Alipaşa
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5+600
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6+600
7+100
7+600
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8+600
9+100
9+600
10+000
10+500
11+000
11+500
12+000
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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
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Lejant / Legend
N
Ana Hat / Center Line
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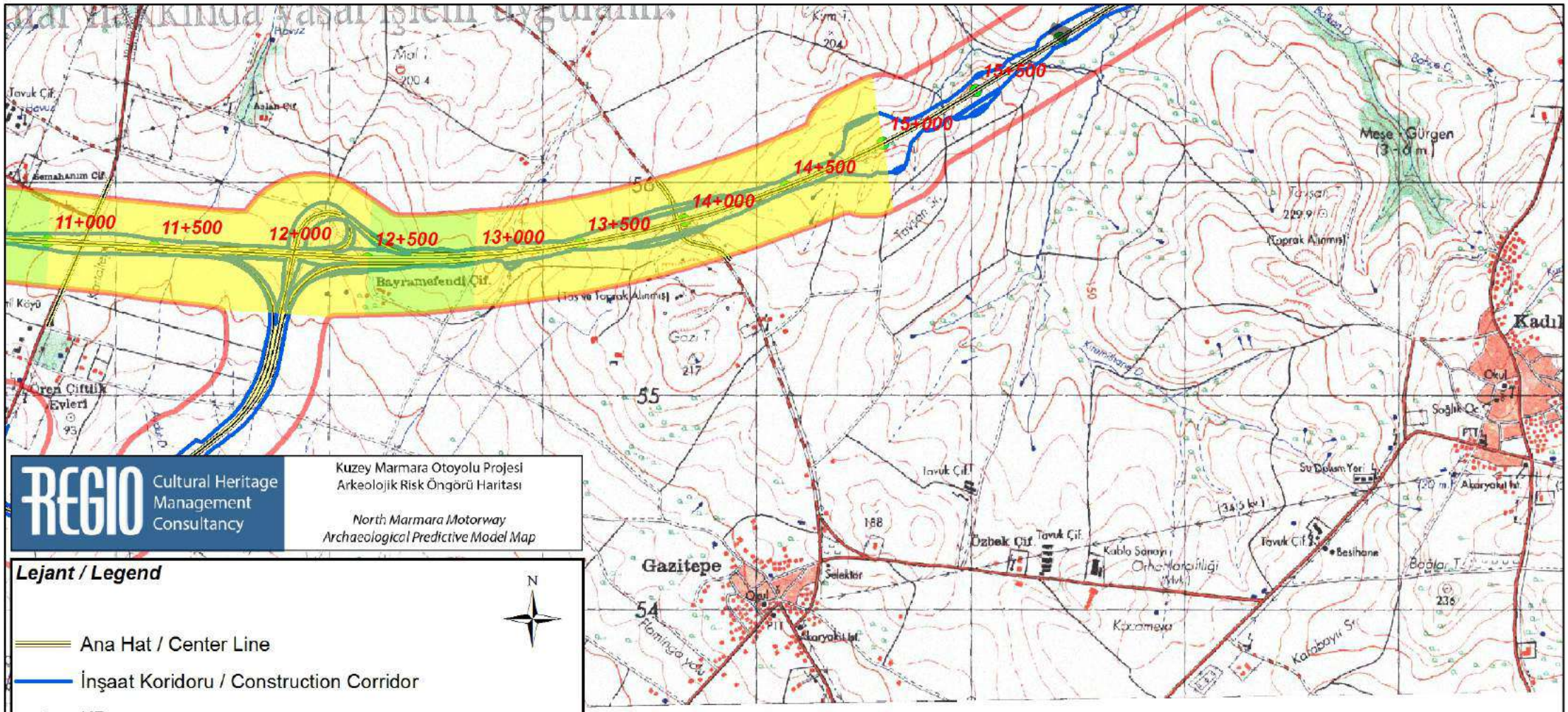
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters



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Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası

North Marmara Motorway
Archaeological Predictive Model Map

Lejant / Legend

N

Ana Hat / Center Line

İnşaat Koridoru / Construction Corridor

KP

Kısım 1 Etki Kordioru / Section 1 Impact Corridor

Bakanlık Verisi / Ministry Data

Yüzey Araştırması Verisi / Field Survey Data

Arkeolojik Risk Seviyesi / Archaeological Risk Level

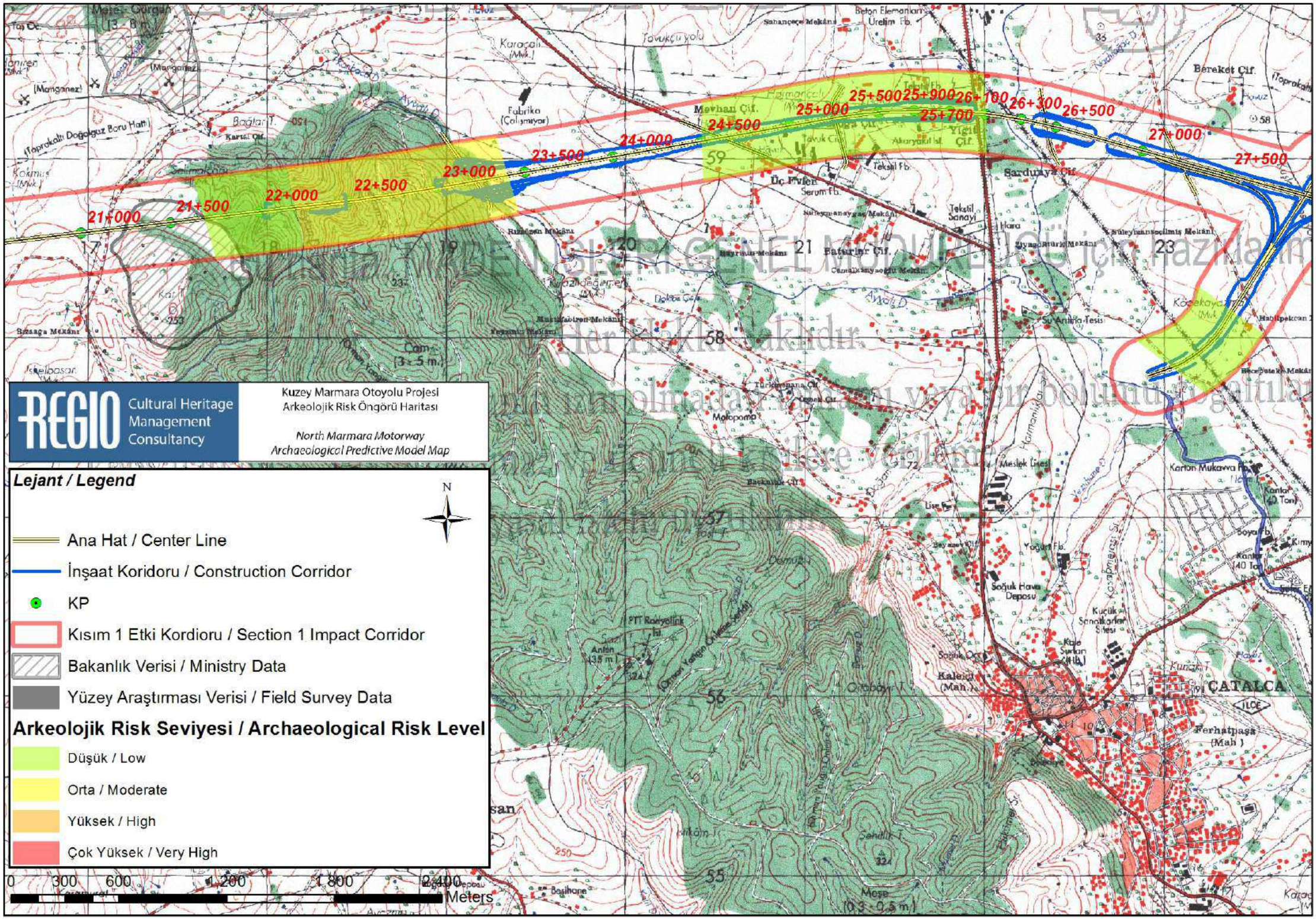
Düşük / Low

Orta / Moderate

Yüksek / High

Çok Yüksek / Very High

0 300 600 1,200 1,800 2,400 Meters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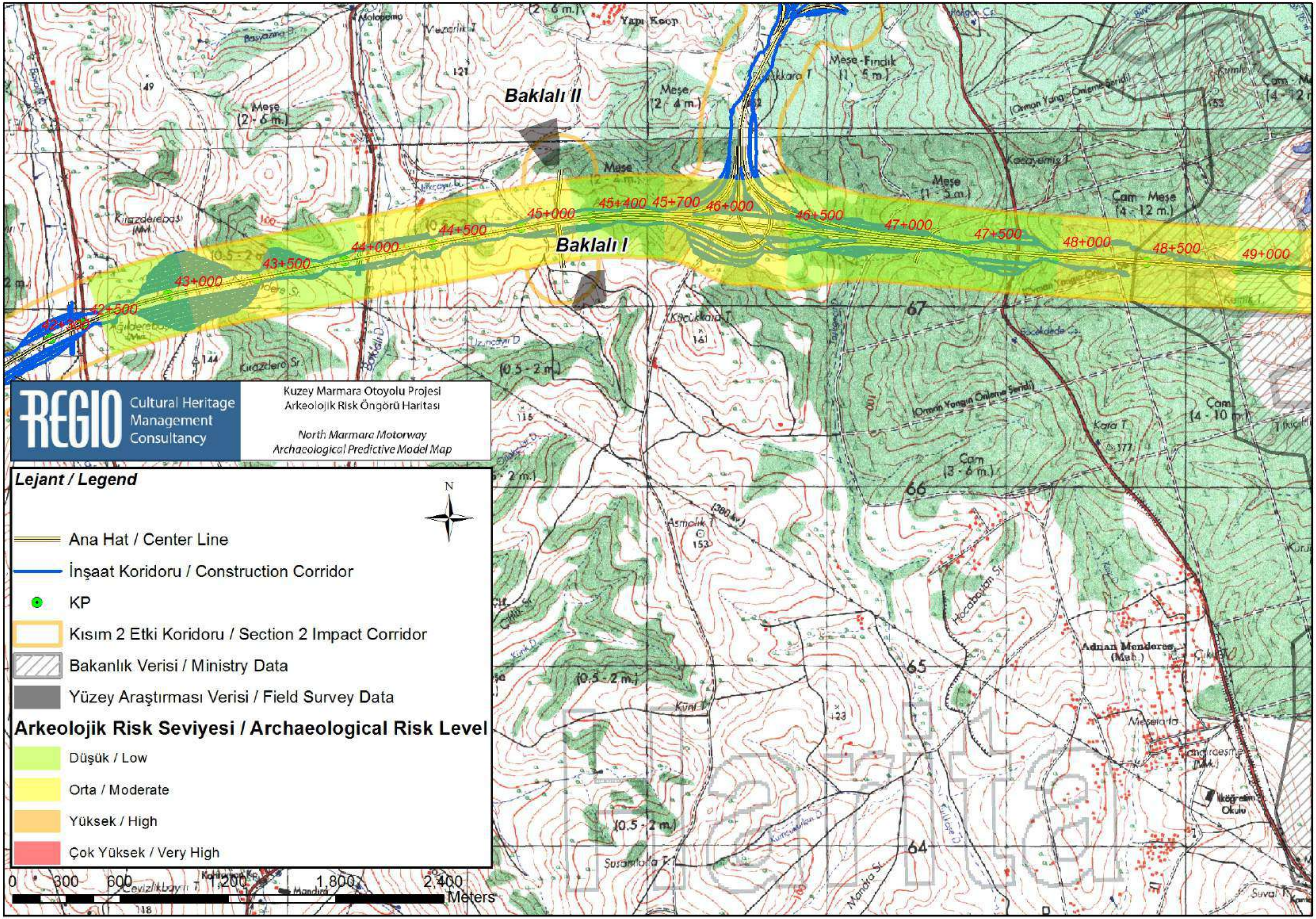
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1 200 1 800 2 400
Meters
21+000
21+500
22+000
22+500
23+000
23+500
24+000
24+500
25+000
25+500
25+900
25+700
26+100
26+300
26+500
27+000
27+500
ÇATALCA
Ferhatpaşa (Mah.)
Kaleiçi (Mah.)
Mevhan Çif.
Sarduraya Çif.
Bereket Çif.
Üç Evler
Baturlar Çif.
Tekstil Sanayi
Tekstil Fb.
Serum Fb.
Fabrika (Çalışmıyor)
Karaçalı (Mvk.)
Tavukçu yolu
Beton Elemanları Üretim Fb.
Sahançeçe Mekânı
Karton Mukavva Fb.
Soğuk Hava Deposu
Kaleiçi (Mah.)
Kaleiçi Sanatkarlar Sitesi
Yoğurt Fb.
Meslek Lisesi
Motopoma
Çam (3 - 5 m.)
Meşe (0.3 - 0.5 m.)
Bağlar T.
Kartal Çif.
Kokmuş (Mvk.)
Rızaağa Mekânı
Mustafabiren Mekânı
Fezzanlı Mekânı
Kürkçüler Mekânı
Hara
Su Antma Tesis
Süleymanseçilmiş Mekânı
Kaçakaya (Mvk.)
Habilpekcan
Beceğeteke Mekânı
Kantar (40 Ton)
Soya Fb.
Kimya
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map



Baklalı II
Baklalı I
42+500
43+000
43+500
44+000
44+500
45+000
45+400
45+700
46+000
46+500
47+000
47+500
48+000
48+500
49+000
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Lejant / Legend
N
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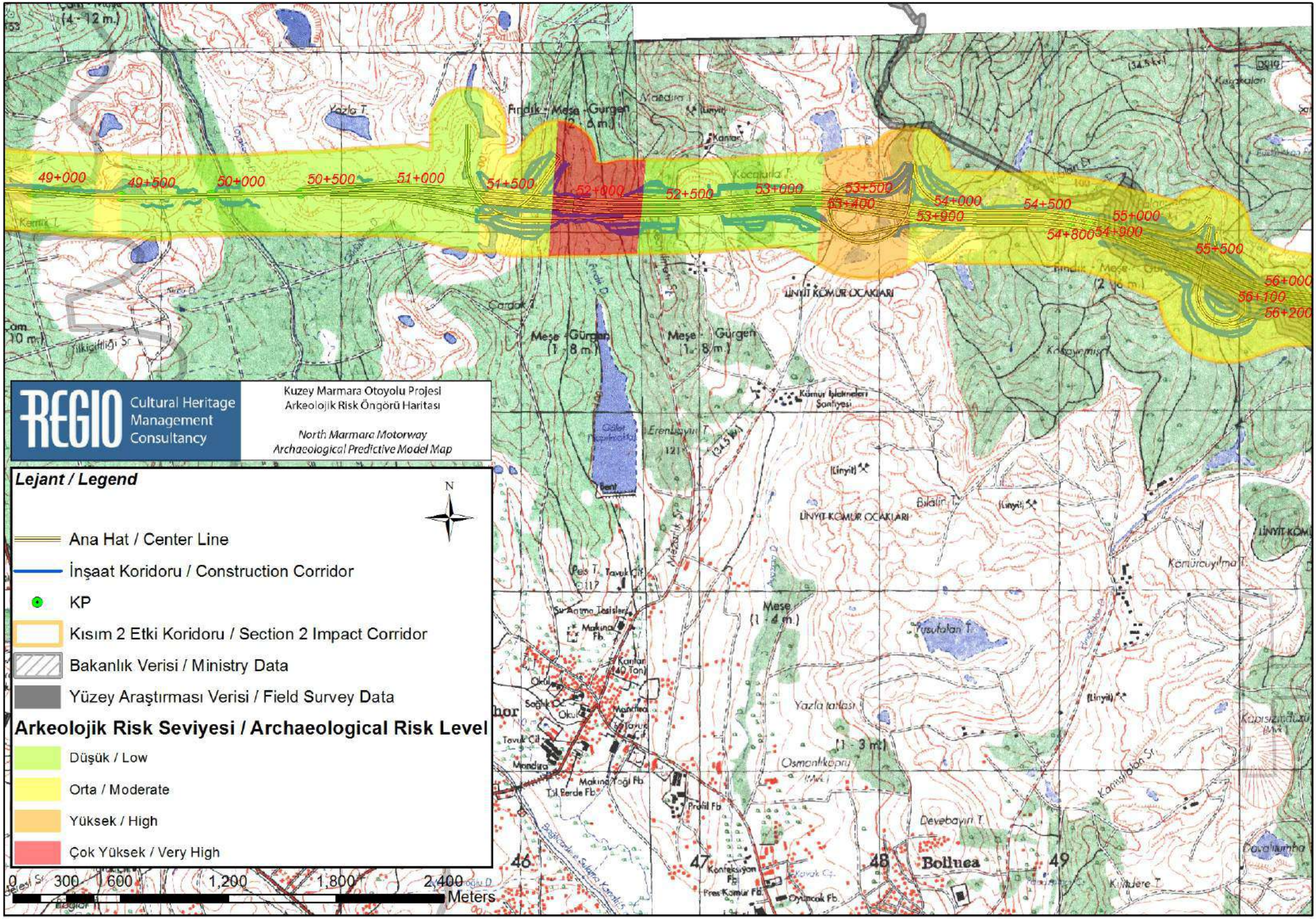
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters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North Marmara Motorway
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Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
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Arkeolojik Risk Seviyesi / Archaeological Risk Level
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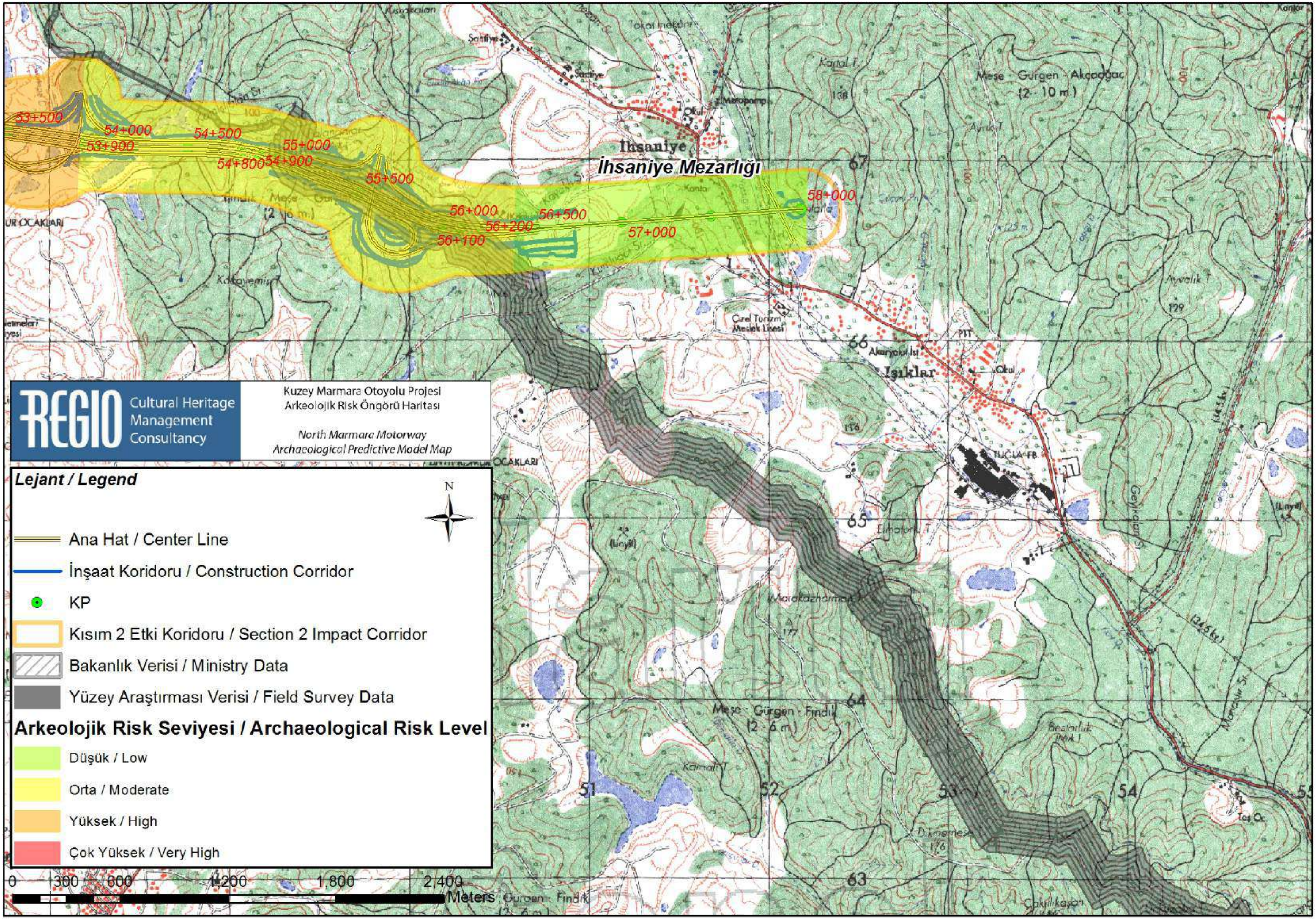
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
49+000
49+500
50+000
50+500
51+000
51+500
52+000
52+500
53+000
53+500
53+400
53+900
54+000
54+500
54+800
54+900
55+000
55+500
56+000
56+100
56+200
LİNYİT KÖMÜR OCAKLARI
Meşe - Gürgen (1 - 8 m.)
Meşe (1 - 4 m.)
Yazla tarlası (1 - 3 m.)
Bollıca
46
47
48
49



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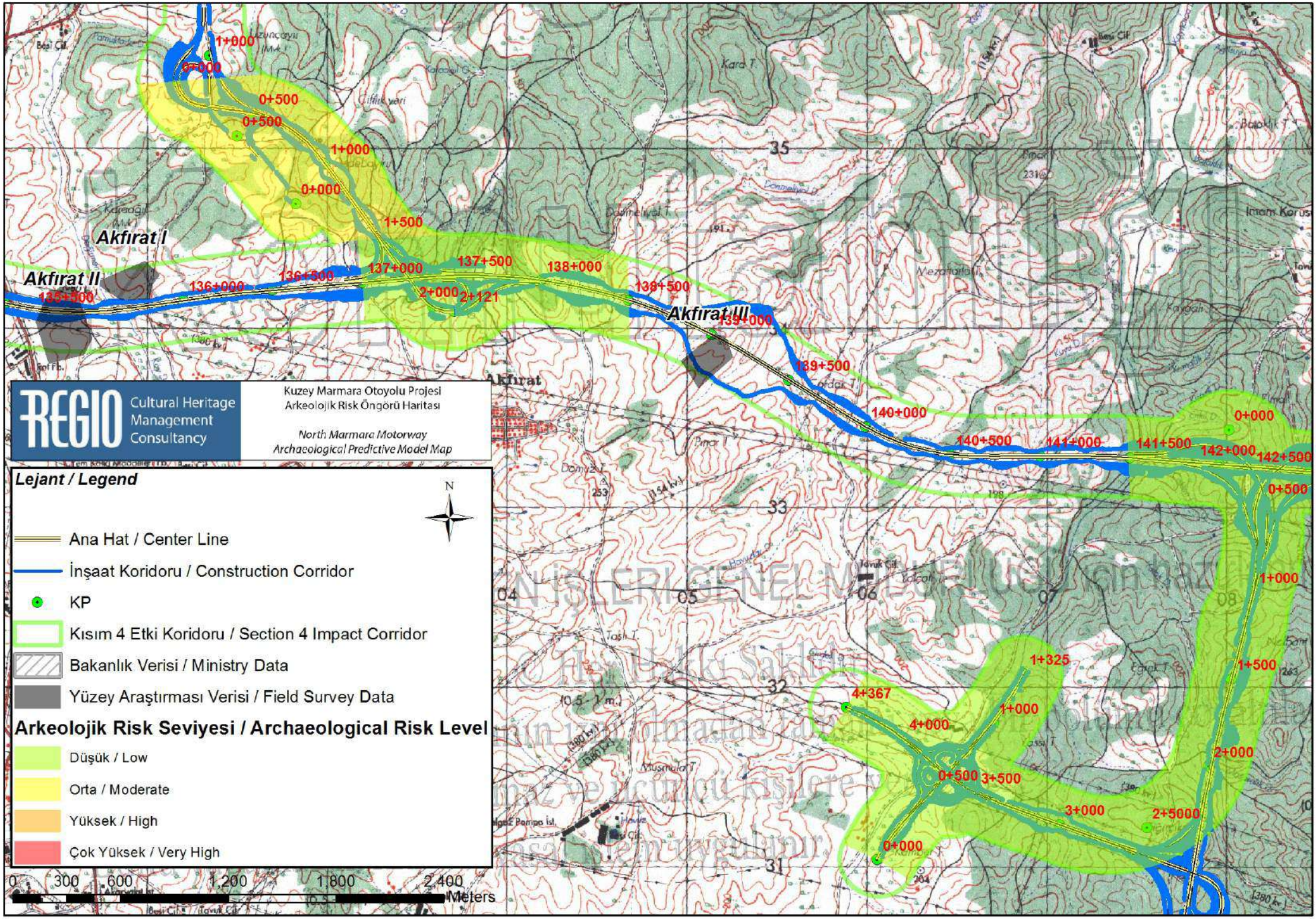
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
N
İhsaniye Mezarlığı
İhsaniye
Işıklar
53+500
53+900
54+000
54+500
54+800
54+900
55+000
55+500
56+000
56+100
56+200
56+500
57+000
58+000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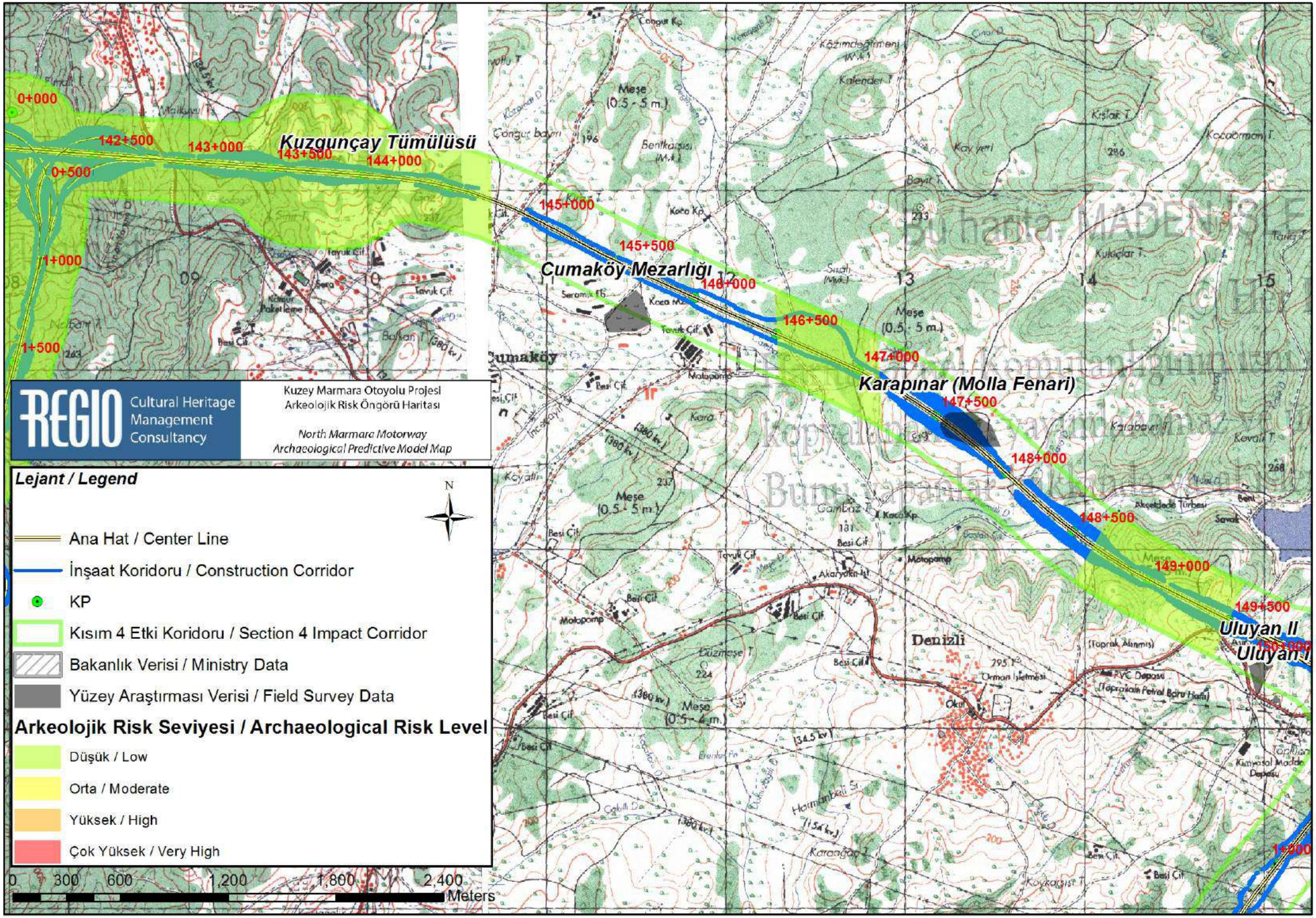
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Akfırat I
Akfırat II
Akfırat III
Akfırat
135+500
136+000
136+500
137+000
137+500
138+000
138+500
139+000
139+500
140+000
140+500
141+000
141+500
142+000
142+500
0+000
0+500
1+000
1+500
2+000
2+121
1+325
4+367
4+000
3+500
3+000
2+5000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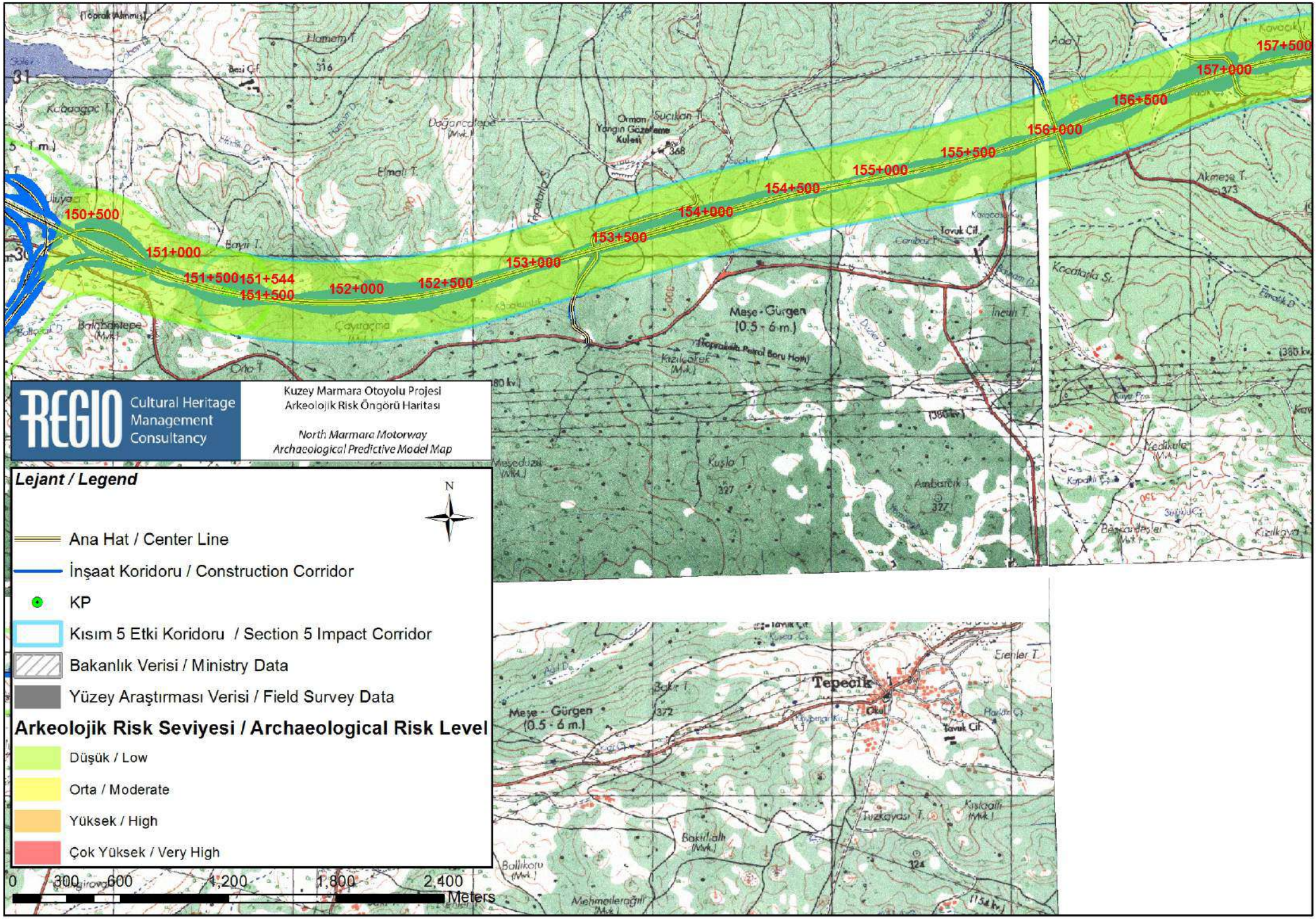
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Kuzgunçay Tümülüsü
Cumaköy Mezarlığı
Karapınar (Molla Fenari)
Uluyan II
Uluyan I
Denizli
0+000
0+500
1+000
1+500
142+500
143+000
143+500
144+000
145+000
145+500
146+000
146+500
147+000
147+500
148+000
148+500
149+000
149+500
150+000



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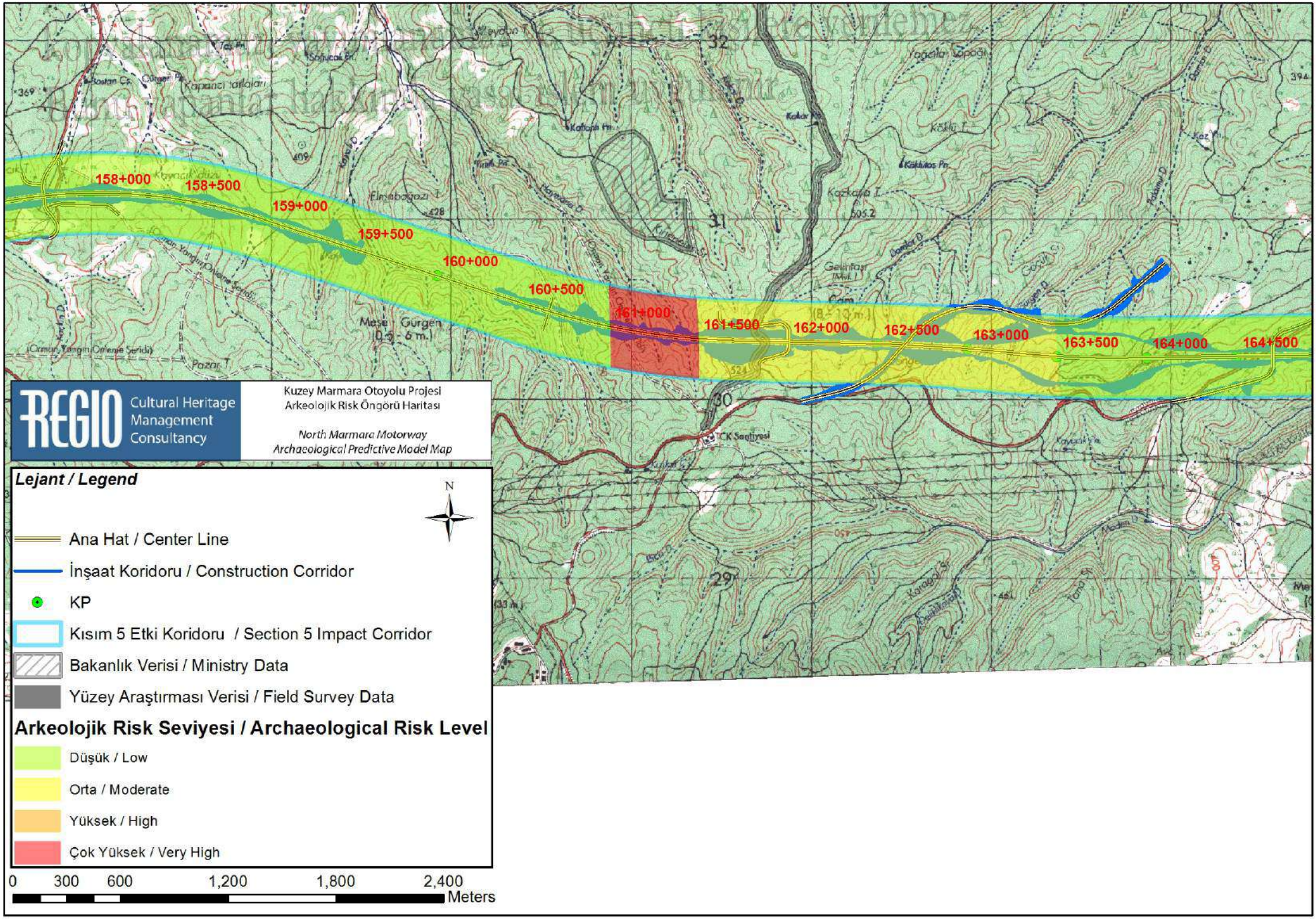
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
150+500
151+000
151+500
151+544
151+500
152+000
152+500
153+000
153+500
154+000
154+500
155+000
155+500
156+000
156+500
157+000
157+500
Meşe - Gürgen (0.5 - 6 m.)
Tepecik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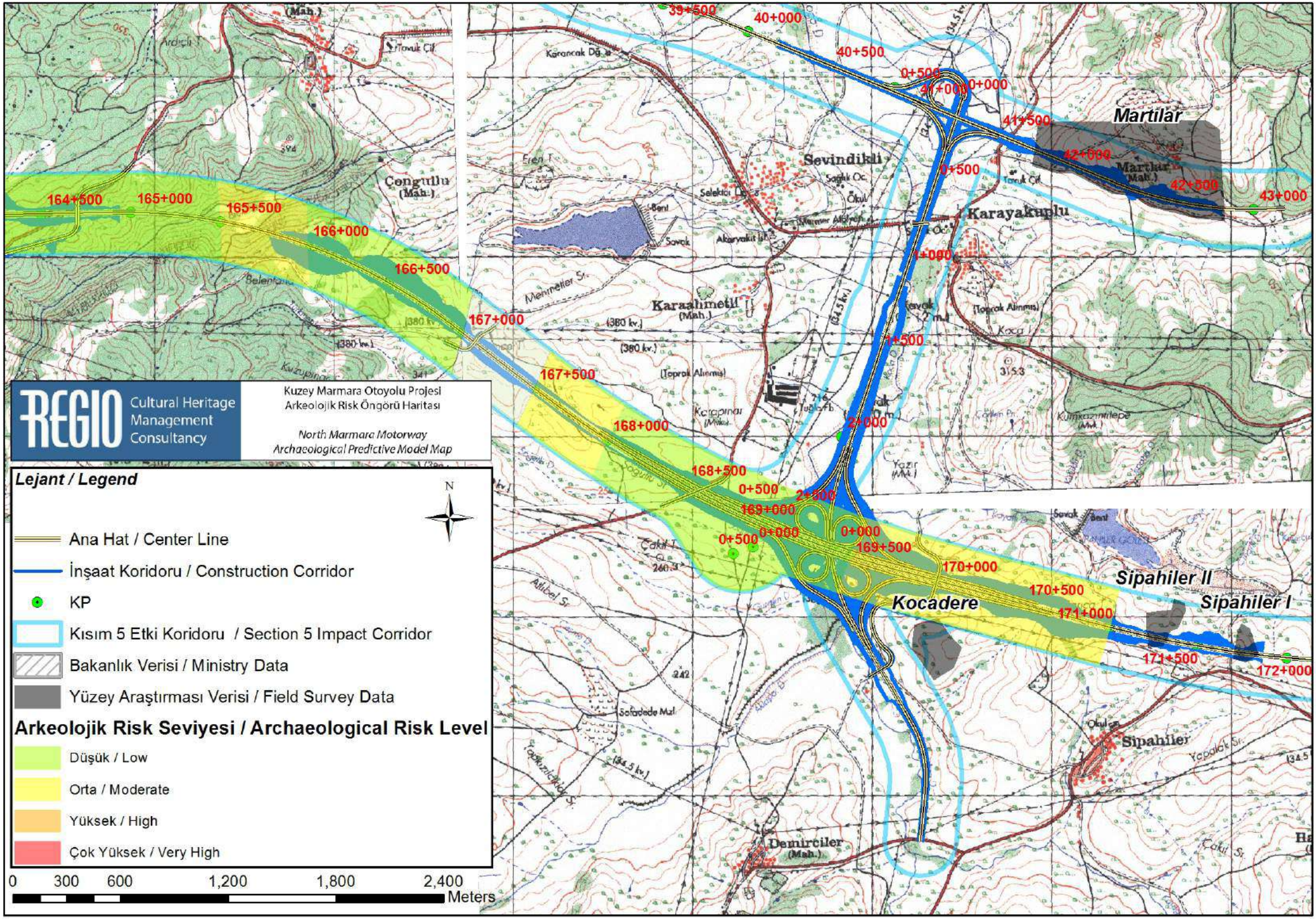
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
158+000
158+500
159+000
159+500
160+000
160+500
161+000
161+500
162+000
162+500
163+000
163+500
164+000
164+500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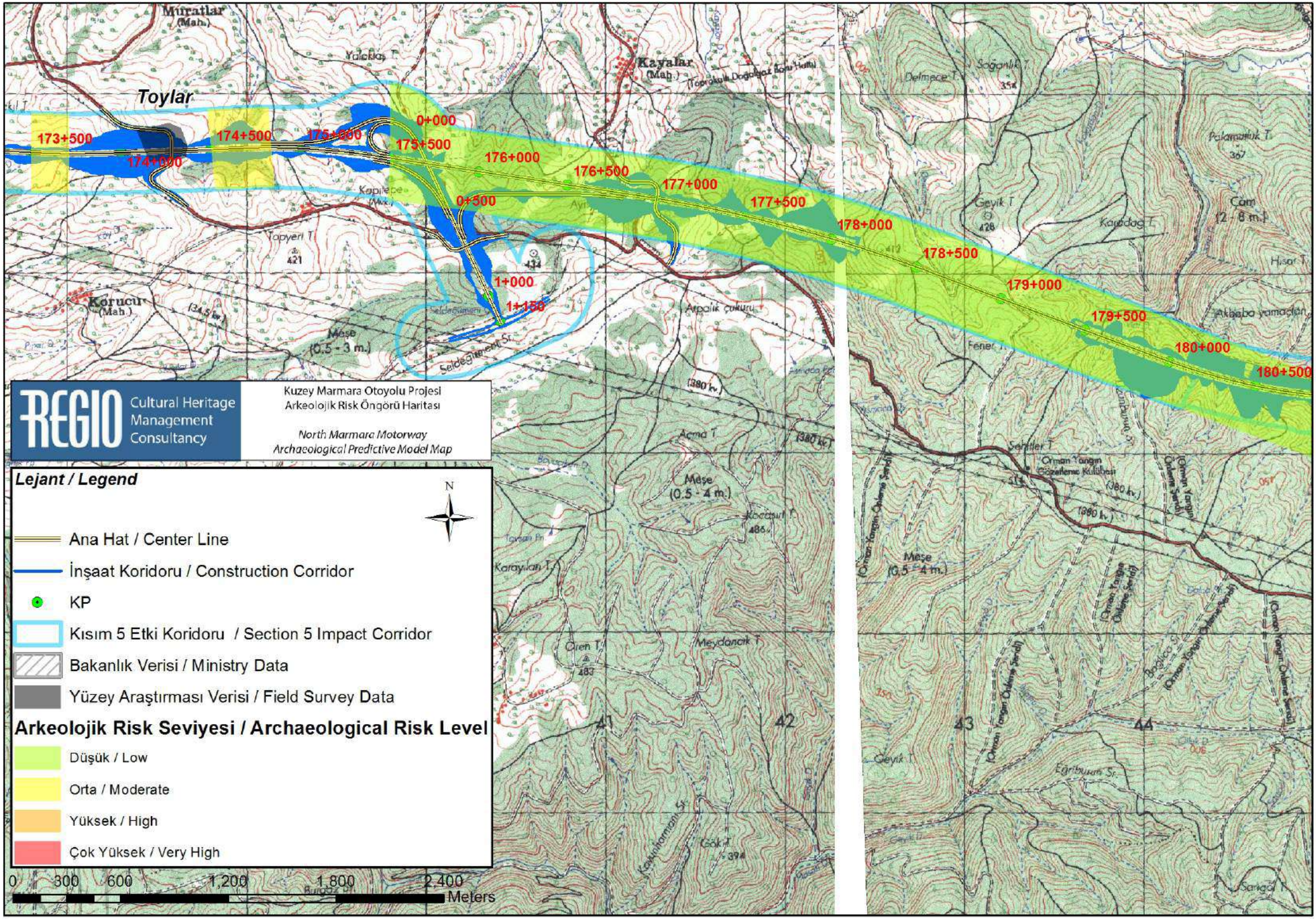
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
N
Martlar
Sevindikli
Karayakuplu
Karaalimetli
Kocadere
Sipahiler II
Sipahiler I
Sipahiler
Demirciler
Çongullu
164+500
165+000
165+500
166+000
166+500
167+000
167+500
168+000
168+500
169+000
169+500
170+000
170+500
171+000
171+500
172+000
39+500
40+000
40+500
41+000
41+500
42+000
42+500
43+000



Toylar
Muratlar (Mah.)
Kayalar (Mah.)
Korucu (Mah.)
173+500
174+000
174+500
175+000
175+500
176+000
176+500
177+000
177+500
178+000
178+500
179+000
179+500
180+000
180+500
0+000
0+500
1+000
1+150
Meşe (0.5 - 3 m.)
Meşe (0.5 - 4 m.)
Meşe (0.5 - 4 m.)
Çam (2 - 8 m.)
Seldeğirmeni Sr.
Arpalık çukuru
Orman Yangın Gözetleme Kulübesi
Orman Yangın Önleme Şeridi
Kocaşırt T.
Karayılan T.
Meydancık T.
Ören T.
Gök T.
Eğriburun Sr.
Sarıgöl T.
Delmece T.
Soğanlık T.
Palamutluk T.
Geyik T.
Karadağ T.
Hisar T.
Akbaba yamaçları
Fener T.
Şehitler T.
Topyeri T.
Kapitepe (Mkk.)
Yalaklaş T.
Ayrı
Açma T.
Karayılan T.
Meydancık T.
Kavunharman Sr.
41
42
43
44
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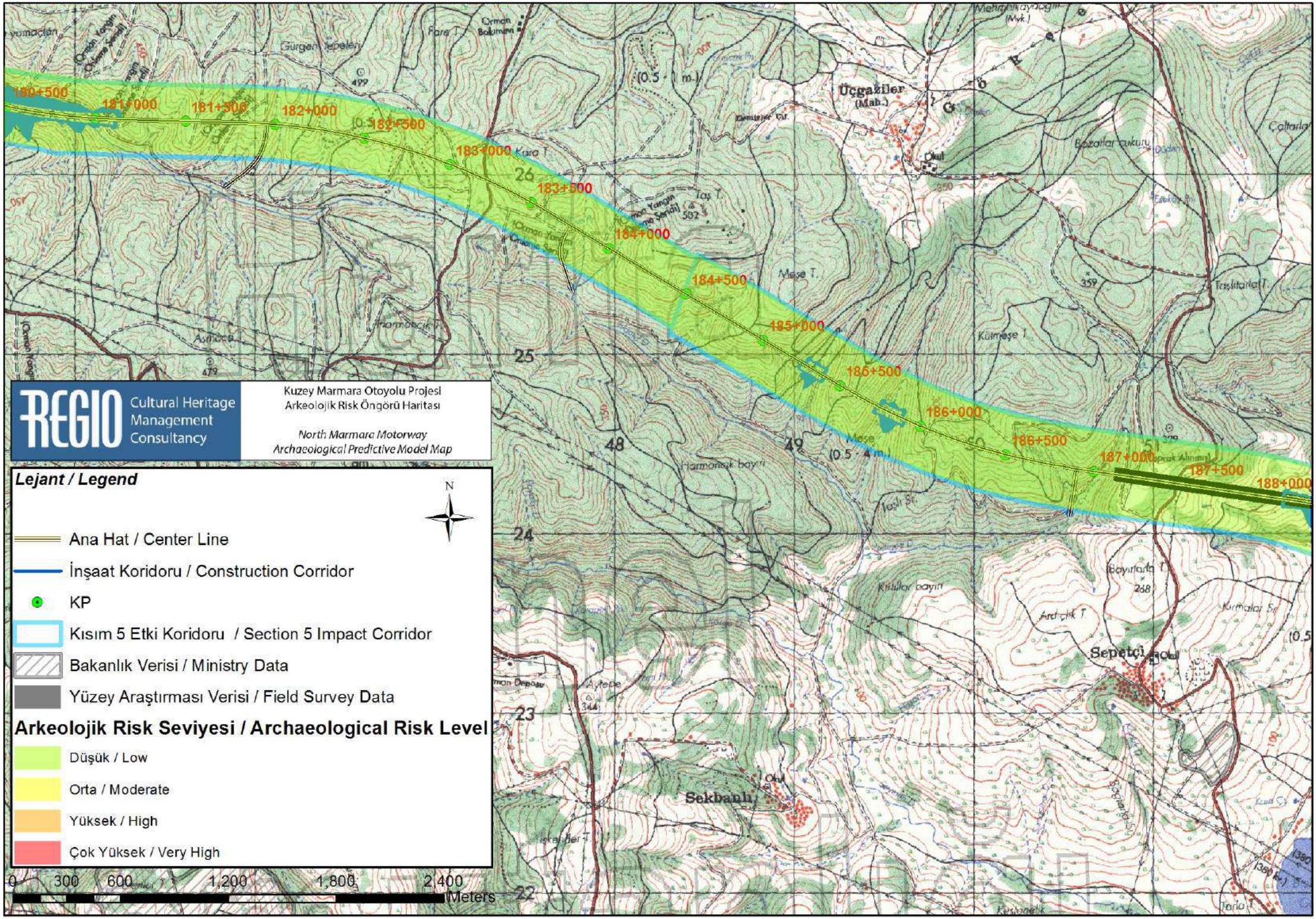
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters



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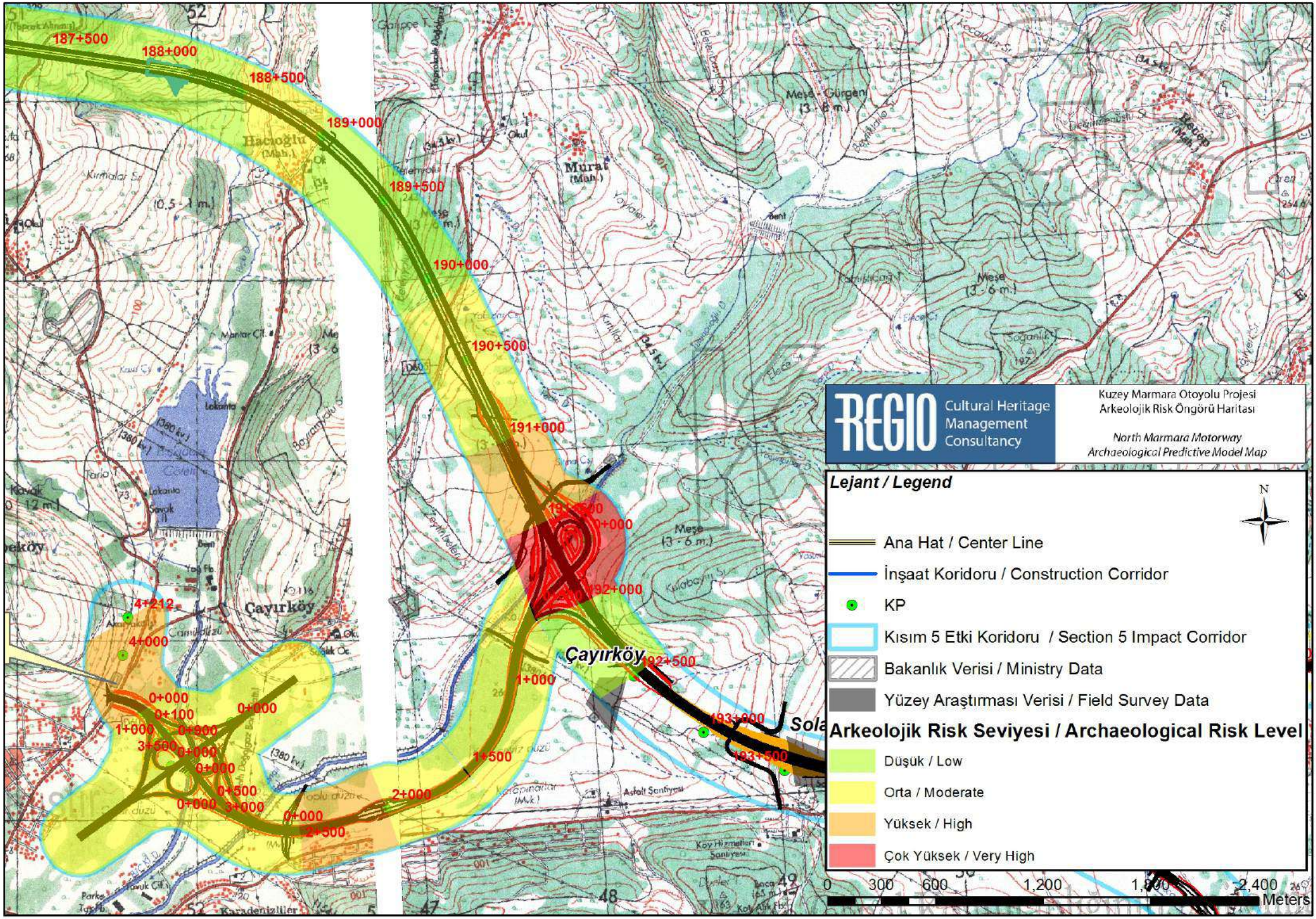
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
180+500
181+000
181+500
182+000
182+500
183+000
183+500
184+000
184+500
185+000
186+500
186+000
186+500
187+000
187+500
188+000
Üçgaziler (Mah.)
Sepetçi
Sekbanlı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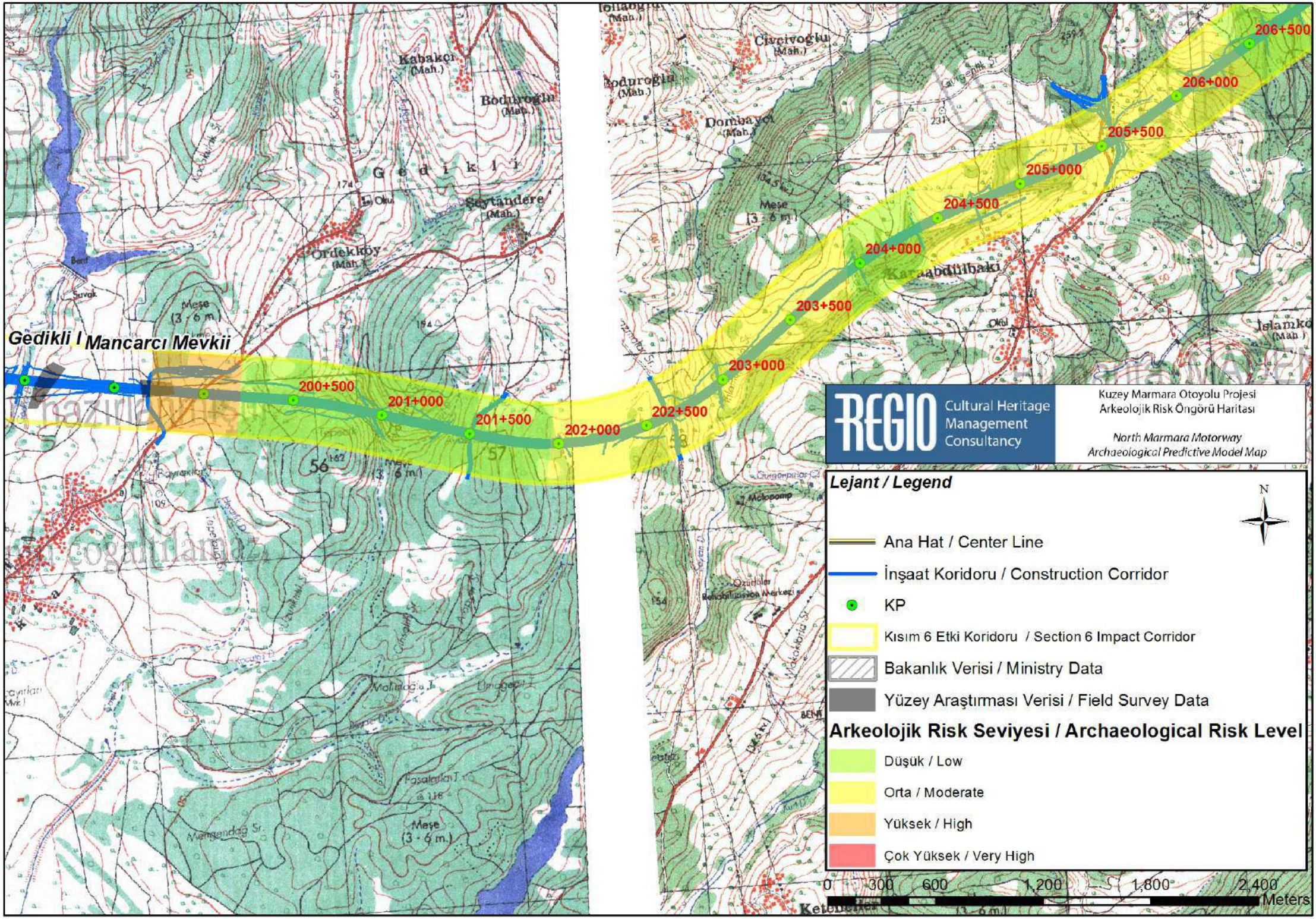
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400 Meters
187+500
188+000
188+500
189+000
189+500
190+000
190+500
191+000
192+000
192+500
193+000
193+500
4+212
4+000
0+000
0+100
1+000
0+900
3+500
0+500
3+000
2+000
2+500
1+500
Hacıoğlu (Mah.)
Murat (Mah.)
Meşe - Gürgen (13 - 6 m.)
Meşe (13 - 6 m.)
Çayırköy
Karadenizliler


Gedikli I Mancarcı Mevkii
200+500
201+000
201+500
202+000
202+500
203+000
203+500
204+000
204+500
205+000
205+500
206+000
206+500
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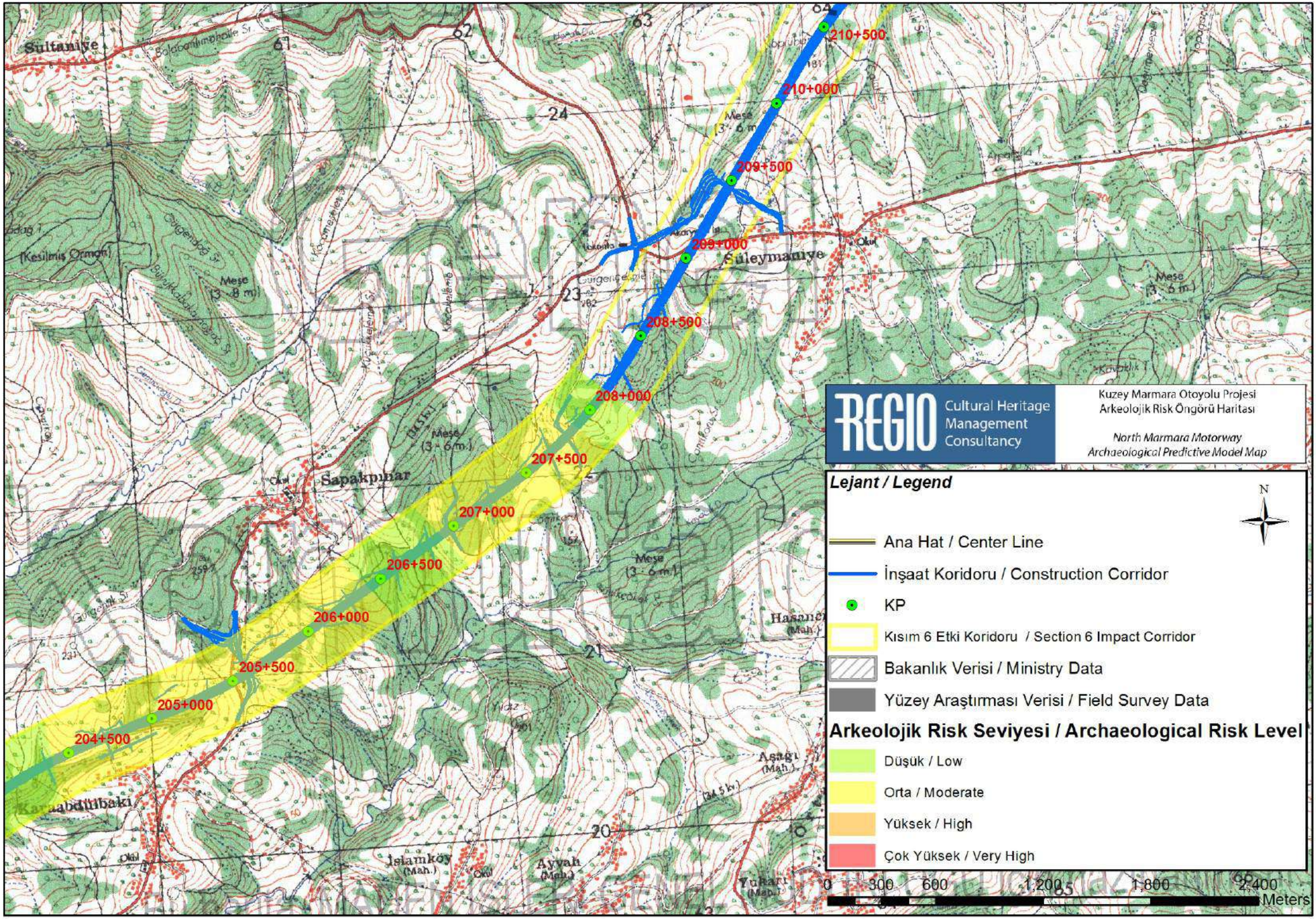
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters



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Lejant / Legend
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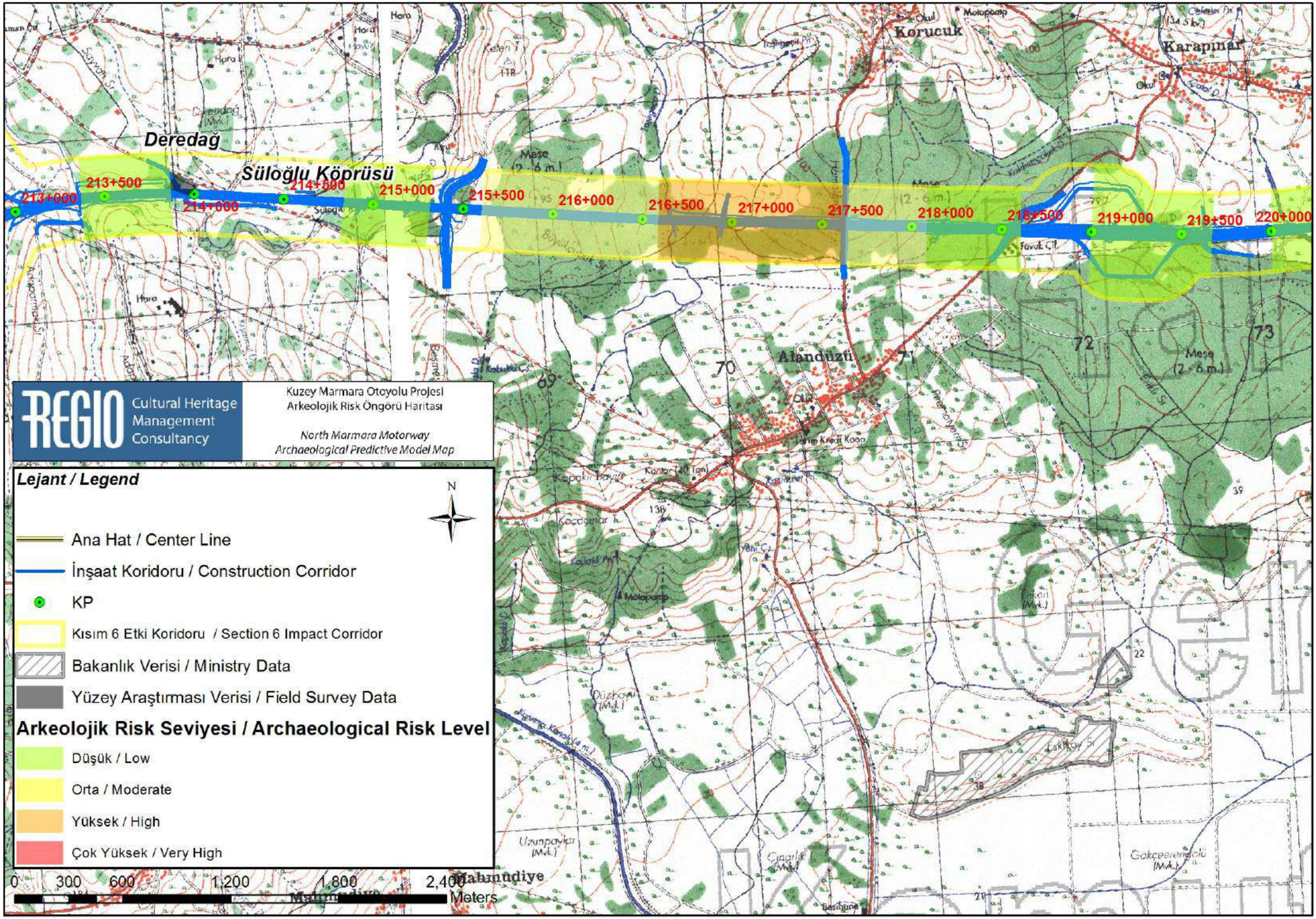
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
204+500
205+000
205+500
206+000
206+500
207+000
207+500
208+000
208+500
209+000
209+500
210+000
210+500
Sultaniye
Süleymaniye
Sapakpınar
Karaabdülbaki
İslamköy (Mah.)
Ayvah (Mah.)
Aşağı (Mah.)
Hasanci (Mah.)
Meşe (3 - 6 m.)
Meşe (3 - 8 m.)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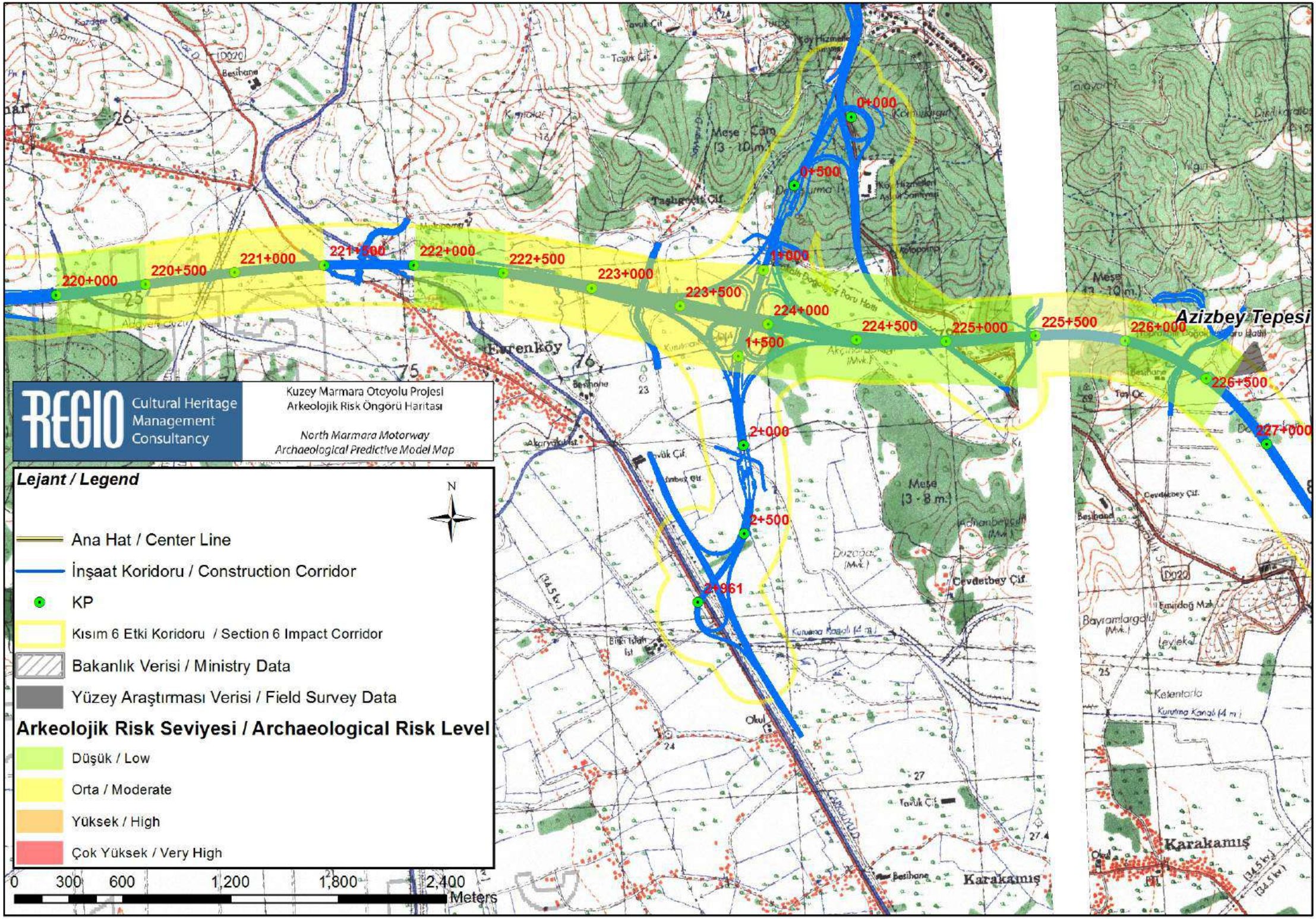
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
Deredağ
Süloğlu Köprüsü
213+000
213+500
214+000
214+500
215+000
215+500
216+000
216+500
217+000
217+500
218+000
218+500
219+000
219+500
220+000
Korucuk
Karapınar
Alandüzü
Mahmudiye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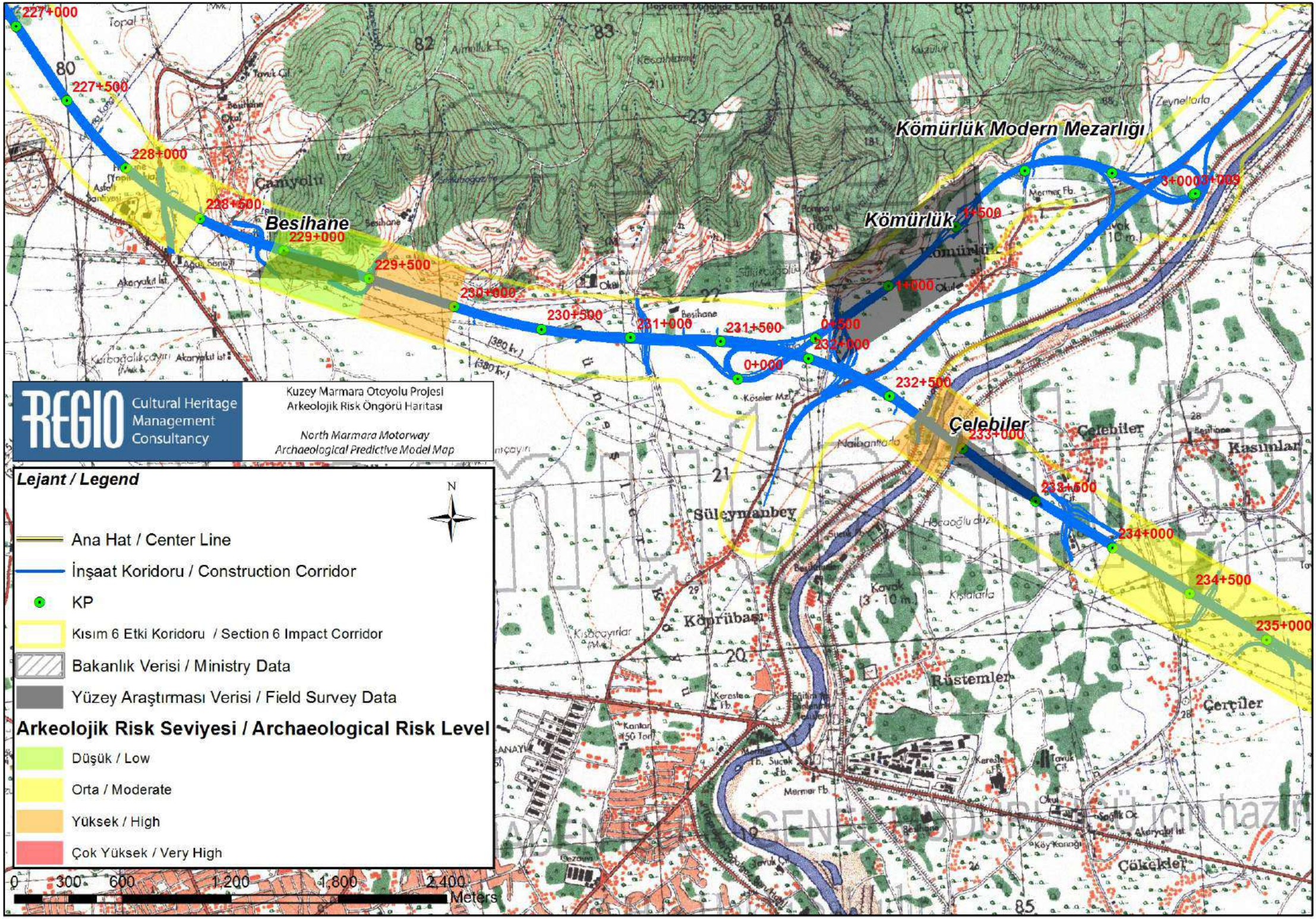
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
0+000
0+500
1+000
1+500
2+000
2+500
2+961
220+000
220+500
221+000
221+500
222+000
222+500
223+000
223+500
224+000
224+500
225+000
225+500
226+000
226+500
227+000
Azizbey Tepesi
Karakamış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Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
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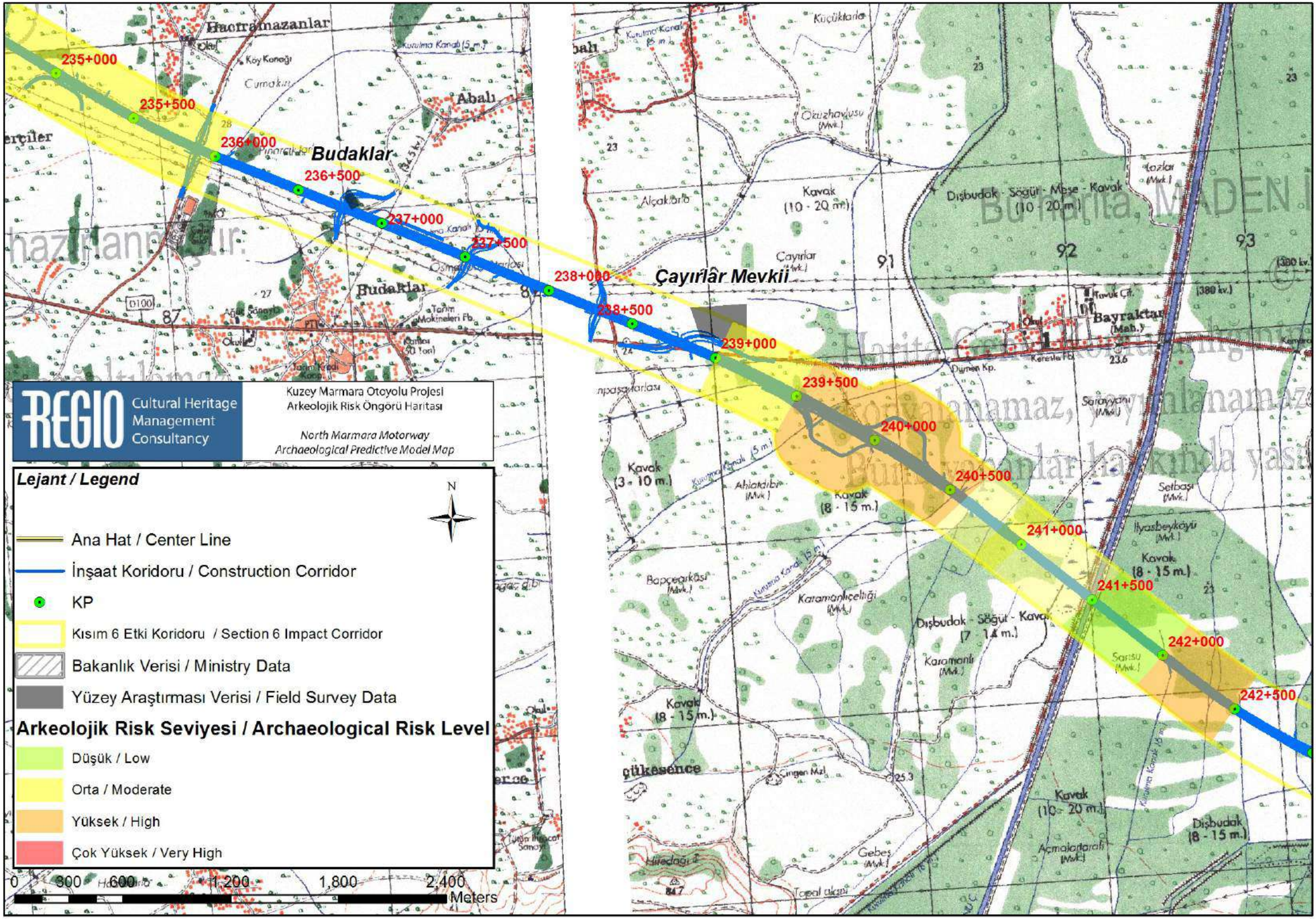
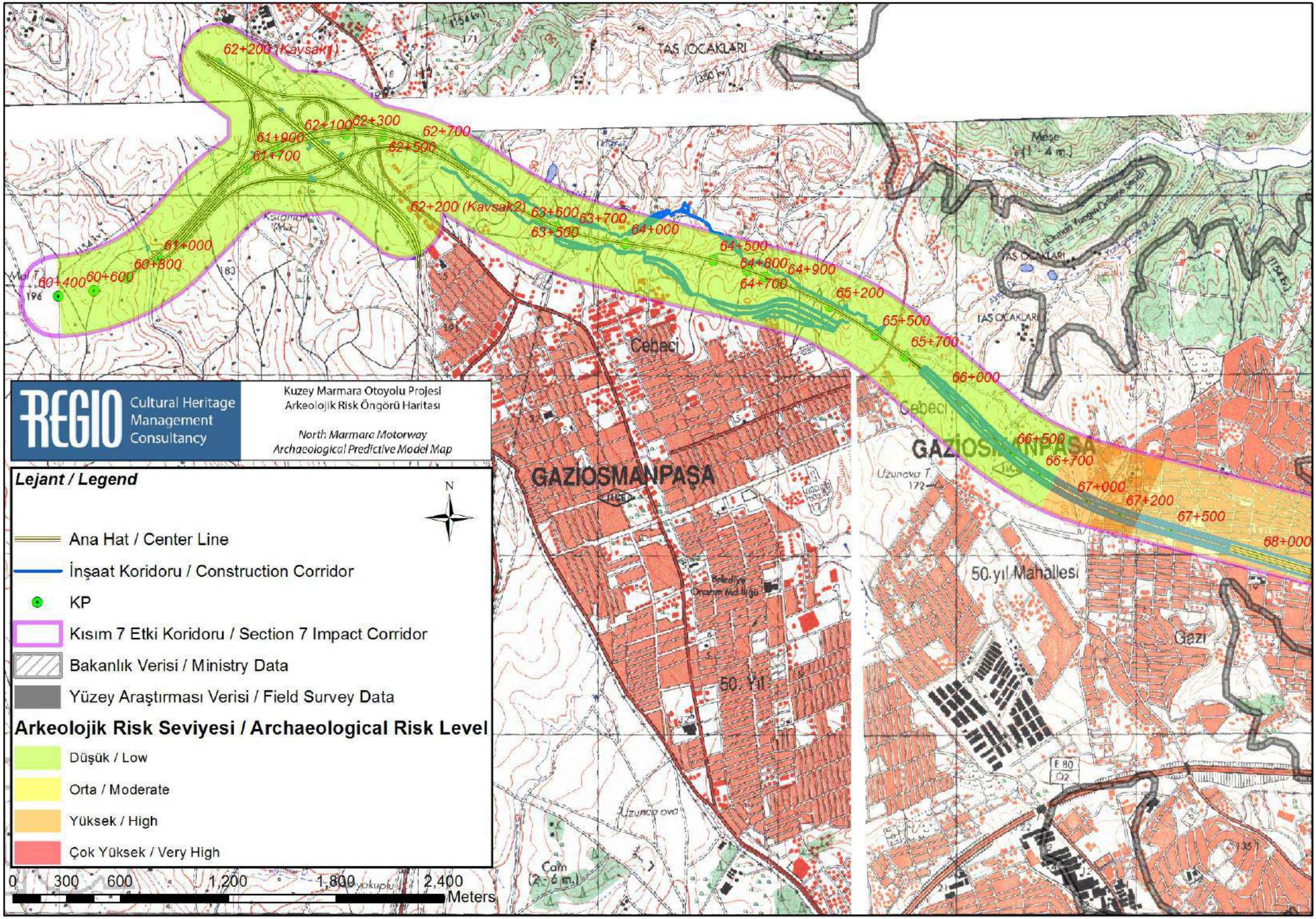
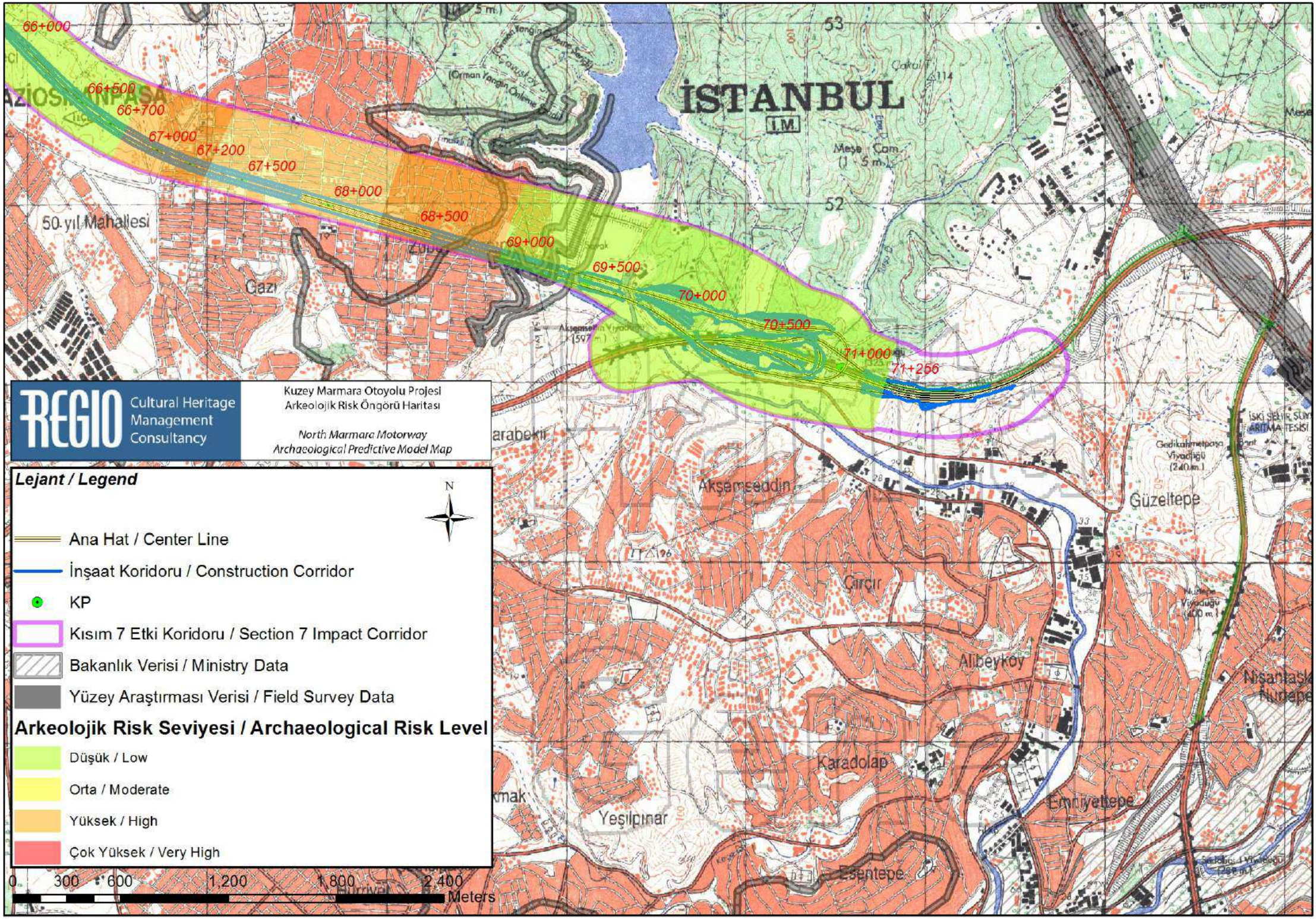
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
227+000
227+500
228+000
228+500
229+000
229+500
230+000
230+500
231+000
231+500
232+000
232+500
233+000
233+500
234+000
234+500
235+000
0+000
0+500
1+000
1+500
3+000
3+000
Besihane
Kömürlük Modern Mezarlığı
Kömürlük
Çelebiler
Kasımlar
Süleymanbey
Köprübaşı
Rüstemler
Çerçiler
Çökelder
Çamyolu
Zeynellarla
Kavak (3 - 10 m.)
Kavak (10 m.)
Köseler Mz.
Kıslalarla
Kısacayırlar
Kereste Fb.
Mermer Fb.
Okul
Köy Konağı
Akaryakıt İst.
Tavuk Çif.
Sağlık Oc.
Kantar (50 Ton)
Pompa İst. Beton (10 m.)
Sülücaoğlu
Hacıaoğlu Düzü
Kaibantarla
Karbağalıkçayırı
Aşağı Sanayi
Topal
Aymalık
Kazulur
Kesikbaşlar
Sıraubağlar
Tepeköprü Dağıtım Boru Hattı
Tepeköprü Çağlayan Boru Hattı
Sucak Fb.
Bezaşı
380 kv.
Bölünmüş Karayolu
Yapım Aşamasında
Asfalt Yapılıyor
Yapılmakta
Tamamlanmış
Kullanılmakta
Kullanılmakta Olan
Kullanılmakta Olan Yol
Kullanılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı
Kullanılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı Ve Yapılmakta Olan Yol Ağı

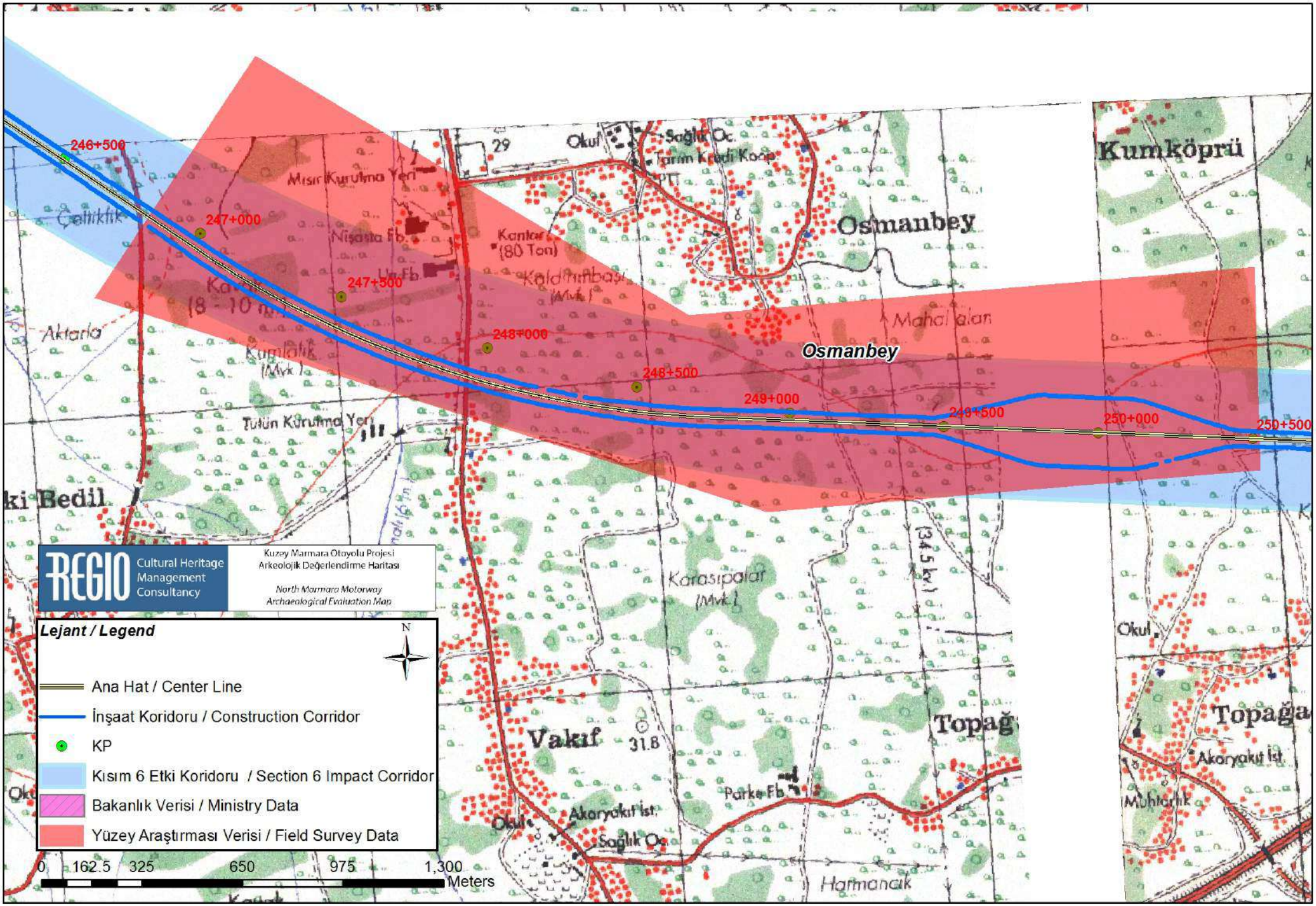


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
235+000
235+500
236+000
236+500
237+000
237+500
238+000
238+500
239+000
239+500
240+000
240+500
241+000
241+500
242+000
242+500
Budaklar
Çayırlar Mevkii
Hacıramazanlar
Abalı
Bayraktar
Kavak (10 - 20 m.)
Kavak (8 - 15 m.)
Kavak (3 - 10 m.)
Dışbudak - Söğüt - Meşe - Kavak (10 - 20 m.)
Dışbudak - Söğüt - Kavak (7 - 14 m.)
Dışbudak (8 - 15 m.)
Kavak (10 - 20 m.)
Kavak (8 - 15 m.)
Kavak (8 - 15 m.)
Bu harita, MADEN

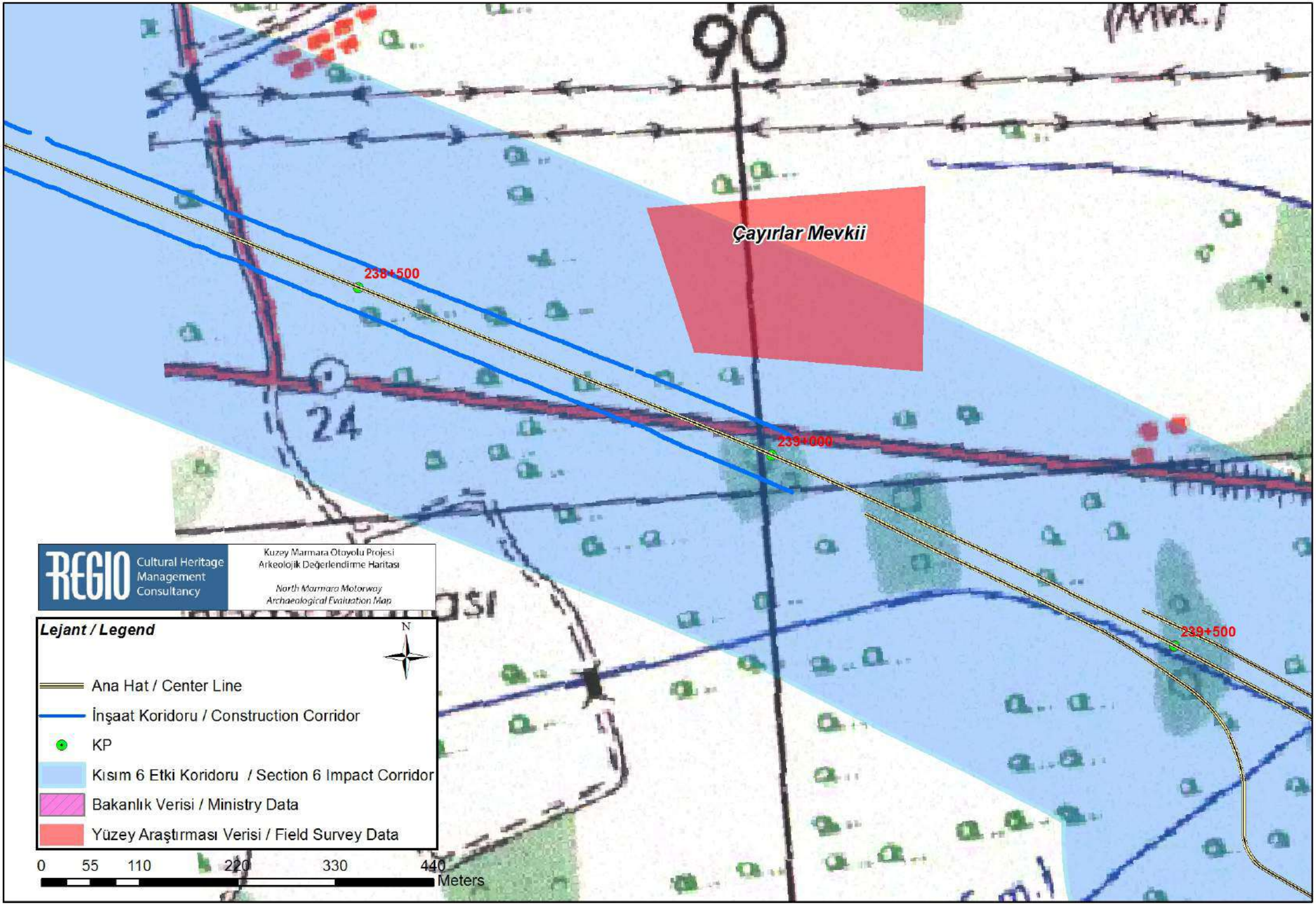

REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 7 Etki Koridoru / Section 7 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
62+200 (Kavsak1)
62+100
62+300
62+700
62+500
61+900
61+700
62+200 (Kavsak2)
63+600
63+700
63+500
64+000
64+500
64+800
64+900
64+700
65+200
65+500
65+700
66+000
66+500
66+700
67+000
67+200
67+500
68+000
61+000
60+800
60+400
60+600
TAŞ OCAKLARI
Cebeci
GAZİOSMANPAŞA
50. Yıl
50.yıl Mahallesi
Gazi
Uzunova T.
Uzunova
Çam
Meşe

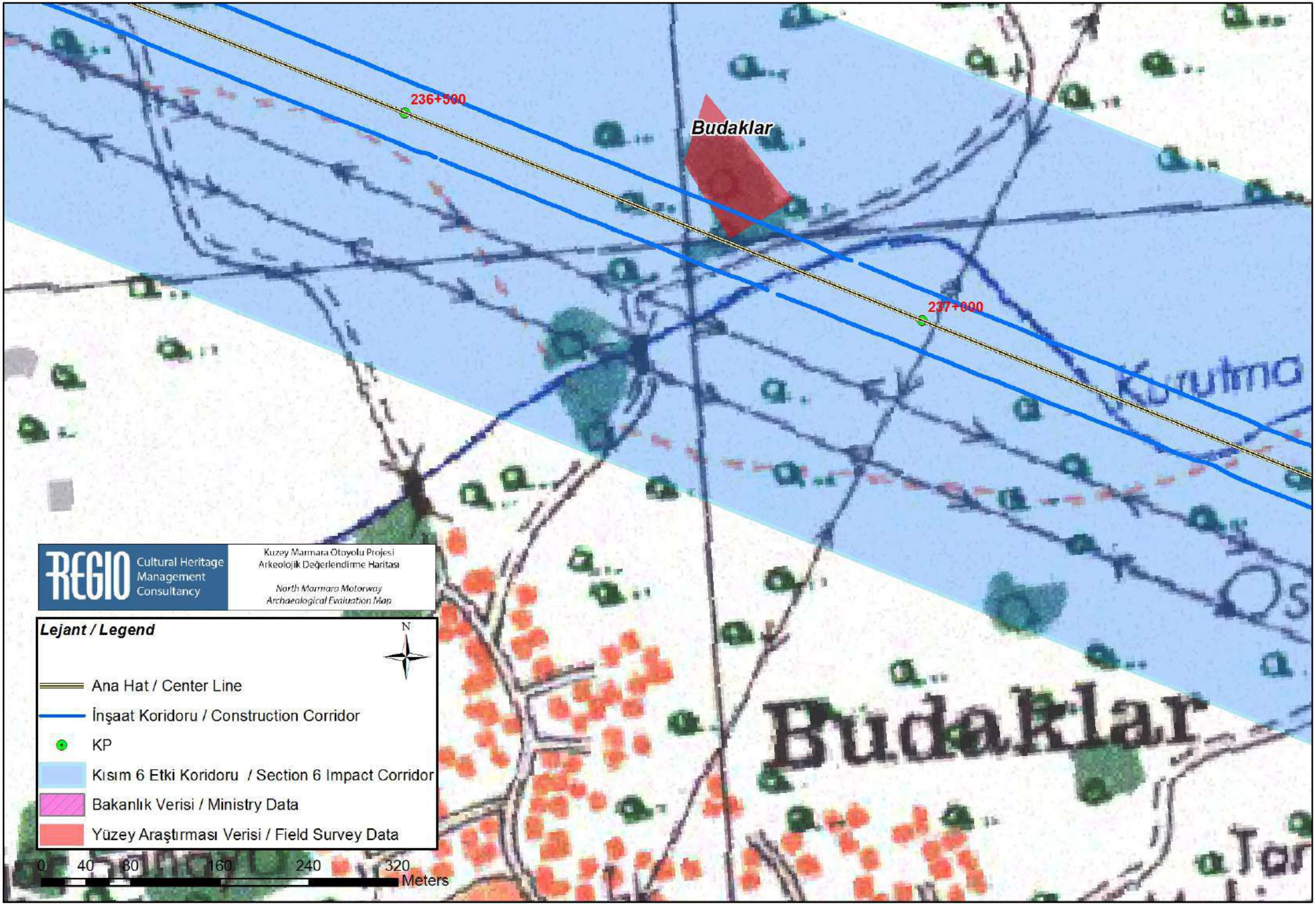

REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 7 Etki Koridoru / Section 7 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
Arkeolojik Risk Seviyesi / Archaeological Risk Level
Düşük / Low
Orta / Moderate
Yüksek / High
Çok Yüksek / Very High
0 300 600 1,200 1,800 2,400
Meters
66+000
66+500
66+700
67+000
67+200
67+500
68+000
68+500
69+000
69+500
70+000
70+500
71+000
71+256
İSTANBUL
I.M.
50 yıl Mahallesi
Gazi
Akşemseddin
Güzeltepe
Çarçır
Alibeyköy
Karadolap
Yeşilpınar
Esentepe
Emniyettepe

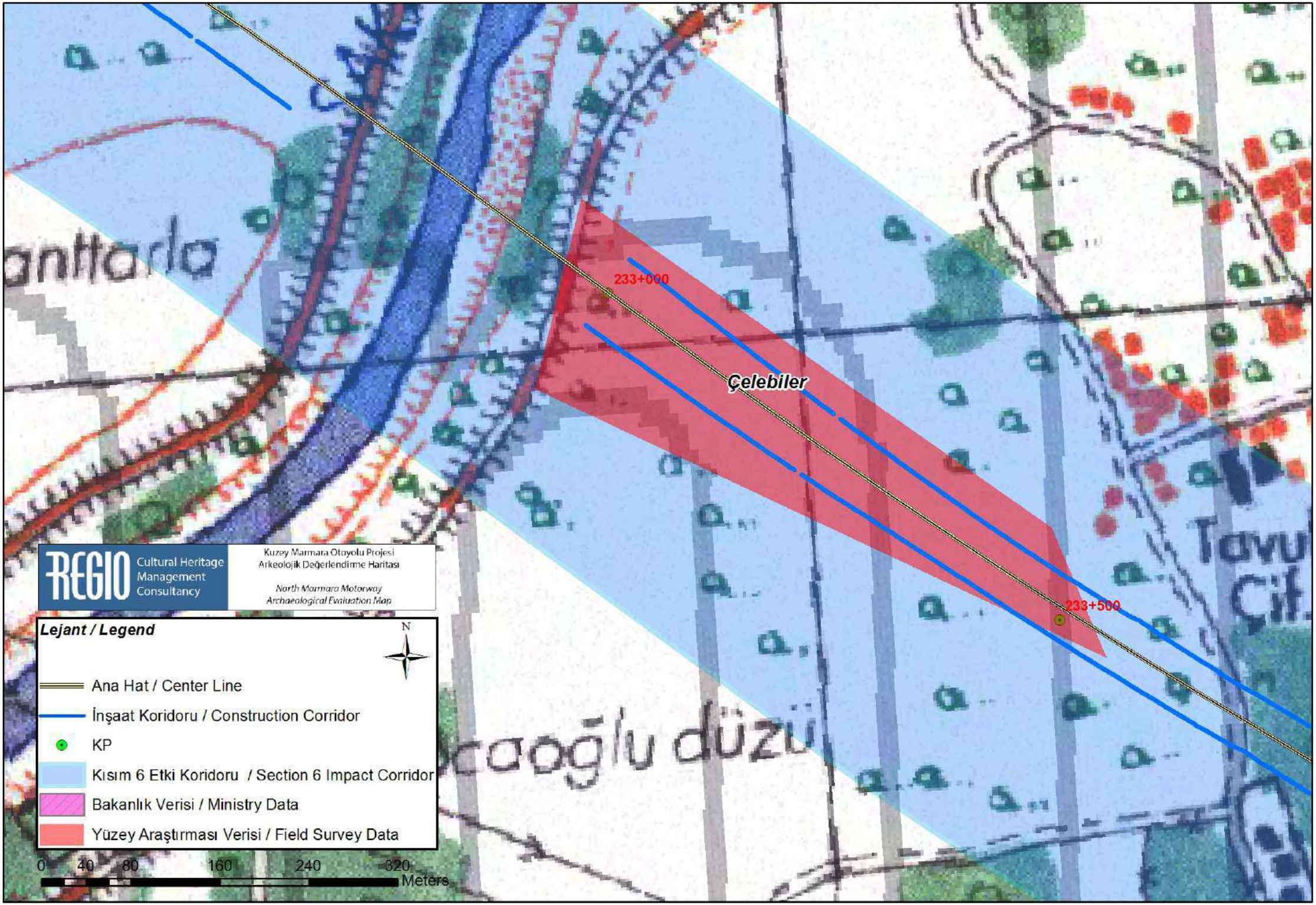
Annex 6 – Site Layouts

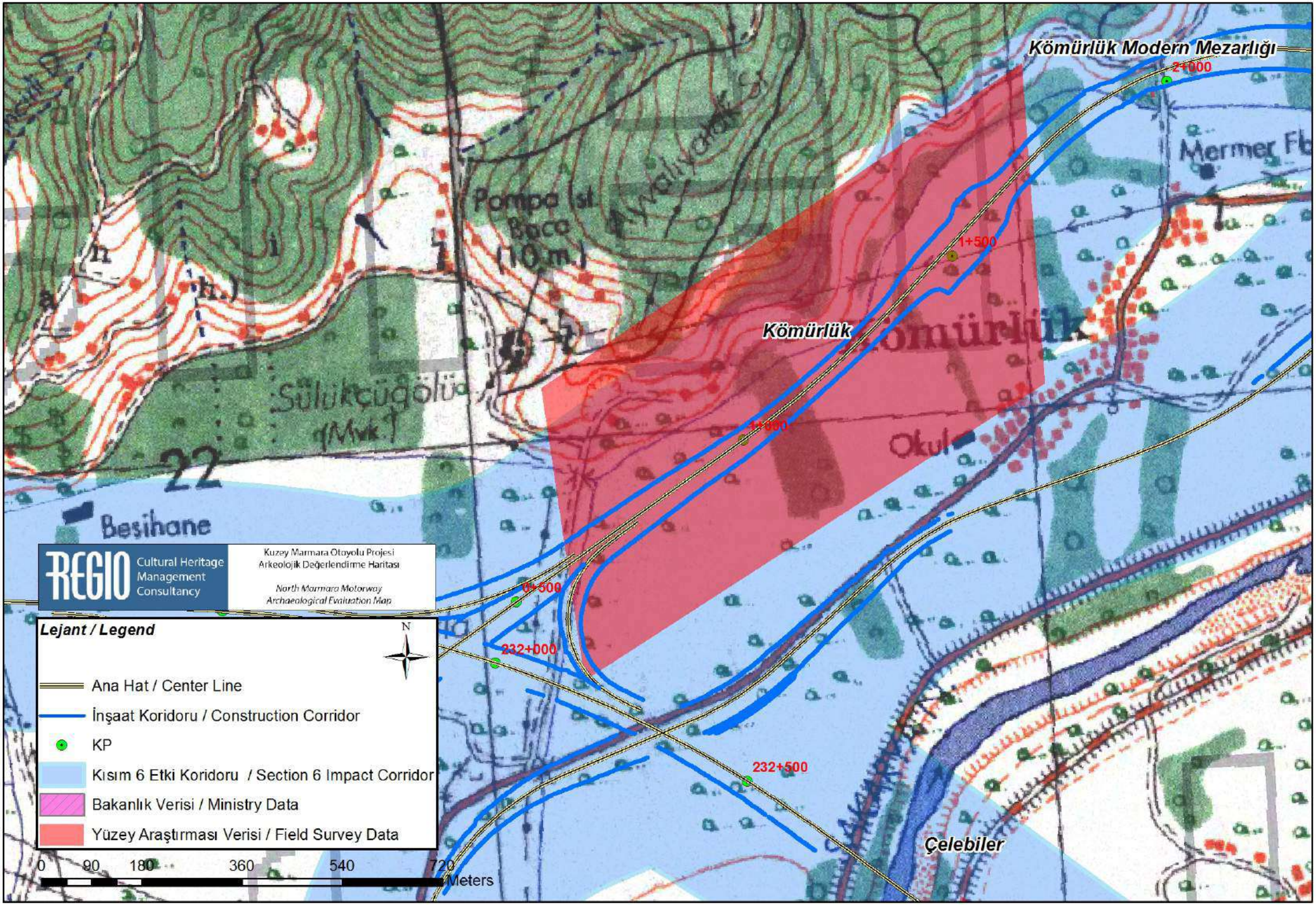


246+500
247+000
247+500
248+000
248+500
249+000
249+500
250+000
250+500
Osmanbey
Kumköprü
Mahal alan
Karasıpalar (Mvk.)
Vakıf
Topağ
Topağa
Akaryakıt İst.
Sağlık Oc.
Parke Fb.
Harmancık
Okul
Tütün Kurutma Yeri
Aktarla
Çeltiklik
Nişasta Fb.
Kantar (80 Ton)
Kaldırımbaşı (Mvk.)
Kumlalık (Mvk.)
Mısır Kurutma Yeri
Tarım Kredi Koop
Ki Bedil
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 162.5 325 650 975 1,300
Meters

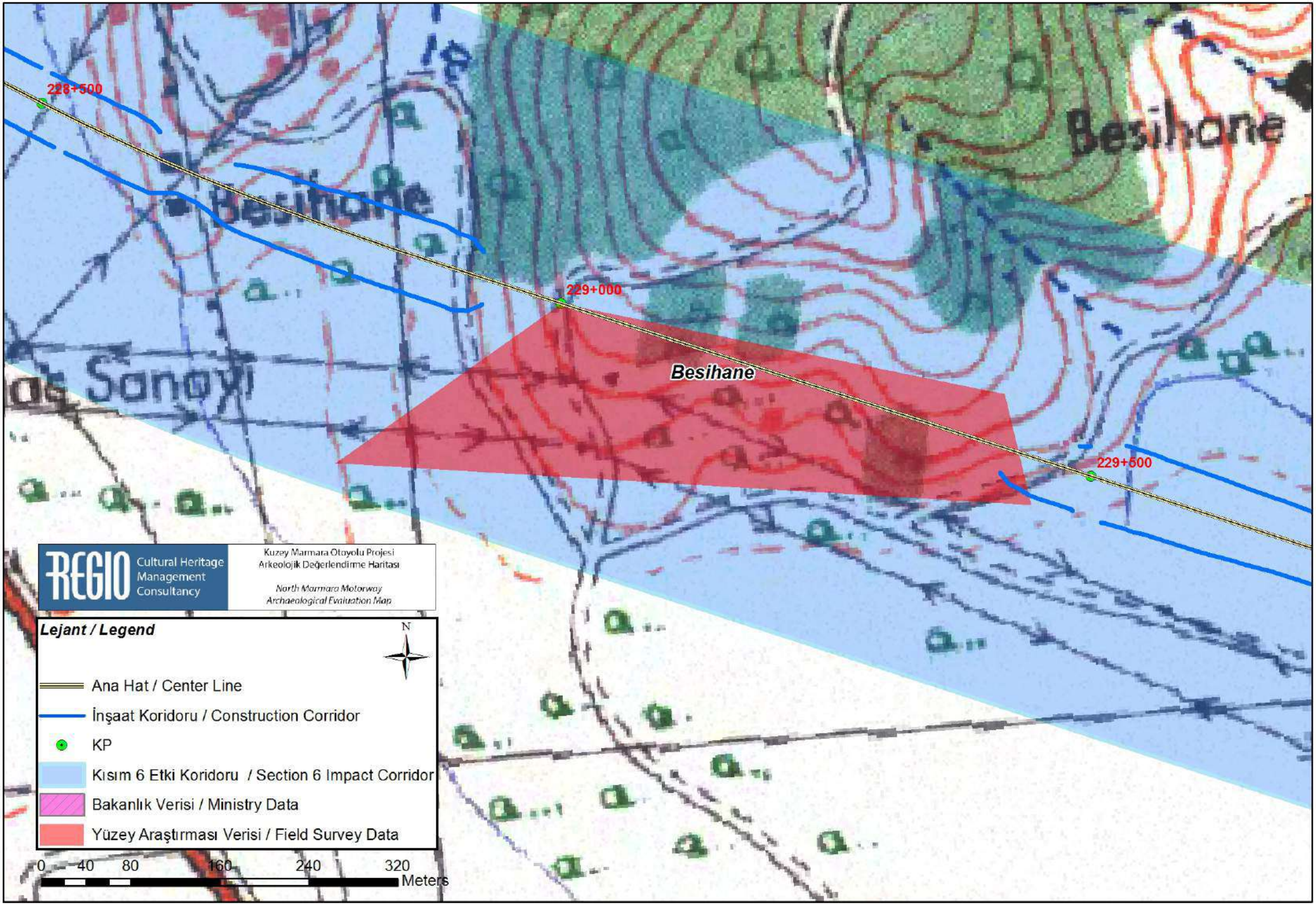

90
Çayırlar Mevkii
238+500
239+000
239+500
24
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

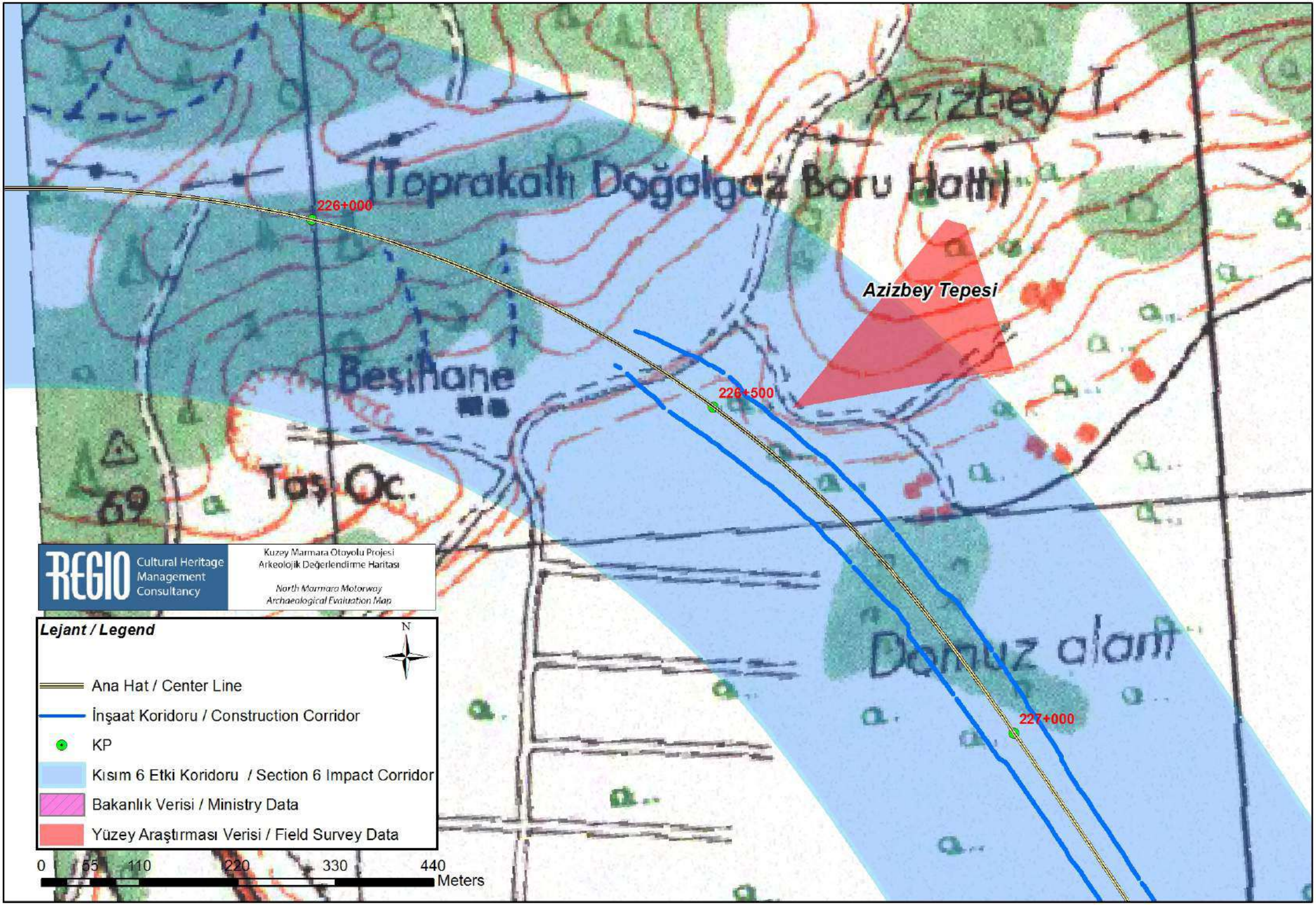

236+500
Budaklar
237+000
Kurutma
Budaklar
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

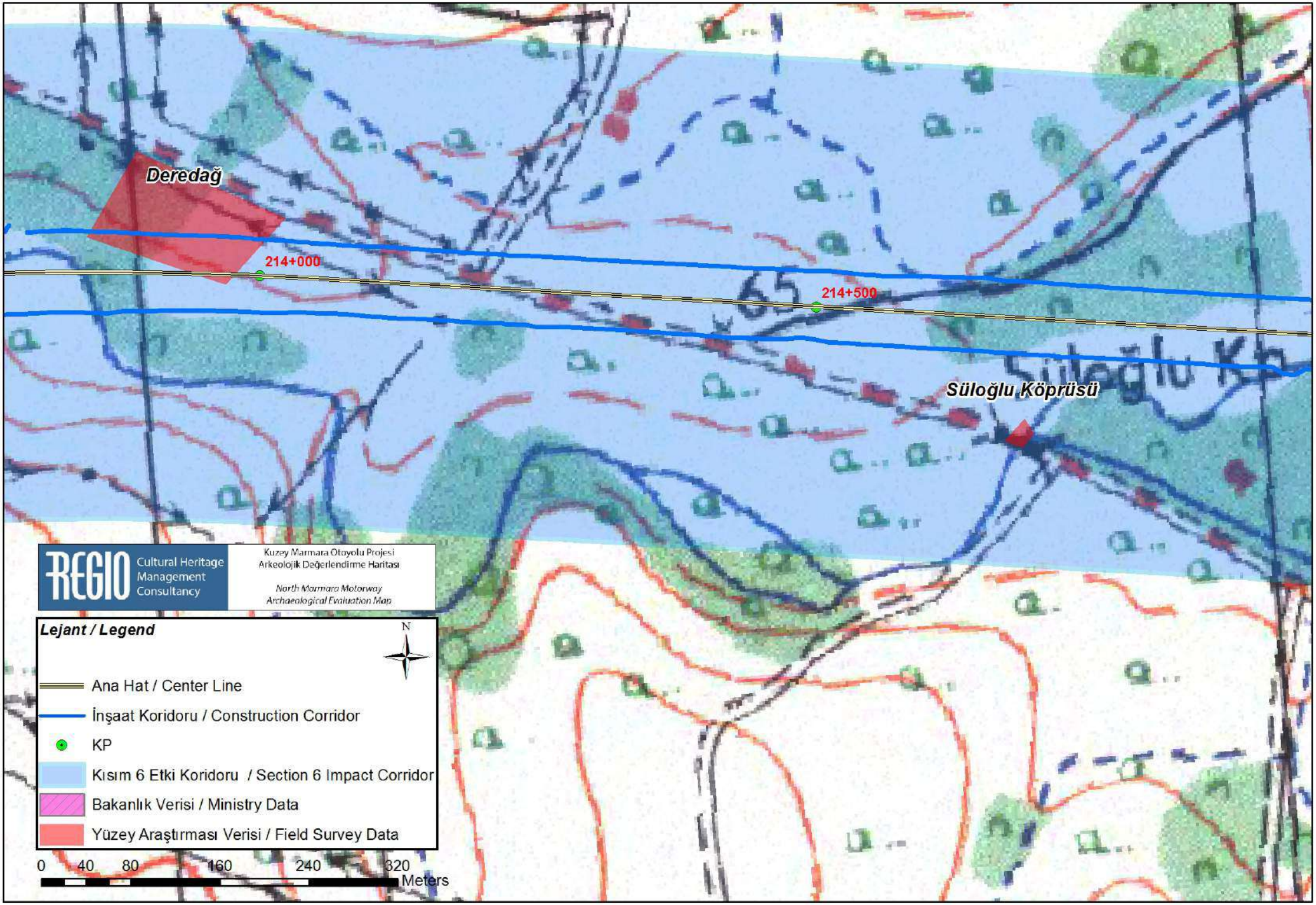

REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
233+000
233+500
Çelebiler
anttarla
caoğlu düzü
Tavu
Çif.

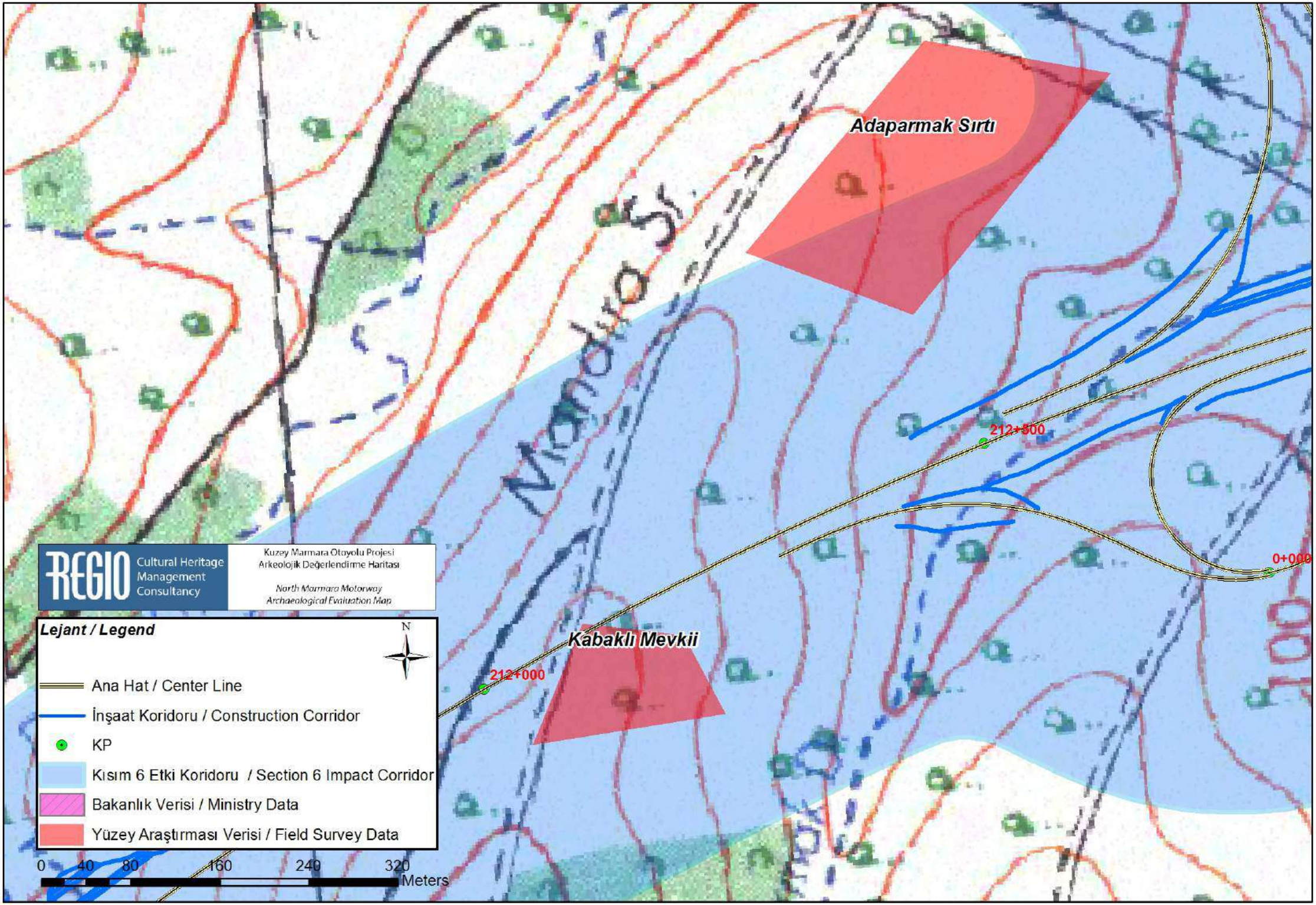


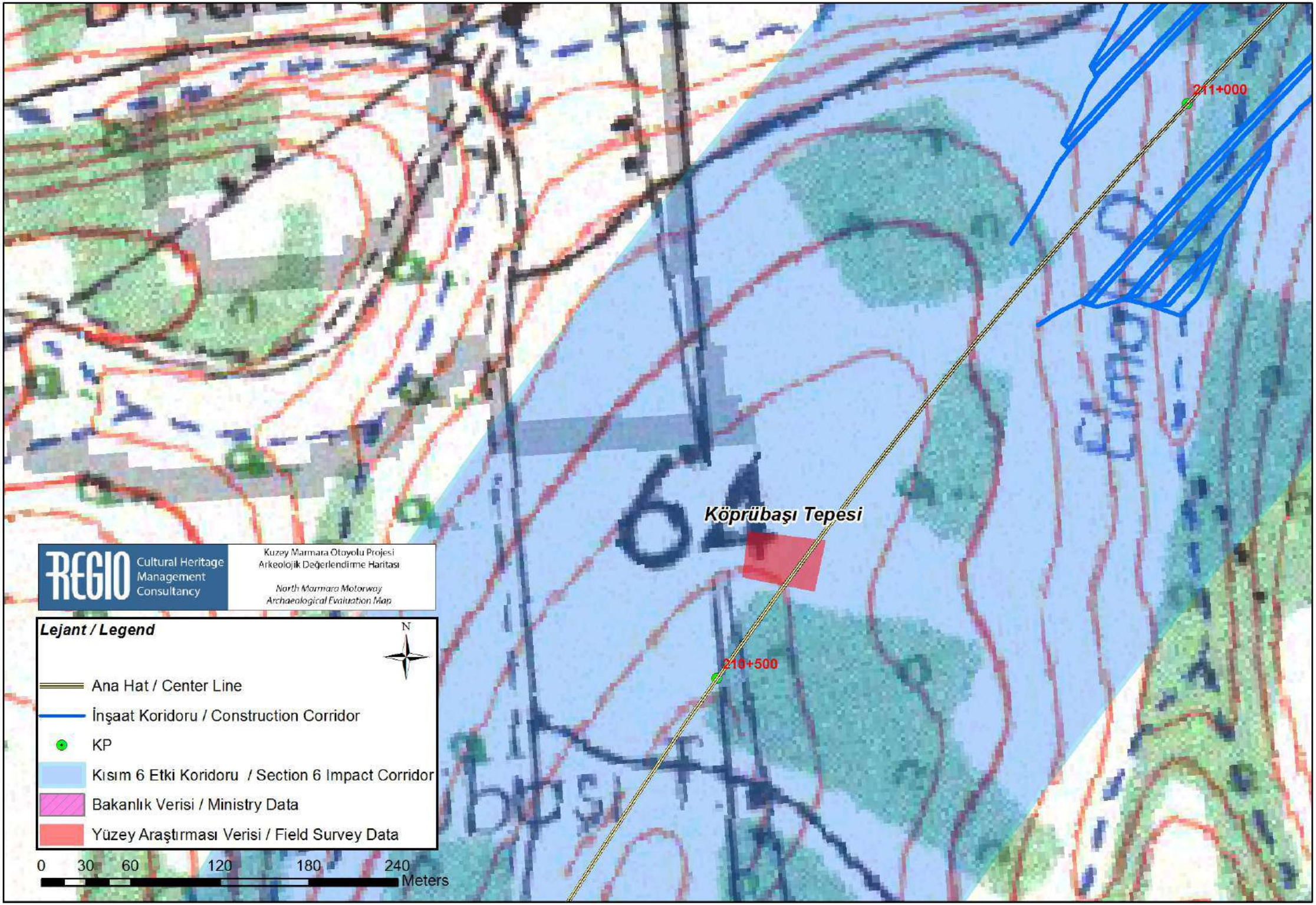
Kömürlük Modern Mezarlığı
2+000
Mermer Fb
Pompa İst. Baca (10 m.)
1+500
Kömürlük
Kömürlük
Sülükçüğölü (Mvk.)
1+000
Okul
22
Beşihane
0+500
232+000
232+500
Çelebiler
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 90 180 360 540 720
Meters

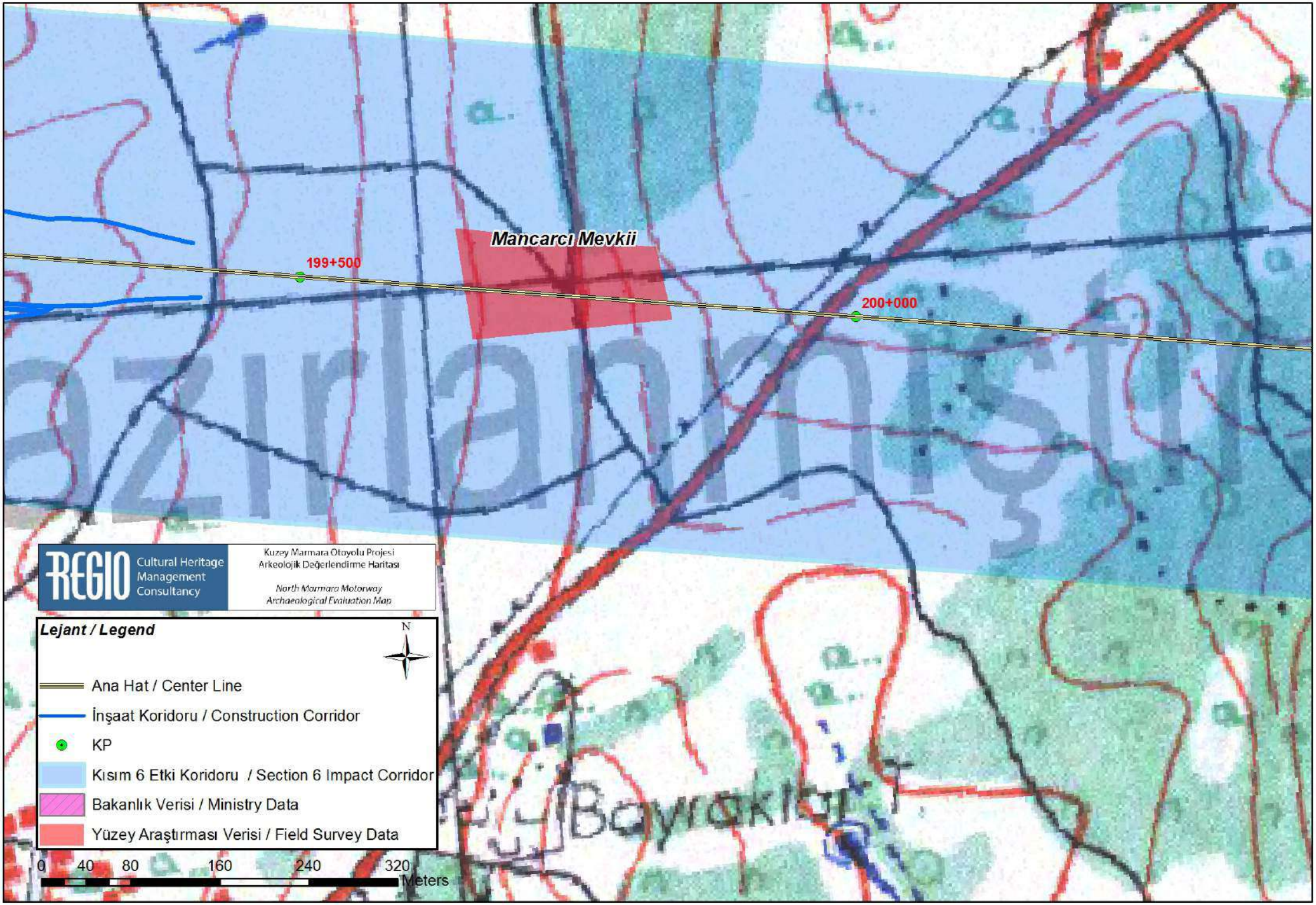

228+500
229+000
229+500
Besihane
Besihane
Besihane
Sanayi
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

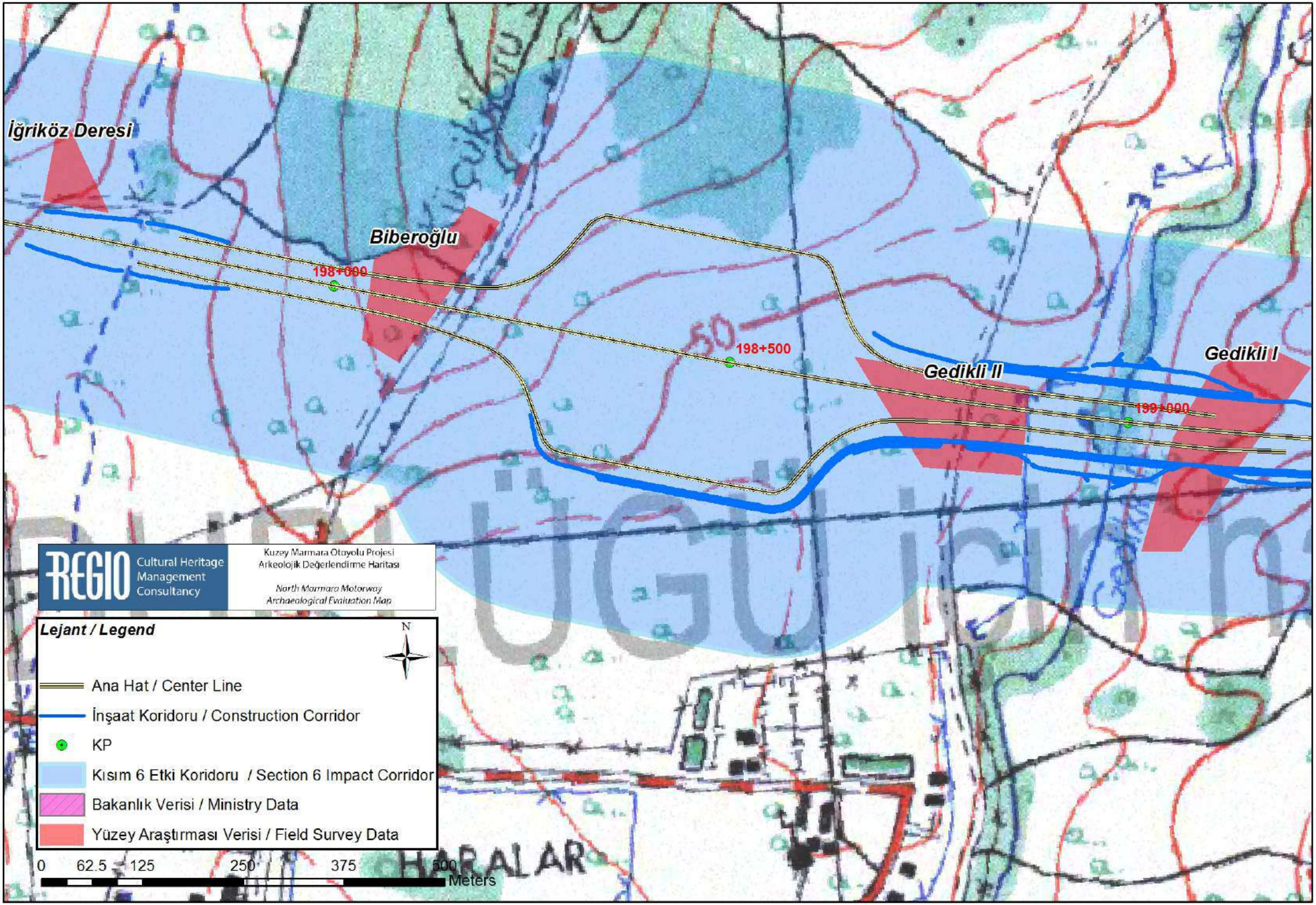

Azizbey T.
(Toprakaltı Doğalgaz Boru Hattı)
226+000
Azizbey Tepesi
Beşiftane
226+500
Taş Oc.
69
Domuz alanı
227+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

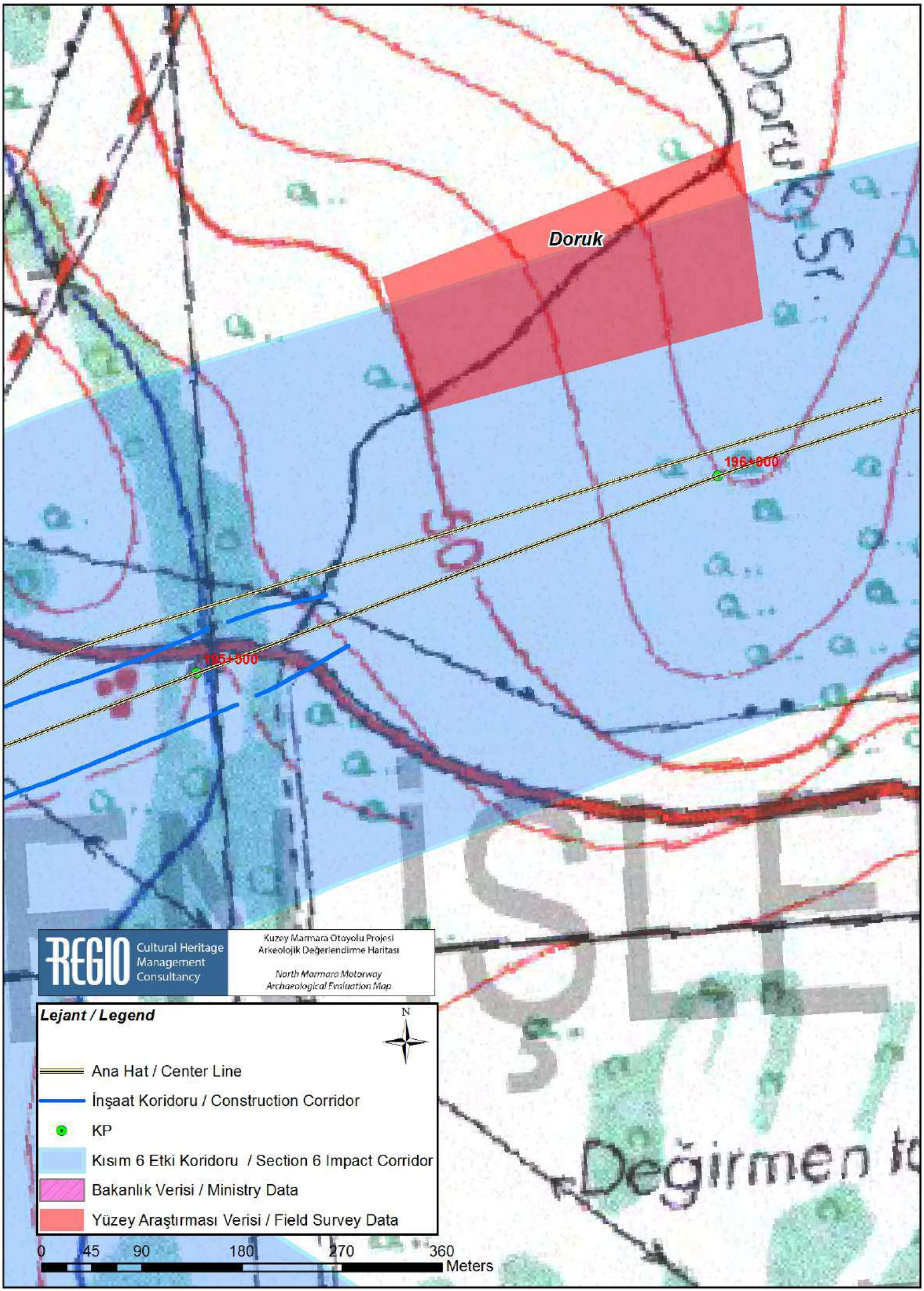

Deredağ
214+000
214+500
Süloğlu Köprüsü
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters

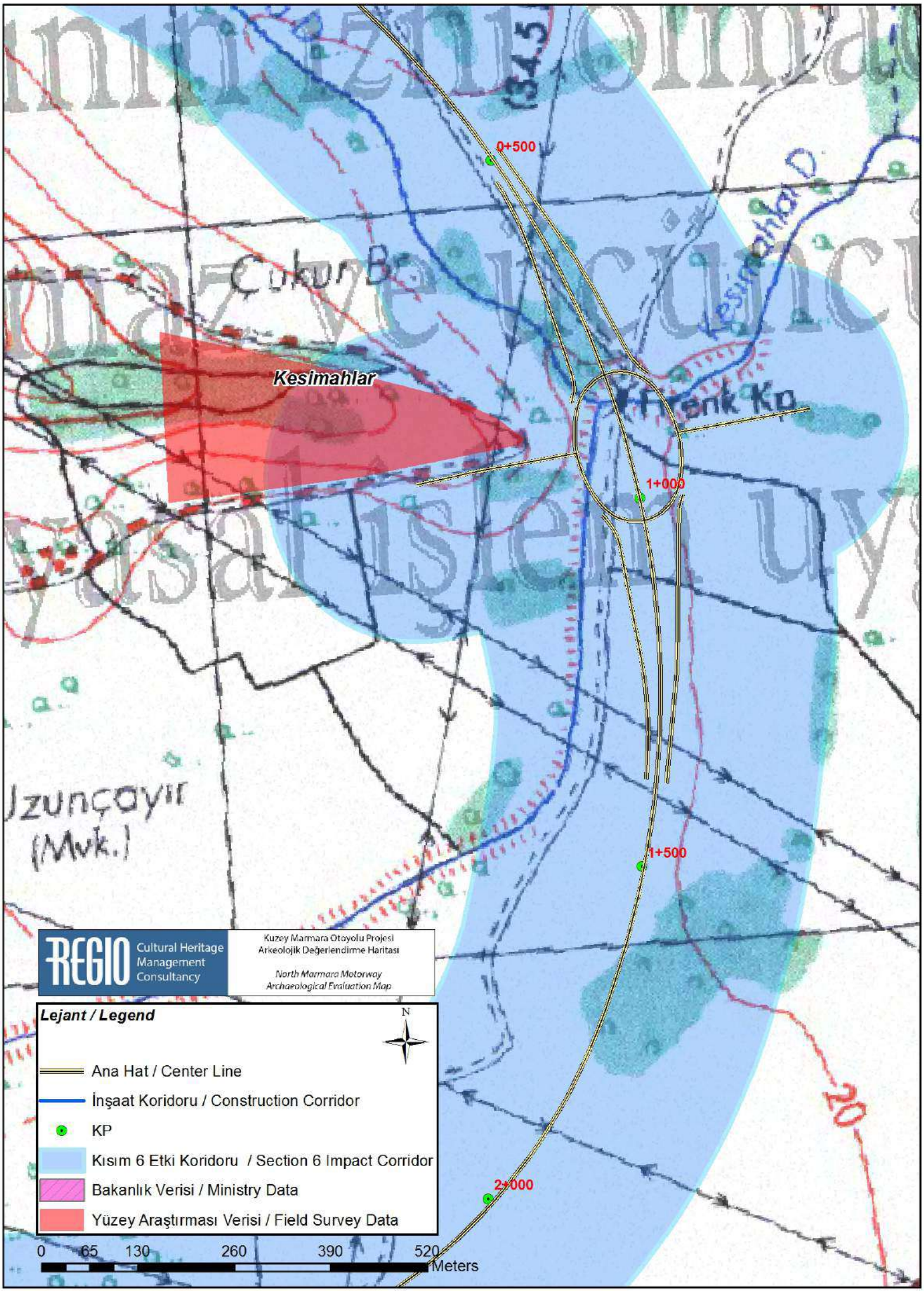

Adaparmak Sırtı
Kabaklı Mevkii
212+500
212+000
0+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters


211+000
Köprübaşı Tepesi
64
210+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters

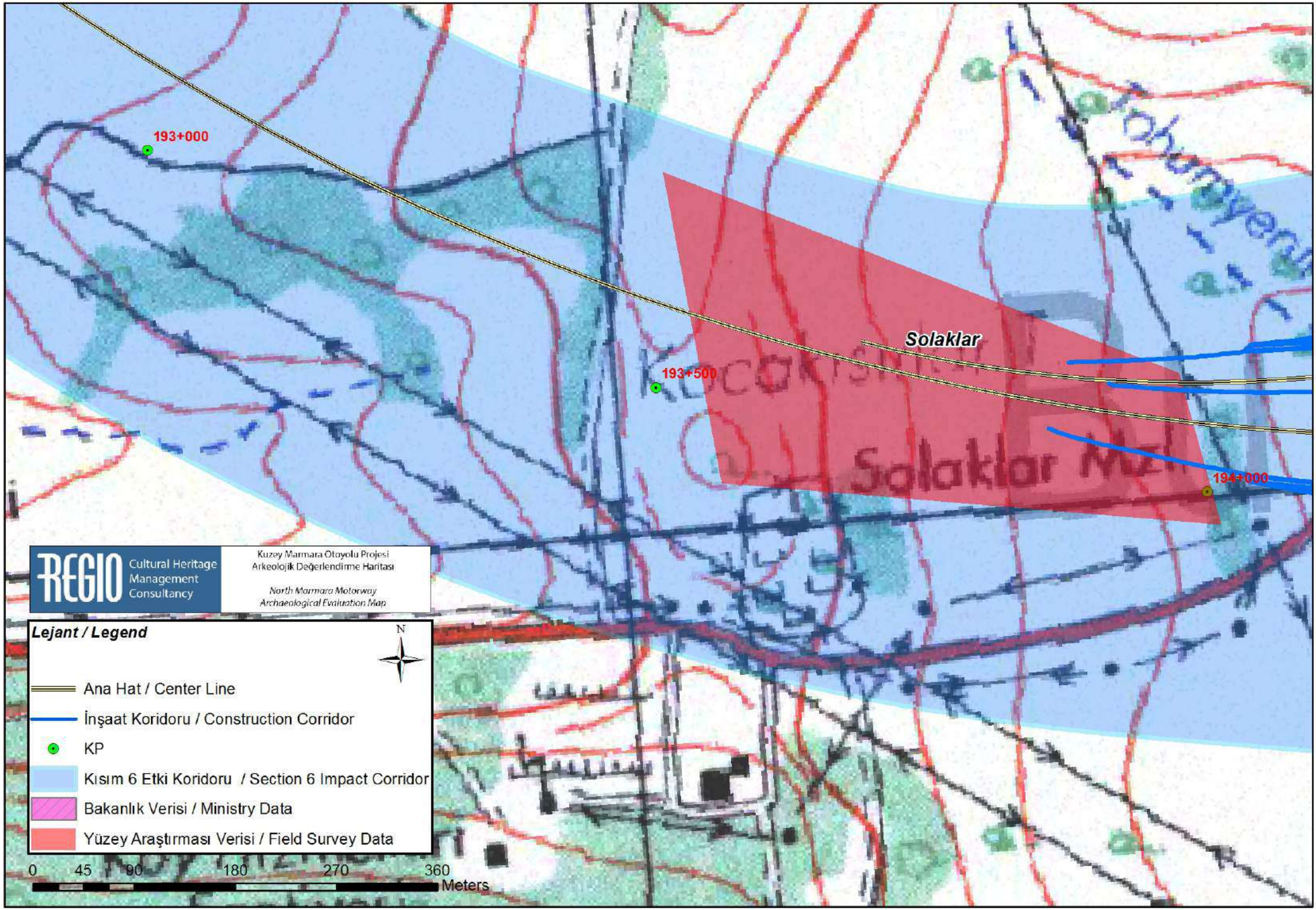

Mancarcı Mevkii
199+500
200+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
Bayrakli

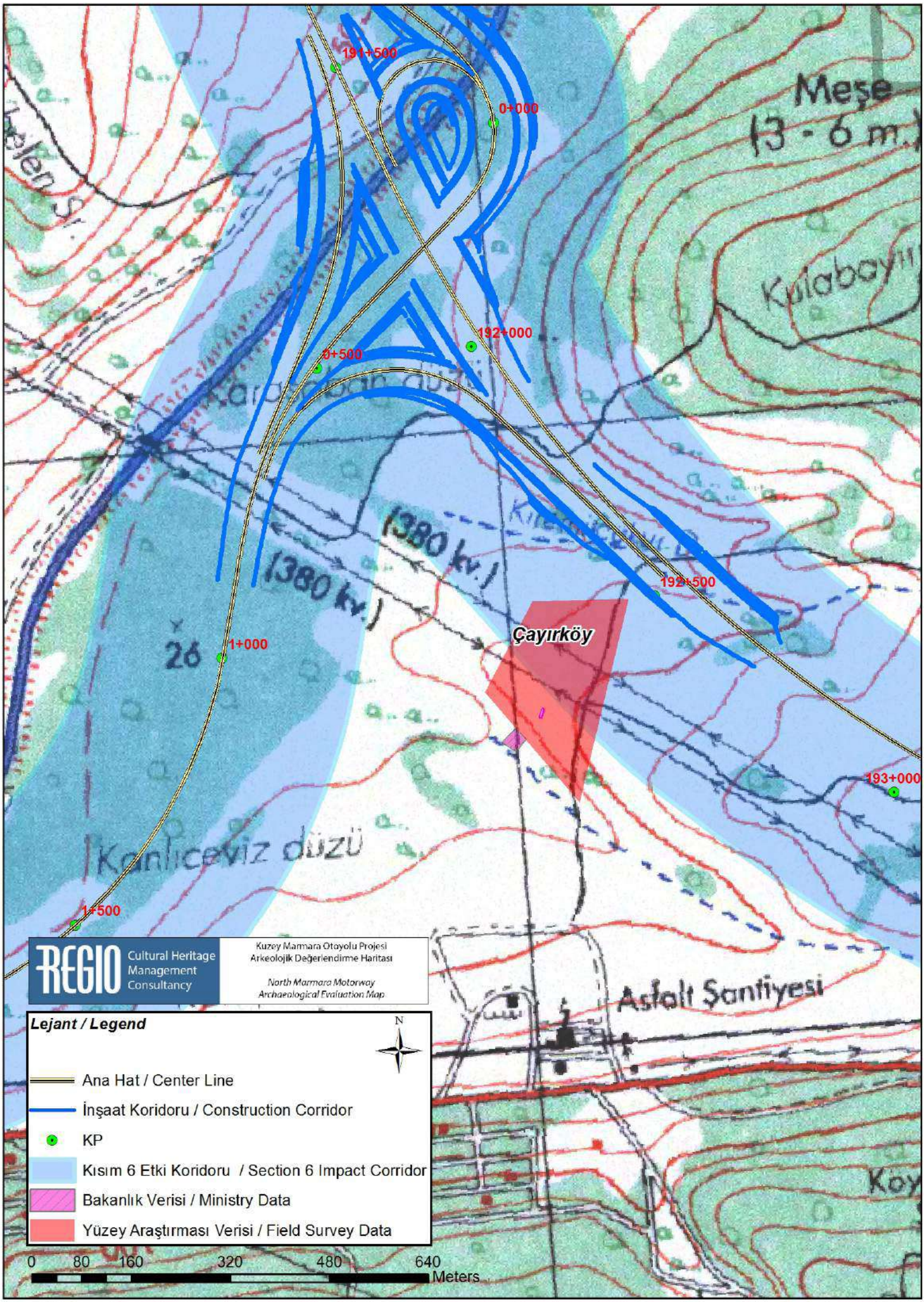

İğriköz Deresi
Biberoğlu
198+000
198+500
Gedikli II
Gedikli I
199+000
50
HARALAR
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 62.5 125 250 375 500
Meters


Doruk
Doruk Sr.
196+000
195+300
50
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters
Değirmen

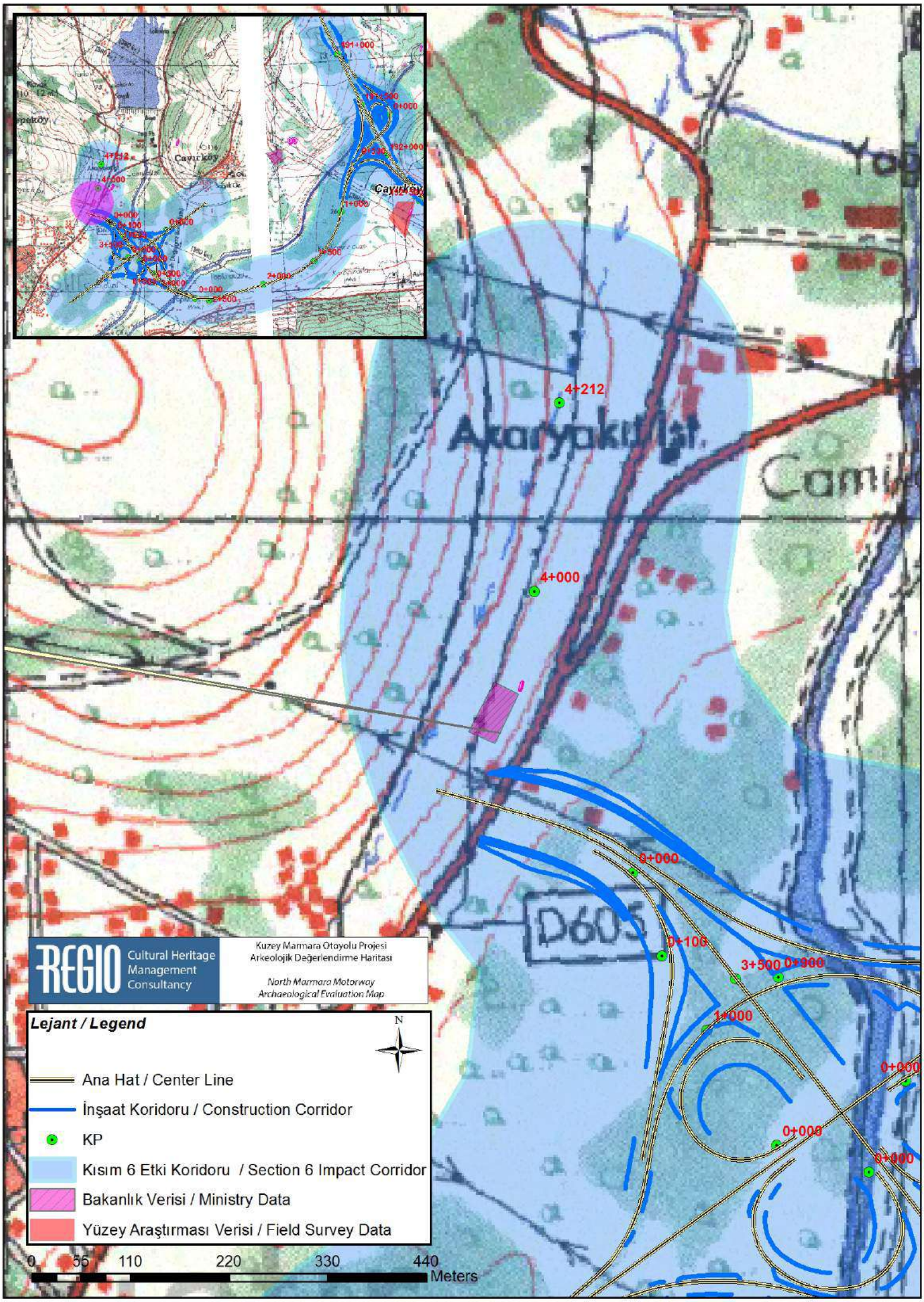


0+500
Çukur Br.
Kesimahlar
Kesimahlar D.
Firenk Kp.
1+000
1+500
2+000
Uzunçayır
(Mvk.)
20
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters

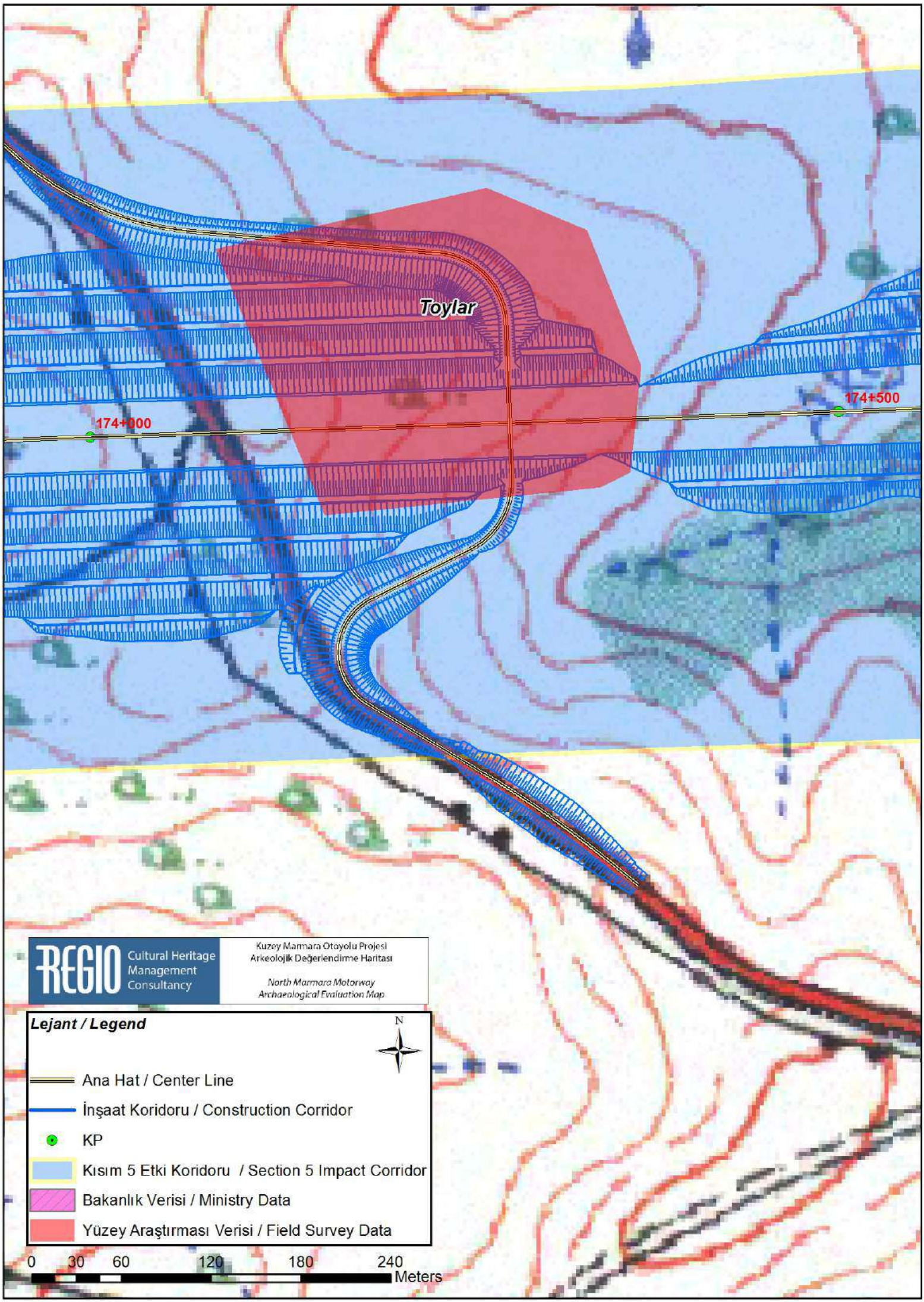

193+000
193+500
194+000
Solaklar
Solaklar Mah.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters

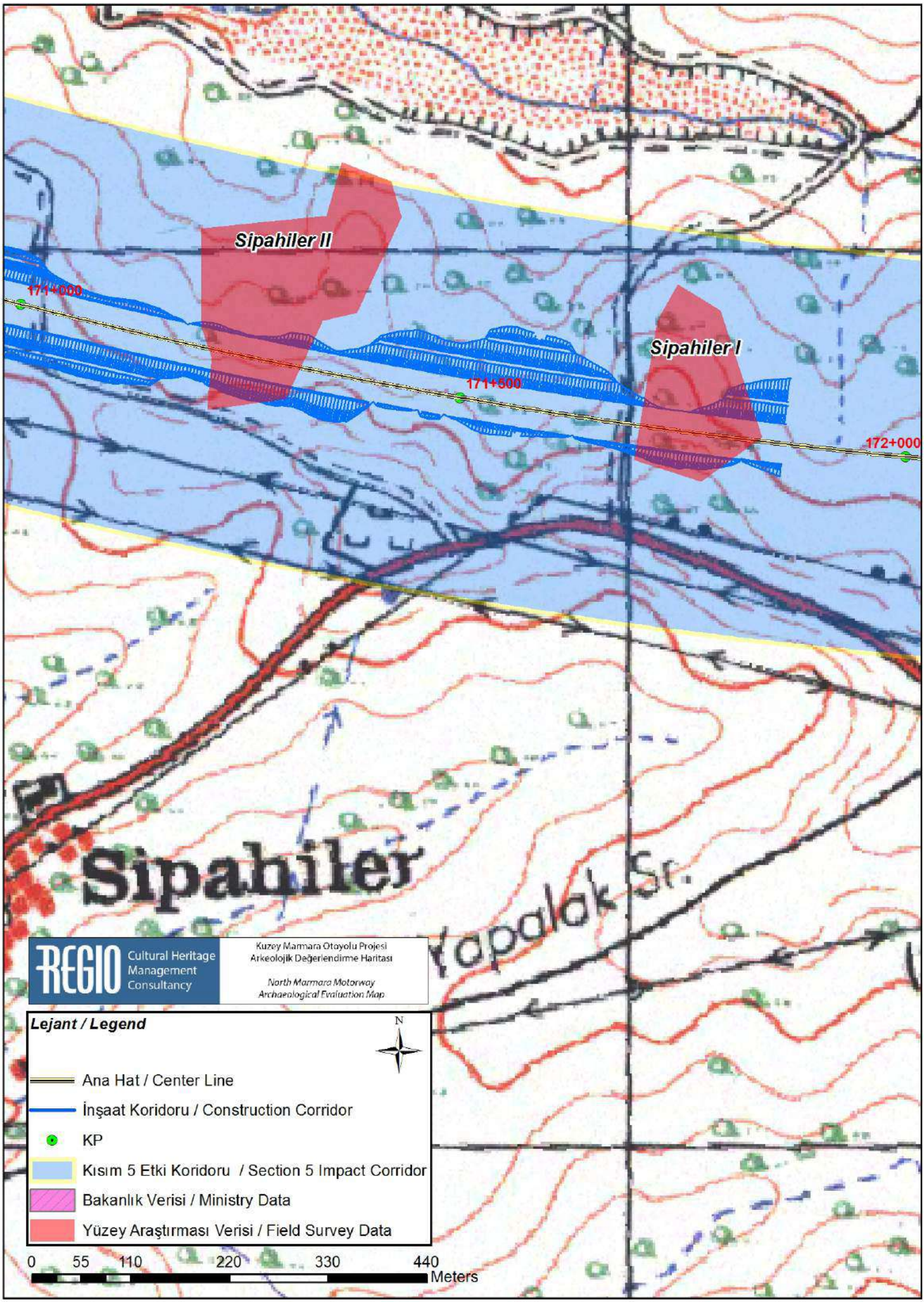


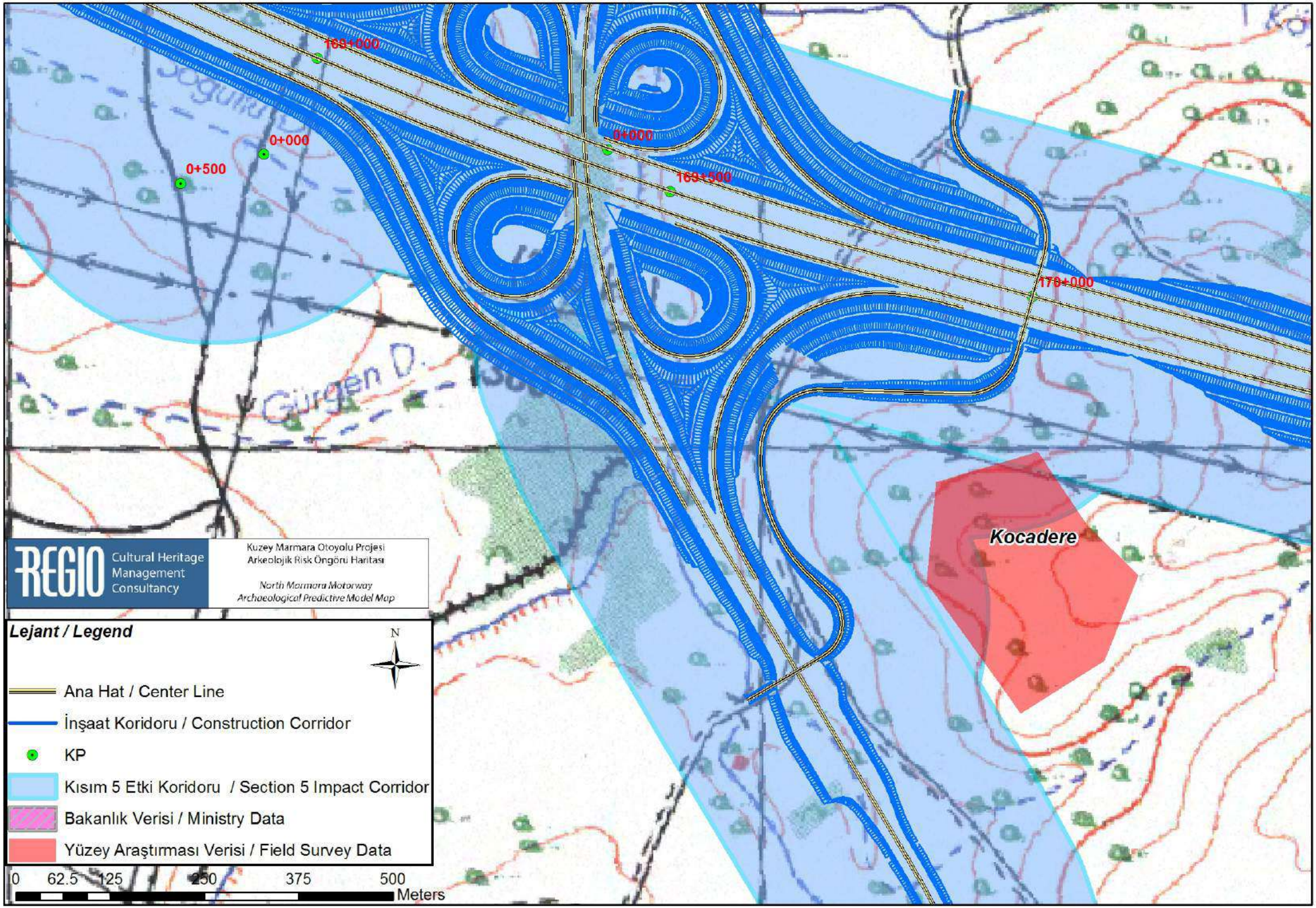
191+500
0+000
Meşe
(3 - 6 m.)
Kulabayı
192+000
0+500
(380 kv.)
(380 kv.)
192+500
Çayırköy
26
1+000
193+000
Kanlıceviz düzü
1+500
Asfalt Şantiyesi
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 80 160 320 480 640
Meters

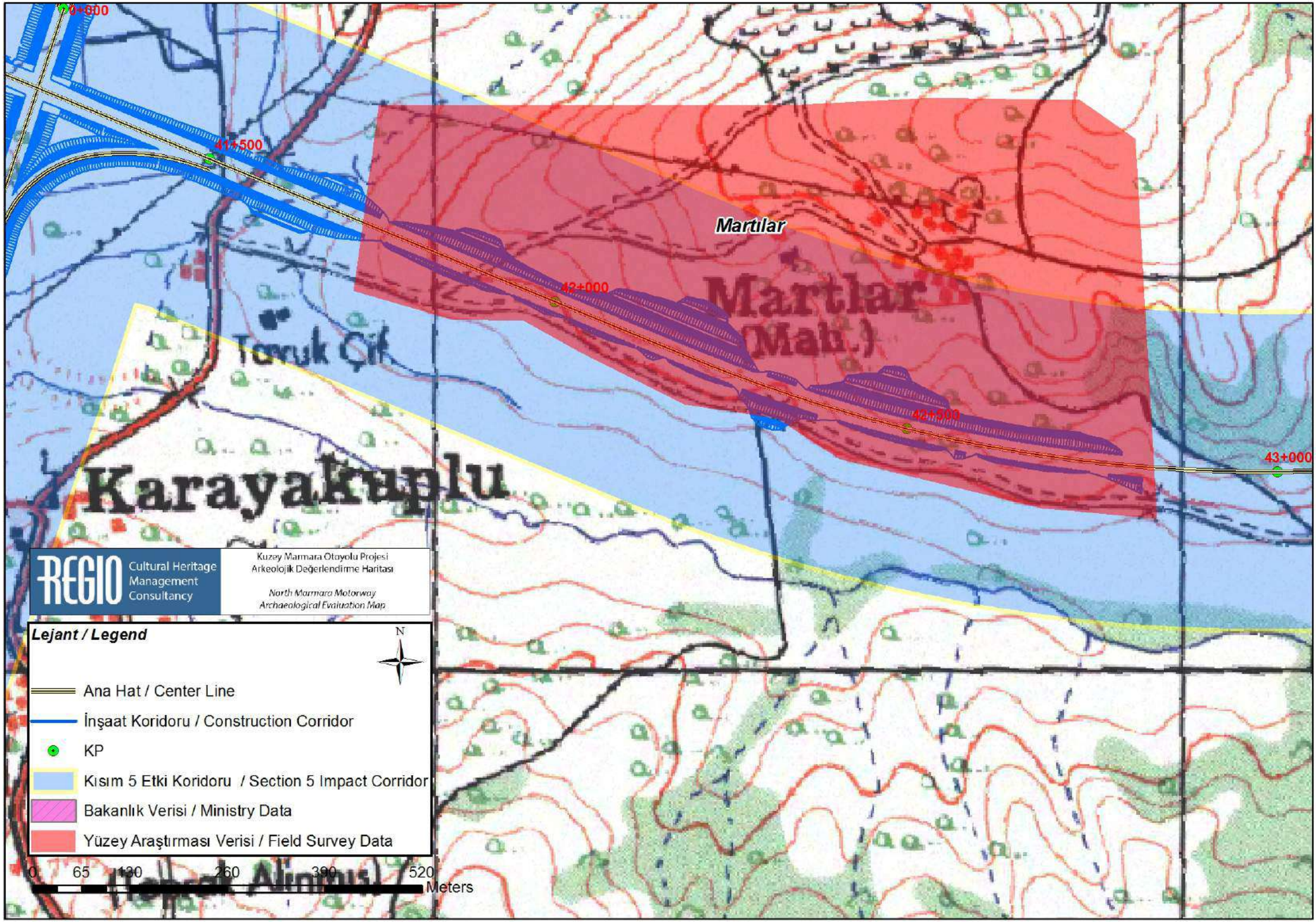


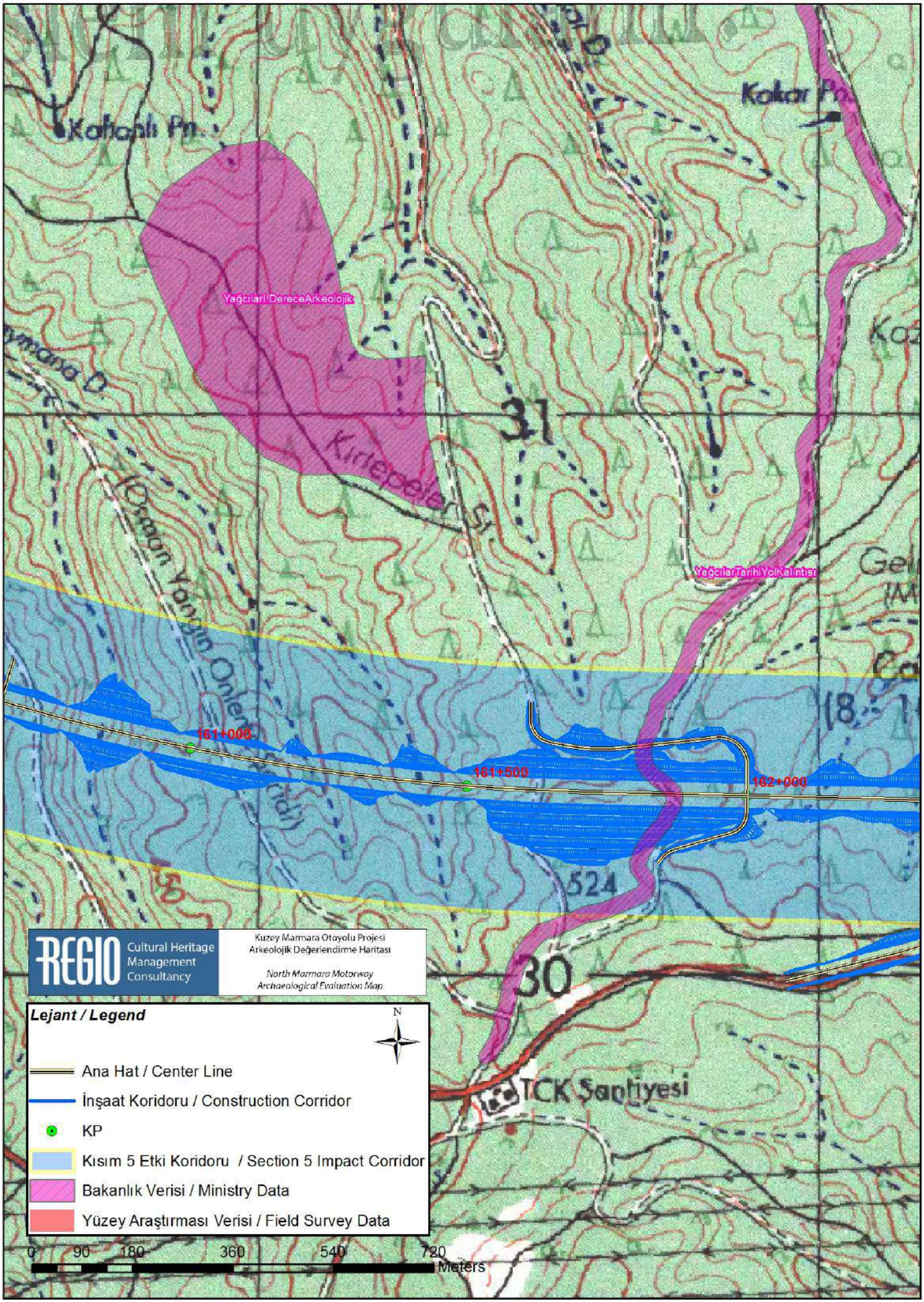
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 6 Etki Koridoru / Section 6 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters
4+212
4+000
0+000
0+100
3+500
0+000
1+000
0+000
0+000
0+000
D605
Akaryakıt İst.
Cami
Çayırköy


Toylar
174+000
174+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters

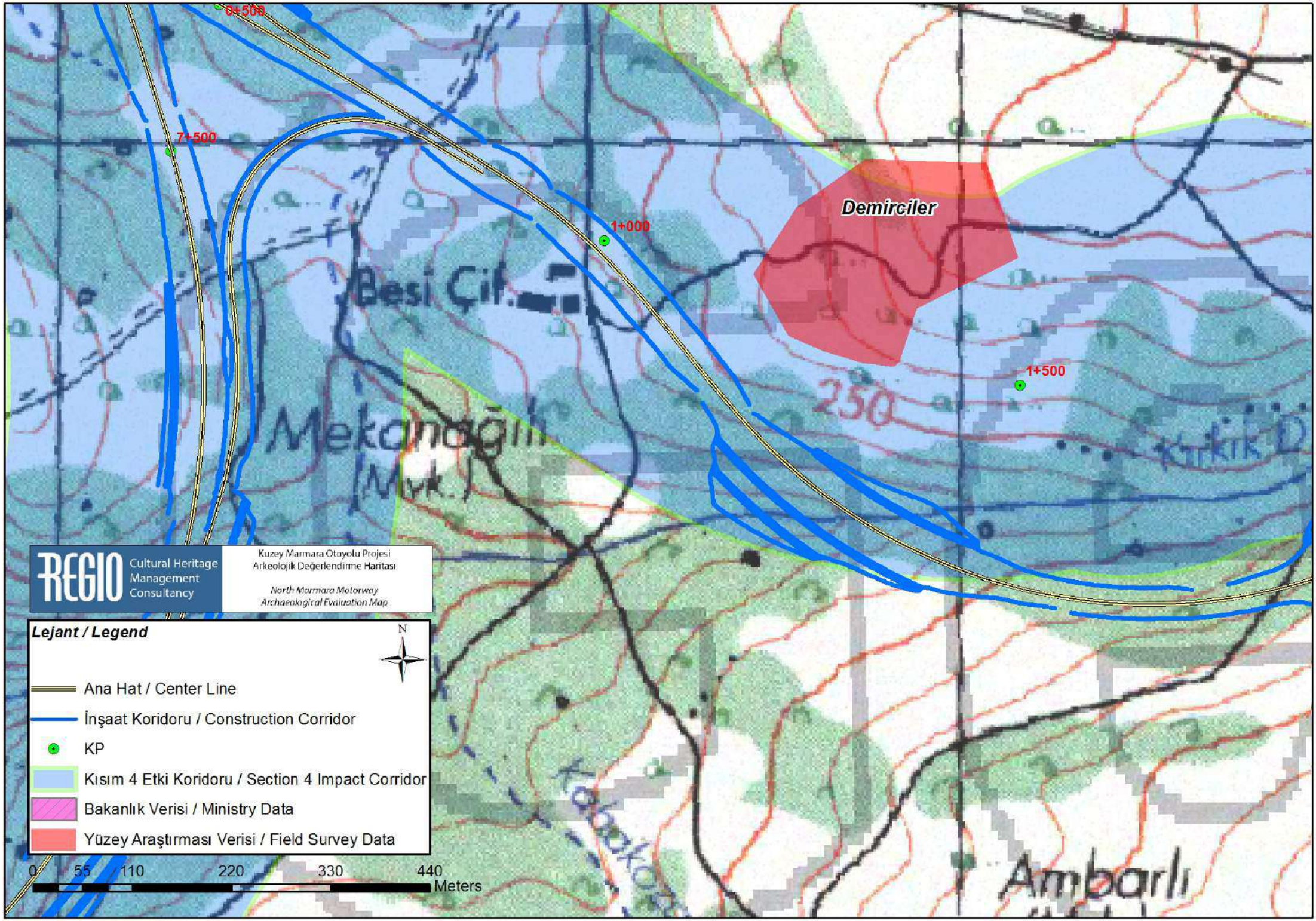

Sipahiler II
Sipahiler I
171+000
171+500
172+000
Sipahiler
Yapalak Sr.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters


169+000
0+000
0+500
0+000
169+500
170+000
Kocadere
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 62.5 125 250 375 500
Meters

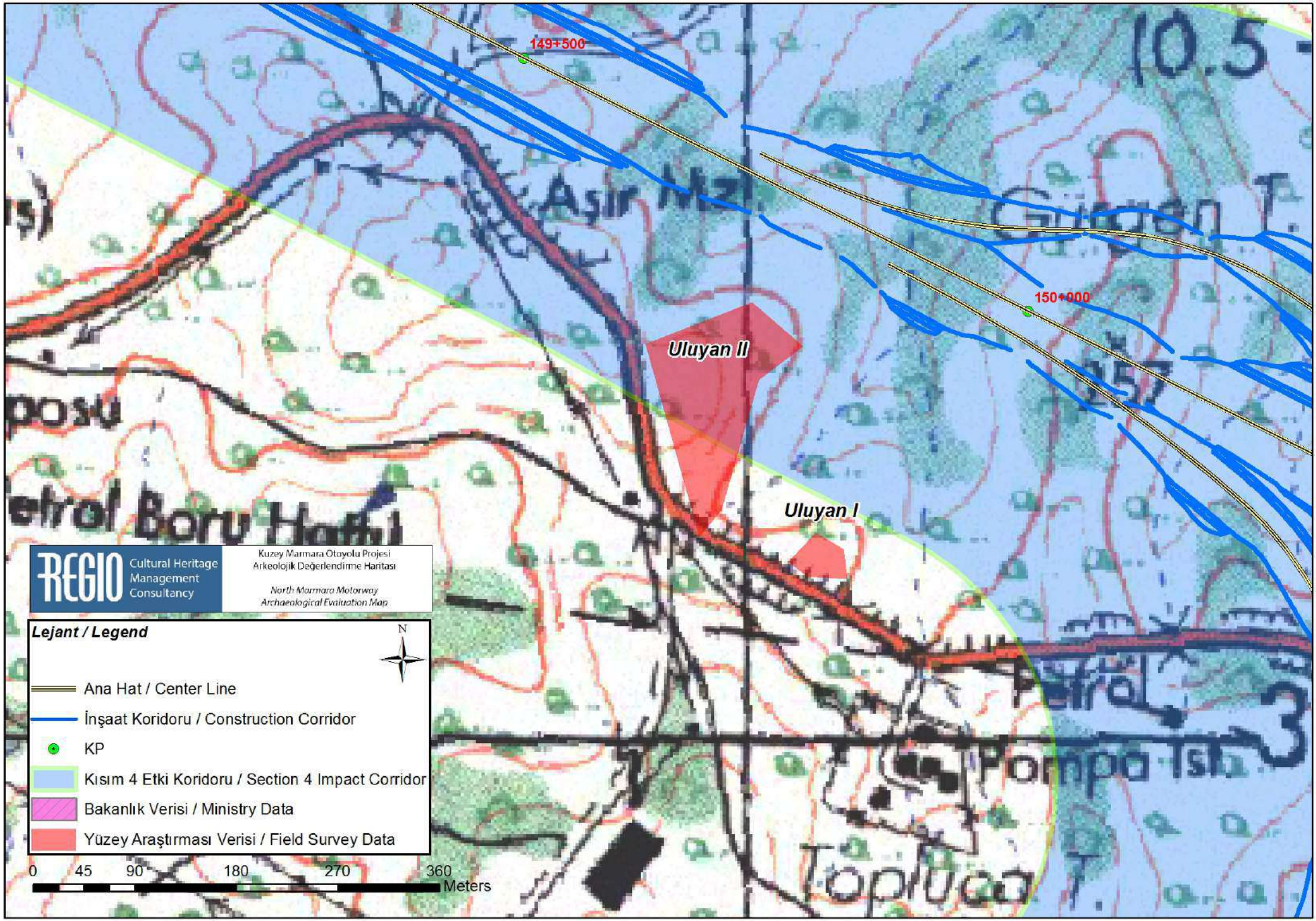

40+500
41+500
42+000
42+500
43+000
Martılar
Martlar
(Mah.)
Toruk Çift
Karayakuplu
REGIO
Cultural Heritage
Management
Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters



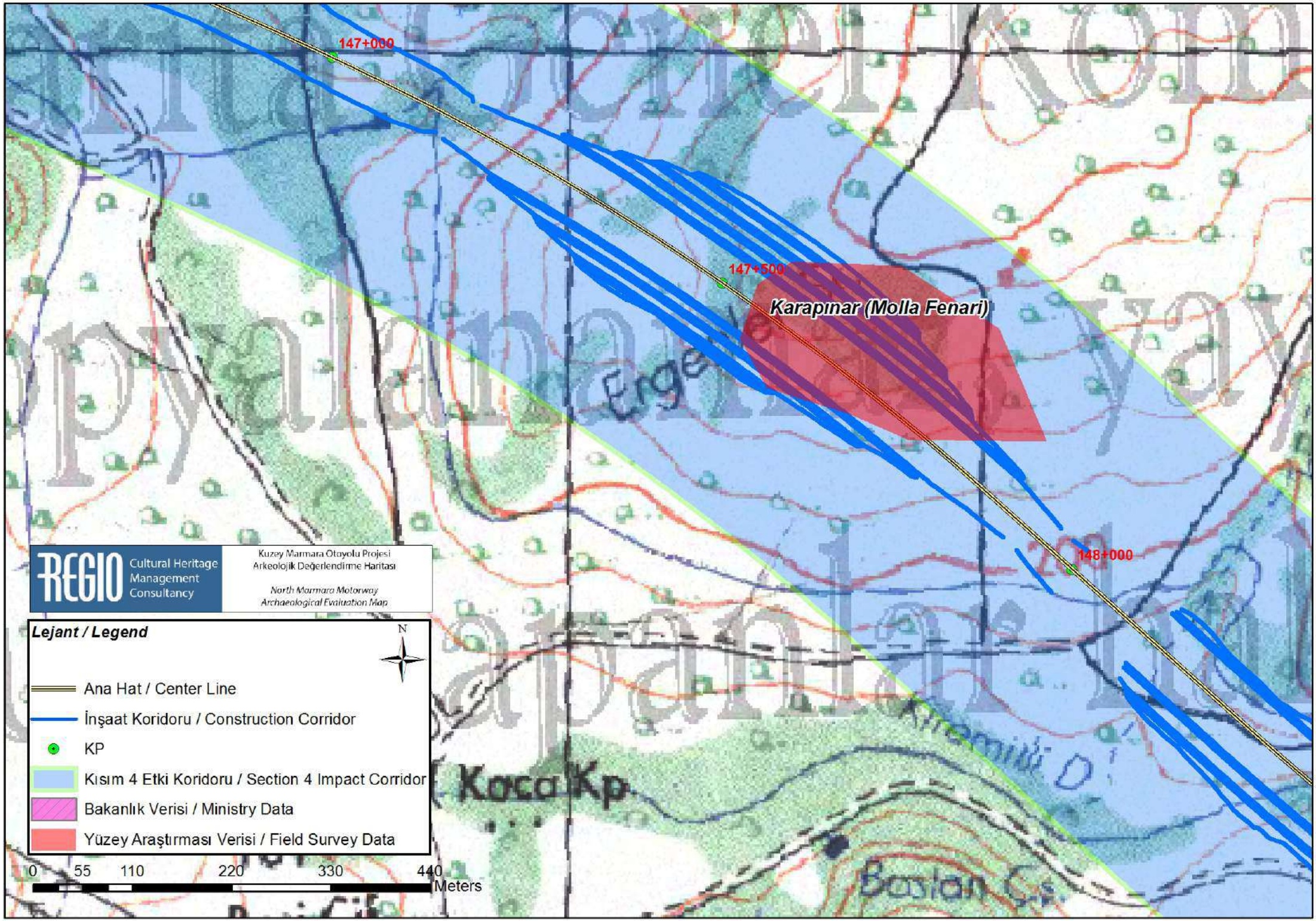
Kahanlı Pn.
Kokar Pn.
Yağcılar I. Derece Arkeolojik
Kırtepeler Sı.
Osman Yangın Onlen
Yağcılar Tarihi Yol Kalıntısı
31
30
524
161+000
161+500
162+000
TCK Şantiyesi
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 5 Etki Koridoru / Section 5 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 90 180 360 540 720
Meters

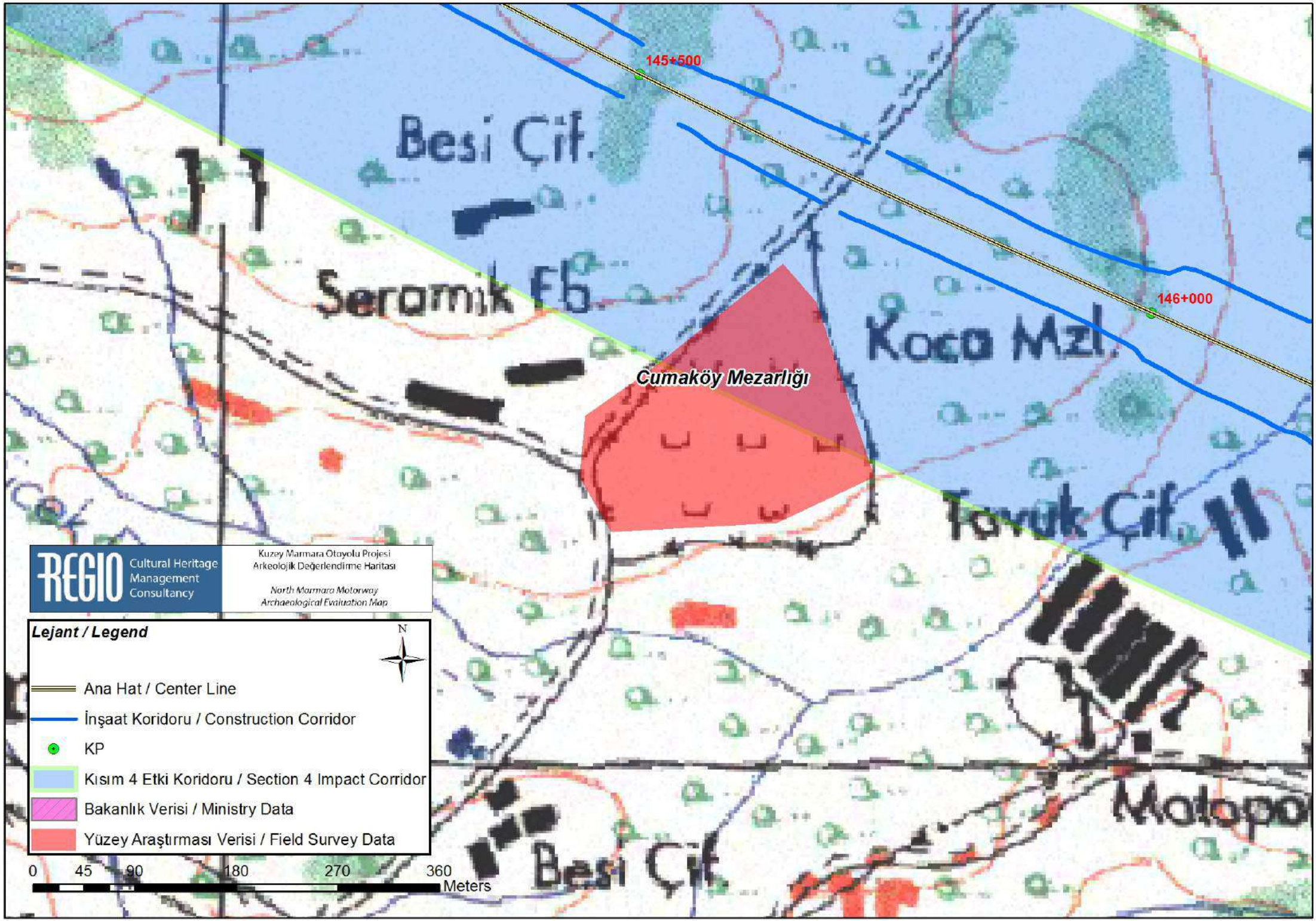


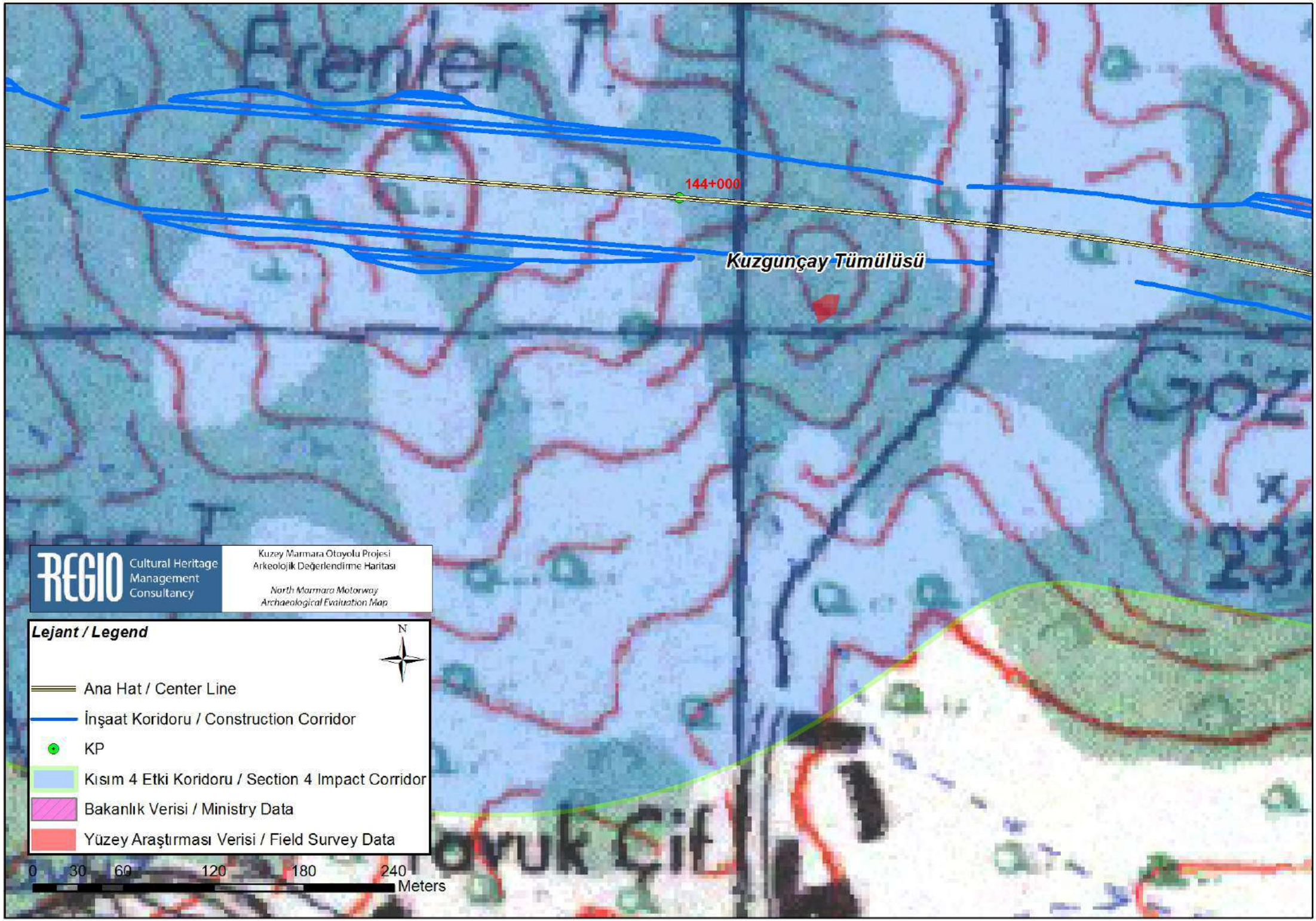
0+500
7+500
1+000
1+500
Demirciler
Besi Çif.
Mekanağılı
(Myk.)
250
Kırkik D
Ambarlı
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters

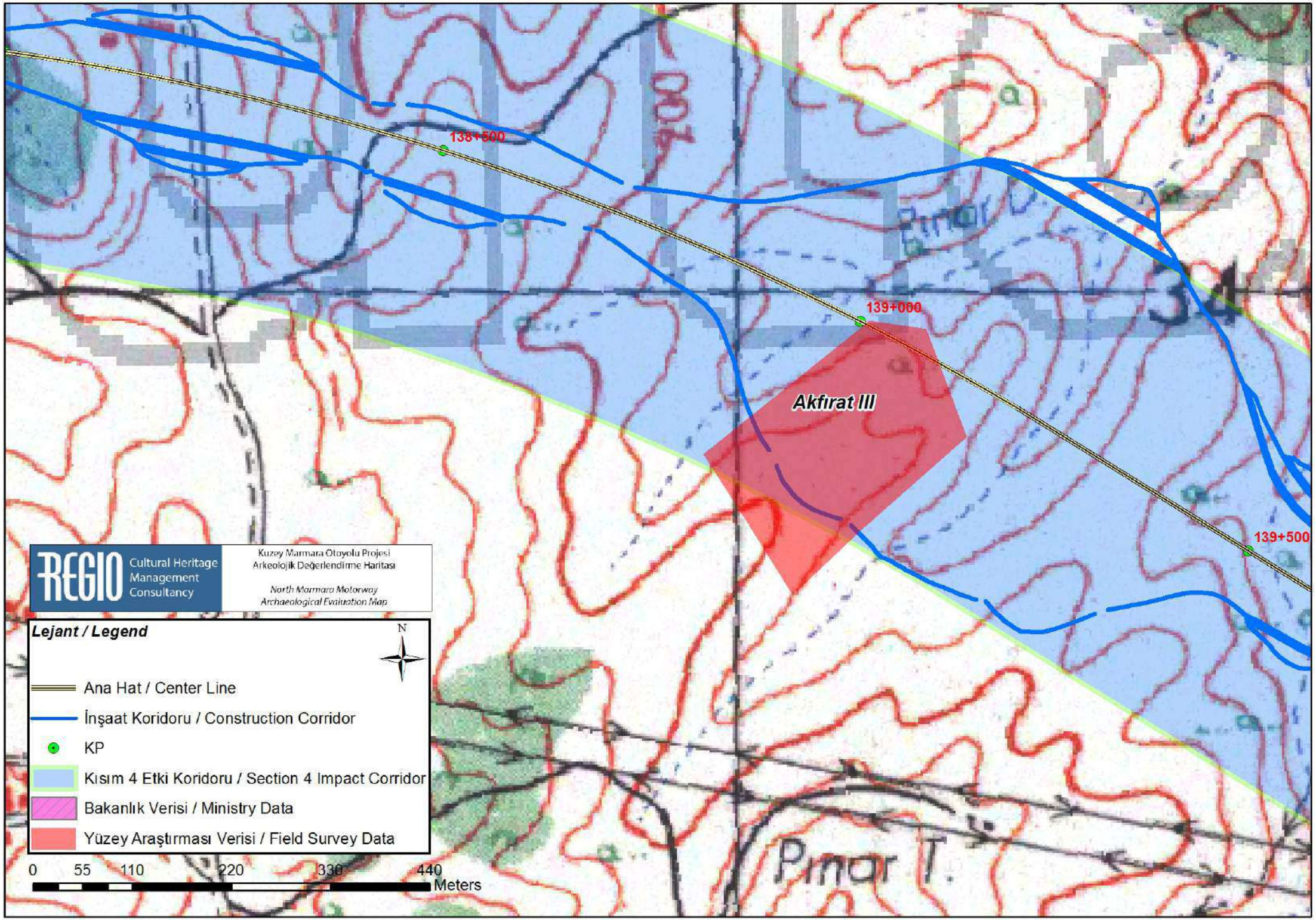


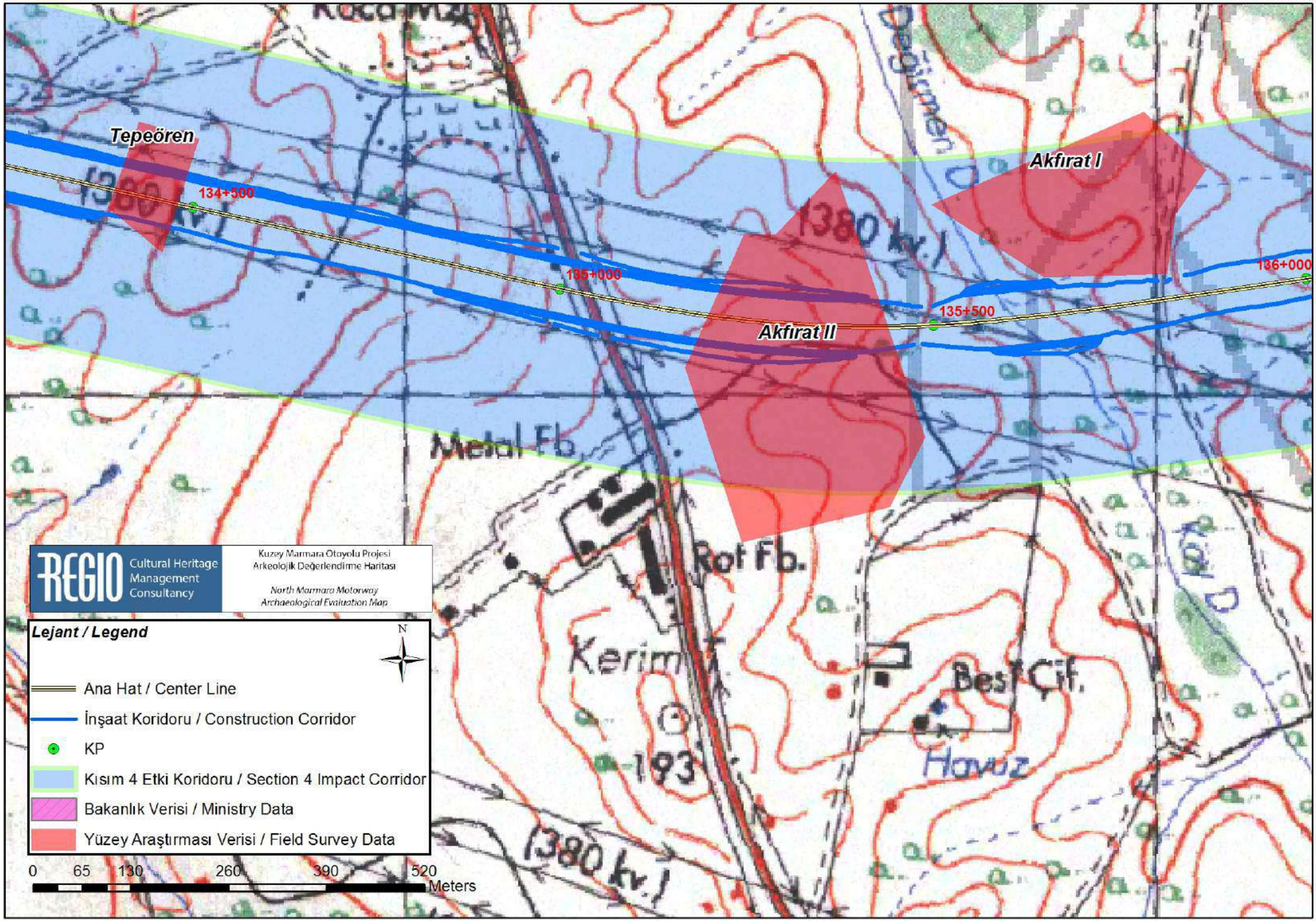
149+500
150+000
Uluyan II
Uluyan I
Aşır Mz.
Petrol Boru Hattı
Petrol
Pompa Ist.
Toplucа T.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters

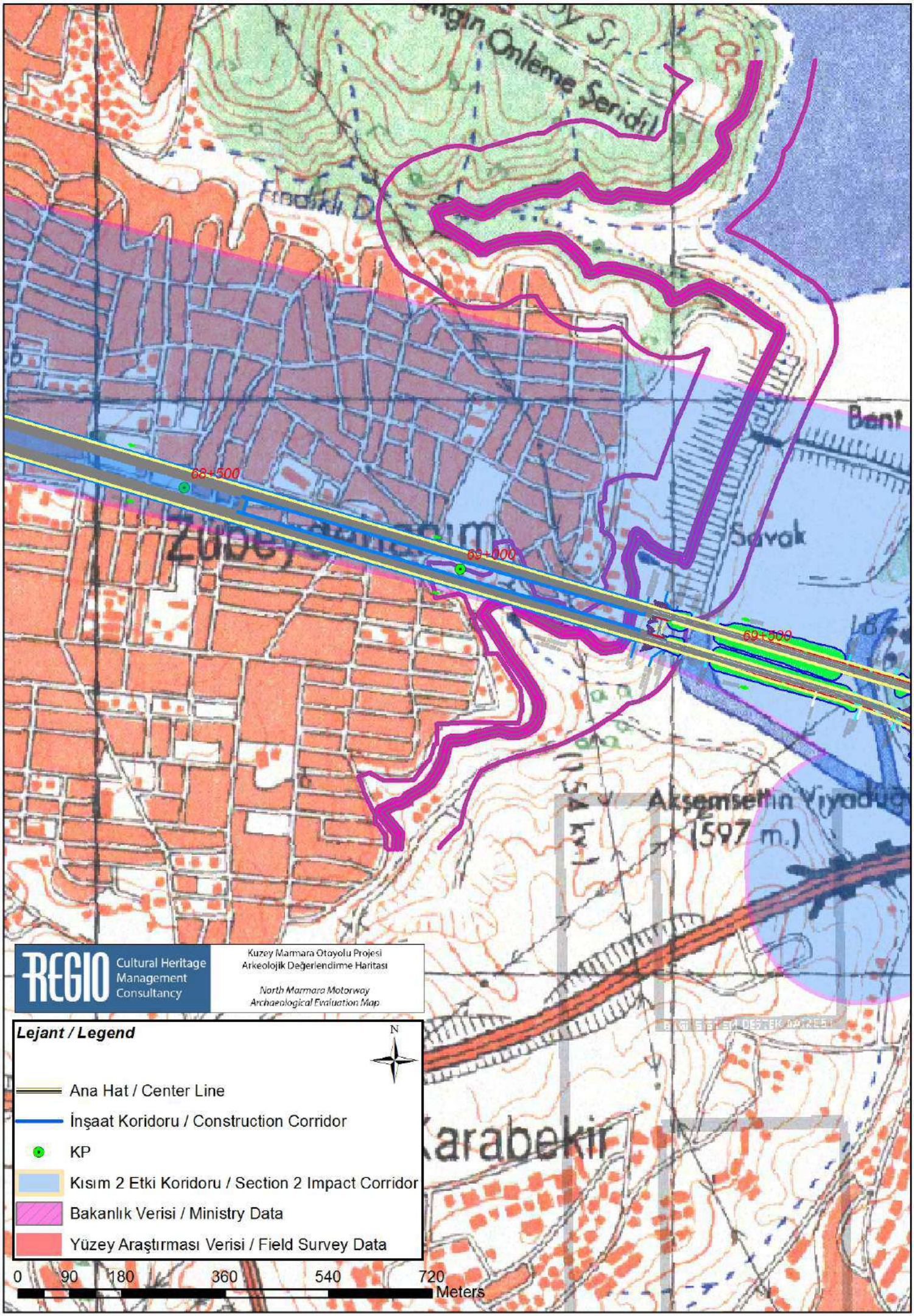

147+000
147+500
148+000
Karapınar (Molla Fenari)
Erge
Koca Kp
Kiremitli D.
Baslan Ç.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

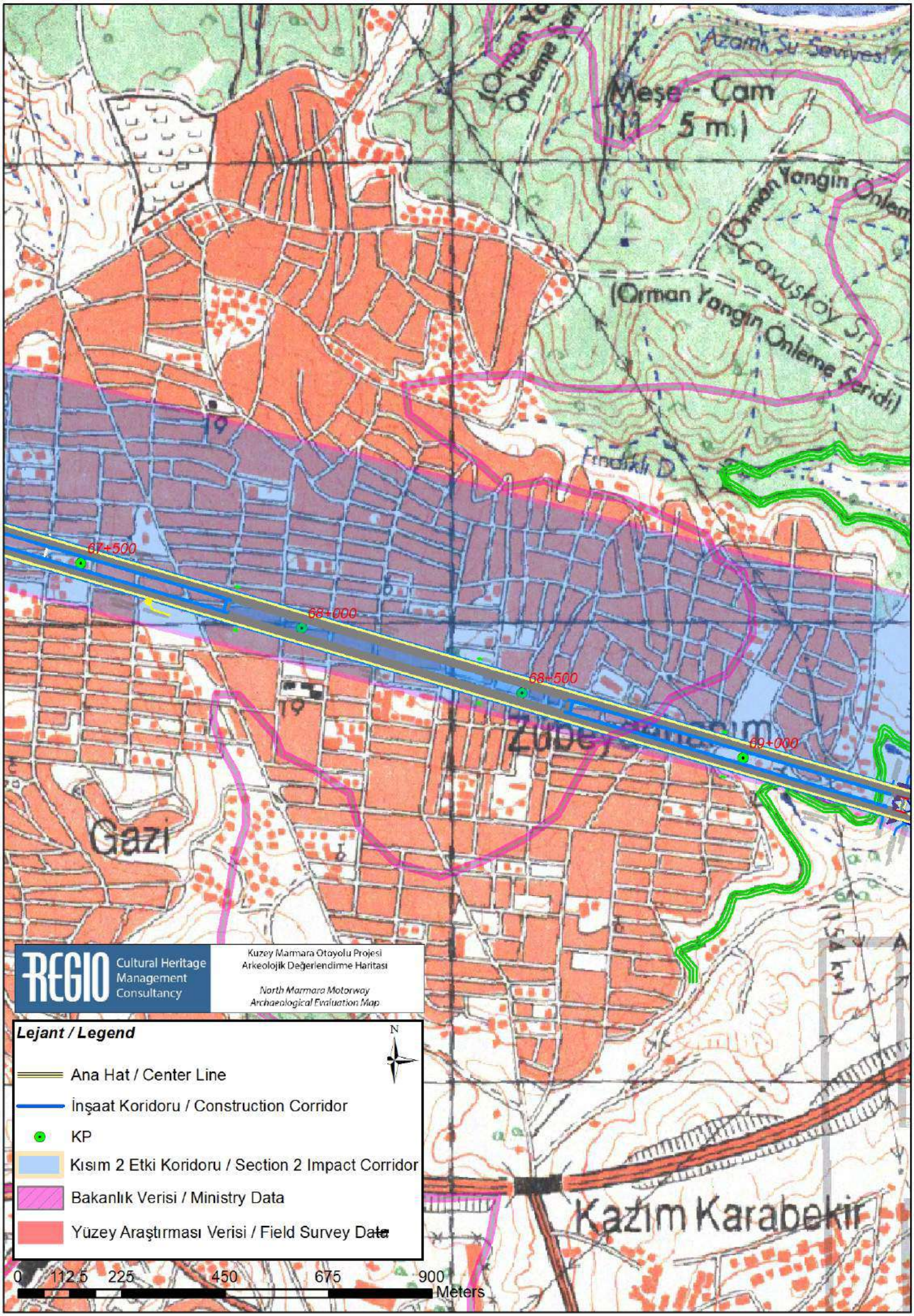

145+500
146+000
Besi Çif.
Seramik Fb.
Koca Mzl.
Cumaköy Mezarlığı
Tavuk Çif.
Besi Çif.
Motopo
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters


144+000
Kuzgunçay Tümülüsü
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters

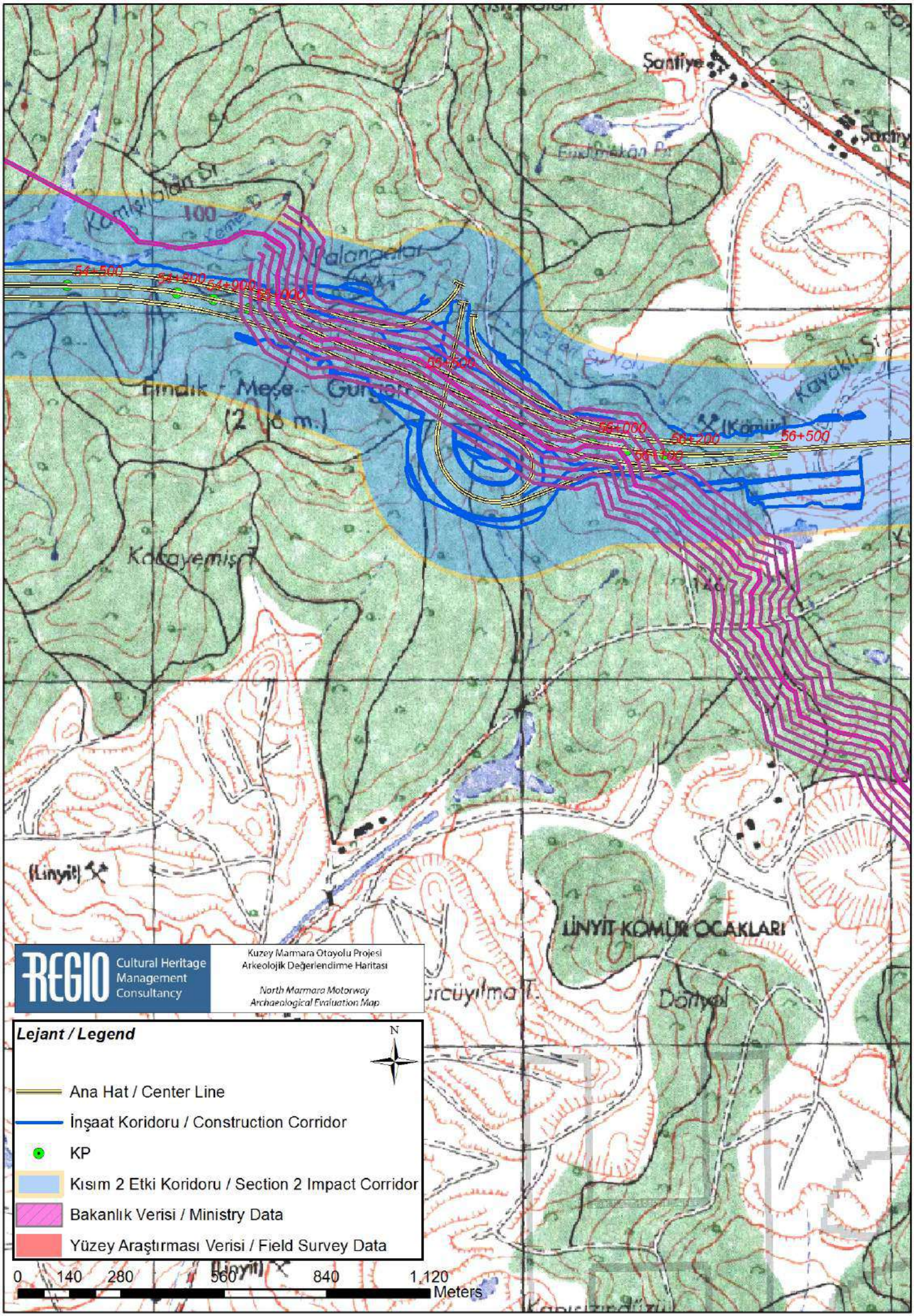

138+500
139+000
139+500
Akfırat III
Pınar T.
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters


Tepeören
134+500
135+000
135+500
136+000
Akfırat I
Akfırat II
(380 kv.)
Metal Fb.
Rot Fb.
Kerim
Best Çif.
Havuz
193
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 4 Etki Koridoru / Section 4 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters

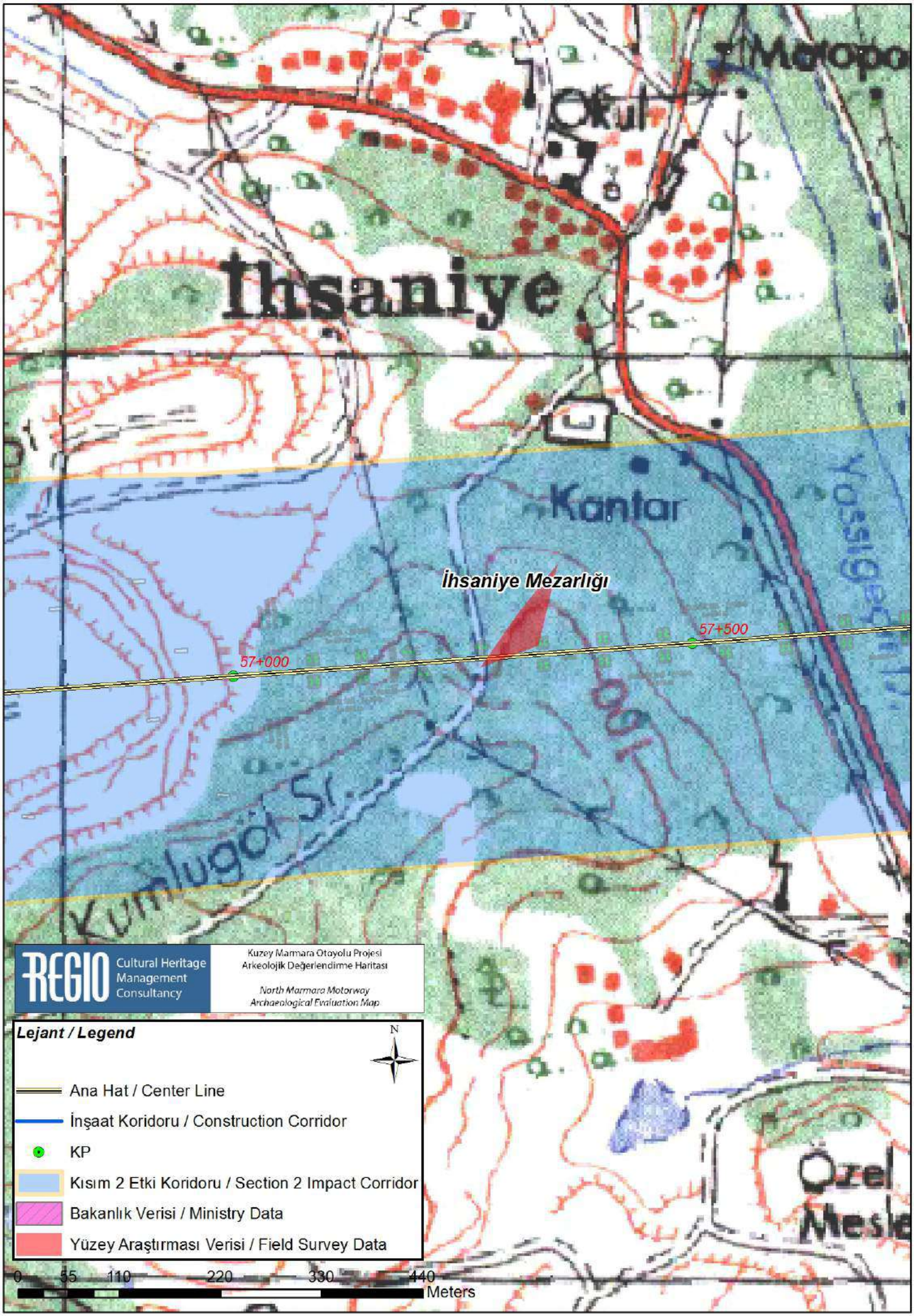

Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Cultural Heritage Management Consultancy
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 90 180 360 540 720
Meters
N
68+500
69+000
69+500
Savak
Bent
Akşemsettin Viyadü
(597 m.)
Karabekir

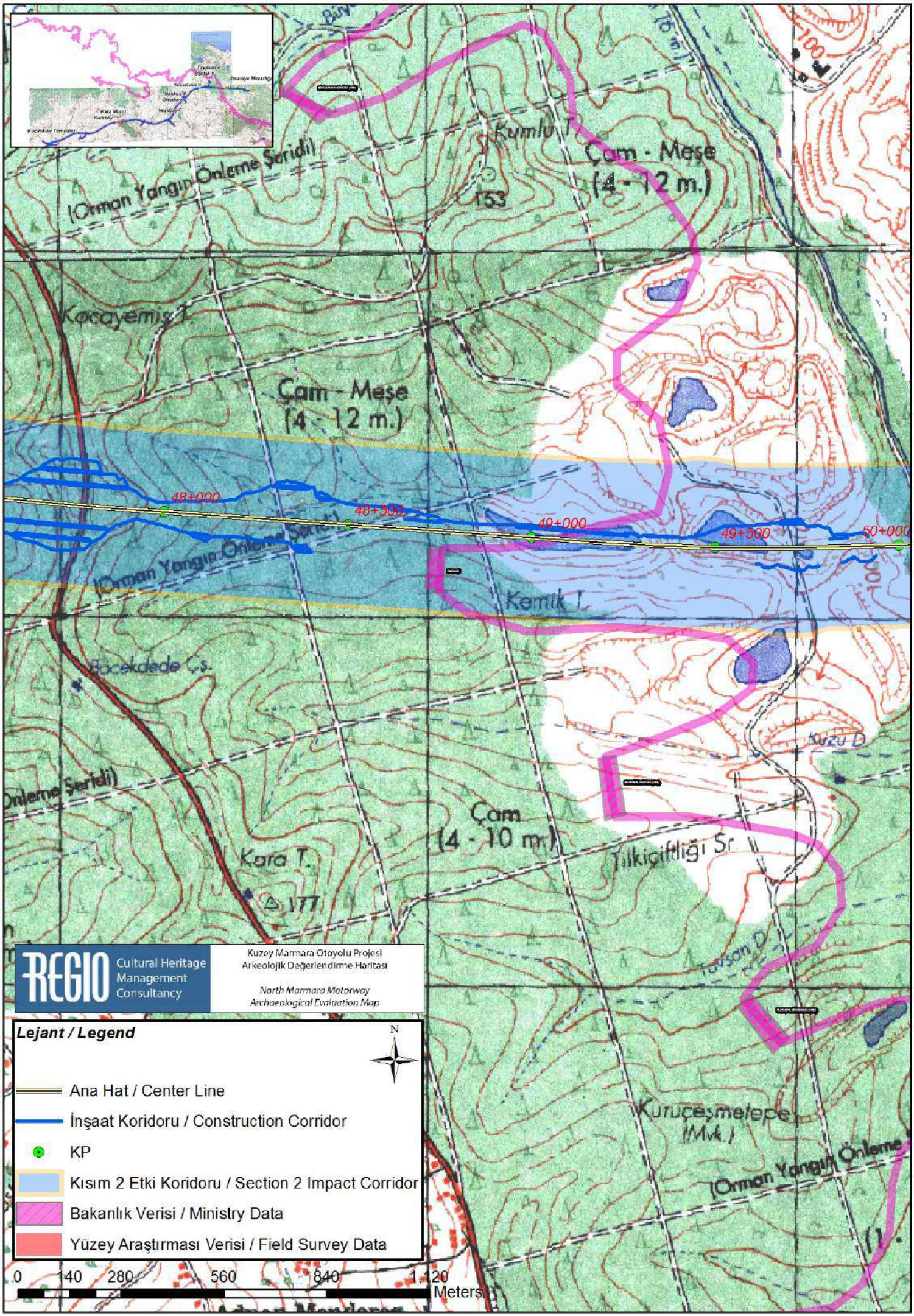


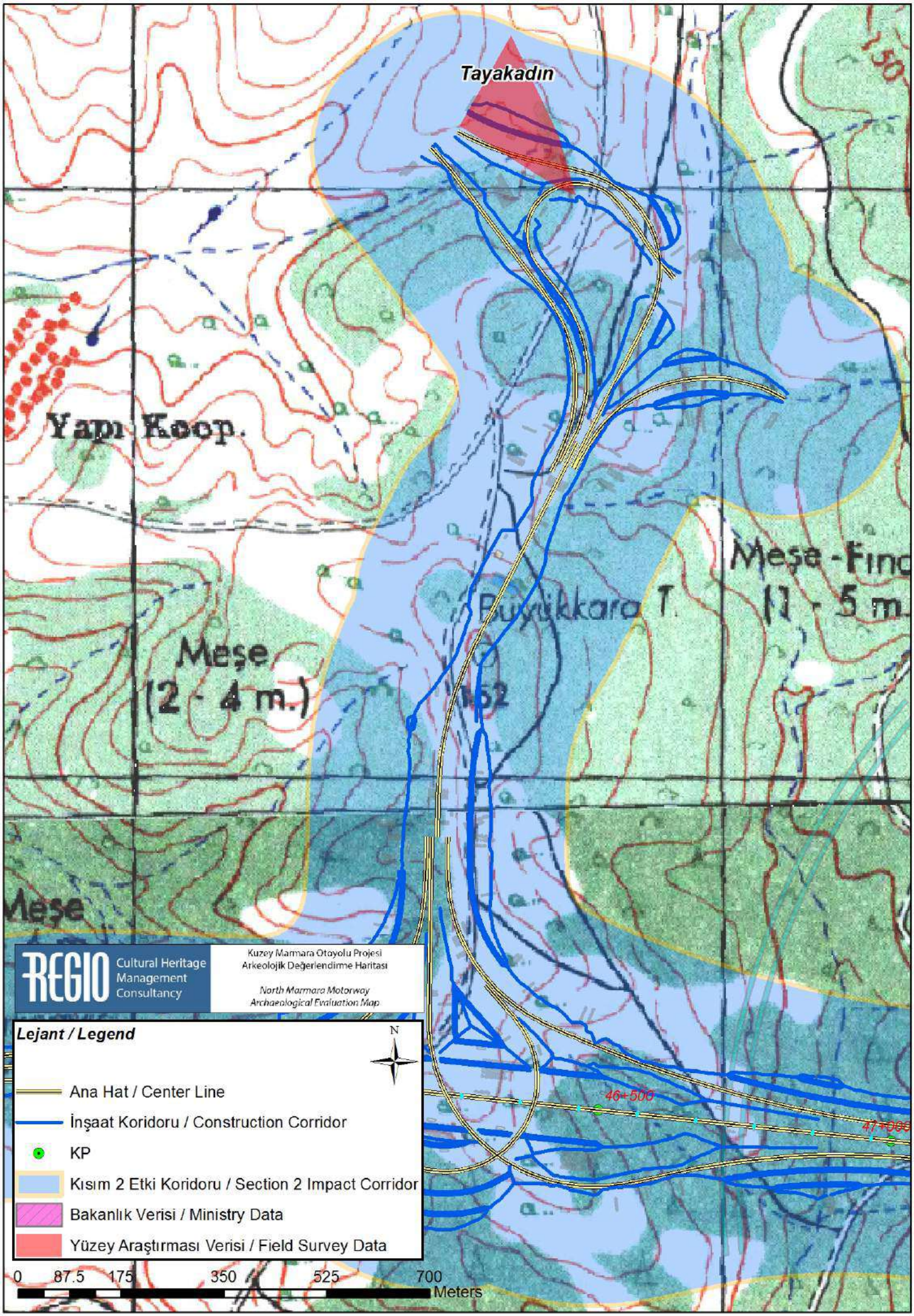
Meşe - Çam
(1 - 5 m.)
(Orman Yangın Önleme Şeridi)
Çavuşköy Sı.
Fındıklı D.
67+500
68+000
68+500
69+000
Gazi
Kazım Karabekir
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 112.5 225 450 675 900
Meters

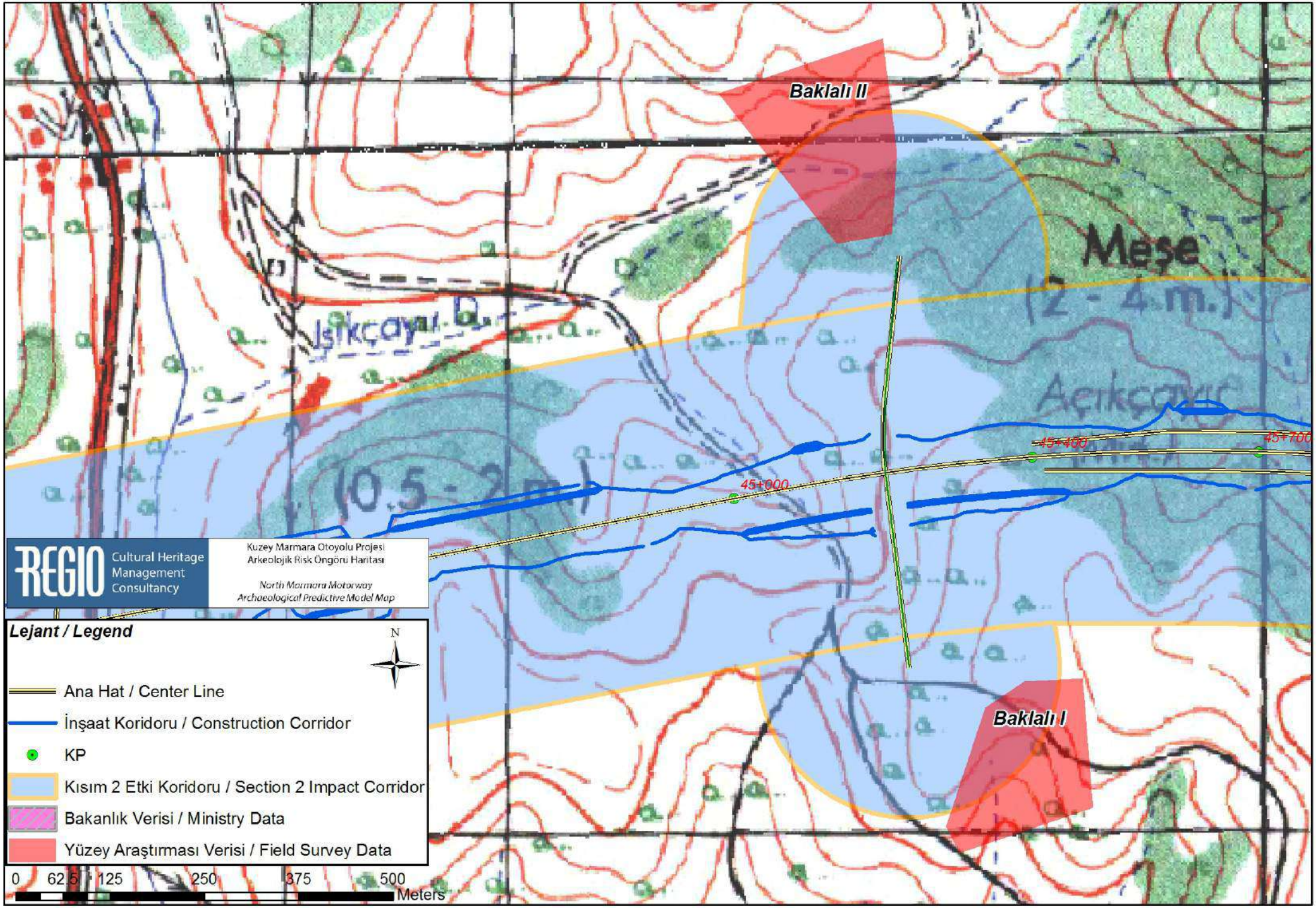


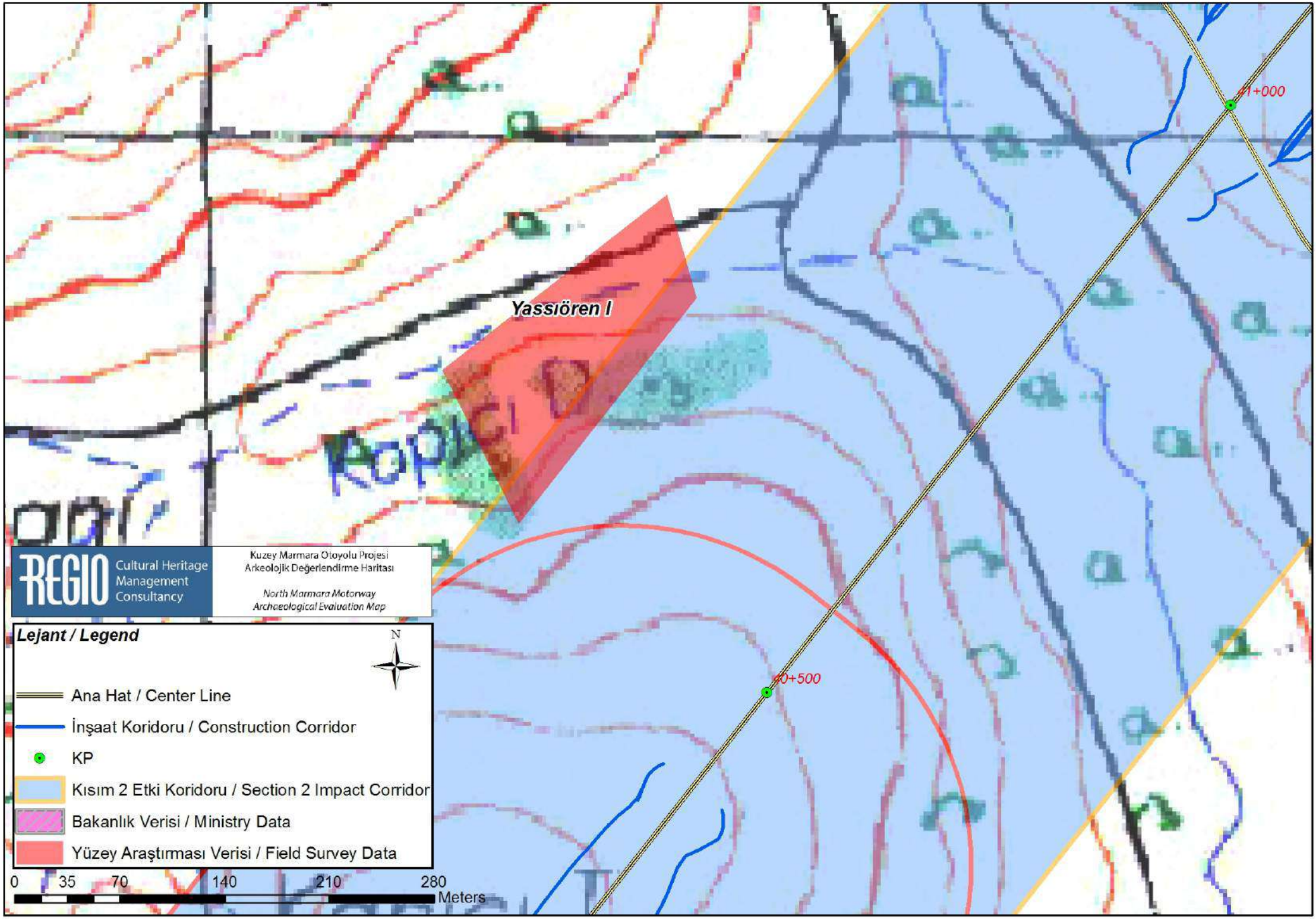
Santiye
Kamişlalan Sr
100
Palangalar
54+500
54+800
54+900
55+000
55+500
Fındık - Meşe - Gürgen
(2 ½ m.)
56+000
56+200
56+500
56+700
(Kömür)
Kavaklı Sr
Kocayemiş T.
(Linyit)
LİNYİT KÖMÜR OCAKLARI
Dönyol
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 140 280 560 840 1,120
Meters


Okul
İhsaniye
Kantar
İhsaniye Mezarlığı
57+000
57+500
Kumlugöl Sr.
Özel
Mesle
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 55 110 220 330 440
Meters

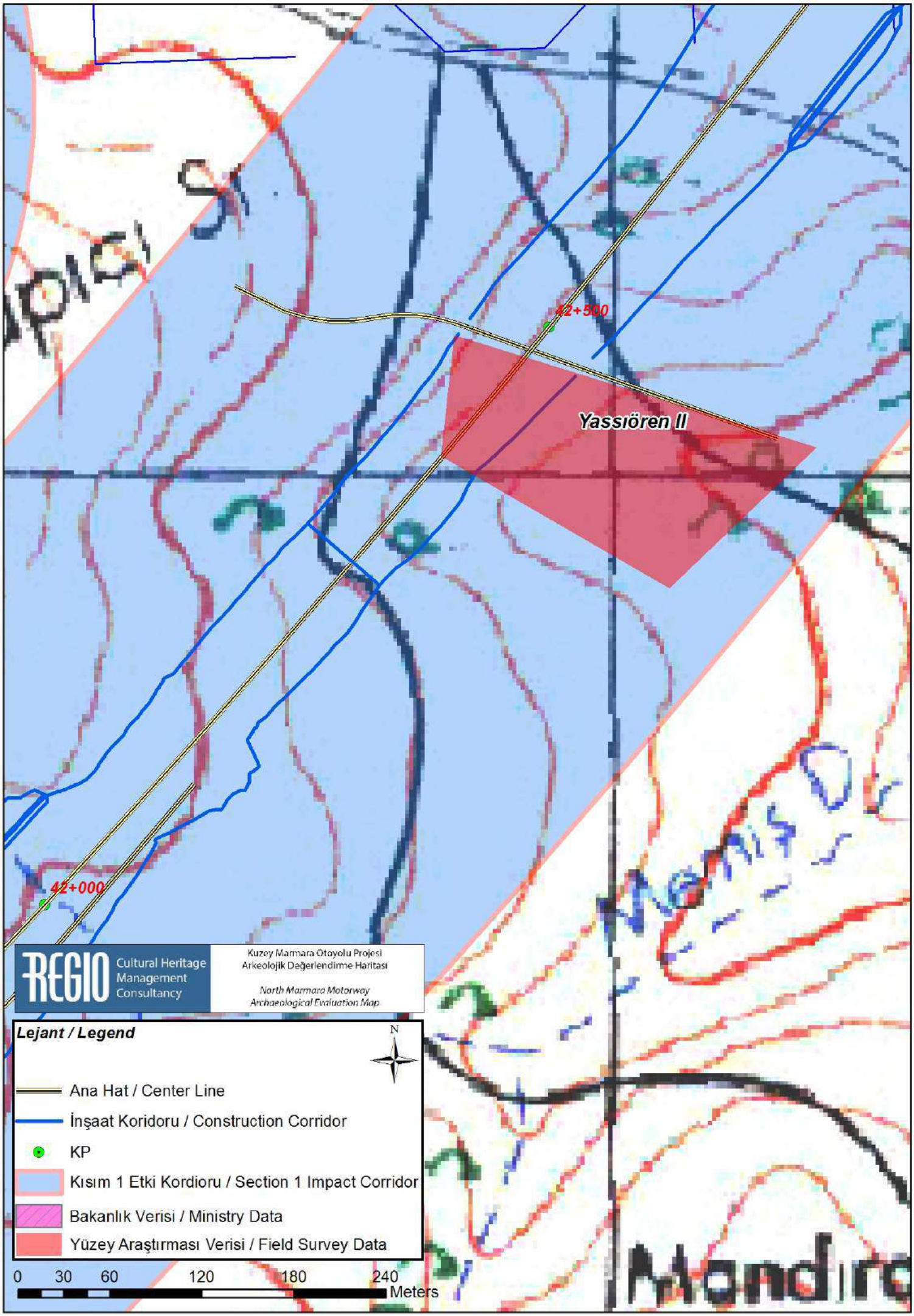

Kumlu T.
Çam - Meşe
(4 - 12 m.)
153
(Orman Yangın Önleme Şeridi)
Koçayemiş T.
Çam - Meşe
(4 - 12 m.)
48+000
48+500
49+000
49+500
50+000
(Orman Yangın Önleme Şeridi)
Kemik T.
Böcekdede Çs.
Kuzu D.
Çam
(4 - 10 m.)
Tilkiçiftliği Sr.
Kara T.
177
Tavşan D.
Kuruçeşmelepe
(Mvk.)
(Orman Yangın Önleme
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 140 280 560 840 1.120
Meters

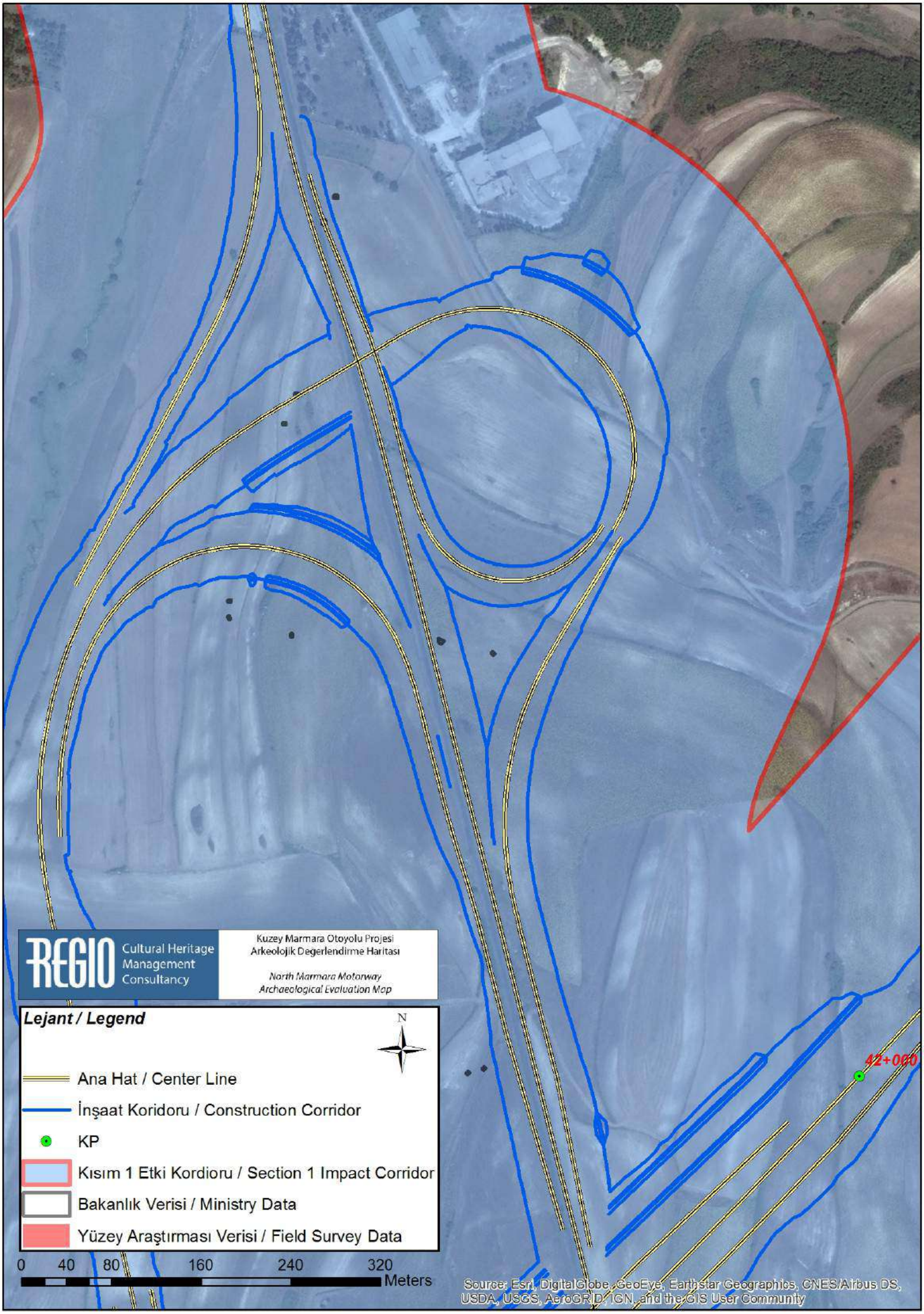

Tayakadın
Yapı Koop.
Meşe
(2 - 4 m.)
Büyükkara T.
Meşe - Fınd
(1 - 5 m.
Meşe
46+500
47+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 87.5 175 350 525 700
Meters

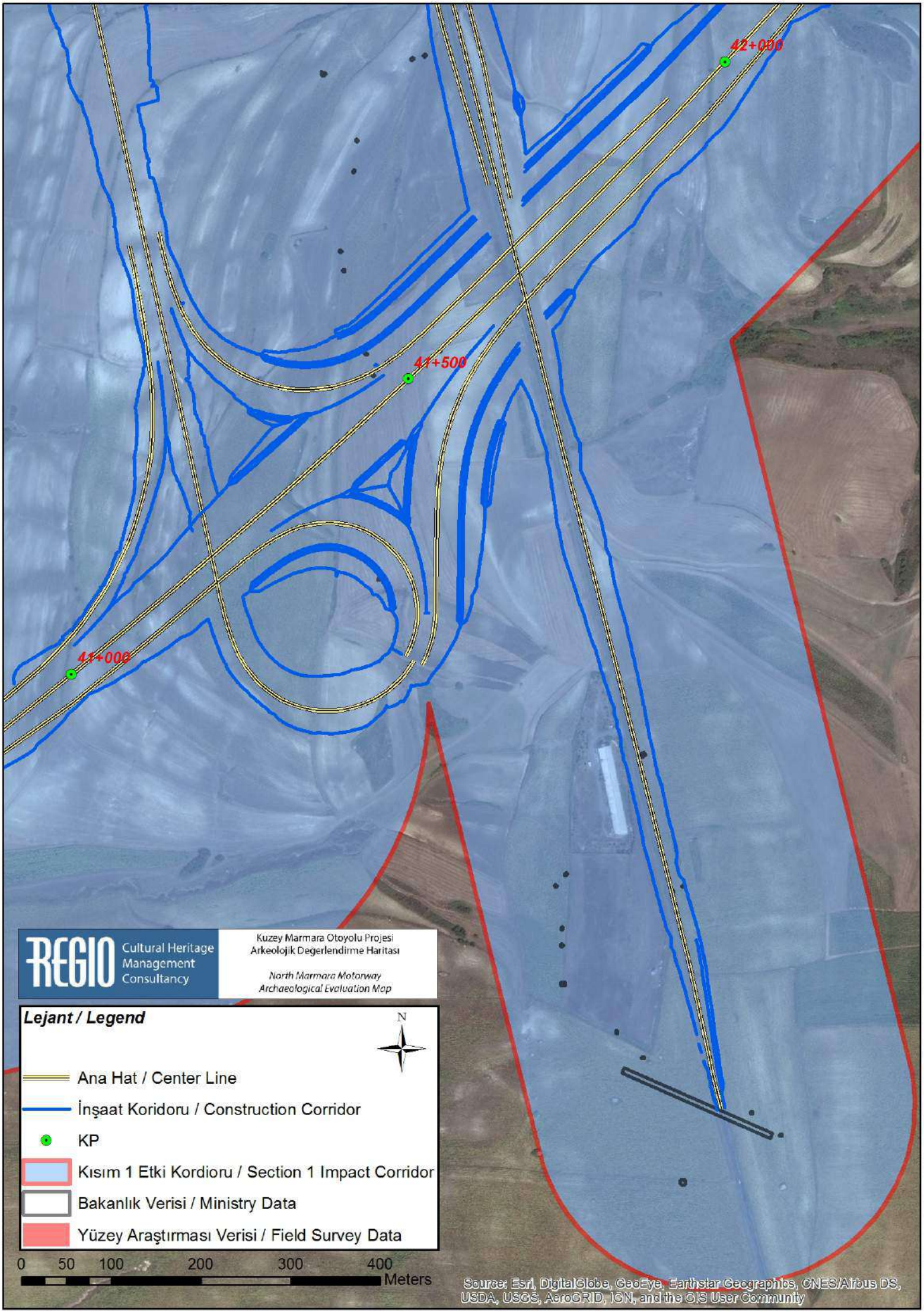

Baklalı II
Meşe
(2 - 4 m.)
Açıkçayır
Işıkçayır
(0,5 - 2 m.)
45+000
45+400
45+700
Baklalı I
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Risk Öngörü Haritası
North Marmara Motorway
Archaeological Predictive Model Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
62,5
125
250
375
500
Meters



Yassıören I
Kopiçi D
41+000
40+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 2 Etki Koridoru / Section 2 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 35 70 140 210 280
Meters


42+500
Yassıören II
42+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 30 60 120 180 240
Meters


REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Degerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
42+000
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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41+500
41+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Degerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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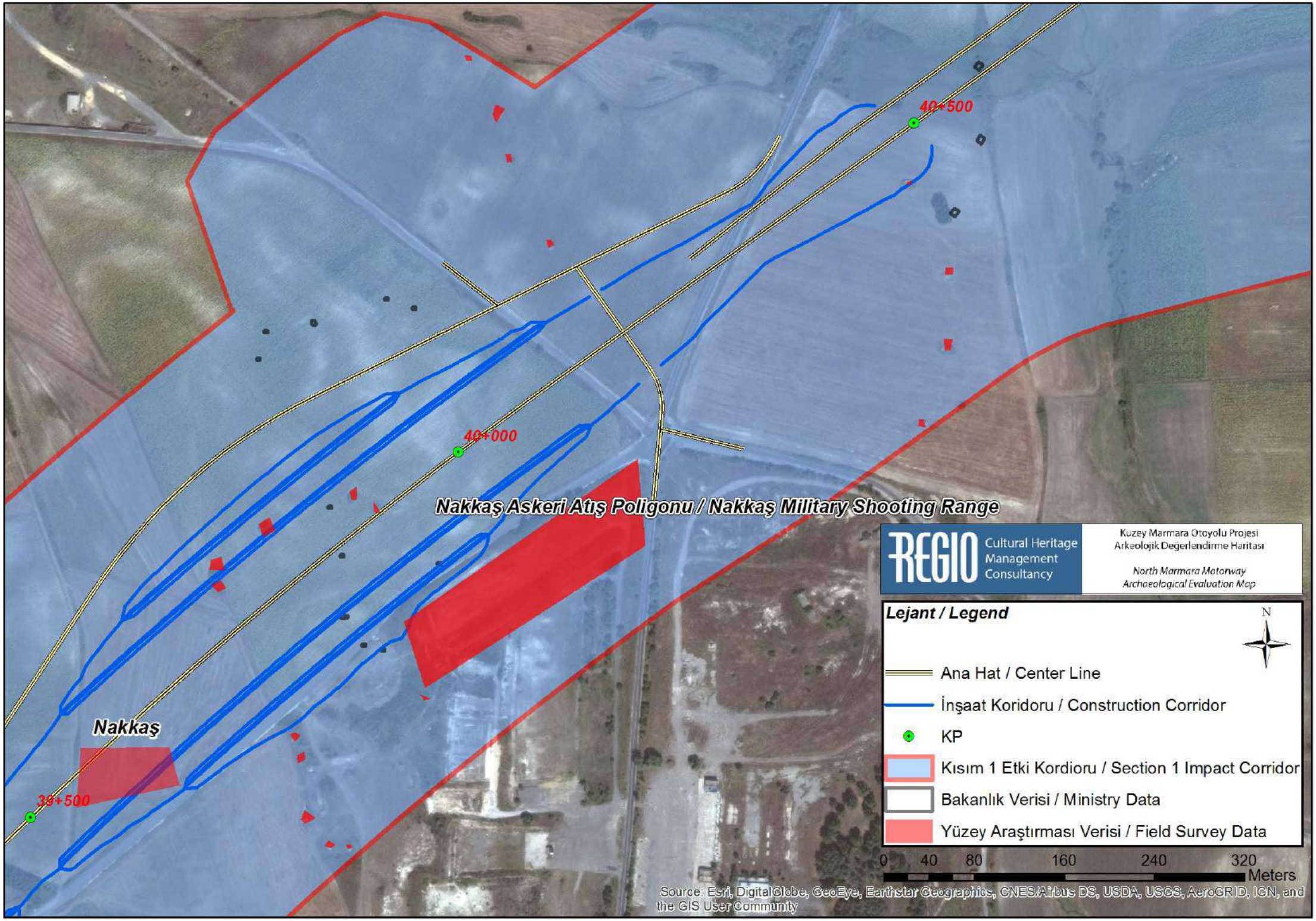
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


40+500
40+000
39+500
Nakkaş Askeri Atış Poligonu / Nakkaş Military Shooting Range
Nakkaş
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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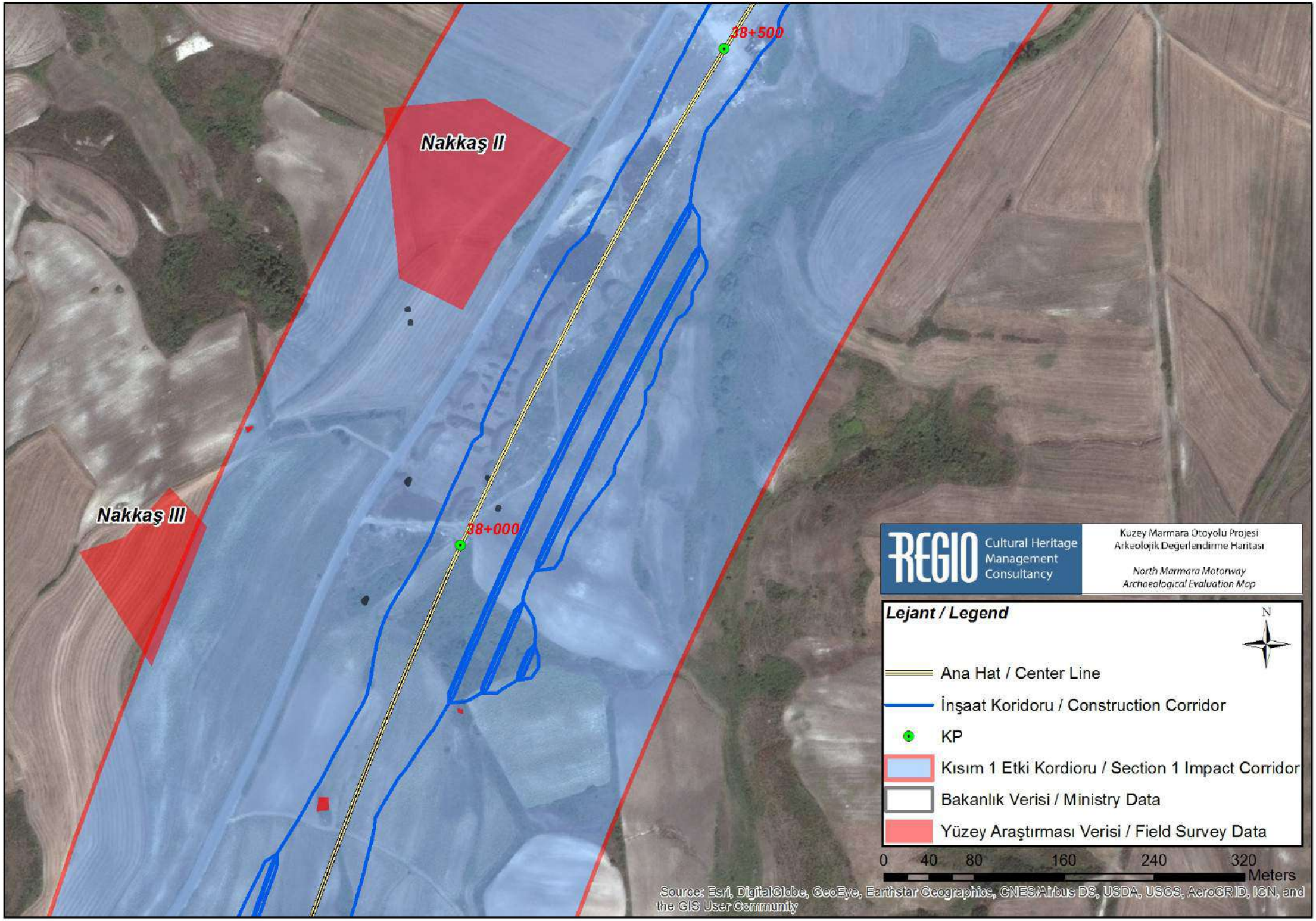
Meters
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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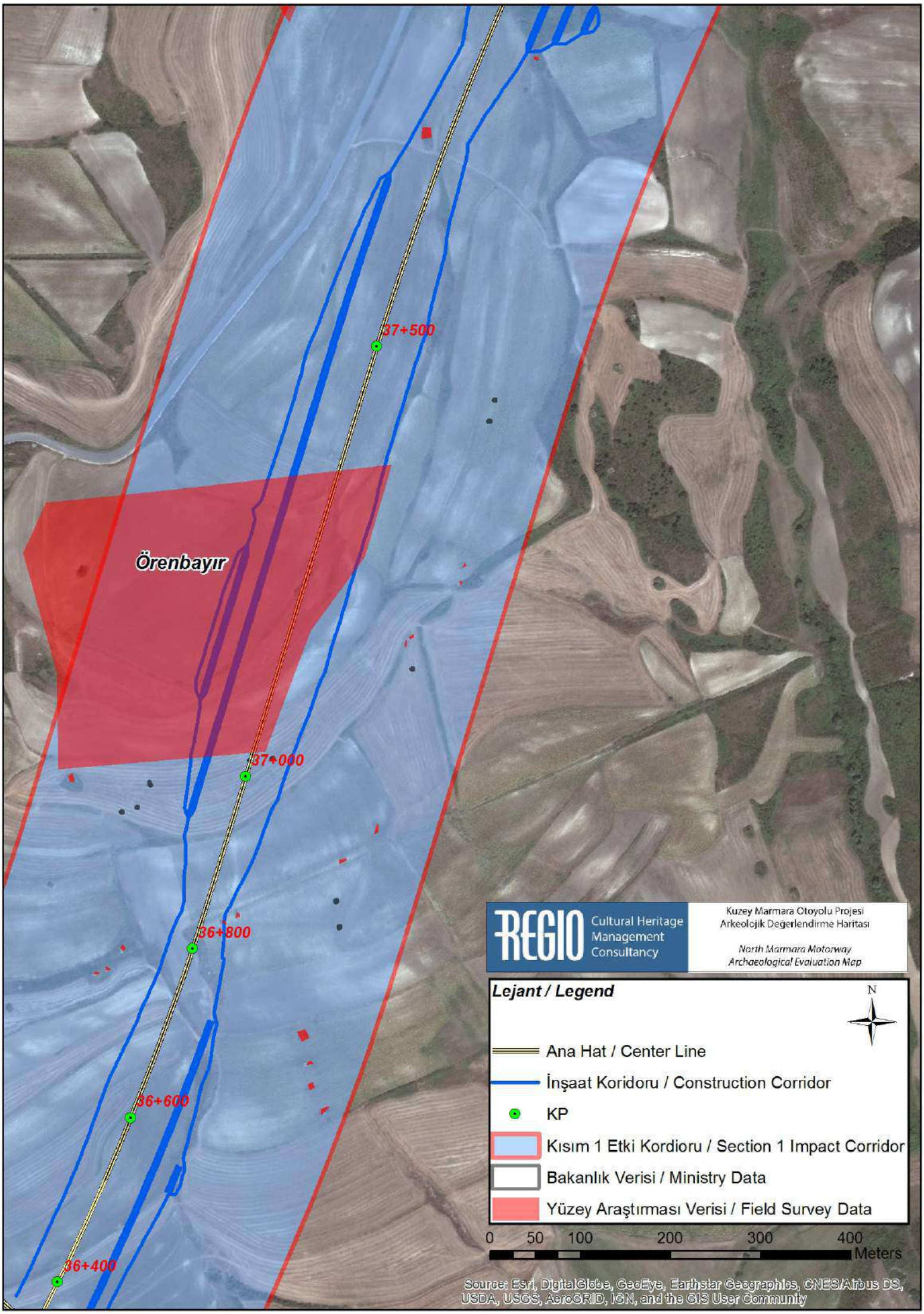
Nakkaş II
Nakkaş III
38+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 40 80 160 240 320
Meters
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Örenbayır
37+000
36+800
36+600
36+400
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
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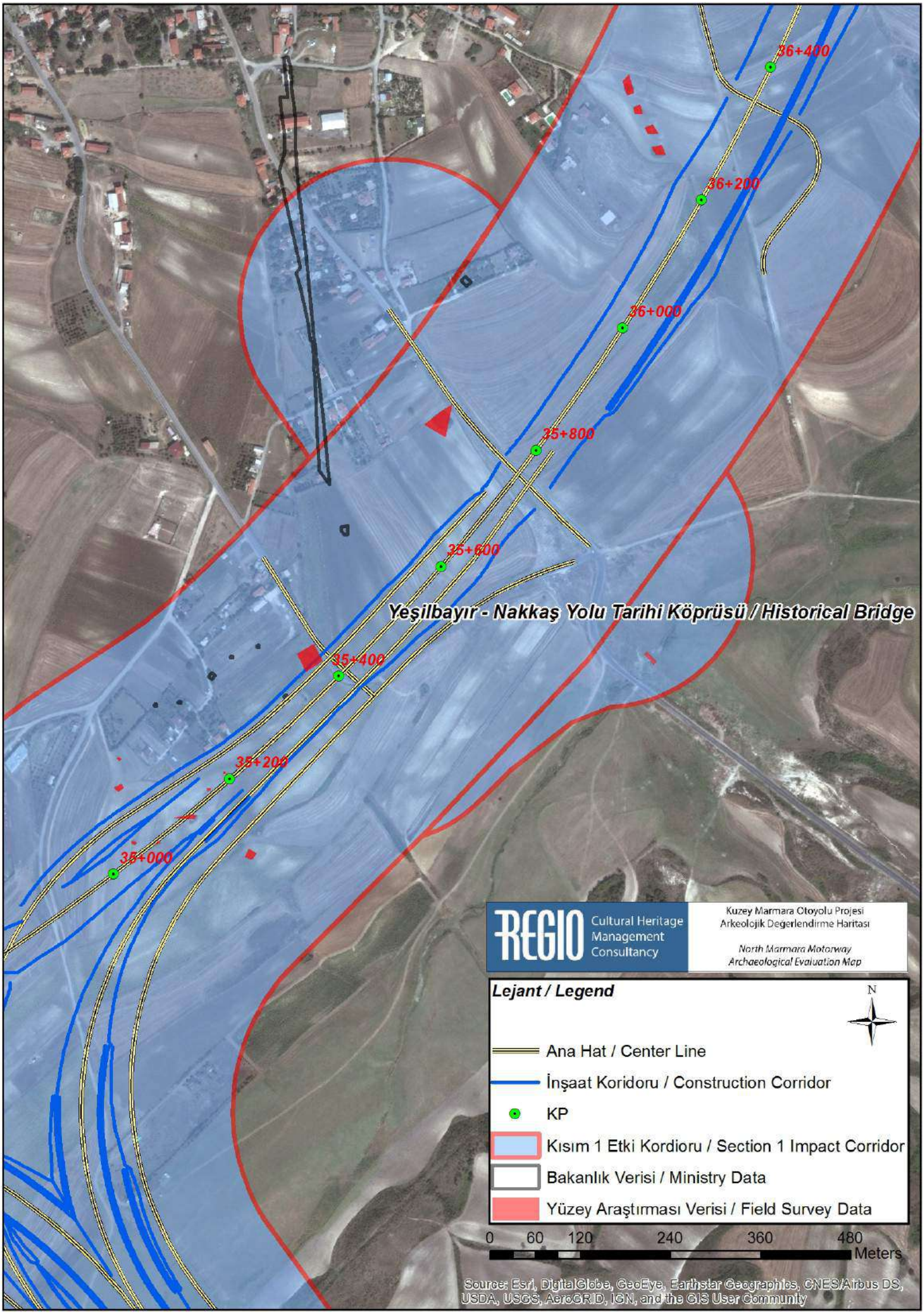
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 50 100 200 300 400
Meters
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


36+400
36+200
36+000
35+800
35+600
Yeşilbayır - Nakkaş Yolu Tarihi Köprüsü / Historical Bridge
35+400
35+200
35+000
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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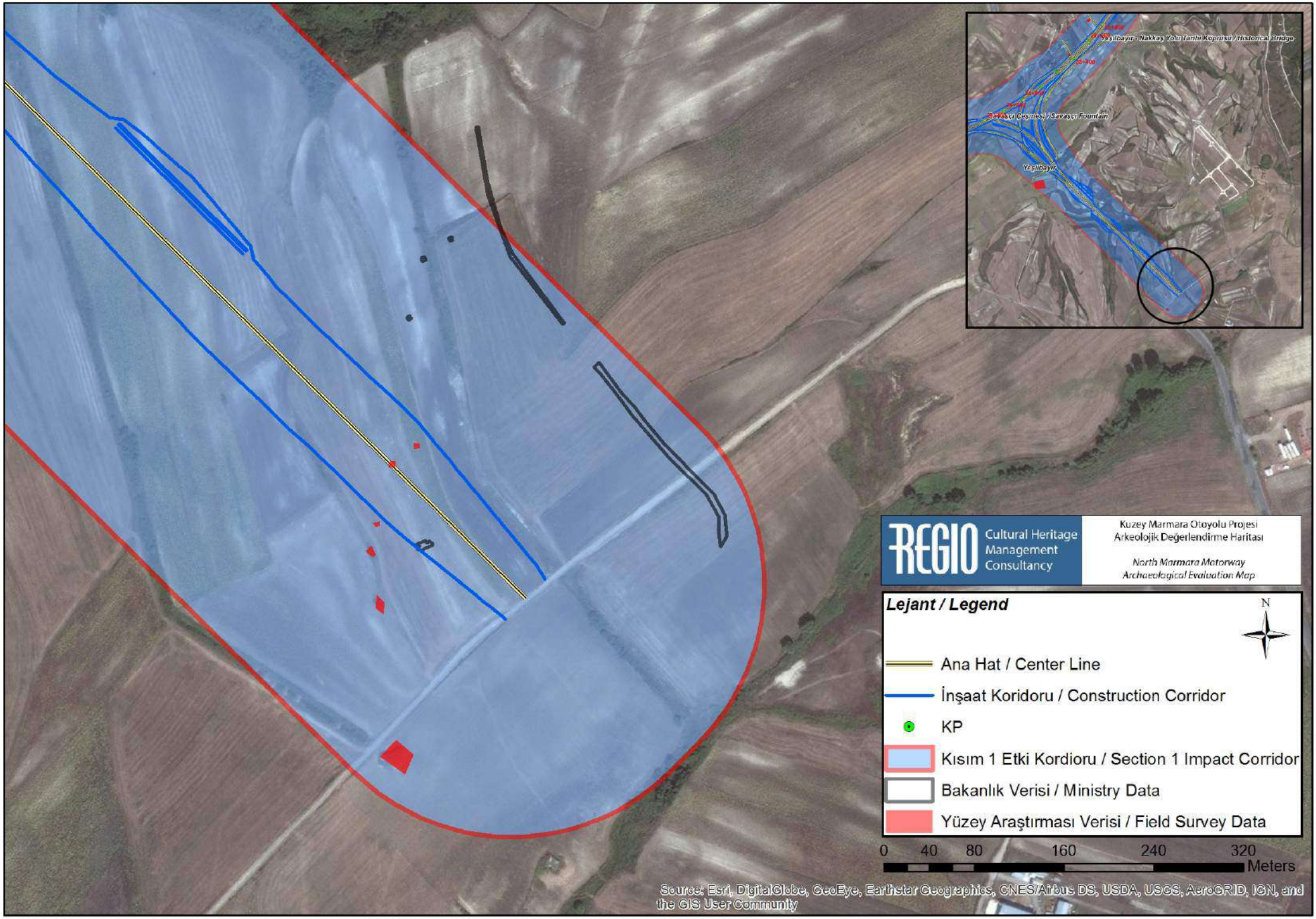
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Savaşçı Çeşmesi / Savaşçı Fountain
Yeşilbayır
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
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Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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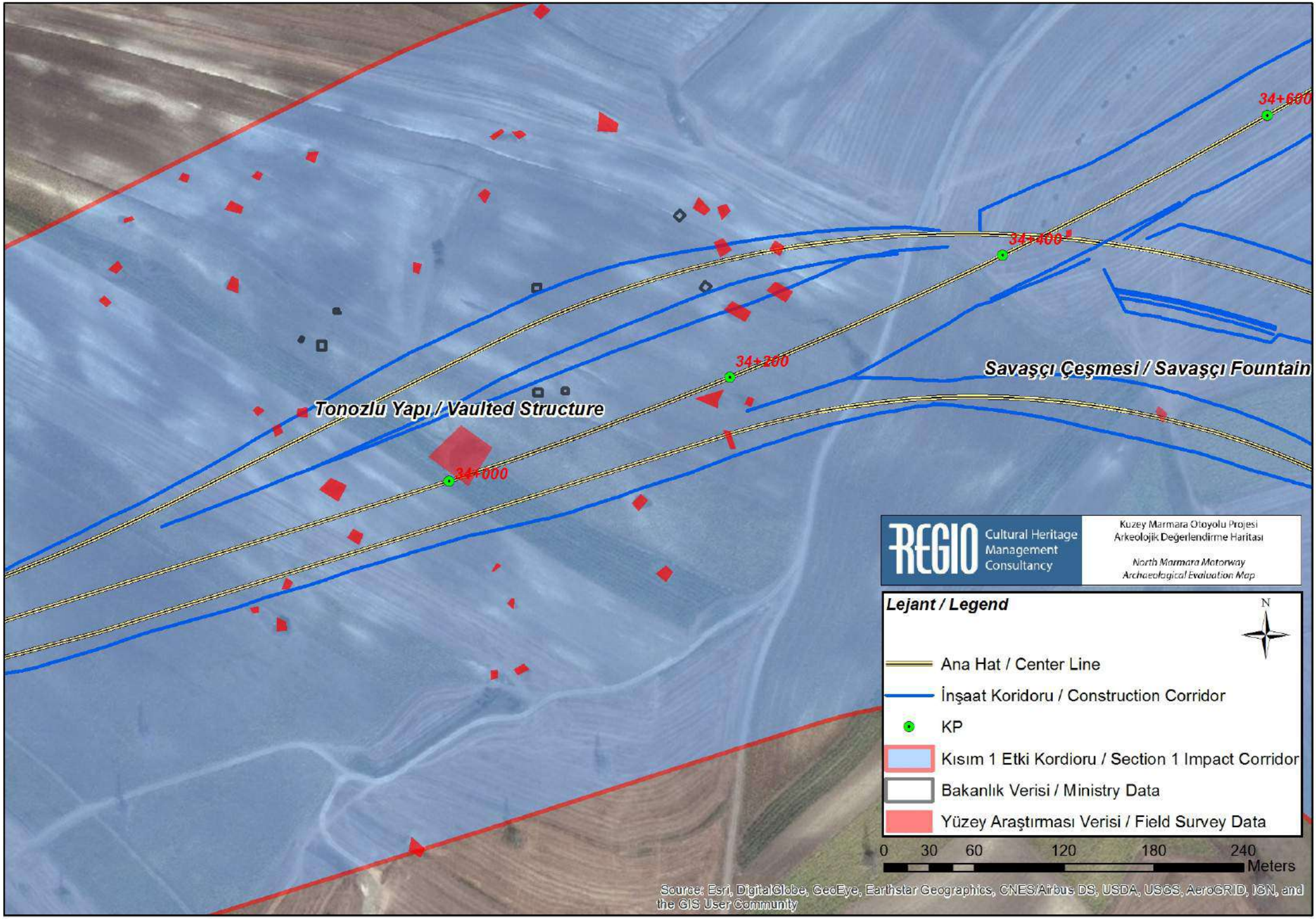
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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34+400
34+200
34+000
Tonozlu Yapı / Vaulted Structure
Savaşçı Çeşmesi / Savaşçı Fountain
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
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Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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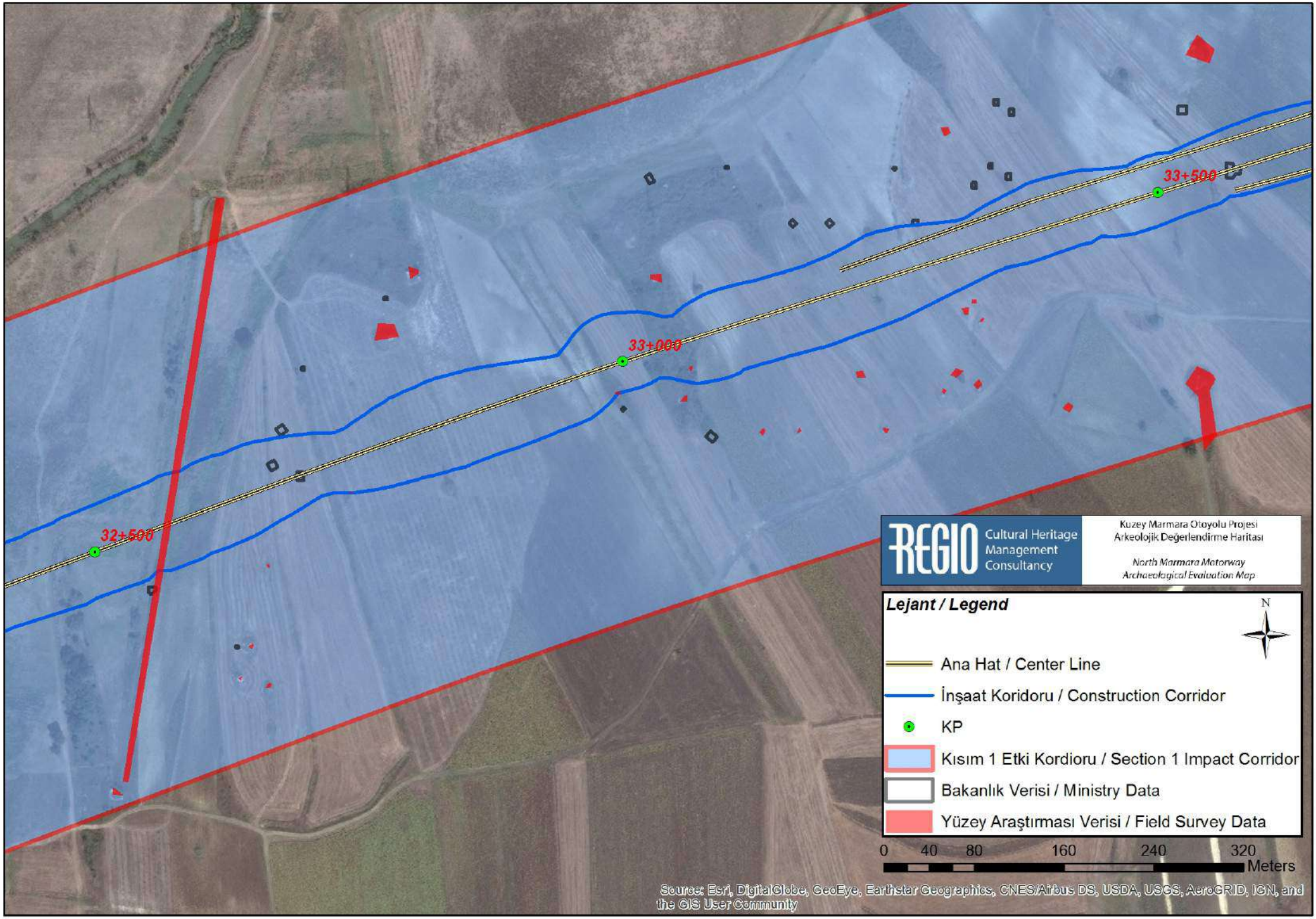
Meters
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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33+000
33+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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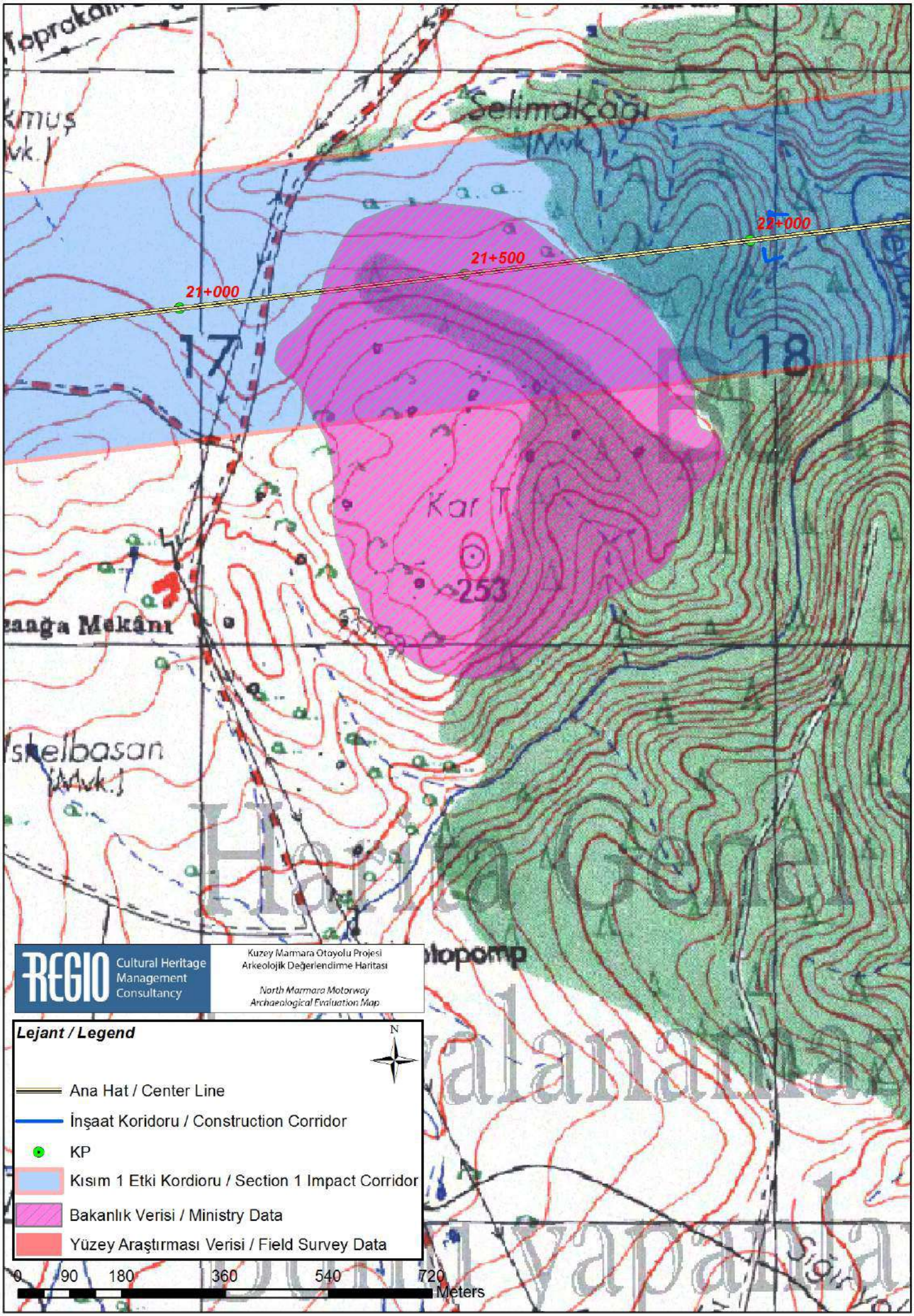

Selimalçağı
(Mvk.)
21+000
21+500
22+000
17
18
Kar T.
253
Mekânı
Mvk.)
REGIO
Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
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Lejant / Legend
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Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
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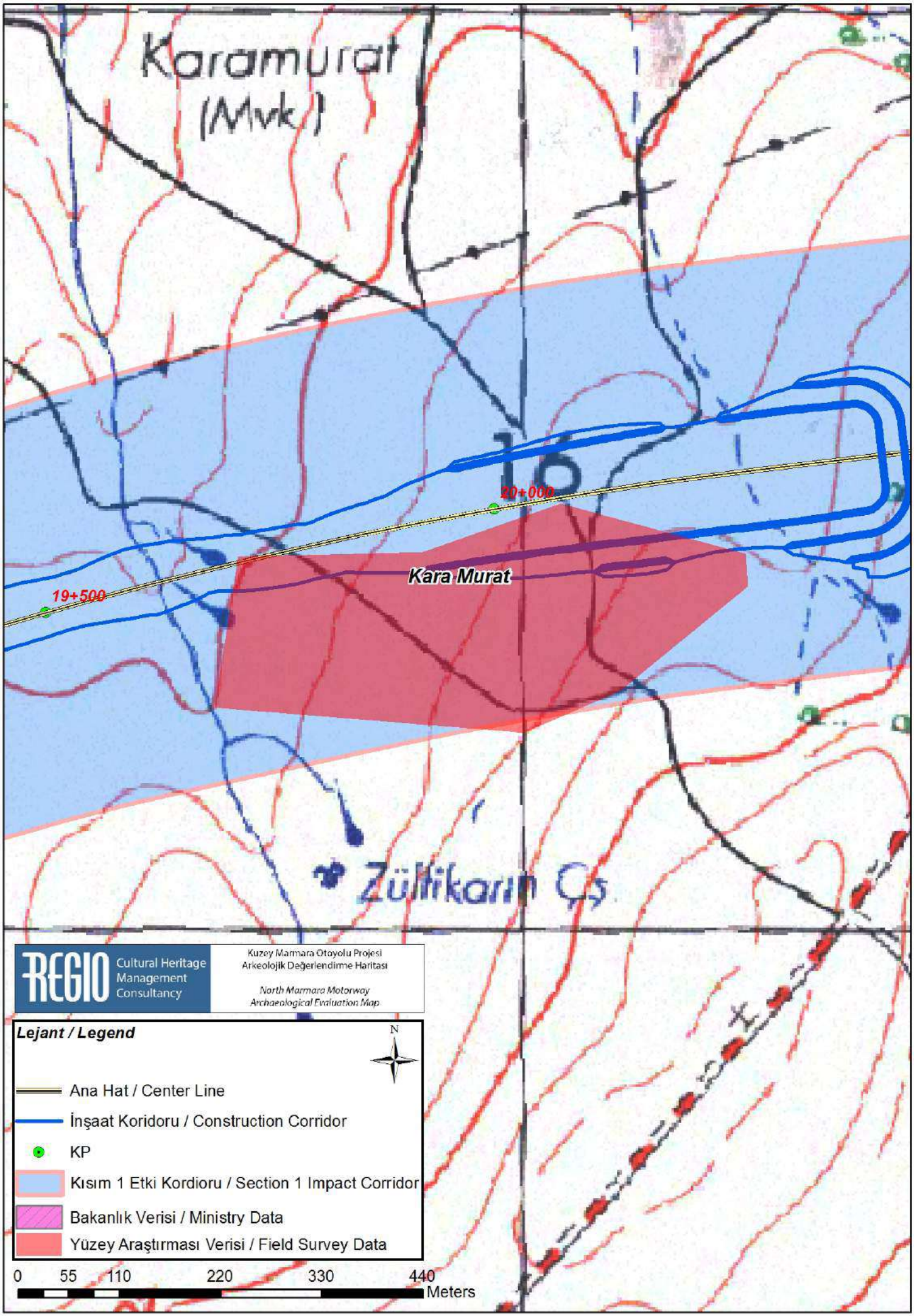
Yüzey Araştırması Verisi / Field Survey Data
0
90
180
360
540
720
Meters


Karamurat
(Mvk)
20+000
19+500
Kara Murat
Zülfikarın Çş
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
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Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
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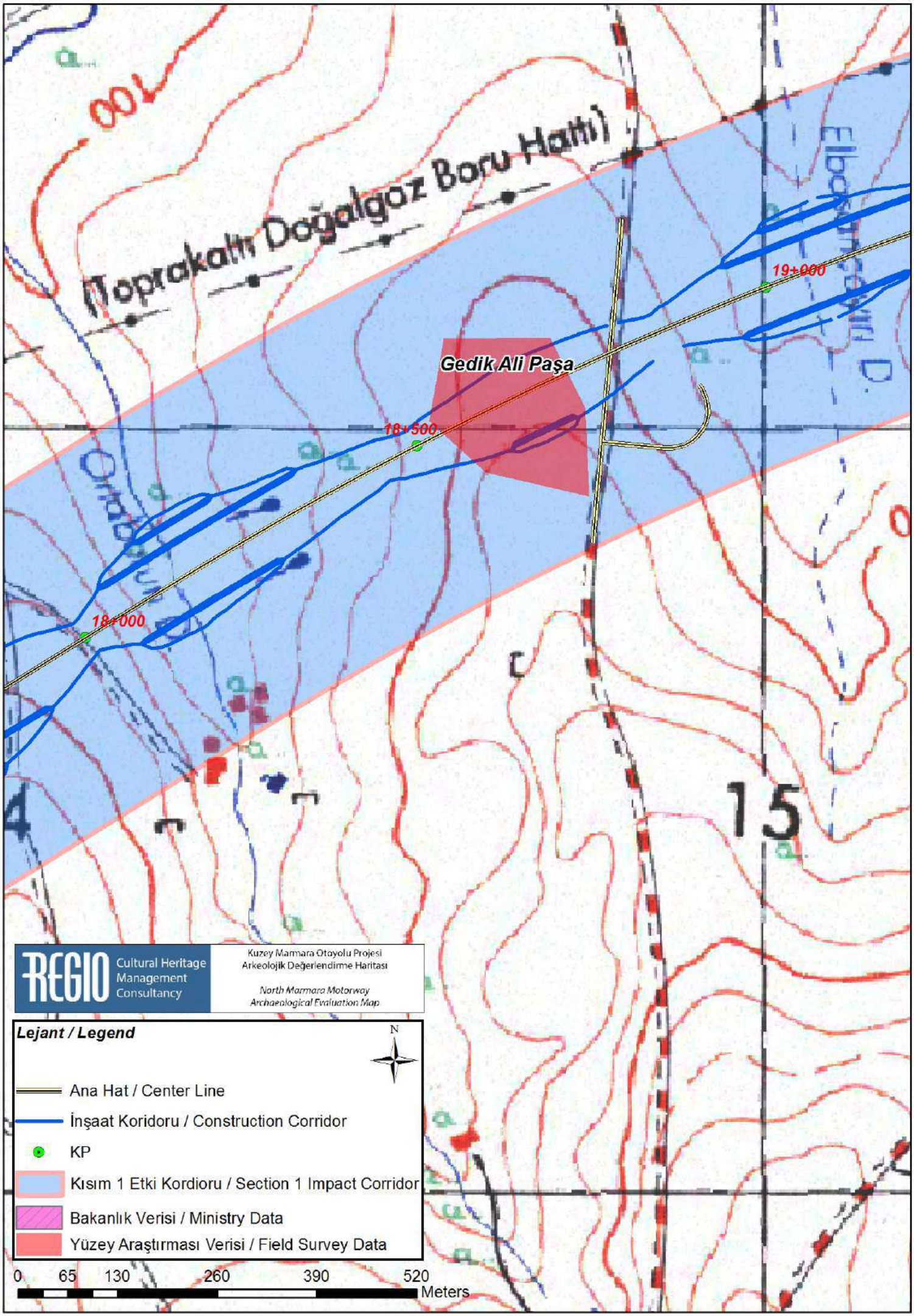
Meters


Toprakaltı Doğalgaz Boru Hattı
Gedik Ali Paşa
18+000
18+500
19+000
15
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
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KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
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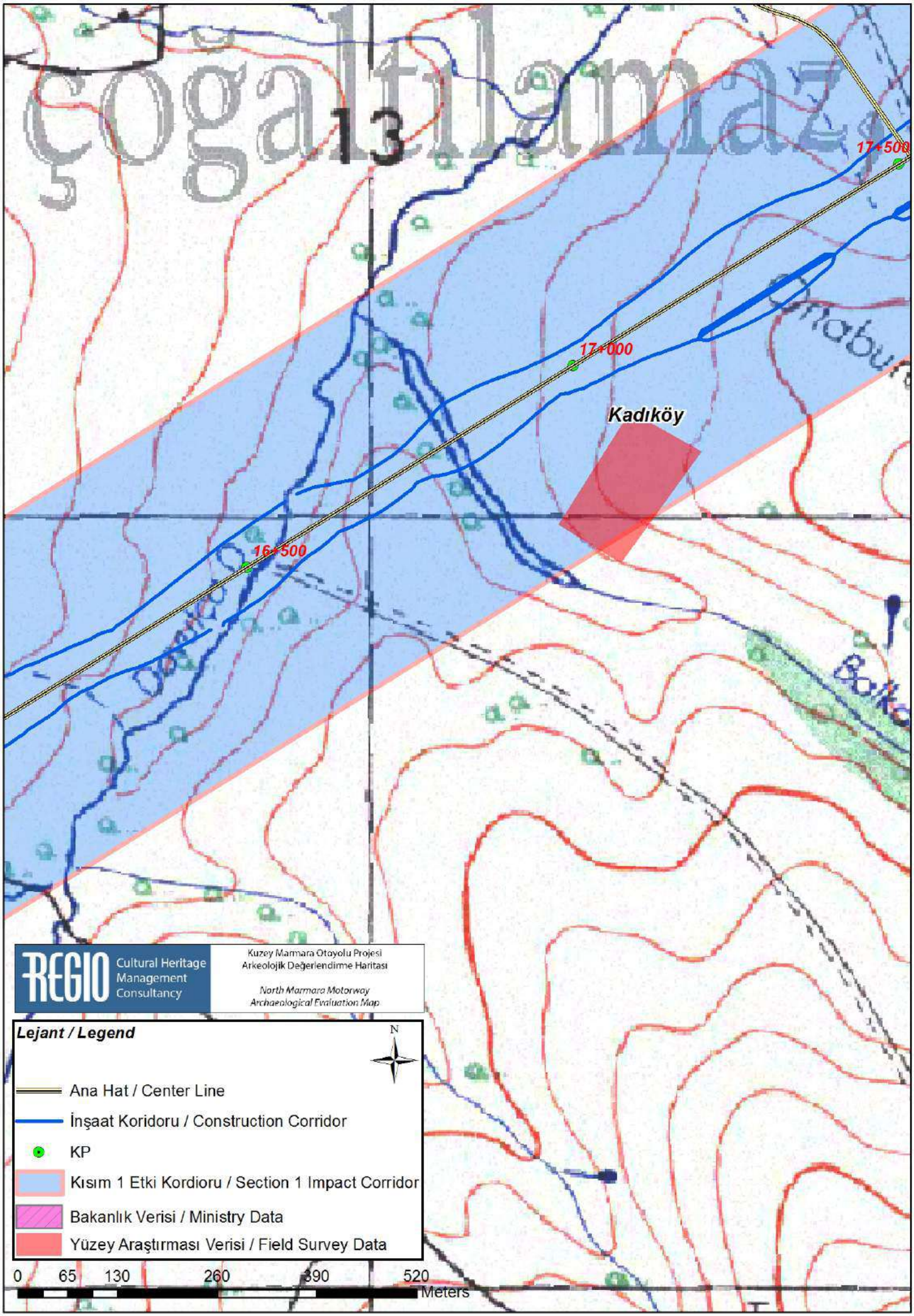
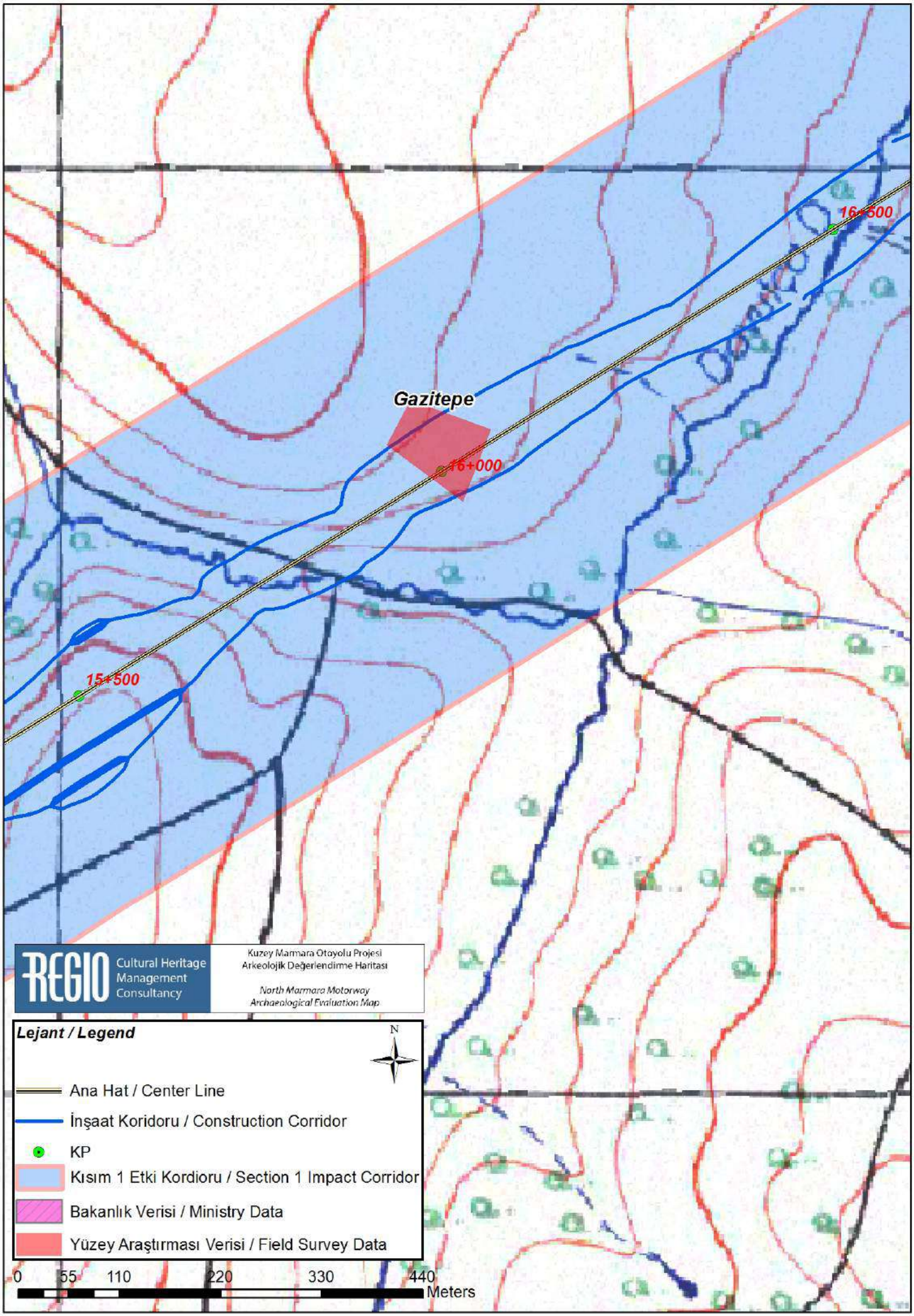
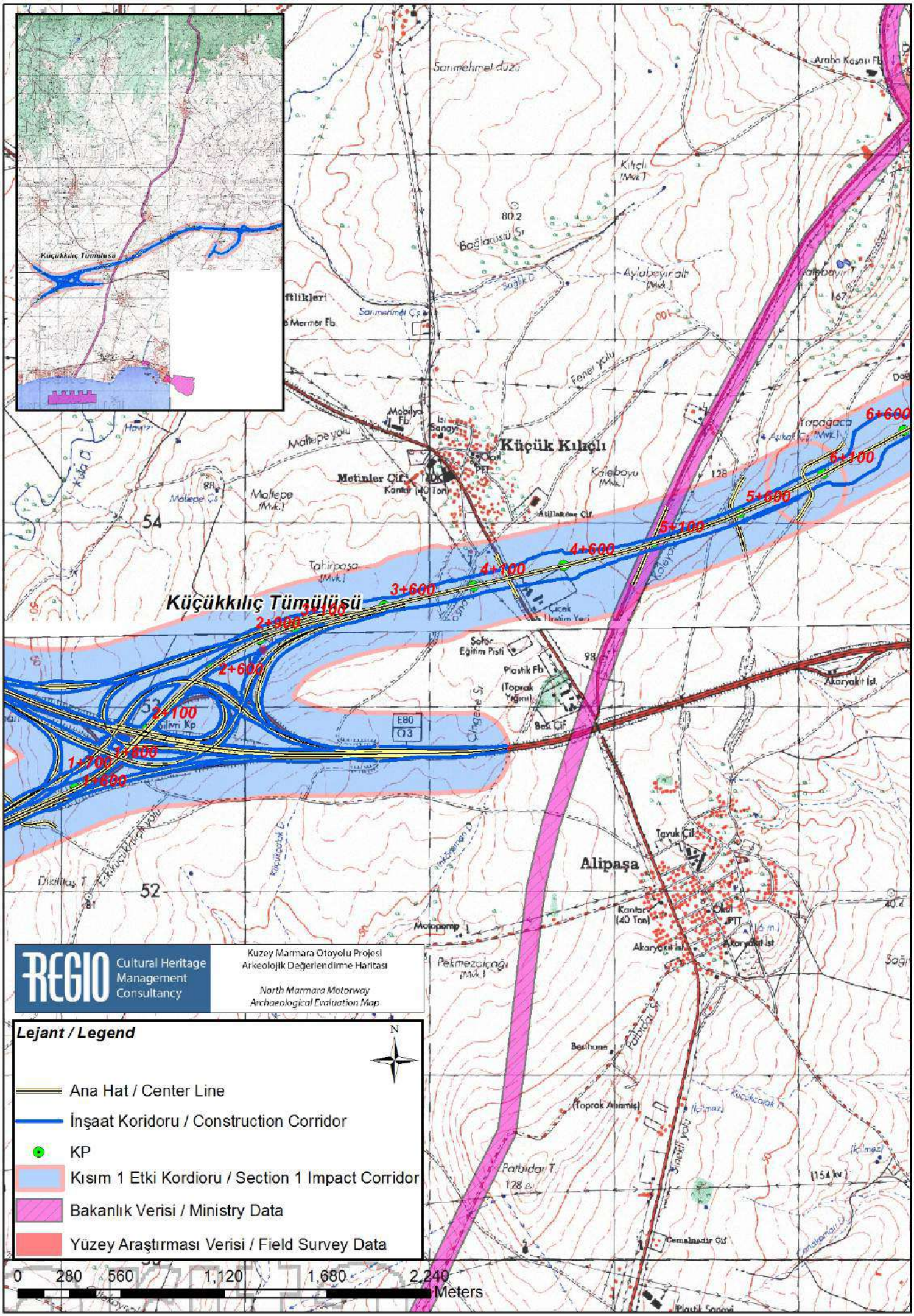
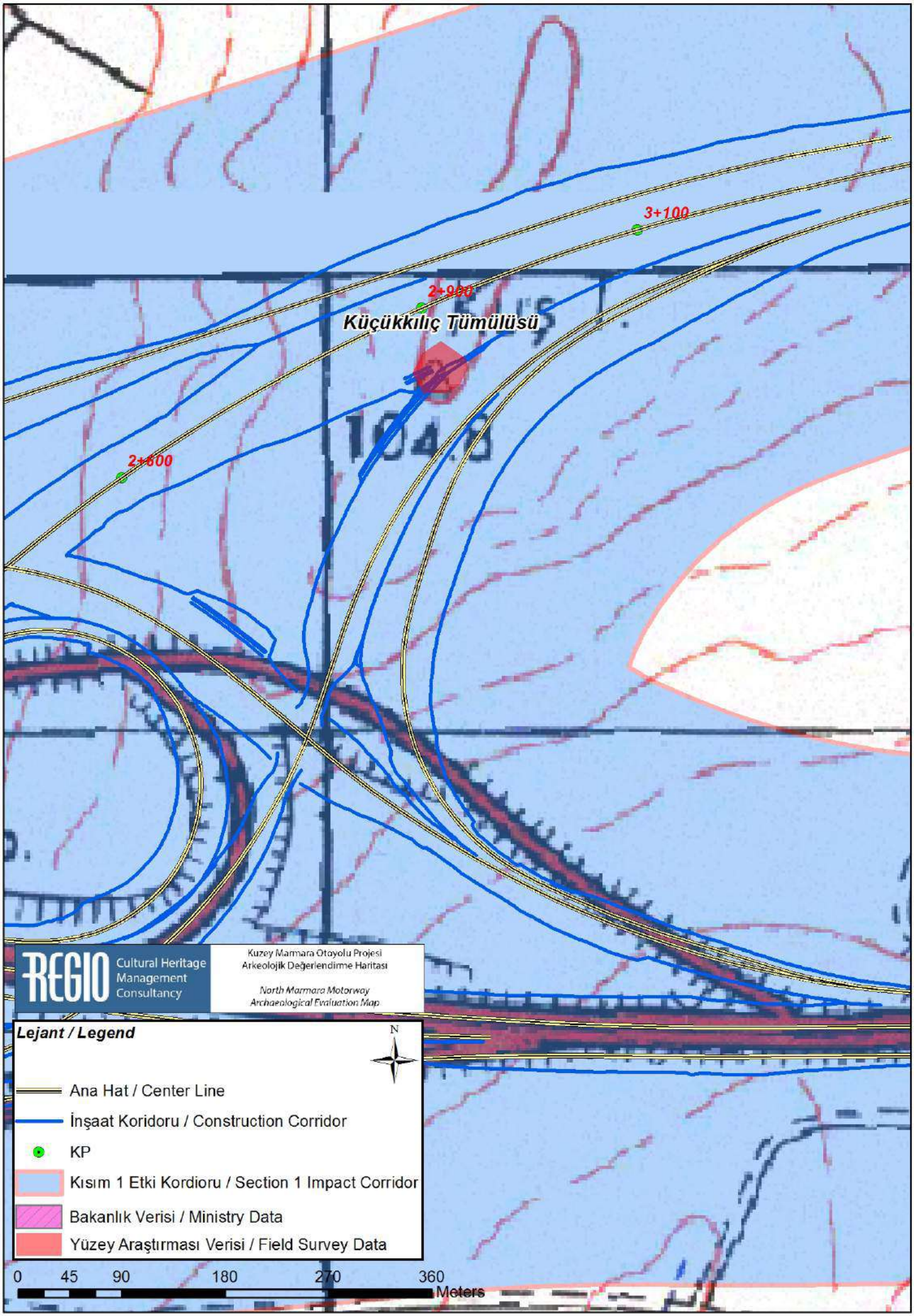
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters


çoğaltılamaz
13
17+500
17+000
16+500
Kadıköy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
REGIO Cultural Heritage Management Consultancy
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 65 130 260 390 520
Meters


Gazitepe
16+000
16+500
15+500
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
N
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0
55
110
220
330
440
Meters


Küçükkılıç Tümülüsü
Küçük Kılıçlı
Alipaşa
6+600
6+100
5+600
5+100
4+600
4+100
3+600
3+100
2+600
2+100
1+600
1+100
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
North Marmara Motorway
Archaeological Evaluation Map
Lejant / Legend
Ana Hat / Center Line
İnşaat Koridoru / Construction Corridor
KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
N
0 280 560 1,120 1,680 2,240
Meters


3+100
2+900
Küçükkılıç Tümülüsü
2+600
REGIO Cultural Heritage Management Consultancy
Kuzey Marmara Otoyolu Projesi
Arkeolojik Değerlendirme Haritası
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Ana Hat / Center Line
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KP
Kısım 1 Etki Kordioru / Section 1 Impact Corridor
Bakanlık Verisi / Ministry Data
Yüzey Araştırması Verisi / Field Survey Data
0 45 90 180 270 360
Meters

Annex 7 – Impact Site Layouts

No	Archaeological/Historical Site Name	Province	KP	Spatial Coverage of Potential Archaeological/Historical Site (m2)	Magnitute of Construction Activities on Potential Archaeological/Historical Site (m2)	Magnitute of Impact (%)	Scale & Severity of Change/Impact	Value of Heritage Assets
1	Osmanbey Potential Archaeological Site	Sakarya	250+520-246+827	2479235	356807	14,39	No Change	Low
2	Çayırlar Mevkii Archaeological Site	Sakarya	238+720-239+127	52692	2288	4,34	No Change	Low
3	Budaklar Potential Archaeological Site	Sakarya	236+747-236+850	6096	3233	53,03	Minor	Low
4	Çelebiler Potential Archaeological Site	Sakarya	232+970-233+550	66312	36037	54,34	Minor	Low
5	Kömürlük Modern Cemetery	Sakarya	232+000 Access Road km 1+500	96	0	0,00	No Change	Low
6	Kömürlük Potential Archaeological Site	Sakarya	232+000 Access Road km 0+250-1+150	498170	81093	16,28	No Change	Low
7	Besihane Potential Archaeological Site	Sakarya	229+000-239+450	67278	26531	39,43	Negligible	Low
8	Azizbey Tepesi Archaeological Site	Sakarya	226+550-226+670	24214	0	0,00	No Change	Low
9	Süloğlu Bridge	Kocaeli	214+700	354	0	0,00	No Change	Low
10	Deredağ Potential Archaeological Site	Kocaeli	213+750-213+950	11430	4790	41,91	Minor	Low
11	Adaparmak Sırtı Potential Archaeological Site	Kocaeli	212+300-212+600	39541	0	0,00	No Change	Low
12	Kabaklı Mevkii Potential Archaeological Site	Kocaeli	211+950-212+150	11863	9108	76,78	High	Low
13	Köprübaşı Tepesi Potential Archaeological Site	Kocaeli	210+500-210+550	1717	1688	98,31	Major	Low
14	Mancarcı Mevkii Potential Archaeological Site	Kocaeli	199+560-199+780	14879	14444	97,08	Major	Low
15	Gedikli 1 Archaeological Site	Kocaeli	198+950-199+100	23057	10612	46,03	Minor	Low
16	Gedikli 2 Archaeological Site	Kocaeli	198+600-198+810	20009	16619	83,06	Major	Low
17	Biberoğlu Archaeological Site	Kocaeli	197+970-198+060	14792	10493	70,94	Moderate	Low
18	İğriköz Deresi Archaeological Sita	Kocaeli	197+560-197+640	4729	0	0,00	No Change	Low
19	Doruk Archaeological Site	Kocaeli	195+700-196+000	47287	0	0,00	No Change	Low
20	Kesimahlar Archaeological Site	Kocaeli	195+000 Access Road km 1+000	66549	0	0,00	No Change	Low
21	Solaklar Archaeological Site	Kocaeli	193+460-194+000	88245	47903	54,28	Minor	Low
22	Çayırköy Arcchaeological Site	Kocaeli	192+300-192+500	43287	0	0,00	No Change	Low
23	Kocaeli RPBCA Registered Archaeological Site 1	Kocaeli	192+000 On Acces Road	1860	0	0,00	No Change	High
24	Toylar Archaeological Site	Kocaeli	174+150-174+370	45829	37307	81,40	Major	Low
25	Sipahiler 1 Archaeological Site	Kocaeli	171+690-171+850	20034	8754	43,70	Minor	Low
26	Sipahiler 2 Archaeological Site	Kocaeli	171+220-171+330	35192	7499	21,31	Negligible	Low
27	Kocadere Archaeological Site	Kocaeli	170+000-170+100	61070	0	0,00	No Change	Low
28	Martılar Archaeological Site	Kocaeli	169+000 Access Road km 41+750+ 42+800	434015	69806	16,08	No Change	Low
29	Kocaeli RPBCA Yağcılar Ancient Road Remains	Kocaeli	161+800	174887	7100	4,06	No Change	High
30	Demirciler Archeaological Site	Kocaeli	150+000 Access Road km 1+200	43565	0	0,00	No Change	Low
31	Uluyan 1 Archaeological Site	Kocaeli	149+950-150+000	1369	0	0,00	No Change	Low
32	Uluyan 2 Archaeological Site	Kocaeli	149+700-149+850	13445	3735	27,78	Negligible	Low
33	Karapınar (Molla Fenari) Archaeological Site	Kocaeli	147+550- 147+900	46491	31398	67,54	Moderate	Low
34	Cumaköy Cemetery	Kocaeli	145+750	36237	0	0,00	No Change	Low
35	Kuzgunçay Tumulus	Kocaeli	144+100	229	0	0,00	No Change	Low
36	Akfırat 3 Archaeological Site	İstanbul	138+900-139+180	46812	9223	19,70	No Change	Low
37	Akfırat 1 Archaeological Site	İstanbul	135+500-135+900	47143	0	0,00	No Change	Low
38	Akfırat 2 Archaeological Site	İstanbul	135+190-135+450	98442	22317	22,67	Negligible	Low
39	Tepeören Potential Archaeological Site	İstanbul	134+390-134+480	11953	6370	53,29	Minor	Low
40	Kırkçeşme Water Line	İstanbul	68+900-69+400	469562	30237	6,44	No Change	High
41	Roman Period Water Line B	İstanbul	68+700-68+800	5717200	430	0,01	No Change	High
42	Terkos - Kağıthane Water Line	İstanbul	57+600-58+850	25723113	906	0,00	No Change	High
43	İhsaniye Cemetery	İstanbul	59+900	2713	0	0,00	No Change	High
44	Roman Period Water Line A	İstanbul		5211719	419	0,01	No Change	High
45	Tayakadın	İstanbul	48+800 Access Road	22654	13	0,06	No Change	Low
46	Baklalı 1 Archaeological Site	İstanbul	47+850 Southern Part of Access Road	31003	0	0,00	No Change	Low

47	Baklalı 2 Archaeological Site	İstanbul	47+850 Nothern Part of Access Road	38650	0	0,00	No Change	Low
48	Yassıören 1 Potential Archaeological Site	İstanbul	43+100-43+350	16324	0	0,00	No Change	Low
49	Çakmak Line Military Entrenchments	İstanbul	42+800-32+500	3464	443	12,79	No Change	High
50	Yassıören 2 Potential Archaeological Site	İstanbul	42+350-42+440	20632	4375	21,20	Negligible	Low
51	Military Bunker 1	İstanbul	40+500	12	0	0,00	No Change	High
52	Military Bunker 2	İstanbul	40+500	45	0	0,00	No Change	High
53	Military Bunker 3	İstanbul	40+400	68	0	0,00	No Change	High
54	Military Bunker 4	İstanbul	40+400	35	0	0,00	No Change	High
55	Military Bunker 5	İstanbul	40+171	29	0	0,00	No Change	High
56	Military Bunker 6	İstanbul	40+171	95	0	0,00	No Change	High
57	Military Bunker 7	İstanbul	40+171	34	0	0,00	No Change	High
58	Military Bunker 8	İstanbul	40+171	32	0	0,00	No Change	High
59	Nakkaş Military Shooting Range	İstanbul	39+825-40+116	15504	30	0,19	No Change	High
60	Military Bunker 9	İstanbul	39+863	53	53	100,00	Major	High
61	Military Bunker 10	İstanbul	39+873	29	29	100,00	Major	High
62	Military Bunker 11	İstanbul	39+850	19	0	0,00	No Change	High
63	Military Bunker 12	İstanbul	39+781	145	145	100,00	Major	High
64	Military Bunker 13	İstanbul	39+726	121	121	100,00	Major	High
65	Military Bunker 14	İstanbul	39+720	76	76	100,00	Major	High
66	Military Bunker 15	İstanbul	39+750	40	0	0,00	No Change	High
67	Military Bunker 16	İstanbul	39+740	56	0	0,00	No Change	High
68	Military Bunker 17	İstanbul	39+660	78	0	0,00	No Change	High
69	Military Bunker 18	İstanbul	39+660	36	0	0,00	No Change	High
70	Military Bunker 19	İstanbul	39+660	14	0	0,00	No Change	High
71	Nakkaş Potential Archaeological Site	İstanbul	39+500-39+600	3745	3745	100,00	Major	Low
72	Nakkaş 2 Archaeological Site	İstanbul	38+150-38+330	19649	0	0,00	No Change	Low
73	Military Bunker 20	İstanbul	38+000	30	0	0,00	No Change	High
74	Nakkaş 3 Archaeological Site	İstanbul	37+780-37+900	8245	0	0,00	No Change	Low
75	Military Bunker 34	İstanbul	37+850	21	0	0,00	No Change	High
76	Military Bunker 35	İstanbul	37+700	125	125	100,00	Major	High
77	Military Bunker 21	İstanbul	37+400	12	0	0,00	No Change	High
78	Örenbayır Archaeological Site	İstanbul	36+980-37+360	95005	35323	37,18	No Change	Low
79	Military Bunker 33	İstanbul	37+250	12	0	0,00	No Change	High
80	Military Bunker 32	İstanbul	37+250	12	0	0,00	No Change	High
81	Military Bunker 31	İstanbul	37+250	18	0	0,00	No Change	High
82	Military Bunker 30	İstanbul	37+250	12	0	0,00	No Change	High
83	Military Bunker 22	İstanbul	36+900	45	0	0,00	No Change	High
84	Military Bunker 29	İstanbul	37+000	32	0	0,00	No Change	High
85	Military Bunker 28	İstanbul	36+900	31	0	0,00	No Change	High
86	Military Bunker 27	İstanbul	36+850	22	0	0,00	No Change	High
87	Military Bunker 26	İstanbul	36+800	15	6	40,00	Minor	High
88	Military Bunker 23	İstanbul	36+700	24	0	0,00	No Change	High
89	Military Bunker 24	İstanbul	36+700	17	0	0,00	No Change	High
90	Military Bunker 25	İstanbul	36+700	15	0	0,00	No Change	High
91	Military Bunker 38	İstanbul	36+700	107	0	0,00	No Change	High
92	Military Bunker 39	İstanbul	36+701	21	0	0,00	No Change	High
93	Military Bunker 40	İstanbul	36+702	44	0	0,00	No Change	High
94	Military Bunker 41	İstanbul	36+703	46	0	0,00	No Change	High
95	Military Bunker 45	İstanbul	36+300	245	0	0,00	No Change	High
96	Military Bunker 44	İstanbul	36+270	116	0	0,00	No Change	High
97	Military Bunker 43	İstanbul	36+240	145	0	0,00	No Change	High
98	Military Bunker 42	İstanbul	36+230	173	0	0,00	No Change	High
99	Military Bunker 46	İstanbul	35+700 Access Road	738	0	0,00	No Change	High
100	Yeşilbayır - Nakkaş Historical Bridge	İstanbul	35+701	121	0	0,00	No Change	Low
101	Military Bunker 47	İstanbul	35+350	689	145	21,04	Negligible	High
102	Military Bunker 48	İstanbul	35+162	12	12	100,00	Major	High
103	Military Bunker 49	İstanbul	35+120	130	0	0,00	No Change	High
104	Military Bunker 50	İstanbul	35+121	18	18	100,00	Major	High
105	Military Bunker 51	İstanbul	35+095	109	109	100,00	Major	High
106	Military Bunker 52	İstanbul	35+036	17	17	100,00	Major	High
107	Military Bunker 53	İstanbul	35+010	26	26	100,00	Major	High
108	Military Bunker 54	İstanbul	35+050	75	0	0,00	No Change	High
109	Military Bunker 55	İstanbul	35+050	19	0	0,00	No Change	High
110	Yeşilbayır Archaeological Site	İstanbul	34+600 On Access Road	6967	0	0,00	No Change	Low
111	Military Bunker 62	İstanbul	34+600 On Access Road	27	27	100,00	Major	High
112	Military Bunker 61	İstanbul	34+600 On Access Road	20	20	100,00	Major	High
113	Military Bunker 60	İstanbul	34+600 On Access Road	19	0	0,00	No Change	High
114	Military Bunker 59	İstanbul	34+600 On Access Road	43	0	0,00	No Change	High
115	Military Bunker 58	İstanbul	34+600 On Access Road	90	0	0,00	No Change	High
116	Military Bunker 57	İstanbul	34+600 On Access Road	473	0	0,00	No Change	High
117	Savaşçı Fountain	İstanbul	34+600 On Access Road	46	46	100,00	Major	Low
118	Military Bunker 63	İstanbul	34+410	20	20	100,00	Major	High
119	Military Bunker 64	İstanbul	34+230	59	59	100,00	Major	High
120	Military Bunker 74	İstanbul	34+210	122	122	100,00	Major	High
121	Military Bunker 65	İstanbul	34+237	54	0	0,00	No Change	High
122	Military Bunker 66	İstanbul	34+230	76	0	0,00	No Change	High
123	Military Bunker 68	İstanbul	34+198	83	66	79,52	Moderate	High
124	Military Bunker 71	İstanbul	34+194	121	52	42,98	Negligible	High
125	Military Bunker 76	İstanbul	34+170	28	28	100,00	Major	High

126	Military Bunker 77	İstanbul	34+195	54	54	100,00	Major	High
127	Military Bunker 75	İstanbul	34+160	108	108	100,00	Major	High
128	Military Bunker 67	İstanbul	34+195	128	0	0,00	No Change	High
129	Military Bunker 91	İstanbul	34+195	65	0	0,00	No Change	High
130	Military Bunker 69	İstanbul	34+120	31	0	0,00	No Change	High
131	Military Bunker 70	İstanbul	34+115	32	0	0,00	No Change	High
132	Military Bunker 78	İstanbul	34+072	63	0	0,00	No Change	High
133	Military Bunker 79	İstanbul	34+108	66	0	0,00	No Change	High
134	Military Bunker 72	İstanbul	34+073	45	0	0,00	No Change	High
135	Military Bunker 73	İstanbul	34+040	36	0	0,00	No Change	High
136	Vaulted Structure	İstanbul	33+950-34+000	896	896	100,00	No Change	High
137	Military Bunker 80	İstanbul	34+000	17	0	0,00	No Change	High
138	Military Bunker 81	İstanbul	34+000	21	0	0,00	No Change	High
139	Military Bunker 83	İstanbul	34+000	44	0	0,00	No Change	High
140	Military Bunker 90	İstanbul	34+000	41	0	0,00	No Change	High
141	Military Bunker 82	İstanbul	33+986	30	0	0,00	No Change	High
142	Military Bunker 92	İstanbul	33+960	29	0	0,00	No Change	High
143	Military Bunker 93	İstanbul	33+941	65	0	0,00	No Change	High
144	Military Bunker 94	İstanbul	33+930	32	0	0,00	No Change	High
145	Military Bunker 88	İstanbul	33+894	42	16	38,10	Negligible	High
146	Military Bunker 89	İstanbul	33+930	66	0	0,00	No Change	High
147	Military Bunker 84	İstanbul	33+890	64	64	100,00	Major	High
148	Military Bunker 85	İstanbul	33+890	159	159	100,00	Major	High
149	Military Bunker 86	İstanbul	33+880	37	28	75,68	Negligible	High
150	Military Bunker 87	İstanbul	33+900	28	0	0,00	No Change	High
151	Military Bunker 95	İstanbul	33+890	20	0	0,00	No Change	High
152	Military Bunker 96	İstanbul	33+880	44	0	0,00	No Change	High
153	Military Bunker 102	İstanbul	33+875	80	0	0,00	No Change	High
154	Military Bunker 100	İstanbul	33+830	37	37	100,00	No Change	High
155	Military Bunker 101	İstanbul	33+856	51	0	0,00	No Change	High
156	Military Bunker 99	İstanbul	33+844	21	0	0,00	No Change	High
157	Military Bunker 97	İstanbul	33+830	35	0	0,00	No Change	High
158	Military Bunker 98	İstanbul	33+567	365	0	0,00	No Change	High
159	Military Bunker 103	İstanbul	33+500	966	0	0,00	No Change	High
160	Military Bunker 104	İstanbul	33+357	51	0	0,00	No Change	High
161	Military Bunker 108	İstanbul	33+340	48	0	0,00	No Change	High
162	Military Bunker 105	İstanbul	33+312	10	0	0,00	No Change	High
163	Military Bunker 107	İstanbul	33+312	16	0	0,00	No Change	High
164	Military Bunker 106	İstanbul	33+313	33	0	0,00	No Change	High
165	Military Bunker 110	İstanbul	33+291	36	0	0,00	No Change	High
166	Military Bunker 109	İstanbul	33+271	55	0	0,00	No Change	High
167	Military Bunker 111	İstanbul	33+258	10	0	0,00	No Change	High
168	Military Bunker 112	İstanbul	33+197	18	0	0,00	No Change	High
169	Military Bunker 113	İstanbul	33+197	46	0	0,00	No Change	High
170	Military Bunker 114	İstanbul	33+122	10	0	0,00	No Change	High
171	Military Bunker 115	İstanbul	33+095	20	0	0,00	No Change	High
172	Military Bunker 119	İstanbul	33+057	62	0	0,00	No Change	High
173	Military Bunker 117	İstanbul	33+020	10	10	100,00	Major	High
174	Military Bunker 116	İstanbul	33+036	26	0	0,00	No Change	High
175	Military Bunker 118	İstanbul	32+940	15	8	53,33	Minor	High
176	Military Bunker 120	İstanbul	32+855	68	0	0,00	No Change	High
177	Military Bunker 121	İstanbul	32+792	5	2	40,00	Negligible	High
178	Military Bunker 122	İstanbul	32+700	5	5	100,00	Major	High
179	Military Bunker 123	İstanbul	32+643	7	0	0,00	No Change	High
180	Military Bunker 124	İstanbul	32+610	12	0	0,00	No Change	High
181	Military Bunker 126	İstanbul	32+610	17	0	0,00	No Change	High
182	Military Bunker 125	İstanbul	32+580	7		0,00	No Change	High
183	Military Bunker 127 and Parapet	İstanbul	32+530	3499	597	17,06	No Change	High
184	Umurtepe - Kartepe 2nd Degree Archaeological Site	İstanbul	21+800-21+100	431636	185421	42,96	Minor	High
185	Karamurat Archaeological Site	İstanbul	20+230-19+660	98813	20939	21,19	Negligible	Low
186	Gedik Ali Paşa Archaeological Site	İstanbul	18+500-18+680	32014	15329	47,88	Minor	Low
187	Kadıköy Archaeological Site	İstanbul	16+850-17+080	17943	0	0,00	No Change	Low
188	Gazitepe Potential Archaeological Site	İstanbul	15+920-16+036	6811	5459	80,15	Major	Low
189	Anastasios Fortification Wall	İstanbul	5+000-5+100	1671171	7817	0,47	No Change	High
190	Küçükkılıç Tumulus	İstanbul	2+860-2+940	1518	1518	100,00	Major	Low

SCALE & SEVERITY OF CHANGE/IMPACT	
%0-%20	No Change
%20-%40	Negligible
%40-%60	Minor
%60-%80	Moderate
%80-%100	Major

VALUE OF HERITAGE ASSETS	
The importance of the asset has not been ascertained.	Unknown Potential
*Assets with little or no surviving archaeological interest.	Negligible
*Designated or undesignated assets of local importance. *Assets compromised by poor preservation and/or poor survival of contextual associations. *Assets of limited value, but with potential to contribute to local research objectives.	Low
*Nationally-designated Archaeological Monuments protected by the State Party's laws *Undesignated sites of the quality and importance to be designated. *Assets that can contribute significantly to acknowledged national research objectives.	High
*Sites of acknowledged international importance inscribed as WH property. *Individual attributes that convey OUV of the WH property. *Assets that can contribute significantly to acknowledged international research objectives.	Very High

Annex 8 – Official Correspondances of Regional Board for Preservation of Cultural Assets

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/00.720.96/ 83
Konu : Kuzey Marmara Otoyolu Kurum Görüşü
Altyapı Deplasmanları

20/01/2017

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA

İlgi: a) Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğünün 27.10.2016 tarih ve E.251737 sayılı yazısı.
b)Regio Kültürel Miras Yönetim Danışmanlığının 09.01.2016 tarih ve 01 sayılı yazısı.

İlgi yazılarda;Yap-İşlet-Devret yönetimi ile ihalesi yapılan Kuzey Marmara Otoyolu (3 Boğaz Köprüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi KMO Avrupa Otoyol İşletmesi A.Ş. taahhüdünde, Kurtköy-Akyazı (Bağlantı Yolları Dahil) Kesimi İşi KMO Anadolu Otoyol İşletmesi A.Ş. taahhüdünde ve Karayolları 1. Bölge Müdürlüğü denetiminde yürütülmektedir. Bu kapsamda Müdürlüğümüzün görüşünün ivedilikle bildirilmesi ve güzergah üzerinde yer alan sit alanı ya da tescilli yapılara ilişkin sayısal verilerin gönderilmesi talep edilmektedir.

Söz konusu yazıya ilişkin sayısal veriler e-mail yoluyla Regio Kültürel Miras Yönetim Danışmanlığına iletilmiş olup, ayrıca aynı firmanın elemanları ile Müdürlüğümüz teknik elemanları yerinde incelemeler yaparak tüm hattı incelemişlerdir. Söz konusu Kuzey Marmara Otoyol Projesinin Gebze Yağcılar Mevkiinde tarihi yol kalıntısı ile kesiştiği tespit edildiğinden bu noktadaki geçiş konusu Kurulumuz ilk toplantısında değerlendirilecek olup, toplantı sonrası kesin kurum görüşümüz iletilebilecektir.

Gereğini rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EK: CD (1 adet)

DAĞITIM:

Gereği:
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Regio Kültürel Miras Yönetim Danışmanlığına

Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ
Telefon: (0 262) 323 29 26 Faks: (0 262) 323 29 36
E- mail :ktvk41@kultur.gov.tr

Ayrıntılı bilgi için irtibat:
Sanat Tarihçi:
Tayfun OK
Dahili: 116

T.C
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul V Numaralı Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

SAYI: 25087147/211
KONU: Kuzey Marmara Otoyolu.

İSTANBUL
26 Ocak 2017

REGİO Raporlama Etüd Geliştirme Organizasyon Danışmanlık Eğitim A.Ş.
(Sedat Simavi S. No:17 A Blok No:2 06550 Çankaya/ANKARA)

İlgi: 09.01.2017 tarih ve KMO-REG-KKY-IST-02 sayılı yazımız.

Kuzey Marmara Otoyolu (3. Boğaz Köprüsü Dahil) Projesi Kınalı-Odayeri ve Kurtköy-Akyazı (Bağlantı Yolları Dahil) kesimlerine ilişkin yazı ekinde CD ortamında sunulan verideki proje uygulama sahaları (yol güzergahı, yerüstü tesisleri, kavşaklar, tüneller, köprüler, stok sahaları dahil) ve bu uygulama sahalarının üzerine rastlayan tescilli alanlar ile tescil aşamasında olan, tespitli alanlara ilişkin bilgi ve belgelerin tarafınıza iletilmesi talep edilen ilgi yazınız ile eki incelenmiştir.

Söz konusu güzergahlardan Kurtköy-Akyazı kesiminin batı ucunda yer alan parçası Müdürlüğümüz sorumluluk alanında kalan Pendik ve Tuzla ilçe sınırları içerisinden geçmektedir. Söz konusu güzergahta Müdürlüğümüz görev alanına giren herhangi bir sit alanı bulunmamakta olup, tescil yapılmış herhangi bir kültür varlığı kaydına da rastlanmamıştır. Alanda yapılacak çalışmalar sırasında kültür varlığı bulgusuna rastlanılması halinde fiziki uygulamaların durdurularak gerekli belgelerin Müdürlüğümüze iletilmesi gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.

Aymur ARTAR
Müdür

ADRES: Hobyar Mahallesi, Büyük Postane Cad. No:34 Kat:4
Bahçekapı/Eminönü/İSTANBUL
Tel: 0212- 512 09 20 Faks: 0212- 528 31 13

Bilgi için: Gökhan BİLGİHAN
Şehir Plancısı

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul I Numaralı Kültür Varlıklarını
Koruma Bölge Kurulu Müdürlüğü

SAYI: 39682869/469 13./03./2017
KONU: Kuzey Marmara Otoyolu Projesi kapsamında istenen bilgi ve belgeler hk.

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞI EĞİTİM A.Ş'YE

İlgi: a)09.01.2017 tarih 1 sayılı yazınız.
b) İstanbul I Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 12.01.2017 tarih 2203 sayılı kararı.

İstanbul İli ve çevresini kapsayan alanda gerçekleştirilen Kuzey Marmara Otoyolu ve Bağlantı Yolları(3. Boğaz Köprüsü dahil) Projesi kapsamında arkeolojik taşınmaz kültürel mirasın değerlendirilmesine yönelik çalışmaların yapılması, bu itibarla otoyol güzargahı boyunca arkeolojik ve somut kültürel mirasın etki değerlendirmesi için gerekli saha araştırmalarını Kurum ve diğer paydaş görüşmelerini veri toplama faaliyetlerini ve ilgili diğer çalışmaları gerçekleştirmek üzere 2016/20 sayılı Başbakanlık Genelgesi kapsamında, cd ortamında (kmz dosyası) sunulan verideki proje uygulama sahaları(yol güzergahı, yerüstü tesisleri, kavşaklar, tüneller, köprüler, stok sahaları dahil) ve bu uygulama sahalarının üzerine rastlayan tescilli alanlar ile tescilli alanlar ile tescil aşamasında olan, tespitli alanlara ilişkin bilgi ve belgelerin iletilmesini konu edinen ilgi (a) yazınız ve ekleri incelenmiştir.

Müdürlüğümüzce yapılan inceleme neticesinde;

İstanbul İl sınırları içerisinde, Müdürlüğümüz yetki alanında olan; Eyüp, Arnavutköy, Başakşehir, Sultangazi, Gaziosmanpaşa, Başakşehir, Avcılar, Çatalca ve Silivri İlçelerinden geçen Kuzey Marmara Otoyolu ve Bağlantı Yolları Proje(KMO) sınırları ve yakın çevresinde 2863 Sayılı Yasa kapsamında bazı tescilli veya tescil süreci devam eden çeşitli kültür varlıkları bulunmakta olduğu,

Yapılan inceleme neticesinde bahse konu proje güzergahı üzerinde yer aldığı tespit edilen önemli kültür varlıklarının;

- Silivri İlçesi Anastasius Surları ve Koruma alanı
- Çatalca İlçesi Kartepe-Umurtepe 2. Derece Arkeolojik sit alanı,
- Arnavutköy İlçesi tarihi Roma Su İsale hattı,
- Eyüp-Arnavutköy Terkos-Feriköy Su İsale hattı,
- Kırkçeşme Su İsale hattı,
- Fevzi Çakmak Savunma Hattı olarak bilinen tarihi ve askeri tahkimatlar(tabya ve korunganlar) oldukları,

Bahse konu kültür varlıklarının onaylı koruma alanı veya sit sınırına ait Kurul kararı ile onaylı sayısal veriler(dxf, ncz, vb.) bulunmamakta olup, bu alanlara ilişkin, Müdürlüğümüzce gerçekleştirilen sayısallaştırma çalışmalarının devam etmekte olduğu tespit edilmiştir.

Hobyar Mahallesi Büyük Postane Caddesi No:72 Kat:2
Eminönü Fatih/ İSTANBUL
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e-Posta: istanbulkurul1@kultur.gov.tr İnternet Adresi:www.kulturturizm.gov.tr

Bilgi için: Ersun VAROL
Şehir Plancısı
Dahili No:124

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İstanbul I Numaralı Kültür Varlıklarını
Koruma Bölge Kurulu Müdürlüğü

SAYI: 39682869/469 13./.03/2017
KONU: Kuzey Marmara Otoyolu Projesi kapsamında istenen bilgi ve belgeler hk.

Tespit edilen hususlar doğrultusunda, Kuzey Marmara Otoyolu ve Bağlantı Yolları Proje(KMO) güzergahı üzerinde kaldıkları tespit edilen kültür varlıklarına ilişkin ait ilgi (a) yazınız ile istenen sayısal veriler, Kurul kararıyla onaylı veriler olmayıp, resmi işlemlerde kullanılmaması koşulu ile sadece bilgi amaçlı olarak kullanılmak üzere cd ortamında(ncz, kmz) yazımız ekinde tarafınıza iletilmekte olup, Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesinin, bahse konu kültür varlıkları ile ilişkilerinin Kurulumuzca değerlendirilmesi neticesinde, alınan ilgi (b) Kurul karar örneği de yazımız ekinde tarafınıza iletilmektedir.

Bilgilerinizi rica ederim.

Ahmet LATİFOĞLU
Müdür V.

Ek: - İlgi (b) karar örn.(1syf)
- 1 adet Cd(kmz, ncz, txt, docx)

Hobyar Mahallesi Büyük Postane Caddesi No:72 Kat:2
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e-Posta: istanbulkurul1@kultur.gov.tr İnternet Adresi:www.kulturturizm.gov.tr

Bilgi için: Ersun VAROL
Şehir Plancısı
Dahili No:124

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İSTANBUL I NUMARALI KÜLTÜR VARLIKLARINI
KORUMA BÖLGE KURULU

Toplantı Tarihi ve No :12.01.2017/233
Karar Tarihi ve No :12.01.2017/2203-I

Toplantı Yeri
İSTANBUL

KARAR

İstanbul İli, Eyüp, Arnavutköy, Başakşehir, Sultangazi, Gaziosmanpaşa, Başakşehir, Avcılar, Çatalca ve Silivri ilçelerinden geçen, Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesi (KMO), Yassıören Mevki ile Odayeri-Işıklar Mevki arasında bulunan otoyol projesi, 3. Havalimanı Güzergahı Odayeri Kavşağı ile Tem Otoyolu Mahmutbey Kavşağı arasında projelendirilen bağlantı yolu kesimine ilişkin İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 18.12.2014 tarih 1247 sayılı kararı ile ... Kırkçeşme Su Galeri Hattı Koruma Alanı ile Anastasias Surları Koruma Alanının içerisinden geçen kısımlara ilişkin, 2863 Sayılı Yasa kapsamında azami özen gösterilmesi ve alanda uygulama aşamasında koruma altındaki yapılarla ilişkileri gösterilerek yapılacak uygulama projelerinin Kurulumuza iletilmesine;...Kültür varlığı olarak tescil ve tespit işlemleri tamamlanmayan ve Kuzey Marmara Otoyolu Projesi kapsamında kaldıkları anlaşılan tahkimatlara ilişkin Milli Savunma Bakanlığı'ndan, tabya ve koruganlarla ilgili bilgi, belge ve raporların istenmesine ve proje güzergahında bundan sonra düzenleme yapılmasına; ...muhtemel Terkos-Kağıthane Su İletim Galerisi Hattında, İSKİ Genel Müdürlüğü, Karayolları Genel Müdürlüğü ve İstanbul Arkeoloji Müzeleri Müdürlüğü işbirliğiyle yapılacak kazı ve sondaj çalışmaları sonucunda hazırlanacak raporun ivedilikle Kurula iletilmesine; bölgede tarihi su sistemlerine ilişkin yapılan bilimsel çalışmalardaki veriler ile İSKİ Genel Müdürlüğünün 11.09.2014 gün ve 314-446263 sayılı yazısı ekindeki 1935 tarihli Terkos Su Yolu Planının; Karayolları Genel Müdürlüğü, İSKİ ve Arkeoloji Müzeleri koordinasyonunda, 2863 Sayılı Yasa Kapsamında incelenmesine, kazı ve sondaj çalışmalarının yapılmasına ve sonucunda hazırlanacak raporun Kurula iletilmesine; Projenin, koruma kurulu yetki alanında kalan sit sınırı ve koruma alanlarının coğrafi koordinatlarının yerinde tespit edilerek, elde edilen koordinat verilerinin paftalara işlenerek Kurula iletilmesine ve akabinde tescil fişlerine işlenmesi gerektiğine; Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesine ilişkin, Ulaştırma, Denizcilik ve Haberleşme Bakanlığı Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğü'nün 16.10.2014 gün ve 175909 sayılı yazısına konu, 1/25.000 ölçekli paftaların, Karayolları Genel Müdürlüğü'nün onayının ardından ivedilikle Kurulumuza iletilmesine; Kültür ve Tabiat Varlıklarını Koruma Kanunu'nun, Haber Verme Zorunluluğu başlıklı 4. ...Madde'nin ve konuya ilişkin 23.08.2012 gün ve 28390 sayılı Resmi Gazetede ilan edilen Başbakanlık Genelgesi'nin 11. Maddesinde belirtilen hususların gereğinin yapılması gerektiğine; söz konusu projenin, Kurulumuz yetkisinde kalan kısımlarına ilişkin 1/25.000 ölçekli Nazım İmar Planı, 1/5000 Nazım İmar Planı ve 1/1000 Ölçekli Uygulama İmar Planı onaylı paftalarının, Kurul arşivinde yer almak üzere, ivedilikle Kurulumuza iletilmesi gerektiğine, İstanbul 1 Numaralı Kültür Varlıklarını Koruma Bölge Kurulunun 07.01.2016 tarih 1661 sayılı kararı ile Kuzey Marmara Otoyolu ve Bağlantı Yolları Projesine ilişkin alınan 18.12.2015 tarih 1247 sayılı Kurul...karar gereklerinin yerine getirilmesine karar verilen, Karayolları Genel Müdürlüğü, 1. Bölge Müdürlüğünün; İstanbul, Avrupa Yakası Kuzey Marmara Otoyolu(3. Boğaz Köprüsü Dahil) Projesi, Kınalı-Odayeri (Bağlantı Yolları Dahil) Kesimi İşi 1/5000 ölçekli Ön Proje Güzergahına ait Kurum görüşlerinin talep edildiği .10.2016 tarih 170.99/E.251737 sayılı yazısı ile söz konusu iş kapsamındaki Kesim-7 Habibler-Hasdal km:66+650 – 69+325' de bulunan Gazi Tüneli ile tarihi Kırkçeşme Sularına ait etkileşimi gösteren 1/5000 ölçekli Otoyolu plan-profil paftasının incelenerek görüş verilmesinin talep edildiği 22.12.2016 tarih 170.99/E.304075 sayılı yazıları, bahse konu projeye ilişkin Başbakanlık Personel ve Prensipler Genel Müdürlüğünün 23.08.2016 tarih ve 2016/20 sayılı genelgesinin yazı ekinde iletildiği İstanbul Valiliği İl Yazı İşleri Müdürlüğünün 29.08.2016 tarih E.67520 sayılı yazısı, bahse konu projelere ilişkin yapılan işlemlere ilişkin bilgi ve belgenin iletilmesini konu edinen Kültür Varlıkları ve Müzeler Genel Müdürlüğünün ilgi 23.11.2016 tarih 209115 sayılı ve 12.12.2016 tarih 221455 sayılı yazıları, hazırlanan uzman raporu okundu, 1292 nolu işlem dosyası incelendi, yapılan görüşmeler sonucunda;

ASLI OLDUĞU
Ahmet LATİFOĞLU
Müdür V.

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
İSTANBUL I NUMARALI KÜLTÜR VARLIKLARINI
KORUMA BÖLGE KURULU

Toplantı Tarihi ve No :12.01.2017/233 **Toplantı Yeri**
Karar Tarihi ve No :12.01.2017/2203-II İSTANBUL

İstanbul, Avrupa Yakası Kuzey Marmara Otoyolu(3. Boğaz Köprüsü Dahil) Projesi kapsamında, Karayolları Genel Müdürlüğü 1. Bölge Müdürlüğünün 27.10.2016 tarih 170.99/E.251737 sayılı ve 22.12.2016 tarih 170.99/E.304075 sayılı yazı eklerinde yer alan Silivri Kınalı- Eyüp Odayeri (Bağlantı Yolları Dahil) Kesimi ile Sultangazi-Hasdal Bağlantıları proje güzergahlarının uygulanmasında 2863 Sayılı Yasa kapsamında sakınca bulunmadığına; ancak uygulama öncesinde proje güzergahının, Silivri Anastasius Surları ve Koruma alanı, Arnavutköy ve Sultangazi Roma Su İsale Hatları, Eyüp Terkos-Feriköy Su İsale hatları ve Arnavutköy Çakmak hattı olarak bilinen bölgede yer alan tarihi askeri tahkimatlar(tabya, korugan, vb.) ile kesiştiği noktalarda ilgili Kurumlarca ve ilgili Müze denetiminde jeoradar çalışmasının yapılarak bahse konu kültür varlıklarının kesin yerleri ve ebatlarının(3 boyutlu modellenmiş şekilde) coğrafi koordinatları ile birlikte belirlenerek onaylı halihazır paftalara işlenmesine, bu veriler doğrultusunda hazırlanacak alternatifli uygulama projelerinin değerlendirilmek üzere Kurulumuza iletilmesine;

Kuzey Marmara Otoyol Projesi hattı ile kesiştiği anlaşılan Kartepe-Umurtepe II. Derece Arkeolojik Sit Alanının içerisinden kısmen geçtiği anlaşılan öneri tünel yapısının kültür varlıklarını etkileyen kısımlarını gösterir üç boyutlu modellemelerin de yer aldığı alternatifli ve detaylı uygulama projesi ve raporlarının Kurulumuza iletilmesine;

Proje kapsamında Sultangazi-Hasdal Bağlantısında önerilen tünel hattı ile kesiştiği anlaşılan Kırkçeşme Su İsale hattı galeri ve Çiftekemerin yer aldığı bölümünde, isale hattının yeraltında kalan kısımları ile birlikte gerekli tespit ve belgeleme çalışmalarının ilgili Müze denetiminde yapılmasına, mimari elemanlarının ortaya çıkarılmasına; kültür varlığının kesin yerleri ve ebatlarının(3 boyutlu modellenmiş şekilde) coğrafi koordinatları ile birlikte belirlenerek onaylı halihazır paftalara işlenmesine, bu veriler doğrultusunda hazırlanacak alternatifli uygulama projelerinin değerlendirilmek üzere Kurulumuza iletilmesine;

Kuzey Marmara Otoyoluna ilişkin Kurulumuzun 18.12.2014 tarih 1247 sayılı kararında yer alan ve yerine getirilmeyen hükümlerin ivedilikle yerine getirilmesine;

Ayrıca otoyol proje hattı üzerinde belirlenen kültür varlıkları dışında, herhangi bir kültür varlığına rastlanması durumunda 2863 Sayılı Yasanın 4. Maddesinin gereğinin yerine getirilmesine karar verildi.

BAŞKAN Hüseyin KOÇ İMZA	ASLI GİBİDİR Ahmet LATİFOĞLU Müdür V.	**BAŞKAN YARDIMCISI** Barış HAN İMZA
ÜYE Suat ÇAKIR İMZA	**ÜYE** Aslıhan YURTSEVER BEYAZIT (BULUNMADI)	**ÜYE** Muhammed HARDALAÇ İMZA
ÜYE Fatih ELÇİL İMZA	**ÜYE** Mergül KOTİL İMZA	**ÜYE** Zuhal AYANOĞLU İst. B.Şehir Bld. Tems. İMZA
ÜYE Zeynep KIZILTAN İst. Arkeoloji Müz. Md (BULUNMADI)	**ÜYE** Yılmaz FIRAT İst. Orm. Bölg. Müd. Tems. İMZA	**ÜYE** Hamdi DEMİRHAN Arnavutköy Bld.Tems (BULUNMADI)
ÜYE Zehra. B. ÇAVUŞ Başakşehir Bld. Tems.	**ÜYE** Erhan GÜZEL Çatalca Bld.Tems (BULUNMADI)	**ÜYE** Esra SARI Eyüp Bld. Tems. İMZA
ÜYE Sibel ALATAŞ Silivri Bld.Tems (BULUNMADI)	**ÜYE** Nurgün GÜNGÖREN Sultangazi Bld.Tems (BULUNMADI)	12.01.2017/EV

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/ 00.720.91/ 427
Konu : Kocaeli İli, İzmit, Gebze, Körfez İlçeleri
Kuzey Marmara Otoyolu Projesi

23/03/2017

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA
(Sedat Simavi Sok. No:17/A Blok No:2 Çankaya/ANKARA)

Yukarıda belirtilen konu hakkında Kurulumuzca alınan 21/03/2017 gün ve 2887 sayılı karar ekte sunulmuştur.

Bilgilerinize rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EKLER:
1-Karar örneği (1 sayfa)
2-CD (1 Adet)

DAĞITIM:

Gereği:
-Kocaeli Valiliğine
(İl Kültür ve Turizm Müdürlüğü)
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Kocaeli Büyükşehir Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-İzmit Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-Gebze Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)
-Körfez Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
(Ek-2 konulmadı)

Bilgi:
-Kültür Varlıkları ve Müzeler Genel Müdürlüğüne
(Kurullar Dairesi Başkanlığı)
(Kazılar Dairesi Başkanlığı)
(Ek-2 konulmadı)
-Regio Kültürel Miras Yönetim Danışmanlığına
(Sedat Simavi Sok. No:17/A Blok No:2
Çankaya/ANKARA)
(Ek-2 konulmadı)

Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ
Telefon: (0 262) 323 29 26 Faks: (0 262) 323 29 36
e- mail : ktvk41@kultur.gov.tr

Ayrıntılı bilgi için irtibat:
Sanat Tarihçi
Tayfun OK
Dahili: 116

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
KOCAELİ KÜLTÜR VARLIKLARINI KORUMA BÖLGE KURULU

K A R A R

Toplantı Tarihi ve No : 21/03/2017 - 184
Karar Tarihi ve No : 21/03/2017 - 2887

Toplantı Yeri
Kocaeli

Kocaeli İli, İzmit, Körfez ve Gebze İlçesi sınırları içerisinde bulunan, sit dışı, mülkiyeti maliye hazinesine ve şahsa ait, ekte koordinatları belirtilen, Gedikli, Biberoğlu, Solaklar, Sipahiler 1 ve 2, Karapınar (Molla Fenari) arkeolojik alanlarına ilişkin Karayolları Genel Müdürlüğü, 1.Bölge Müdürlüğünün 02/03/2017 tarih ve E.62716 sayılı yazısı ile Regio Kültürel Miras Yönetim Danışmanlığının 08/03/2017 tarih ve KOC-02 sayılı yazısı, raportör raporu okundu, dosyası ve ekleri incelendi. Yapılan görüşmeler sonucunda;

Kocaeli İli, İzmit, Körfez ve Gebze İlçesi sınırları içerisinde bulunan, sit dışı, mülkiyeti maliye hazinesine ve şahsa ait, ekte koordinatları belirtilen arkeolojik alanlara ilişkin olarak, Müze Müdürlüğü denetiminde yapılacak kazı, sondaj ve jeoradar çalışmalarından sonra hazırlanacak bilgi, belge ve raporların Kurulumuza iletilmesine, sit değerlendirmelerinin ve tescil konularının bundan sonra değerlendirilebileceğine, alanlara ilişkin her türlü emniyet tedbirinin ilgili birimlerce alınmasına karar verildi.

Aslı Gibidir
Taner AKSOY
Bölge Kurulu Müdürü

BAŞKAN
Prof. Dr. E. Özlem AYDIN
imza

BAŞKAN YARDIMCISI
Yrd. Doç. Dr. Murat YILDIZ
bulunmadı

ÜYE
Zinnur BÜYÜKGÖZ
imza

ÜYE
Yrd. Doç. Dr. Ramazan UYKUR
imza

ÜYE
Hatice SATOĞLU
imza

ÜYE
Ramis OKUR
imza

ÜYE
Kocaeli Büyükşehir Belediye Temsilcisi
Volkan ŞENEL
imza

ÜYE
İzmit Belediye Temsilcisi
Cem GÜLER
imza

ÜYE
Gebze Belediye Temsilcisi
bulunmadı

ÜYE
Körfez Belediye Temsilcisi
bulunmadı

ÜYE
Kocaeli Müze Müdürlüğü Temsilcisi
Rıdvan GÖLCÜK
imza

Dosya No:00.720.91 T.O

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kocaeli Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : 95741949/ 00.720.91/ 112 26/01/2017
Konu : Kocaeli İli, İzmit ve Gebze İlçeleri
Kuzey Marmara Otoyolu Projesi

REGİO KÜLTÜREL MİRAS YÖNETİM DANIŞMANLIĞINA
(Sedat Simavi Sok. No:17/A Blok No:2 Çankaya/ANKARA)

Yukarıda belirtilen konu hakkında Kurulumuzca alınan 24/01/2017 gün ve 2802 sayılı karar ekte sunulmuştur.

Gereğini rica ederim.

Taner AKSOY
Bölge Kurulu Müdürü

EKLER:
1-Karar örneği (1 sayfa)

DAĞITIM:

Gereği:
-Kocaeli Valiliğine
(İl Kültür ve Turizm Müdürlüğü)
-Karayolları Genel Müdürlüğüne
(1. Bölge Müdürlüğü)
-Kocaeli Büyükşehir Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-İzmit Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-Gebze Belediye Başkanlığına
(İmar ve Şehircilik Müdürlüğü)
-Regio Kültürel Miras Yönetim Danışmanlığına
(Sedat Simavi Sok. No:17/A Blok No:2
Çankaya/ANKARA)

Bilgi:
-Kültür Varlıkları ve Müzeler Genel Müdürlüğüne
(Kurullar Dairesi Başkanlığı)

Kozluk Mahallesi İstasyon Caddesi TCDD Eski Gar Binası Kat 2 İzmit / KOCAELİ
Telefon: (0 262) 323 29 26 Faks: (0 262) 323 29 36
e- mail : ktvk41@kultur.gov.tr

Ayrıntılı bilgi için irtibat:
Sanat Tarihçi
Tayfun OK
Dahili: 116

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
KOCAELİ KÜLTÜR VARLIKLARINI KORUMA BÖLGE KURULU

K A R A R

Toplantı Tarihi ve No : 24/01/2017 - 180
Karar Tarihi ve No : 24/01/2017 - 2802

Toplantı Yeri
Kocaeli

Kocaeli İli, İzmit İlçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ve şahsa ait, Kurulumuzun 22/05/2012 tarih ve 387 sayılı kararı tescil edilen ve koruma grubu 2. Grup olarak belirlenen su kanalı kalıntısı ve Kocaeli ili, Gebze ilçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ait, Kurulumuzun 13/12/2011 tarih ve 139 sayılı kararı ile "Yağcılar Tarihi Yol Kalıntısı I.Derece Arkeolojik Sit Alanı" olarak ilan edilen alanın Otoyol projesinin kamulaştırma alanı içerisinde kalmasına ilişkin Karayolları Genel Müdürlüğü, I.Bölge Müdürlüğünün 27/10/2016 tarih ve E.251737 sayılı yazısı, raportör raporu okundu, dosyası ve ekleri incelendi. Yapılan görüşmeler sonucunda;

Kocaeli İli, Gebze ilçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ait, Kurulumuzun 13/12/2011 tarih ve 139 sayılı kararı ile "Yağcılar Tarihi Yol Kalıntısı I.Derece Arkeolojik Sit Alanı" olarak ilan edilen alan ile kesiştiği noktada Otoyol projesinin sürekliliğini sağlayan ve tarihi yolun devamlılığını bozmayan projelerin Kurulumuza sunulmasından sonra karar verilmesine,

Kocaeli İli, İzmit İlçesi sınırları içerisinde bulunan, mülkiyeti maliye hazinesine ve şahsa ait, Kurulumuzun 22/05/2012 tarih ve 387 sayılı kararı tescil edilen ve koruma grubu 2. Grup olarak belirlenen su kanalı kalıntısının Otoyol projesinin kamulaştırma alanının dışına alınmasının uygun olduğuna, alana ilişkin can ve mal güvenliğinin mal sahibi ve ilgili belediyesince sağlanmasına karar verildi.

Aslı Gibidir
Taner AKSOY
Bölge Kurulu Müdürü

BAŞKAN
Prof. Dr. E. Özlem AYDIN
bulunmadı

BAŞKAN YARDIMCISI
Yrd. Doç. Dr. Murat YILDIZ
imza

ÜYE
Zinnur BÜYÜKGÖZ
imza

ÜYE
Yrd. Doç. Dr. Ramazan UYKUR
imza

ÜYE
Hatice SATOĞLU
imza

ÜYE
Ramis OKUR
bulunmadı

ÜYE
Kocaeli Büyükşehir Belediye Temsilcisi
Volkan ŞENEL
imza

ÜYE
İzmit Belediye Temsilcisi
Cem GÜLER
imza

ÜYE
Gebze Belediye Temsilcisi
bulunmadı

ÜYE
Kocaeli Müze Müdürlüğü Temsilcisi
Rıdvan GÖLCÜK
imza

Dosya No: 00.720.91 T.O

Annex 9 – Archaelogical Object Delivery Form

2.03.2017

MÜZE MÜDÜRLÜĞÜ'NE
KOCAELİ

Aşağıda yazılı objelerin Komisyonda değerlendirilerek Kocaeli Müzesi Müdürlüğü'ne Bağış / satın alma olarak kabul edilmesi hususunda,gereğini arz ederim.

Adı Soyadı : A. Halim ÖZATAY
İmzası :
Telefonu : 0531 870 7623

ADRES VE TELEFON BİLGİLERİ:

IBAN NO: TR:

SIRA NO	ADI	ADEDİ	CİNSİ	DÖNEMİ	ÖLÇÜLERİ VE ÖZELLİKLERİ	BULUNTU YERİ
1	Sikke	1	Bronz	Roma	26x28 m	Durhasan Mah.

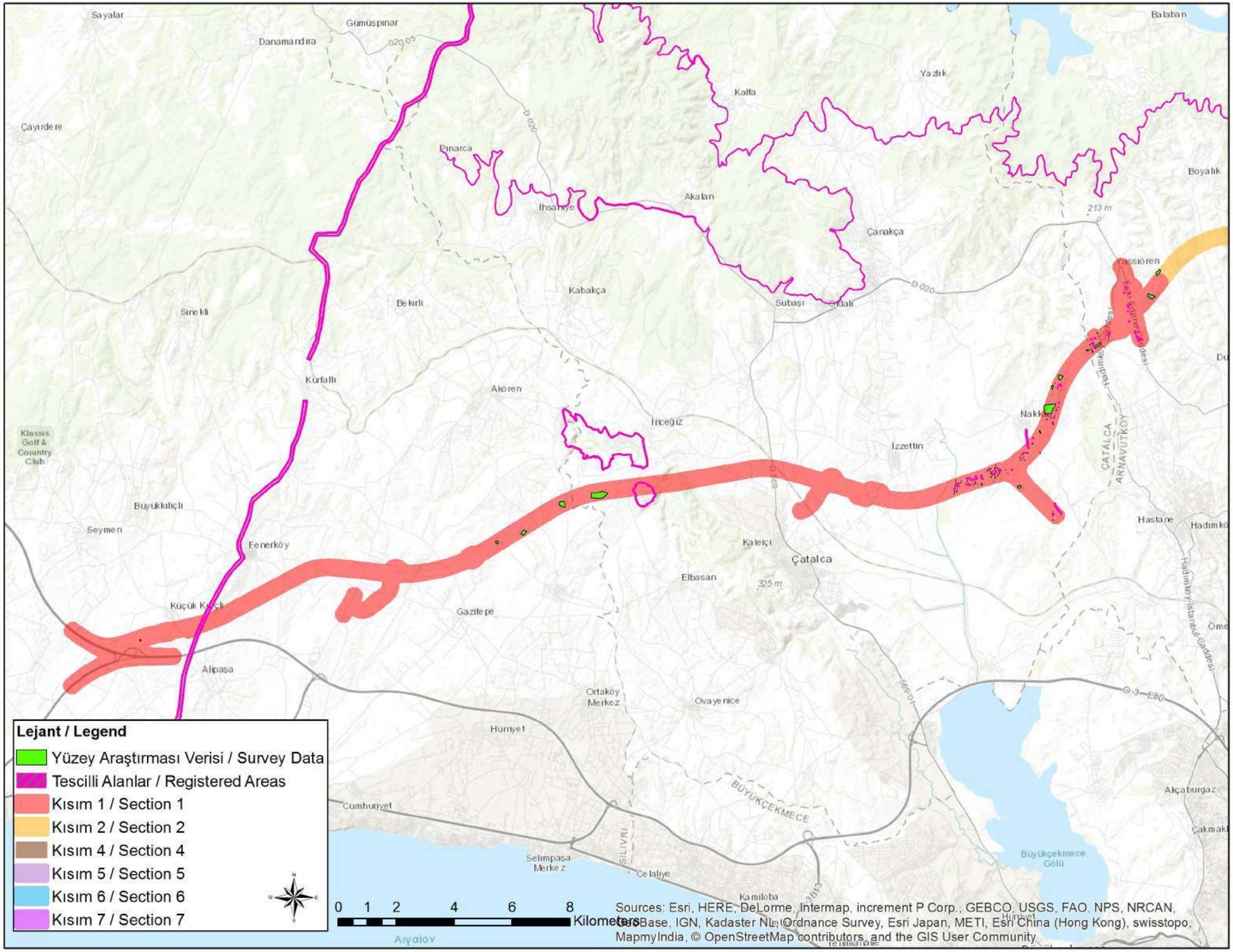
TESLİM EDEN:
A. Halim ÖZATAY

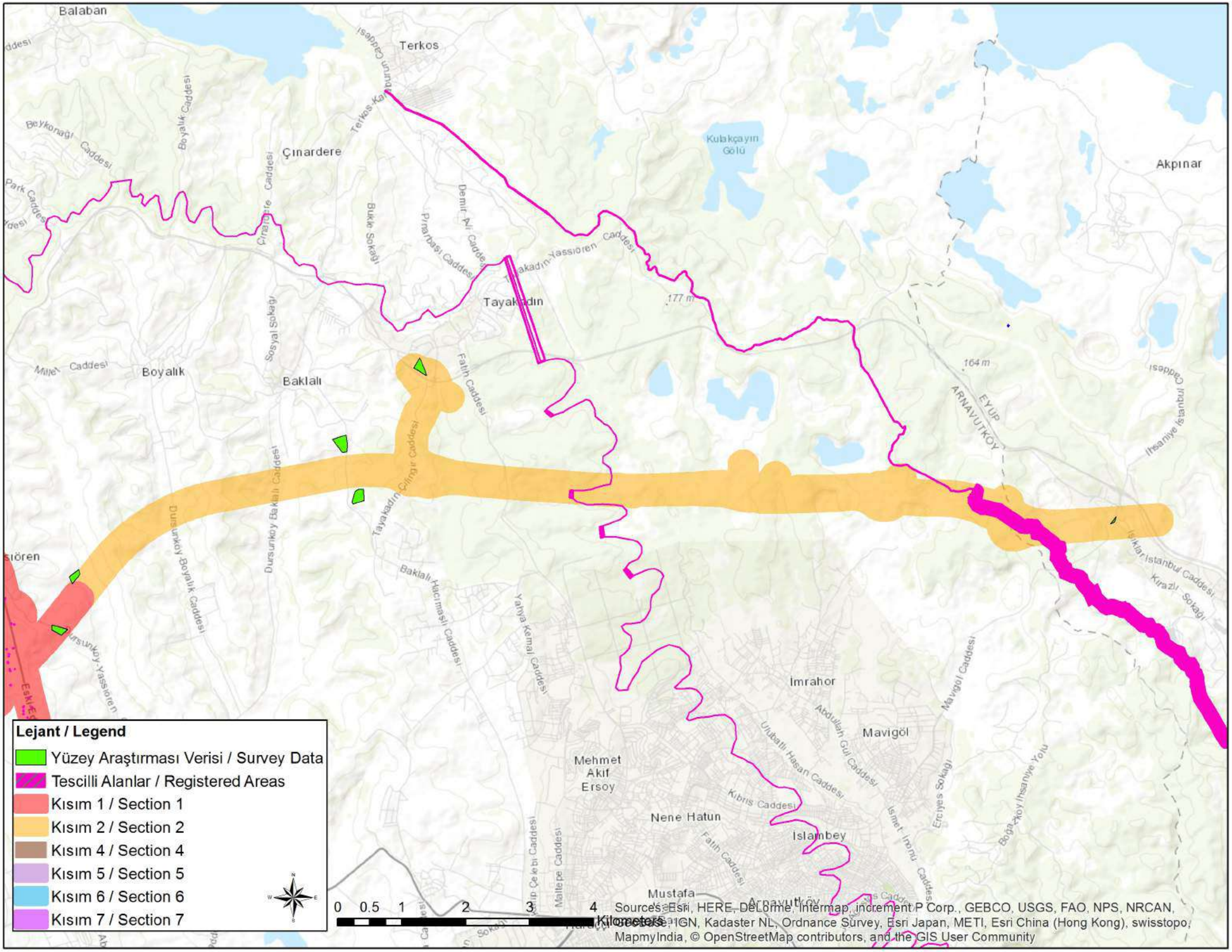
OLUR

TESLİM ALAN
Zühal UYKAL
Arkeolog

4

Annex 10 – Archaelogical Maps


Lejant / Legend
Yüzey Araştırması Verisi / Survey Data
Tescilli Alanlar / Registered Areas
Kısım 1 / Section 1
Kısım 2 / Section 2
Kısım 4 / Section 4
Kısım 5 / Section 5
Kısım 6 / Section 6
Kısım 7 / Section 7
0 1 2 4 6 8 Kilometers
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Sayalar
Gümüşpınar
Danamandıra
Balaban
Yazlık
Kalfa
Çayırdere
Pınarca
Boyalık
Akalan
İhsaniye
Çanakça
Yassıören
Kabakça
Bekirli
Sinekli
Subaşı
Oklalı
Kürfallı
Akören
İnceğiz
Nakkaş
İzzettin
Klassis Golf & Country Club
Büyükkılıçlı
Seymen
Fenerköy
Kaleiçi
Çatalca
Elbasan
Hastane
Küçük Kılıçlı
Gazitepe
Alipaşa
Ortaköy Merkez
Ovayenice
Hürriyet
Cumhuriyet
Selimpaşa Merkez
Celaliye
Kamiloba
Büyükçekmece Gölü
Akçaburgaz
Aıyalov
D-020
D-3-E80
213 m
325 m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Balaban
Terkos
Çınardere
Kulakçayın Gölü
Akpınar
Tayakadın
Boyalık
Baklalı
İmrahor
Mavigöl
Mehmet Akif Ersoy
Nene Hatun
İslambey
Mustafa
Arnavutköy
EYÜP
ARNAVUTKÖY
Beykonağı Caddesi
Boyalık Caddesi
Park Caddesi
Millet Caddesi
Sosyal Sokağı
Bukle Sokağı
Pınarbaşı Caddesi
Demir Ali Caddesi
Tayakadın-Yassıören Caddesi
Fatih Caddesi
Tayakadın-Çilingir Caddesi
Dursunköy Baklalı Caddesi
Dursunköy-Boyalık Caddesi
Baklalı Hacımaşlı Caddesi
Yahya Kemal Caddesi
Ulubatlı Hasan Caddesi
Abdullah Gül Caddesi
Kıbrıs Caddesi
Mavigöl Caddesi
Erciyes Sokağı
Ismet İnönü Caddesi
Boğazköy İhsaniye Yolu
İhsaniye İstanbul Caddesi
Işıklar İstanbul Caddesi
Kırazlı Sokağı
Maltepe Caddesi
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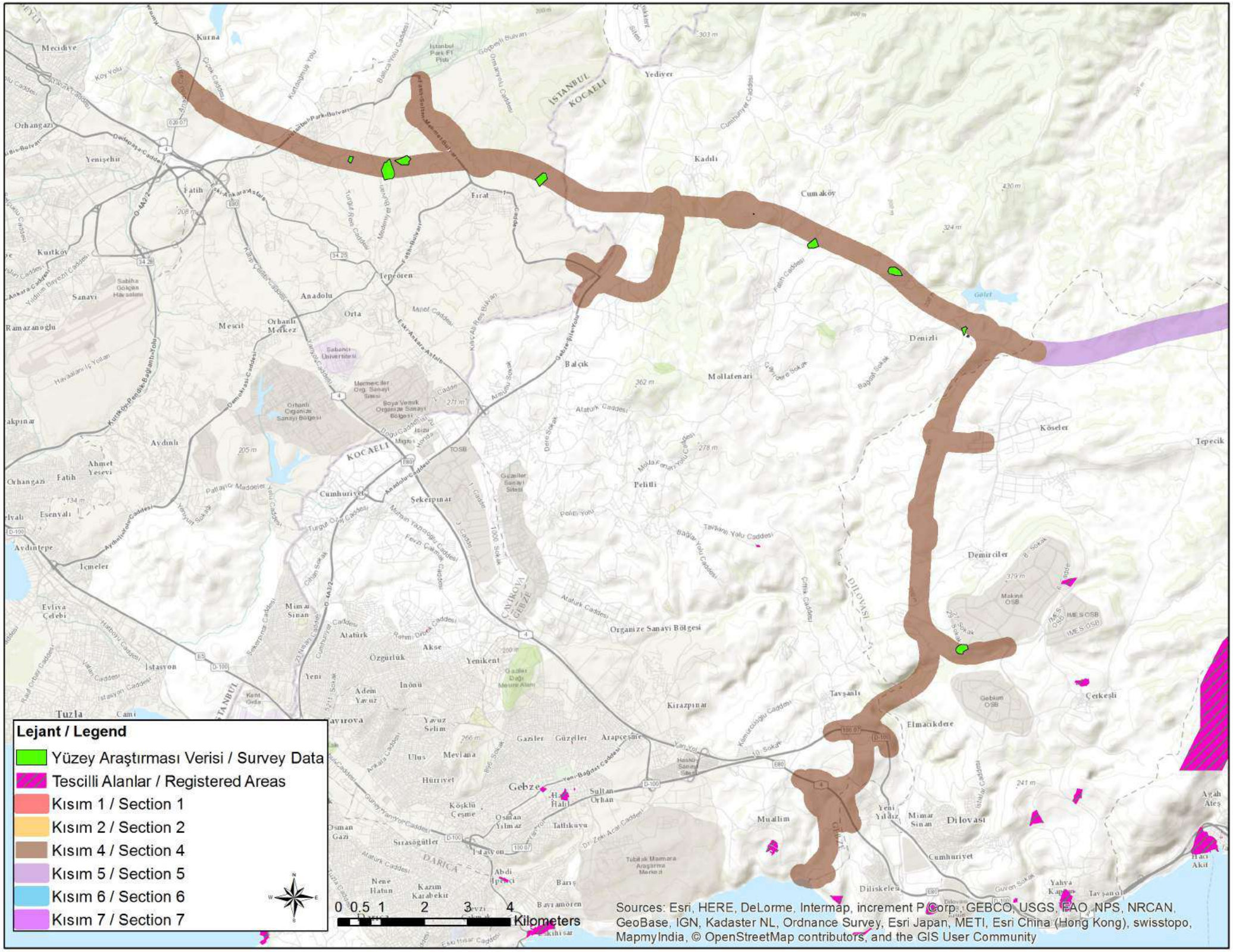
164 m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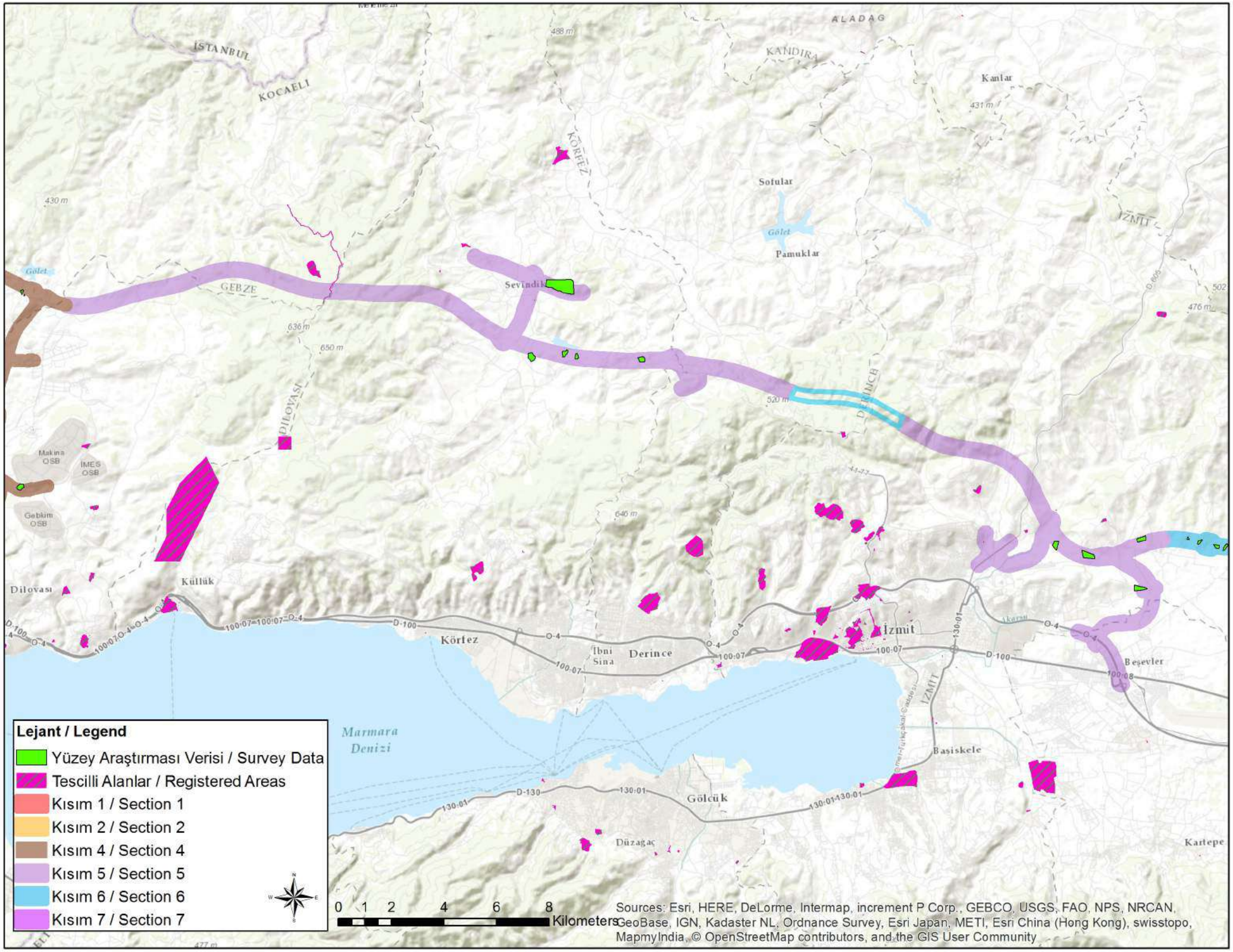
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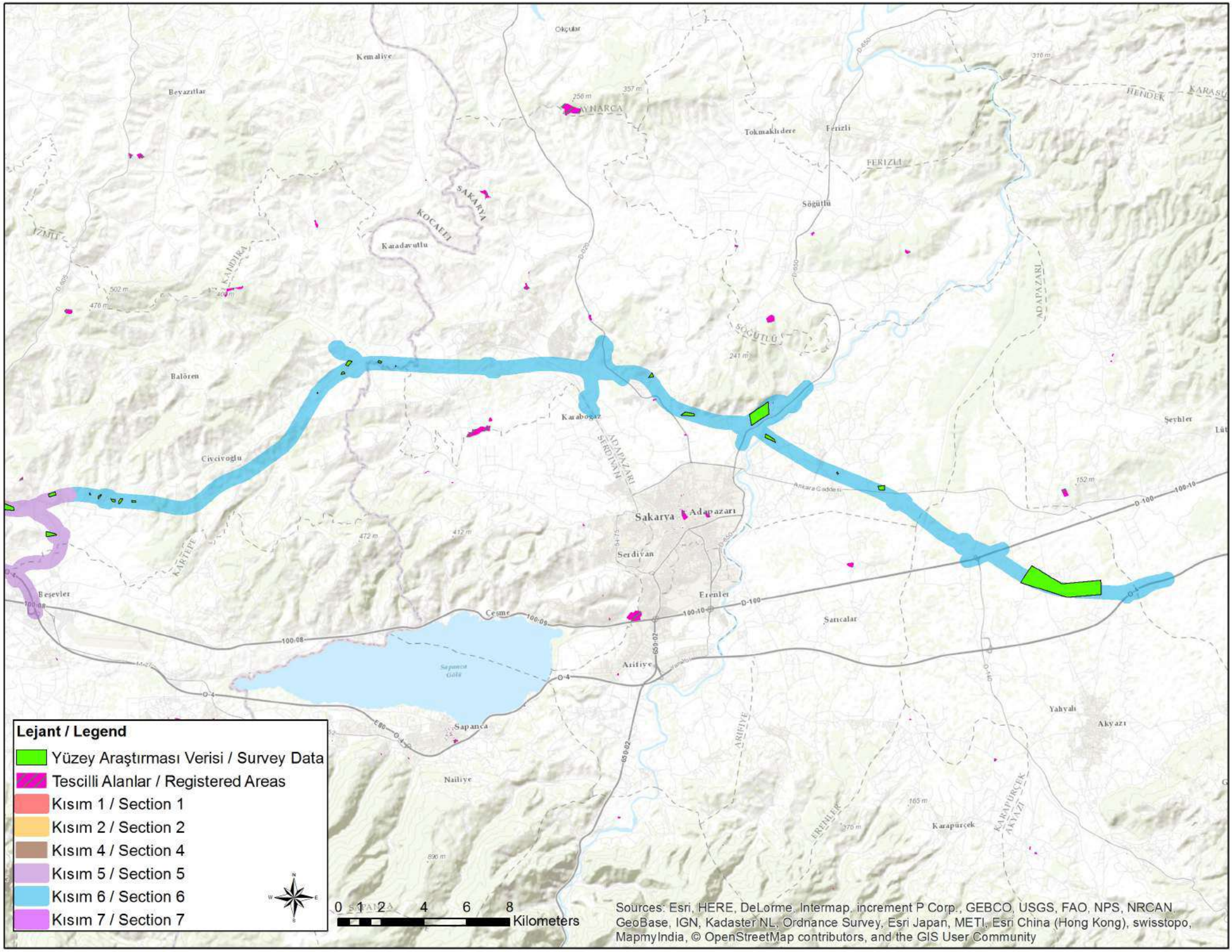
İSTANBUL
KOCAELİ
ALADAG
KANDIRA
Kanlar
KÖRFEZ
Sofular
Gölet
Pamuklar
İZMİT
Gölet
GEBZE
Sevindik
DİLOVASI
DERİNCE
Makina OSB
İMES OSB
Gebkim OSB
Dilovası
Küllük
Körfez
İbni Sina
Derince
İzmit
Beşevler
Marmara Denizi
Başiskele
Gölcük
Düzağaç
Kartepe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Okçular
Kemaliye
Beyazıtlar
YNARCA
Tokmaklıdere
Ferizli
FERIZLI
HENDEK
KARASU
SAKARYA
KOCAELI
Karadavutlu
İZMİT
KANDIRA
Söğütlü
SÖĞÜTLÜ
ADAPAZARI
Balören
Karaboğaz
Şeyhler
Civcivoğlu
ADAPAZARI
SERDİVAN
Ankara Caddesi
Sakarya
Adapazarı
Serdivan
KARTEPE
Beşevler
Erenler
Çeşme
Sarıcalar
Arifiye
Sapanca Gölü
Sapanca
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ERENLER
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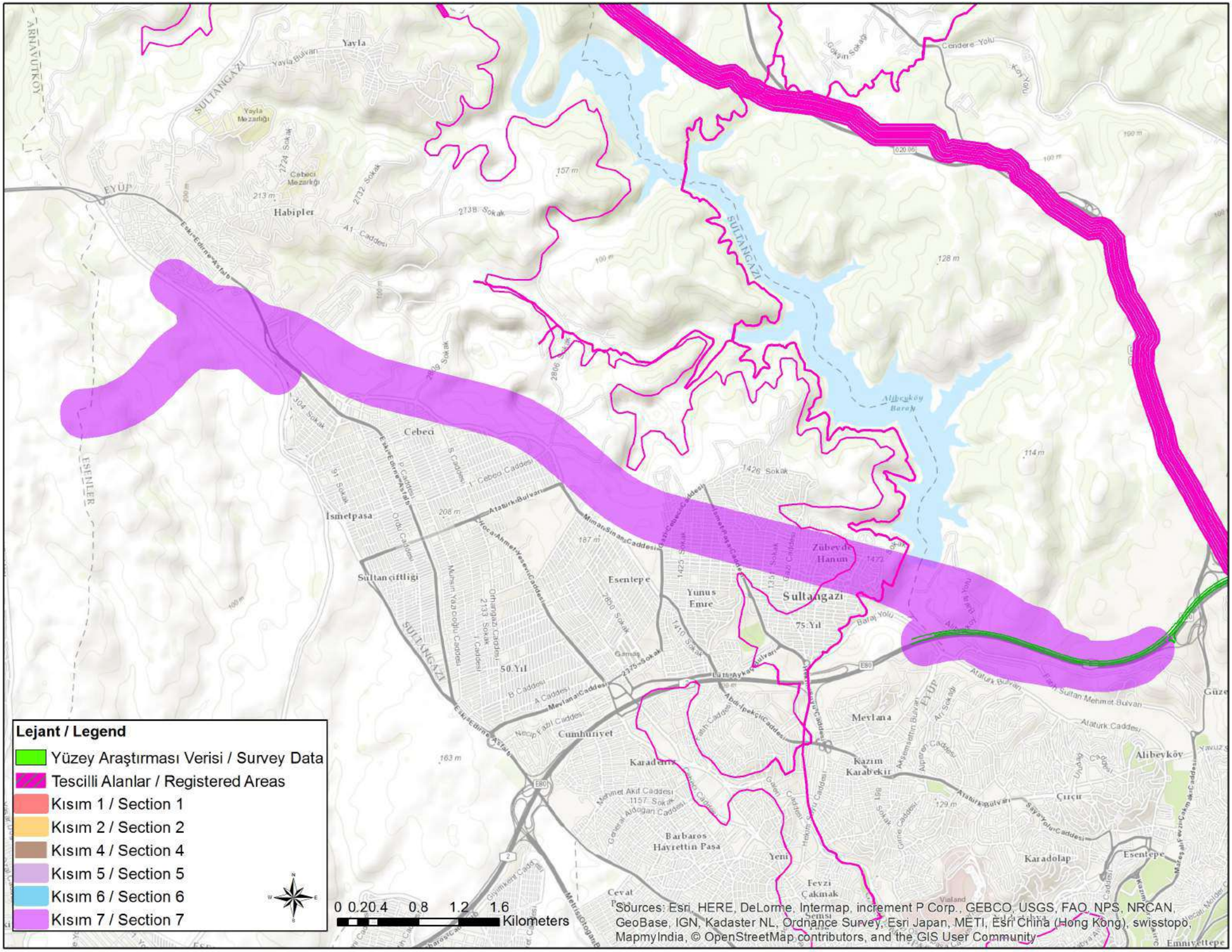
AKYAZI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Yayla
Habipler
Cebeci
İsmetpaşa
Sultançiftliği
Esentepe
Yunus Emre
Sultangazi
Zübeyde Hanım
Cumhuriyet
Karadeniz
Mevlana
Kazım Karabekir
Barbaros Hayrettin Paşa
Yeni
Fevzi Çakmak
Alibeyköy
Çırçır
Karadolap
Esentepe
Alibeyköy Barajı
SULTANGAZI
EYÜP
ESENLER
ARNAVUTKÖY
Atatürk Bulvarı
Fatih Sultan Mehmet Bulvarı
Eski Edirne Asfaltı
Mimar Sinan Caddesi
Hoca Ahmet Yesevi Caddesi
Mevlana Caddesi
Cendere Yolu
Baraj Yolu
50.Yıl
75.Yıl
E80

ANNEX-11

STAKEHOLDER ENGAGEMENT PLAN

ANNEX-11 STAKEHOLDER ENGAGEMENT PLAN

1. Introduction

Stakeholder engagement is the basis for building strong, constructive, and responsive relationships that are essential for the successful management of a project's environmental and social impacts. The purpose of stakeholder engagement is to establish and maintain a constructive relationship with a variety of external stakeholders over the entire life of the project. Initiating the engagement process in the early phases of the project helps ensure timely public access to all relevant information and provides the stakeholders with an opportunity to input into the project design and the assessment of impacts.

To meet these objectives, a Stakeholder Engagement Plan (SEP) is designed to guide stakeholder consultations leading up to and during the period of the ESIA studies, as well as during the further stages of project implementation, i.e. land preperation, construction and operation.

This SEP is designed to ensure that Project Owner identifies all stakeholders and establishes an effective engagement strategy during the development and life of the Project. The ultimate goal of this SEP is to build meaningful and trusting relationships with the local community and other interested stakeholders based on a transparent and timely supply of information and open dialogue. Additionally, this SEP also covers the following aspects:

- Applicable national and international regulations and requirements on stakeholder engagement;
- Project Owner’s previous consultation activities and future plans to engage with stakeholders during the construction and operational phases of the Project;
- Key Project stakeholders that have been identified and will be interacted with;
- Strategy for consultation and information disclosure;
- Timetable for various stakeholder engagement activities;
- Resources and responsibilities for the implementation of the SEP;
- Means of monitoring and reporting on consultation and disclosure activities; and
- A grievance mechanism for stakeholders and the public to raise concerns, provide feedback and comments about the Project operations and how complaints/comments will be handled (see Section 6).

This SEP has been prepared on behalf of Project Owner to meet international lending institution requirements, specifically, International Finance Corporation (IFC) Performance Standard 1 (PS1) - Assessment and Management of Environmental and Social Risks and Impacts and the corresponding Guidance Note and the Equator Principles as well as relevant Turkish legislation.

2. Project Description

The North Marmara Motorway was initially planned as an integrated Project starting at Kinali interchange in Silivri, Istanbul and ending at the Akyazi TEM interchange in Akyazi, Sakarya, which crosses the sea by a Third Bosphorus Bridge. Once the location of the Third Bosphorus Bridge has been selected between Garipce (Sariyer, Istanbul) and Poyraz (Beykoz, Istanbul) neighborhoods, feasibility studies were conducted by the General Directorate of Highway (KGM) by dividing the entire Motorway route between Kinali and Akyazi into seven different sections. Later in the process, the authorities decided to separate the Third Bosphorus Bridge and its associated Motorway section from the Project and tender it out individually due to emerging conditions. Accordingly, Section 3 of the Project, which included the Third Bosphorus Bridge and its associated Motorway section between Odayeri and Pasakoy, has been separately constructed and taken into operation in August 2016.

Following the feasibility stage and tendering of Section 3 (including the Third Bosphorus Bridge), the European and Asian sections of the Project have been revised, keeping the ultimate starting (Kinali) and ending (Akyazi) points of the feasibility route the same and ensuring connection to Section 3 of the Motorway at Odayeri (European sections) and Pasakoy (Asian sections) locations as originally planned. Consequently, the European and Asian sections of the Project were tendered out in May 2016. In this tender, the European sections included Section 1: Kinali-Yassioren, Section 2: Yassioren-Odayeri and Section 7: Habibler-Hasdal; and the Asian sections included Section 4: Kurtkoy-Liman, Section 5: Liman-Izmit, and Section 6: Izmit-Akyazi. This SEP has been prepared for the Asian sections (Section 4, 5 and 6) of the North Marmara Motorway Project, where the European sections (Section 1, 2 and 7) are subject of a separate Plan.

In accordance with the terms of the BOT Contract signed between the KGM and the Project Sponsors, the Project includes financing, planning/design, building/construction, operation, full range of maintenance and repair works during the operation period and transfer of the Motorway to the KGM at the end of the Contract Duration free from any debt or commitment and in a well-maintained, operating, in-service condition, without any charge. The rights of the Project Sponsors to operate, maintain and repair the Motorway will expire at the end of the Contract Duration.

According to the BOT Contract, Contract Duration covers both the construction and operation phases. Contract Duration for the Asian sections has been specified as 6 years 9 months 12 days and the total investment cost for these sections has been estimated as 4.487.000.000 TL including the expropriation costs up to 500 Million TL and excluding the value added tax (VAT). Maximum construction period is 3 years after the effective (signing) date of the contract. If the construction period exceeds 3 years, the delay time (the time after 3 years) will be deducted from the operation period. If the construction of the Motorway is completed before the end of foreseen construction period (3 years), the remaining time will be added to operation period.

3. National and International Regulations and Standards

3.1. National Regulations

Under Turkey's Environmental Impact Assessment Regulation No. 29186 dated 25th November 2014, reference is made concerning information disclosure and stakeholder participation. Under the 1st clause of Article 9 of the regulation, it is a legal obligation for the Project Owner to organize a Public Participation Meeting within the Project area on a date determined in agreement with the Ministry of Environment and Urbanization. The aim of the Public Participation Meeting is to inform people potentially affected by the Project about the proposed development and provide the opportunity for their concerns and comments about the Project to be collated.

The 2nd clause of Article 9 states that activities such as questionnaires and seminars/workshops can also be conducted by the Project Owner prior to the Environmental Impact Assessment (EIA) process and recommends these in addition to Public Participation Meeting, with the aim of increasing public participation.

However, since the North Marmara Motorway (including the Third Bosphorus Bridge) Project was put in the public investment program before 07/02/1993 and the Kinali-Odayeri (inc. the access roads) and Kurtkoy-Akyazi (inc. the access roads) section have been approved as the integral components of the North Marmara Motorway (including the Third Bosphorus Bridge) Project, the EIA exemption decision issued for the North Marmara (inc. the Third Bosphorus Bridge) Motorway Project with the official letter of the MoEU dated 31/07/2009 was evaluated by the MoEU to be applicable to the North Marmara Motorway Project as well, which includes the construction, operation and transfer of the Kinali-Odayeri (inc. the access roads) and Kurtkoy-Akyazi (inc. the access roads) sections. Thus, no full or limited EIA report has been required for the Project. On the other hand, the ESIA Report to be prepared for the Project will aim to cover the relevant methodological requirements of the Turkish EIA Regulation. Accordingly, all the relevant stakeholder engagement and public consultation activities were performed in line with international standards and requirements, specifically International Finance Corporation (IFC) Performance Standards 1 - Assessment and Management of Environmental and Social Risks and Impacts.

3.2. International Regulations and Standards

The proposed Project is intended to meet applicable international standards. This document has been prepared in accordance with the guidance of the applicable IFC Performance Standards.

Where a project and a Project Owner receives project financing from IFC, or another financial institution adopting IFC requirements, IFC Performance Standards must be applied for the duration of that project finance. As of 1 January 1th, 2012, the following eight IFC Performance Standards are applicable to the Project as a whole:

Performance Standard 1: Social and Environmental Assessment and Management System
Performance Standard 2: Labor and Working Conditions
Performance Standard 3: Pollution Prevention and Abatement
Performance Standard 4: Community Health, Safety and Security
Performance Standard 5: Land Acquisition and Involuntary Resettlement
Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management
Performance Standard 7: Indigenous Peoples
Performance Standard 8: Cultural Heritage

Performance Standard 1[1] specifically relates to stakeholder engagement on the basis that it establishes the importance of: (i) integrated assessment to identify the social and environmental impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) management of social and environmental performance throughout the life of the Project. The objectives of this standard are as follows[2]:

- To identify and assess social and environment impacts, both adverse and beneficial, in the Project's Area of Influence;
- To avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment;
- To ensure that affected communities are appropriately engaged on issues that could potentially affect them; and
- To promote improved social and environment performance of companies through the effective use of management systems.

To meet these objectives, this SEP is designed to guide stakeholder consultations leading up to and during the period of the ESIA studies, as well as during the further stages of project implementation, i.e. land preperation, construction and operation.

4. Stakeholder Identification and Analyses

Within the scope of the Project it is important to identify stakeholders in the beginning of the process to inform key stakeholders (local people, relevant state institutions and NGOs) about the Project and provide effective participation of the stakeholders. To this end, following individuals and groups should be considered specifically:

- People who are likely to be affected, directly or indirectly by the Project
- People or institutions may have an interest in the Project
- People or institutions that have the potential to influence Project outcomes or company operations.

[1] PS1 is specifically relevant, because it contains clear requirements for community engagement, disclosure of information and consultation. These requirements are the main concerns of this Chapter.
[2] IFC Performance Standards, January 2012.

Besides it is an important process to identify vulnerable or disadvantaged people or groups, who are likely to be affected by the Project in certain phases, accurately during the identification of stakeholders.

Possible stakeholders who are likely to be affected by the Project or have an influence on the Project are listed below:

- Local public institutions and organizations
- National public institutions and organizations
- Non-governmental Organizations
- Local people
- Local businesses
- Project employees, including contractors

Within the scope of the SEP, key Project stakeholders have been identified. The stakeholders that have been identified as being affected by or potentially interested in the Project are listed in Table 1.

Table 1. Stakeholders and Other Key Affected Parties

Stakeholder Groups	Definitive Stakeholders	Summary of Specific Interest
Local Governmental Organizations	• Istanbul Metropolitan Municipality • Kocaeli Metropolitan Municipality • Sakarya Metropolitan Municipality • District Municipalities • Governorship of Istanbul • Governorship of Kocaeli • Governorship of Sakarya • Neighborhood Headmen	Social and economic development Environmental protection
Turkish Governmental Organizations	• Ministry of Transport, Maritime Affairs and Communications • Ministry of Forestry and Water Affairs • Ministry of Environment and Urbanization • Ministry of Culture and Tourism	National and regional development Policy formulation
Non-governmental Organizations (NGO's) - local, national and international	• Environment Foundation of Turkey • WWF Turkey • Global Environment Organization (GEO) • Protection Association (TURMEPA) • The Union of Chambers and Commodity Exchanges of Turkey (TOBB) • Union of Turkish Roads, Buildings and Construction Workers (YOL-IS)	Global and local environmental impacts
Local Communities/Residents	• Neighborhoods located in the immediate vicinity of the Project Area • Local communities using the Project Area for agricultural and livestock purposes;	Noise nuisance and other environmental and social impacts Income loss Land acquisition Employment
Local Businesses	• Local Enterprises • Farms	Route development Inward investment

Stakeholder Groups	Definitive Stakeholders	Summary of Specific Interest
Public Economic Enterprises	• Turkish Electricity Transmission Company (TEIAS) • Turkish Electricity Distribution Corporation (TEDAS) • Istanbul Gas Distribution Industry and Trade Incorporated Company (IGDAS)	Implementation of infrastructure services
KMO	Employees EPC Contractor Sub-contractors	Growth and development. Stable employment and opportunity
Universities	• Istanbul Technical University • Bogazici University • Kocaeli University • Sakarya University	Technical Consultancy
Other Groups	• Private owners of the land identified for the new Motorway	Income loss Economic growth Quality of services

Within the scope of the Project a stakeholder list which was prepared by desktop studies is given in Appendix 11.1. As this list was prepared to be inclusive, people/institutions/organizations who are not in the list may add during the Project development.

5. Stakeholder Engagement Activities

5.1. Summary of Previous Stakeholder Engagement Activties

A comprehensive program of Public Consultation Meetings (PCMs) was held in March 2017 in the scope of the North Marmara Motorway Project. As a part of this program 8 PCMs were held along the entire Motorway route between Silivri district of Istanbul and Akyazi district of Sakarya. In this section, organizational details and findings of the PCMs held at Asian section are documented.

For the Asian part of the Project, 5 meeting locations were selected as Demirciler (Kocaeli, Dilovasi), Sevindikli (Kocaeli, Korfez), Cayirkoy (Kocaeli, Izmit), Korucuk (Sakarya, Adapazari) and Osmanbey (Sakarya, Akyazi) neighborhoods. Principally local neighborhood teahouses were preferred as the meeting venue, where they have proper capacity and physical conditions, as participation levels have been generally higher in such local venues in the previous experiences.

Prior to PCMs several information methods were used to inform the related public authorities (including provincial governorates, district governorates, municipality mayors, etc.) neighborhood headmen and local people, national and local media agencies and wider public including Non-governmental Organizations (NGOs), etc. A list summarizing the methods used to inform each party is provided in Table 2.

Table 2. Stakeholder Notification Methods for Public Participation Meetings in Asian Sections

Stakeholder Group	Shared Project Documents	Means of Notification
Governorship of Istanbul	• Program of Meetings	Official Letter
Governorship of Kocaeli		Official Letter
Governorship of Sakarya		Official Letter
Dilovasi Municipality		Phone Call
Korfez Municipality		Phone Call
Izmit Municipality		Phone Call
Adapazari Municipality		Phone Call
Akyazi Municipality		Phone Call / Official Letter
Kurnakoy Neighborhood		Official Letter / Neighborhood Meeting
Demirciler Neighborhood		Official Letter / Neighborhood Meeting
Kadilli Neighborhood		Official Letter / Neighborhood Meeting
Tepecik Neighborhood		Official Letter / Neighborhood Meeting
Karayakuplu Neighborhood		Official Letter / Neighborhood Meeting
Toylar Neighborhood		Official Letter / Neighborhood Meeting
Cayirkoy Neighborhood		Official Letter / Neighborhood Meeting
Eseler Neighborhood		Official Letter / Neighborhood Meeting
Karaabdulbaki Neighborhood		Official Letter / Neighborhood Meeting
Suleymaniye Neighborhood		Official Letter / Neighborhood Meeting
Korucuk Neighborhood		Official Letter / Neighborhood Meeting
Osmanbey Neighborhood		Official Letter / Neighborhood Meeting
Yagcilar Neighborhood		Official Letter / Neighborhood Meeting
Denizli Neighborhood		Official Letter / Neighborhood Meeting
Kasikci Neighborhood		Official Letter / Neighborhood Meeting
Kutluca Neighborhood		Official Letter / Neighborhood Meeting
Sevindikli Neighborhood		Official Letter / Neighborhood Meeting
Balcik Neighborhood		Official Letter / Neighborhood Meeting
Tepeoren Neighborhood	• Project Information Brochure • Comment and Grievance Form • Announcements of Public Participation Meetings	Neighborhood Meeting / Phone Call
Akfirat Neighborhood		Neighborhood Meeting / Phone Call
Tavsanli Neighborhood		Neighborhood Meeting / Phone Call
Sipahiler Neighborhood		Neighborhood Meeting / Phone Call
Sepetci Neighborhood		Neighborhood Meeting / Phone Call
Durhasan Neighborhood		Neighborhood Meeting / Phone Call
Bayraktar Neighborhood		Neighborhood Meeting / Phone Call
Sapakpinar Neighborhood		Neighborhood Meeting / Phone Call
Alanduzu Neighborhood		Neighborhood Meeting / Phone Call
Evrenkoy Neighborhood		Neighborhood Meeting / Phone Call
Karaman Neighborhood		Neighborhood Meeting / Phone Call
Camyolu Neighborhood		Neighborhood Meeting / Phone Call
Poyrazlar Neighborhood		Neighborhood Meeting / Phone Call
Dogancilar Neighborhood		Neighborhood Meeting / Phone Call
Celebiler Neighborhood		Neighborhood Meeting / Phone Call
Kasimlar Neighborhood		Neighborhood Meeting / Phone Call
Cerciler Neighborhood		Neighborhood Meeting / Phone Call
Haciramazanlar Neighborhood		Neighborhood Meeting / Phone Call
Budaklar Neighborhood		Neighborhood Meeting / Phone Call
Abali Neighborhood		Neighborhood Meeting / Phone Call
Kizilcikorman Neighborhood		Neighborhood Meeting / Phone Call
Vakif Neighborhood		Neighborhood Meeting / Phone Call
Topagac Neighborhood		Neighborhood Meeting / Phone Call
Wider Public and Interested Parties	• Program of Meetings and Organizational Details	Newspaper announcements

During the information process in advance of the PCMs, initially announcements were published in national and local newspapers on February 22, 2017 (in accordance with the standards described in the national Environmental Impact Assessment (EIA) Regulation). In addition, relevant provincial and district governorates were informed of the program by means of official letters. Headmen of the neighborhoods located within a 1 km corridor (keeping 500 meters at each side of the Motorway's centerline/axis) were individually contacted by means of face-to-face meetings or phone calls depending on the time constraints. Information documents and official invitation letters were distributed as necessary. For this purpose, a Project Information Brochure and grievance/comment forms have been prepared and delivered to neighborhood headmen prior to the meetings. Means of transportation was offered to the local headmen however, transportation was not needed for the meetings. Municipality mayors were also contacted and informed of the PCM program by means of phone calls. Information documents used in the overall process are provided in following sections.

Following the information process, PCMs for the Asian sections were conducted on March 13-16, 2017 at Kadikoy (Istanbul, Silivri), Nakkas (Istanbul, Catalca) and Tayakadin (Istanbul, Arnavutkoy) neighborhoods. Organizational details of the meetings are summarized in Table 3 and the map of PCM locations is presented in Figure 1.

The meetings were held with the participation of representatives of Project Sponsors (senior officials and technical Project team members including design and expropriation) and the Independent Environmental and Social Impact Assessment (ESIA) Consultant (ENCON Environmental Consultancy Co.). Authorities from 1st Regional Directorate of KGM were invited to the meetings to represent the state but the Directorate officials did not prefer to attend the meetings.

The Independent ESIA Consultant performed the moderation of the meetings. The meetings started with an introduction and explanation of the purpose and scope of the meeting and followed by a presentation given by the Independent ESIA Consultant and a final discussion session where questions, concerns and suggestions were received and responded. The main topics covered in the presentations were as follows:

- What is the North Marmara Motorway Project?
- Who are the Project Owner and the Project Sponsors?
- What are the Anticipated Benefits of the Project?
- What is the Environmental and Social Impact Assessment Process?
- Stakeholder Engagement: How to Participate into the Process?
- Discussion (Questions and Answers) Session

Table 3. Organizational Details of the Public Consultation Meetings conducted in the Asian Part of the Project

PCM No	Motorway Section	Province	District	Neighborhood	KM Chainage	Population (Turkstat, 2016)	Date of the Meeting	Time of the Meeting	Meeting Venue	Number of Participants	
										Estimated Number of Actual Participants	Number of Participants who Signed the List of Participants
Asia											
1	4	Kocaeli	Dilovası	Demirciler	150+500; 5+000	507	13.03.2017	16:00	Demirciler Neighborhood Teahouse	80	30
2	5	Kocaeli	Körfez	Sevindikli	168+000	244	14.03.2017	11:00	Sevindikli Neighborhood Teahouse	150	67
3	5	Kocaeli	İzmit	Cayirköy	191+000	1.486	15.03.2017	11:00	Çayırköy Mahalle Kahvehanesi	150	121
4	6	Sakarya	Adapazarı	Korucuk	218+000	20.331	15.03.2017	16:00	Korucuk Ulubey Tesisleri	80	60
5	6	Sakarya	Akyazı	Osmanbey	249+000	985	16.03.2017	11:00	Osmanbey Neighborhood Teahouse	200	134

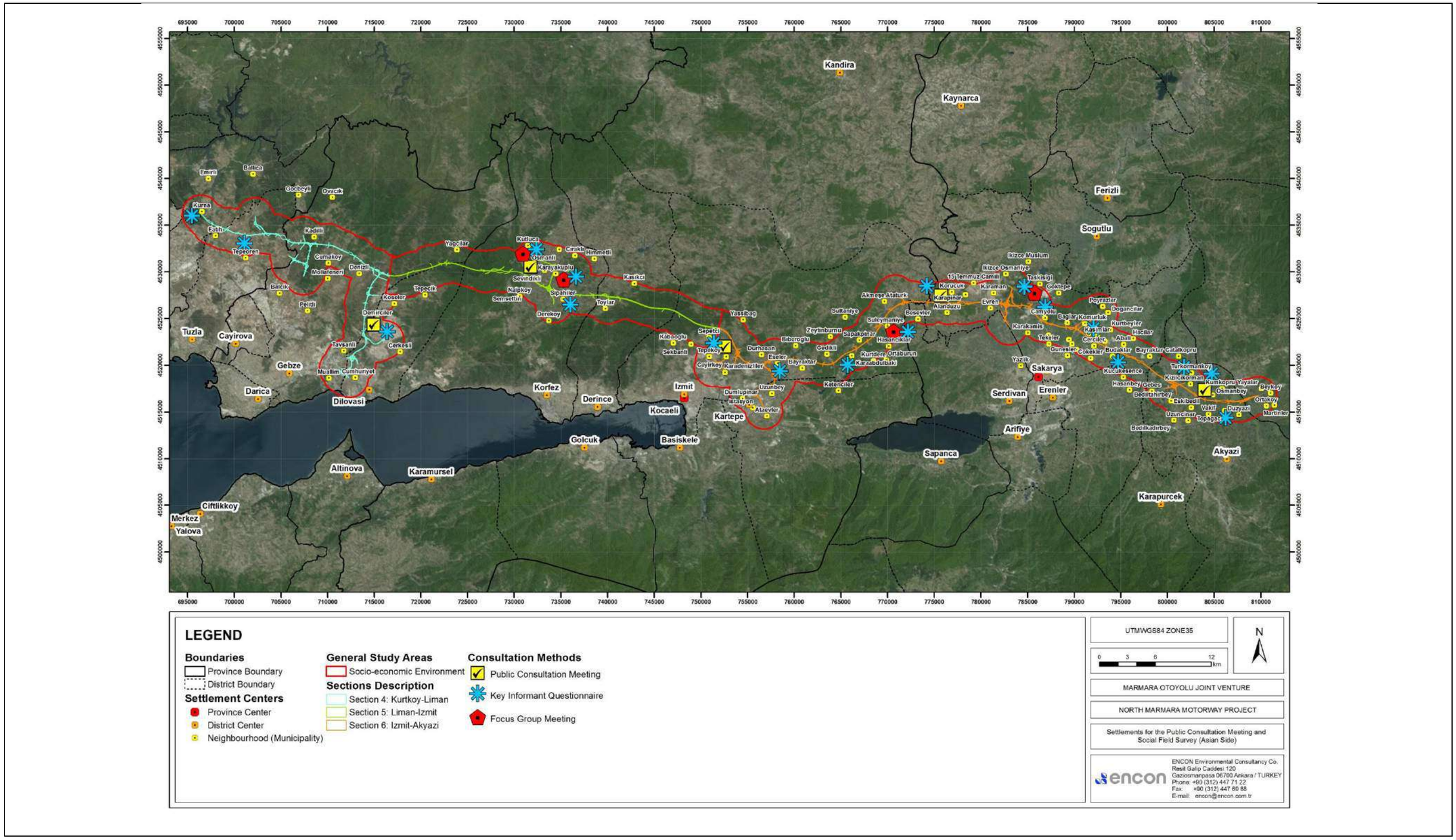

Figure 1. Map of Social Field Survey and Public Consultation Meetings Locations

Large-scale (in A2 format) maps showing the relevant part of the route in each meeting were posted on the walls of the meeting venue. Comment and grievance forms were kept ready and participants interested in the submission of comments and grievances during the meetings were guided by the officials of Project Sponsors.

As a result of the information efforts, participation levels were high especially at the meetings held at local neighborhood teahouses. Attendance of different parties including state officials or adjacent neighborhoods (significantly) as well as representatives of media in addition to local people was achieved as summarized in Table 4. In general, participation of women was restricted with a few representatives.

Table 4. Summary of Participants Profiles

PCM No	Meeting Location	Adjacent Neighborhoods from which Representatives (Headmen or Local People) had Participated in the Meeting	Other Parties Participated in the Meeting (Public Authorities, Media, etc.)
1	Demirciler	Kadilli, Tavsanli, Yagcilar (including a group of women participants from the neighborhood), Tepecik	N/A
2	Sevindikli	Kutluca, Semsettin, Kasikci, Sipahiler, Karayakuplu, Osmanli, Kiyirli, Martilar, Himmetli	Vice Mayor of Korfez Municipality City Councilor of Korfez Municipality Local Media
3	Cayirkoy	Karaabdulbaki, Suleymaniye, Sapakpinar, Durhasan, Eseler, Solaklar, Bayraktar, Akmese Ataturk, Sepetci, Kartepe-Ertugrul, Hacioglu, Kartepe-Uzunbey, Gokceviran, Arpalik İhsaniye, Karadenizliler, Uzunciftlik, Yesilova, Murat, Deretepe, Izmit district center	Local Media Political party representatives Local business owners
4	Korucuk	Akmese, Besevler, Suleymanbey, Alanduzu, Karapinar, Dagdibi, Celebiler, Kucuk Esence, Meseli, Haciramazanlar, Koprubasi, Cerciler, Adapazari district center	Local business owners
5	Osmanbey	Budaklar,Kizilcikorman, Topagac, Sofular, Balballi, Vakif, Eskiorman, Yenidogan, Abali, Akarca, Kucuk Esence, Duzyazi, Akyazi district center,	N/A

Participation lists were kept by the Project Sponsors as given in Section 19.4.2 It should be noted that not all participants preferred to sign the participation lists thus actual participant numbers were higher than the number of participants who signed the lists. Due to high level of participation at teahouses, some of the participants had to stay outside. Microphones and audio systems were used to ensure that the participants outside the teahouse could follow the presentations and the discussions and submit their views and concerns. On average, each meeting last for 1-1,5 hours. Following the official meeting durations, questions of the participants were replied at the unofficial conversations held after the meetings (brochures and grievance forms were distributed).

The questions, issues, concerns and suggestions raised by the participants during the PCMs were grouped under four main categories as follows. Each main category included sub-categories and a summary of the PCM findings is provided in Appendix 11.2:

- Technical/Design
- Environment
- Socio-economy
- Stakeholder Engagement

5.2. Future Engagement Activities and Timetable

Project Owner will actively engage with Project Stakeholders throughout the Project's lifetime. During construction Project Owner will participate in disclosure and consultation for the new developments. Key environmental and social impact assessment documents (a 'disclosure package') will be released into the public domain to provide a basis for informed consultation. In addition to this SEP, the disclosure package will include an Environmental and Social Management Plan (ESMP),.Environmental and Social Action Plan (ESAP) and a Non-Technical Summary (NTS).

For planning of stakeholder engagement activities, emphasis was put both on providing correct and comprehensible information to affected parties and on ensuring the effective participation of related stakeholders to the process of decision making. In this extent, it is important to relay information through appropriate form, content and effective channels and to ensure this information is accessible to all stakeholders. Literacy levels, local languages and dialects and cultural patterns of the communities must be taken into consideration for information flow. In order to accomplish such a task, opinions of both communication experts and local leaders who have comprehensive knowledge of how to receive feedback from the community must be taken into consideration and if necessary, cooperation must be ensured. By considering main issues about stakeholder engagement process, emphasis will be put on following objectives during all phases of participation and consultation activities within the scope of the Project:

- Organizing the participation during early phases of decision process;
- Indicating restrictions of decision (whether it is possible or not) taking clearly;
- Ensuring the on time and sufficient announcements of future participation activities;
- Assisting the participants to ensure they comprehend alternatives;
- Providing information regarding concepts, examples and best practices, to participants;
- Ensuring that the public examines data and sources that are used for analysis;
- Encouraging the stakeholders to share thoughts and ideas between themselves;
- Encouraging group problem solving between various stakeholder groups; and
- Planning and implementing a representative, objective and honest approach.

Together with the information provided above, following methods are proposed for implementation of SEP within the scope of the Project:

- Conducting activities that are necessary for providing information related to the project;
- Providing assistance and opportunities for participation of vulnerable and disadvantaged groups;
- Organize small scale group discussions for different interest groups;
- Planning public participation meetings in a way that ensures everyone to get a chance to speak for at least once;
- Conducting small scale investigations during Project implementation (perception surveys and questionnaire);
- Inform press regularly by using local media; and

- Organize site visits with local people and representatives of the institution if necessary

During participation and disclosure events, it is planned to keep documents such as informative leaflets and brochures available and to display maps and figures for the communities (residents of the district and neighborhoods), NGOs and other Project stakeholders. Within the scope of SEP, targeted stakeholders and methods, which will be used in order to ensure that Project stakeholders will participate to the process, are presented in Table 5.

Table 5. Target Stakeholders and Methods

Target Stakeholder	Method
Project Affected People	• Affected neighborhoods where brochures, leaflets, posters, grievances and surveys related to the grievances will be provided (Community Liaison Officers already be appointed). • Publication and dissemination of a expropriation booklet summarizing the policies, entitlements compensation standards will be provided. • Set up an alternative phone line (free if it is possible) for PAPs to reach public relations representatives. • Informal meetings and face-to-face communications • Posters • Interviews • Local newspapers, radio and television • Periodic visits to the neighborhoods
Relevant Agencies (Including municipalities)	• Official meetings • Official letters to be sent to institutions • An alternative phone line for the Project • Conducting public meetings that are attended by all stakeholders and that provide communication between them.
Interested NGOs	• Dedicated phone line for the Project • Meetings • Posters • Meetings with the representatives of NGOs • Local newspapers, radio and televisions • Surveys to be conducted NGO representatives
Other Stakeholders (are those with an interest in the project outcome but who are not fully involved or affected, for instance central and local government offices, policy makers, supportive or dissident groups and other non-governmental organizations.)	• Meetings • An alternative phone line for the Project • Posters • Mass media (newspapers, radio and television)
The media	• Official meetings if necessary
Other Relevant Institutions	• An alternative phone line for the Project • Local newspaper, radio and televisions • Interviews • Meetings with public

6. Grievance Mechanism

Information about the procedure and channels (e.g. phone, e-mail address, website) can be used to lodge grievance is given under this chapter and also this information will be provided through information boards within the affected settlements and on the relevant web sites (*www.marmaraotoyolu.com*). A Public Grievance Form which will be used to lodge a grievance is provided Appendix 11.3. This from is comprised of three copies and each copy has a different color. A copy of a filled grievance form will be given to complainant after the grievance is recorded to the computer registry. The officer will have the second copy of the form and the other copy will be sent to higher authorities for other operations related to corrective actions. At the end of all processes a closing form will be prepared and recorded to the computer.

To implement the engagement activities, Company will employ a a Community Liaison Officer (CLO) and CLO will be responsible for the implementation of social engagement activities, coordinating the disclosure of Project information, public consultation activities and the management of Grievance Procedure. Each complaint whether from an individual, entity or a community will be considered and a response to each specific complaint will be communicated to the party that raised it (complainant). A formal procedure will be used to log the key information provided by a complainant and to record any related incoming communications. A record of actions taken and resolutions agreed as a result of the grievance investigation will also be documented.

Company will review and improve the existing informal grievance mechanisms to establish a formalized procedure ensuring that it is responsive to any concerns and complaints from affected stakeholders and communities. Where training is necessary for the staff involved in the management of the grievance mechanism, the Company will ensure that such training is provided in a timely manner.

The Company will ensure that the following measures are put in place for the Project:

- Set up alternative telephone hotlines for using during public disclosure and consultation, and to receive grievances.
- Appoint community-liaison officers who receive verbal complaints and fill out forms on behalf of community members and read the complaint back to them to provide confidence that the complaint is accurately portrayed.
- A more informal forum to address grievances, such as a regular presence in local communities to address problems through regular dialogue.
- Visual displays of the mechanism, such as brochures and leaflets distributed in the communities.

Information on the grievance procedure will be provided on information boards, headmen offices in the Neighborhoods and Company's website. All written and other forms of communication will be acknowledged and, in the case of straightforward issues, the aim will be to resolve them within seven (7) days.

All reasonable efforts to investigate and address the complaint upon acknowledgement of the grievance will be made. If it is unable to address the issues raised by immediate corrective action, appropriate, long-term corrective action(s) will be identified. The complainant will be informed about the proposed corrective action(s) and follow-up of corrective action within 30 days upon the acknowledgement of the grievance.

If the Company is not able to address the particular concern raised or if action is not required, the Company will provide a detailed explanation/justification on why the issue has not been addressed, listing all feasible and available alternative solutions proposed. The response will also contain an explanation on how the person/organization which raised the complaint can pursue the grievance in case the outcome is not satisfactory.

If the complainant is not satisfied with the solutions proposed and implemented by the Company to address the raised comment or grievance, the complainant is free to seek other mediation or legal remedies in accordance with Turkish law.

All grievances related to the activities of the project will be recorded throughout the project cycle and the grievance related progress will be monitored through project specific monitoring programme.

7. Resources and Responsibilities

To implement the engagement activities, a Community Liaison Officer(s) (CLO(s)) already be employed by the Company under its Environmental Department. The CLO will be responsible for the implementation of a SEP, coordinating the disclosure of Project information, public consultation activities and the management of Grievance Procedure described in Section 6. To achieve this, the Environmental Manager and CLO will also work together.

8. Monitoring and Reporting

Monitoring activities will be conducted during land preperation, construction and operation phases of the Project. Detailed information regarding main indicators of internal and external monitoring, applied data collection methods and frequency of monitoring/reporting activities is presented in this section.

8.1. Internal Monitoring

8.1.1. Aim and Approach

General Directorate of Highways (KGM) is responsible of continuation of the expropriation process and payment of compensation. During the process, Company will be responsible for ensuring effectiveness of public consultation and public participation and supervision of sustainability of development efforts in the affected settlements. In order to fulfill these responsibilities, Company will evaluate the effectiveness of the internal monitoring and measures taken against the potential impacts by use of proper monitoring methods. Monitoring and evaluation studies that will be conducted within this scope would constitute great importance for the entire project management.

Performance (internal) monitoring will be conducted by qualified internal experts. The results of the audits will be recorded and corrective actions of implementation will be arranged. In addition, Company will hold monthly meetings with monitoring experts and representatives of the related stakeholders to discuss the ongoing monitoring activities and, if necessary, to make remedial corrections in monitoring indicators, tools and methods. Therefore, for performance (internal) monitoring activities, sufficient allowance must be allocated from the budget.

8.1.2. Internal (Performance) Monitoring

The main purpose of the performance (internal) assessment is to monitor whether the activities and objectives mentioned in the SEP are being realized on time and on required level, and if not, to develop necessarily preventive/corrective actions and implement them. Thus, performance (internal) monitoring will reveal whether SEP activities are synchronized with project implementation activities. Performance monitoring will include the monitoring of both expropriated land owners and people who requested for government assisted resettlement (if there is any) and the staff taking part in resettlement activities.

Performance monitoring will be conducted by internal experts assigned by Company once every six months (in the absence of non-compliance issues, annually). Means of data collection to be utilized during performance monitoring is provided below.

- **Public Consultation and Informative Meetings:** Within the SEP implementation program, Public Consultation and Informative Meetings will be held in the affected settlements in order to collect data for monitoring and consultation activities. Thus, information regarding the level of affected individuals satisfaction and how they are affected by the activities of SEP will be obtained;
- **Neighborhood Level Questionnaires:** Questionnaires with relevant headmen / authorities will be conducted;
- **In-depth Interviews:** In-depth interviews will be conducted with affected people and local stakeholders who can provide information;

- **Focus Group Meetings with Vulnerable Groups:** Meetings will be held with vulnerable groups that include elderly people, women, young, children and disabled people;
- **Field Observations within the scope of Monitoring Activities:** Field Observations will be conducted in order to monitor the environmental impacts, expropriation process and construction activities;
- **Expropriation Program and Allocations:** Information regarding timing of the stages of land acquisition process. Thus, it will be possible to follow up the expropriation payments whether they paid in a timely manner;
- **Interviews or Meetings with Relevant Stakeholders:** Interviews with the authorized organizations who are responsible for relocation of historical and archeological assets will be conducted;
- **Grievance and Grievance Closeout Forms:** All incoming grievances regarding the project will be taken and recorded in these forms. These forms are effective means of data collection for monitoring the appropriateness of SEP implementations to construction and land acquisition process; and
- **Project Progress Reports:** Project progress reports, to be prepared by Company, will be utilized to monitor the effectiveness and timing of SEP activities.

In case any inappropriate condition observed by internal monitoring during the implementation phase, the relevant party/parties will be informed. Within 15 days following this notice, the relevant party/parties will hold a meeting in order to determine corrective/preventive actions and time frame for these actions. The functionality and efficiency of the implementation of the corrective/preventive actions will closely be monitored in the next monitoring period. Thus, the nonconformity will be resolved by the implementation of corrective/preventive actions or if the corrective/preventive actions prove to be insufficient, new corrective/preventive actions will be developed and implemented to resolve the nonconformities. During the implementation, Company will make necessary corrections or updates in the SEP in order to sustain a proper implementation.

8.2. External Monitoring

External monitoring evaluates the effectiveness of the SEP and its implementation in meeting the needs of the affected population. External monitoring is conducted by the contracted external monitoring agency as determined by the Project Owner. The purpose of external monitoring is to provide the Company responsible for SEP implementation with an assessment of the effects of engagement activities, to verify internal performance monitoring, and to identify adjustments in the implementation of the SEP as required. Where feasible, stakeholder groups will be included in all phases of monitoring activities.

The quantitative and qualitative techniques shall be covered by external monitoring to appropriate for the measurement of target concepts of SEP, based on quantitative and qualitative indicators. Consequently, the instruments of external monitoring are:

- Key informant interviews with selected local leaders, or people with special knowledge and/or experience about the ongoing stakeholder engagement activities and implementation;
- Open public meetings to disseminate information about the performance of various stakeholder engagement activities;

- Structured direct observations, including field observations on the status of the stakeholder engagement;
- Structured direct observations, including individual and group interviews for cross-validating purposes; and
- Informal interviews including informal non-sampled surveys with the affected people, local communities, and Company personnel.

Using a variety of tools explained above, independent monitoring agency will prepare a report every six months. This bi-annual report will be the compilation of individual reports. Purpose-specific individual reports will be generated on the basis of qualitative or quantitative indicators gauged by the means of corresponding suitable methodological techniques to address monitoring questions packed in these indicators.

8.3. Monitoring Indicators and Frequency

Information regarding main indicators will be used during the internal and external monitoring activities and the frequency of monitoring is provided in Table 6.

Table 6. Main Indicators for Monitoring and Monitoring/Reporting Frequencies

Activity	Obtained Information/Data Type Monitoring Indicators	Source of Information/Data Collection Methods	Responsibility of Data Collection, Analysis and Reporting	Monitoring/Reporting Frequency
INTERNAL MONITORING	• Payment of expropriation price in accordance with the set timetable • Preparation of resettlement areas and their efficiency (if there will be a request) • Construction of housing (if there will be a request) • Providing employment and efficiency and income of employment • Efficiency of provided education and other developmental input • Rehabilitation of vulnerable groups • Repair, relocation or change of infrastructure • Payments regarding complaints and grievances	• Records of expropriation process • socioeconomic studies and key informant meetings • Implementation records of grievance mechanism procedures • Records of resettlement process related to households that requested resettlement (if there will be a request) • Records of initiated income restoration activities • Monitoring and assessment reports • Public participation meetings • Project progress reports	Project Owner	• Six (6) weeks (for land preparation and construction phases)
EXTERNAL MONITORING	• Living conditions and socio-economic status of affected settlements • Effectiveness of grievance procedure • Effectiveness of local employment strategies • Number of vulnerable individuals in each affected settlements • Number of Public Consultation Meetings • Number of field observations, interviews and informative meetings	• Key informant interviews with selected local leaders • Open public meetings • Informal interviews • Implementation records of grievance mechanism procedures • Project progress reports	Independent Agency / External Experts	• Bi-annually

9. Contact Details for Public

Stakeholders are invited to contact the Company at:

Marmara Otoyol Insaati A.O. Tic. Isl.

Address: Garipce mah. Rumeli Feneri cad. No: 280 34450 Sariyer / ISTANBUL

Telephone: +90 212 338 7676 (toll-free hot line)

E-mail: info@marmaraotoyolu.com

Web-site: www.marmaraotoyolu.com

APPENDIX 11.1

STAKEHOLDER LIST

Level	Category	Organization / Entity
Internal	Personnel	Project Sponsor
	Contractors	N/A
	Shareholders	N/A
National	Ministries and Relevant Authorities	Ministry of Transport, Maritime Affairs and Communication
		General Directorate of Highways
		General Directorate of Infrastructure Investments
		Karayolları Düzenleme Genel Müdürlüğü
		Ministry of Forestry and Water Affairs
		General Directorate of State Hydraulic Works (DSİ)
		General Directorate of Forestry
		General Directorate of Meteorology
		Ministry of Environment and Urbanization
		General Directorate of Spatial Planning
		General Directorate of Environmental Management
		General Directorate of Preservation of Natural Heritage
		General Directorate of Land Registry and Cadastre
		Ministry of Culture and Tourism
		General Directorate of Cultural Heritage and Museums
		Ministry of Energy and Natural Resources
		General Directorate of Mineral Research and Exploration
		General Directorate of Electricity Generation Corporation (EUAS)
		General Directorate of Electricity Transmission Company (TEIAS)
		Ministry of Interior
		Gendarmerie General Command
		General Directorate of Security Affairs
		Ministry of Labor and Social Security
		General Directorate of Turkish Employment Agency (ISKUR)
		Ministry of Development
		Ministry of Defense
		Petroleum Pipeline Company (BOTAS)
		Prime Ministry's Disaster and Emergency Management Presidency (AFAD)
	NGO's	The Union Chambers of Turkish Engineers and Architects (TMMOB)

Level	Category	Organization / Entity
		Chamber of Environmental Engineers
		Chamber of Urban Planners
		Chamber of Agricultural Engineers
		Chamber of Civil Engineers
		Chamber of Forest Engineers
		Chamber of Architects
		Chamber of Landscape Architects
		The Union of Turkish Agricultural Chambers
		The Union of Chambers and Commodity Exchanges of Turkey (TOBB)
		Turkish Foundation for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats (TEMA)
		World Wide Fund for Nature (WWF)
		Foundation for the Protection and Promotion of the Environment and Cultural Heritage (CEKUL)
		Environment Foundation of Turkey
		Greenpeace Turkey
		Turkish Environmental and Woodlands Protection Society(TURCEK)
		International Freight Forwarders Association
		Union of Forestry Workers (ORMAN-IS)
		Union of Turkish Roads, Buildings and Construction Workers (YOL-IS)
		Confederation of Unions of Turkish Workers (TURK-IS)
		Union of Construction Industry Employers (INTES)
		Community Volunteers Foundation
Regional	Governmental Agencies and Authorities	Ministry of Forestry and Water Affairs 1th Regional Directorate
		Ministry of Transport, Maritime Affairs and Communication 1th Regional Directorate of Highways
		Istanbul Regional Directorate of Forestry
		Sakarya Regional Directorate of Forestry
		General Directorate of State Hydraulic Works (DSİ) 1th Regional Directorate
		General Directorate of State Hydraulic Works (DSİ) 3rd Regional Directorate
		General Directorate of State Hydraulic Works (DSİ) 14th Regional Directorate
		Ministry of Transport, Maritime Affairs and Communication 1th Regional Directorate
		Ministry of Transport, Maritime Affairs and Communication 13th Regional Directorate

Level	Category	Organization / Entity
		Regional Directorate of Mineral Research and Exploration
		Istanbul 5th Regional Directorate of Cultural Heritage Preservation Board
		Kocaeli Regional Directorate of Cultural Heritage Preservation Board
		Istanbul 5th Regional Commission of Cultural Heritage Preservation
		Kocaeli Regional Commission of Cultural Heritage Preservation
		General Directorate of Turkish State Railways 1th Regional Directorate
Local	Governmental / Local Authorities and Agencies	Istanbul Metropolitan Municipality
		Kocaeli Metropolitan Municipality
		Sakarya Metropolitan Municipality
		Governorship of Istanbul
		Governorship of Kocaeli
		Governorship of Sakarya
		Istanbul Provincial Directorate of Environment
		Kocaeli Provincial Directorate of Environment
		Sakarya Provincial Directorate of Environment
		Istanbul Water and Sewerage Administration
		Kocaeli Water and Sewerage Administration
		Sakarya Water and Sewerage Administration
		TEIAS 4th Transformation, Installation and Operation Group Division
		TEIAS 5th Transformation, Installation and Operation Group Division
		Istanbul Gas Distribution Industry and Trade Incorporated Company (IGDAS)
		Izmit Gas Distribution Industry and Trade Incorporated Company (IZGAZ)
		Gebze Gas Distribution Industry and Trade Incorporated Company (GEBZEGAZ)
		Adapazari Gas Distribution Industry and Trade Incorporated Company (AGDAS)
		Istanbul Anatolian Side Electricity Distribution Co. (AYEDAS)
		Sakarya Electricity Distribution Co. (SEDAS)
		Istanbul Turk Telekom Regional Directorate of Asian Side
		Kocaeli Regional Directorate of Turk Telekom
		Sakarya Regional Directorate of Turk Telekom
		Akyazi Municipality
		Istanbul Provincial Directorate of Employment Agency
		Kocaeli Provincial Directorate of Employment Agency
		Sakarya Provincial Directorate of Employment Agency

Level	Category	Organization / Entity
		Derince Municipality
		Dilovası Municipality
		Erenler Municipality
		Gebze Municipality
		Korfez Municipality
		Pendik Municipality
		Serdivan Municipality
		Tuzla Municipality
		District Governor of Akyazi
		District Governor of Derince
		District Governor of Dilovası
		District Governor of Erenler
		District Governor of Gebze
		District Governor of Korfez
		District Governor of Pendik
		District Governor of Serdivan
		District Governor of Tuzla
		Istanbul Provincial Directorate of Agriculture
		Kocaeli Provincial Directorate of Agriculture
		Sakarya Provincial Directorate of Agriculture
		Istanbul Provincial Directorate of Cultural Heritage and Museums
		Kocaeli Provincial Directorate of Cultural Heritage and Museums
		Sakarya Provincial Directorate of Cultural Heritage and Museums
		Istanbul Metropolitan Municipality Department of Environmental Protection and Control
		Kocaeli Metropolitan Municipality Department of Environmental Protection and Control
		Sakarya Metropolitan Municipality Department of Environmental Protection and Control
	NGO's	Istanbul Federation of Environmental Council
		Istanbul Environmental Council
		Friends of the Environment Association
		Environmental Protection and Packaging Waste Recycling Association (CEVKO)
		Istanbul Chamber of Commerce
		Istanbul Chamber of Industry

Level	Category	Organization / Entity
		Kocaeli Chamber of Commerce
		Kocaeli Chamber of Industry
		Sakarya Chamber of Commerce
		Sakarya Chamber of Industry
		Istanbul Association of Disabled People
		Kocaeli Association of Contemporary Disabled People
		Kocaeli Ecological Life Association
		Derince Chamber of Agriculture
		Dilovası Chamber of Agriculture
		Erenler Chamber of Agriculture
		Gebze Chamber of Agriculture
		Korfez Chamber of Agriculture
		Pendik Chamber of Agriculture
		Serdivan Chamber of Agriculture
		Tuzla Chamber of Agriculture
		Kocaeli Provincial Representative of TEMA
		Sakarya Provincial Representative of TEMA
	Residential Areas	Settlements located along the route*
	Business Enterprises	Business enterprises located along the route*
	Universities	Istanbul Technical University
		Bogazici University
		Istanbul University
		Yildiz Technical University
		Kocaeli University
		Sakarya University

APPENDIX 11.1

SUMMARY OF PCM FINDINGS

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
Asia					
1	**Kocaeli, Dilovasi, Demirciler Neighborhood (13.03.2017)**				
1.1	Headman of Demirciler Neighborhood	Socio-economy	Urgent Expropriation	Parcels listed in the urgent expropriation decision and published in the Official Gazette are different from the parcels on which construction activities are going on. Information requested on the process to be proceeded for such parcels which were listed in the Official Gazette but are now out of the current expropriation corridor. For some of those parcels, no notification has been done yet but construction has started. Deviation from the information given in Official Gazette should have been informed in advance.	Revised lists have been prepared for the final route and submitted by KGM to Council of Ministers for approval. Expropriation process is considered irreversibly completed for any parcel that was listed in the former Official Gazette and compensation payments have been done. There is no way that compensation payments would be requested back by authorities for such parcels. The route has been mostly finalized and would not change unless major problems (e.g. geological-geotechnical) are encountered.
		Technical	Engineering Structures	Requests for additional passage structures were raised. A culvert or underpass has been requested to be added at KM 4+900 as other passages already included in the design would not be sufficient for Demirciler neighborhood. Culverts and underpasses should have sufficient dimensions to allow passage of pedestrians, animals and vehicles. It has been underlined that use of hydraulic culverts for the passage of pedestrians would not be possible during winter months due to flow conditions.	Information on the locations of the passages near Demirciler neighborhood has been given. In every 1 km, underpasses, overpasses and/or culverts have been planned. Local people have been recommended to submit their requests through Project's grievance/comment mechanisms so that such requests can be considered by design team.
		Socio-economy	Expropriation Construction Impacts	Construction has started on some of the parcels for which expropriation payments have not been completed yet.	Local people have been recommended to submit their grievances through Project's grievance/comment mechanisms so that such incidents are kept under record. All the damage would be compensated in case of court cases.
1.2	Resident of Demirciler Neighborhood	Socio-economy	Fragmentation Restriction of access to lands	Information requested on the means of access to agricultural lands from the locations of passage structures.	Stabilized side roads (having a width of 6 m) will be constructed in parallel to the Motorway near agricultural areas/zones to provide access to agricultural lands.
		Socio-economy	Community Health and Safety	It would not be possible to provide access between agricultural lands and neighborhood roads through culverts during the time of floods.	There are different types of passage structures including hydraulic culverts, service culverts, underpasses/overpasses. Design of passage structures and selection of dimension has been done in consideration of usage requirements.
1.3	Resident of Demirciler Neighborhood	Socio-economy	Construction Impacts Existing Infrastructure	A concrete irrigation channel conveying spring water may be crossed by the Motorway route.	All the existing infrastructure will be relocated if crossed by the Motorway. A hydraulic culvert has already been planned at the location of the spring water.
1.4	Headman of Kadilli	Socio-economy	Expropriation	Information was requested about cases when user of	Legal owners of the lands (owner of the title deed) will

PCM No	Party who Raised the Question/ Issue/Concern/ Suggestion	Category	Sub-category	Question/Issue/Concern/ Suggestion Raised	Response of Project Sponsors/ Environmental Consultant
	Neighborhood			the land is not the legal owner and the notification process (which party-owner of the land or user of the land- will receive the notification) to be followed in such cases.	receive the notification and compensations.
		Socio-economy	Construction Impacts Existing Infrastructure	A waterway coming from the forests may be crossed by the Motorway.	All the existing infrastructure will be relocated if crossed by the Motorway. A hydraulic culvert has already been planned at the location of the spring water.
1.5	Residents of Tavsanli Neighborhood	Socio-economy	Expropriation	No notification has been received by the neighborhood so far. Recommendations were requested for legal owners whose lands are cultivated by renters.	It has been recommended that regular/daily activities would be continued until notification is made by authorities.
1.6	Women Residents from Yagcilar Neighborhood	Socio-economy	Expropriation	Information was requested on the affection status of specific parcels.	Parcel numbers have been and contact details of related persons noted down for further evaluation and feedback.
2	**Kocaeli, Körfez, Sevindikli Neighborhood (14.03.2017)**				
2.1	Vice Mayor of Korfez Municipality	Environment Socio-economy	Fragmentation Restriction of access to lands	The route has changed several times in the previous process. Structures providing access of pedestrians and wild life in the north-south direction should be provided with frequent/sufficient intervals.	Information on the locations of the passages (culverts, underpasses, overpasses) in this section has been given. It has been underlined that number of engineering structures has increased as a result of each revision done.
		Environment	Agricultural Lands	Cooperation should be made with the Ministry of Agriculture, Food and Livestock as land consolidation covers the neighborhoods of Sipahiler, Sevindikli, Kasikci and Karayakuplu in this region.	Ministry of Agriculture, Food and Livestock and its local organizations were collaborated by KGM during the route selection process. Balance between impacts on agricultural lands, forest areas, water resources, etc. was aimed to be established by means of several revisions done on the route.
2.2	Headman of Sevindikli Neighborhood	Technical	Engineering Structures	It was questioned if the Project Sponsors will cooperate with the headmen of the neighborhoods regarding the locations of the culverts, especially for the passage of harvesters.	Locations of planned culverts are marked on the hard copy maps presented in the meeting room. Additional requests can be considered, if there is any.
2.3	Resident of Sevindikli Neighborhood (Lawyer)	Socio-economy	Urgent Expropriation	Information was requested on the process to be executed for the parcels listed in the urgent expropriation decision published in the Official Gazette have changed. It has been noted by the lawyer that normally lawsuits would last for 2-3 years if urgent expropriation is not applied.	Revised lists have been prepared for the final route and a new decision will be published in the Official Gazette with regard to urgent expropriation decision. Execution of the expropriation process is under the authority and responsibility of KGM. Expropriation process has been explained. Information on the processes to be conducted for the agreement and non-agreement cases. It has been informed that Article 27 of the Expropriation Law, which is related with urgent expropriation processes, will be applied by KGM in this Project if agreements cannot be settled as a result of negotiations to be done. It has been added that in European sections where negotiations have already been conducted, level of agreement with the

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					owners is around 80%, which is considered as an indicator of satisfaction of owners with the compensation amounts offered by Conciliation Commission. Since there has been route change in the Asian sections, expropriation process has started with delay.
2.4	Headman of Kutluca Neighborhood	Environment Socio-economy	Water Resources	The headman gave information on the Kutluca Pond planned by the State Hydraulic Works (DSI) for irrigation and drinking water purposes and underlined the expected benefits and importance of this pond especially for Kutluca, Sevindikli and Osmanli neighborhoods as well as for meeting the water requirements of the Kutluca Camp Site. The headman suggested that the embankment material required for the construction of this pond may be supplied from North Marmara Motorway Project's earthworks. On the other hand, regarding the administrative process of the pond project, the headman informed that the pond site is located within the long distance protection zone of Istanbul Water and Sewerage Administration (ISKI).	Feasibility of Kutluca Pond will be reviewed in terms of permitting (if there is any obstacle due to ISKI's water protection zones) and construction (if embankment material can be supplied by the Project). It is understood that there is an official view provided by ISKI and the Kutluca headman can provide this view.
2.5	City Councilor of Korfez Municipality	Stakeholder Engagement	Public Consultation Meetings	The Korfez City Councilor declared his discontent that related state authorities from Kocaeli province and Korfez District, who would be the representatives of this region, have not attended this meeting and stood up for the local people to assert their rights.	Information has been provided on the methods used for informing stakeholders such as letters and announcements delivered to neighborhood headmen and invitations sent to relevant public authorities through letters or phone calls (governorates, municipalities).
2.6	Resident of Sevindikli Neighborhood	Socio-economy	Expropriation	Information was requested regarding the process to be conducted for the existing crops or crops to be cultivated.	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law and other legislation (forestry, pasturelands) has been given. It has been informed that the expropriation process would be completed within 45-60 days if agreement is settled. Compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification/valuation.
2.7	Resident of Sevindikli Neighborhood	Stakeholder Engagement	Public Consultation Meetings	The participant requested an explanation on the reason why the authorities/representatives from KGM have not attended the meeting.	It has been informed that the participation of authorities/representatives from KGM's 1st Regional Directorate was requested by means of invitations made but the Directorate administration did not prefer to attend the meetings.

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2.8	Resident of Sevindikli Neighborhood	Socio-economy	Expropriation	Information was requested regarding the partial expropriation of lands (for an example case of 10 da of land, of which only 5 da is located within the expropriation corridor)	For the given example case, it has been informed that only the area located within the expropriation corridor would be expropriated as the remaining land would still be viable for economic activities. It has been further explained that if the land portion remaining from expropriation would not be viable anymore, eligible persons may request the expropriation of the entire parcel including the remaining portion, even if this portion is out of the expropriation corridor. All the trees, characteristics of the crops, etc. will be considered in valuation of lands in accordance with the Expropriation Law.
2.9	Resident of Semsettin Neighborhood (Woman Participant)	Socio-economy	Expropriation	With regard to the changes done on the parcels listed in the urgent expropriation decision published in the Official Gazette, it has been questioned if the changes in Semsettin neighborhood are significant.	It has been replied that no significant change was made in Semsettin neighborhood.
		Socio-economy	Expropriation	Information was requested on how equity and fair treatment will be ensured	The objective criteria method described in the Expropriation Law have been explained. The agreement levels achieved in European sections have been given as an indicator of satisfaction of owners.
2.10	Resident of Sevindikli Neighborhood	Technical	Final Route	The participant submitted his concern about the uncertainty of the Motorway route. Explanation was requested on the method through which they would receive correct information.	It has been informed that the route has been finalized and the information on the final route and expropriation process will be delivered through neighborhood headmen and Conciliation Commission. It has been also advised that the parcels published in the Official Gazette as an annex to the urgent expropriation decision may change thus the notifications to be done by KGM on the basis of the title deed ownership should be awaited for certain information.
2.11	Resident of Sevindikli Neighborhood	Environment Socio-economy	Cumulative Impacts	It has been informed that a separate Ring Road project is planned in the region in addition to the North Marmara Motorway Project.	The Project team confirmed that other projects are planned in the region.
2.12	Headman of Kasikci Neighborhood	Environment Socio-economy	Water Resources Community Health and Safety	There are water resources of the community near the working site. Additionally, truck traffic pose risks.	Relevant impacts will be considered in the ESIA studies. Local people have also been recommended to submit their complaints through Project's grievance/comment mechanisms so that they would be considered.
2.13	Resident of Sipahiler Neighborhood (Kadikoy)	Socio-economy	Expropriation Physical Resettlement	It has been informed that houses and other structures (barns, etc.) will be affected in their settlement. Information requested on the expropriation program to get prepared for the time when the construction equipments start to operate.	It has been informed that first the expropriation will start and take place, then construction will follow some time after. Thus, there will be time between the expropriation and start of construction to get prepared. Especially, sufficient time is given for the locations where buildings/houses are affected. Process under Turkish law

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					(Resettlement Law) for physical resettlement has been explained.
5.13	Resident of Sevindikli Neighborhood	Stakeholder Engagement	Next Phases of the ESIA	Information was requested if further meetings will take place in the upcoming process.	Local people have also been recommended to submit their proposals/wills for additional meetings through Project's grievance/comment mechanisms so that they would be considered in the planning of next phases.
3	**Kocaeli, Izmit, Cayirkoy Neighborhood (15.03.2017)**				
3.1	Headman of Cayirkoy Neighborhood	Socio-economy	Expropriation	The headman claimed that Cayirkoy is the mostly affected settlement in the scope of the North Marmara Motorway Project. The headmen requested expropriation of entire parcel when the area of the parcel to be expropriation is less than 2-3 decares.	Information on the partial expropriation has been given. It has been informed that if the land portion remaining from expropriation would not be viable anymore, eligible persons may request the expropriation of the entire parcel including the remaining portion, even if this portion is out of the expropriation corridor. If the holder of the right prefers the use the remaining portion of the parcel that has been expropriated, he/she can continue his/her activities on that land. It was added that KGM is the decision maker in this process.
		Socio-economy	Expropriation	It has been informed that no notification has been received yet, thus construction works should not start on privately owned parcels until expropriation is done.	It has been explained that the expropriation has started at priority areas (such as viaduct locations, etc.) and notifications will be made within a schedule at all areas to be expropriated. It has been informed that construction starts on privately owned lands that have not been expropriated yet only if bilateral agreements are done with the owners.
		Socio-economy	Expropriation	Information requested on the trees, vineyards, orchards, etc. to be affected and the criteria considered in the valuation of poplar trees that are not old enough for logging as they are normally logged at the age of 12-13. The headman suggested KGM to cooperate with affected people during the valuation process.	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law has been given. It has been informed that valuation is done by the Valuation Committee. It has been informed that cooperation with affected people may be done in case of involvement of expert witnesses during the court processes. All the trees, characteristics of the crops, structures (fences, walls, etc.) etc. will be considered in valuation of lands in accordance with the Expropriation Law based on the objective criteria. Actual age of trees would be taken into consideration in this process. Compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification.
		Socio-economy	Construction impacts	Potential for impacts of/damage due to construction activities on adjacent lands, which are out of the	Local people has been recommended to submit their complaints/grievance in case of damage on adjacent

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				expropriation corridor, was questioned. Compensation measures to be taken in case of damage outside the expropriation corridor was requested.	lands. Additional information has been given on the service roads to be constructed and how the traffic will be avoided
		Technical	Final Route	The headman stated that the route has changed several times and questioned if the route is final yet. It causes problems to explain the process to the local people when the route changes.	Information was given on the background of the Project and revisions done since 2006 in consideration of the views/requests of more than 60 state authorities including governorates, State Hydraulic Works, cultural heritage authorities, etc. It has been confirmed that the route has been mainly finalized and construction of viaducts, tunnels, etc. will start in the upcoming weeks.
		Technical	Engineering Structures	Cooperation of Project Sponsors with neighborhood headmen was suggested for the selection/finalization of the locations of the underpasses, overpasses and culverts.	Information on the locations of the passages (culverts, underpasses, overpasses) in this section has been given.
		Environment	Water Resources	Surface runoff to be collected along the route was suggested to be discharged into nearby receiving water bodies instead of discharge onto the agricultural lands due avoid any damage.	Drainage projects have been developed for the collection of surface runoff along the Motorway by means of ditches and diversion of the collected water to the nearest receiving water bodies. The design criteria for the drainage system are in accordance with motorway standards.
3.2	Headman of Kartepe-Ertugrul Gazi Neighborhood	Environment	Indirect Impacts	The headman requested indirect impacts to be taken into consideration.	It has been informed that both direct and indirect impacts will be considered in the ESIA.
		Stakeholder Engagement	Public Participation Meetings	The headman claimed that they did not receive any information/invitation for the meeting.	Information has been provided on the methods used for informing stakeholders such as newspaper announcements and letters delivered to neighborhood headmen and invitations sent to relevant public authorities (governorates, municipalities).
		Technical	Engineering Structures	The headman requested the culvert dimensions to be adjusted in alignment with the dimensions of the zoning roads.	It has been informed that roadway widths will be taken into account during the construction of the culverts.
		Socio-economy	Property Ownership	The headman complained about the fact that there is a considerable uncertainty since 2006, which affects the real estate purchase and sales in the region.	It has been informed that the implementation of the Project has accelerated since the Build-Operate-Transfer tender and the construction works will speed up in the upcoming periods.
3.3	Resident of Hacioglu Neighborhood	Socio-economy	Non-owner Users	Information requested on the procedure to be applied for non-owners users of the lands, for a specific example of greenhouses.	It has been informed that owners of the lands will be the eligible persons under the Turkish law. Compensation will be provided to owners to be determined based on title deeds.
		Socio-economy	Expropriation	Information on the compensation to be provided for the lands located close to the tunnel portals was requested as no houses or structures will be allowed	Information has been provided on the constitution of easement rights in accordance with Expropriation Law for areas to be directly affected.

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				to be built near the tunnel portals.	
3.4	Resident of Kartepe-Uzunbey Neighborhood	Socio-economy	Expropriation	It was requested that the agricultural parcels located adjacent to the industrial parcels are to be appraised based on industrial parcel prices.	The valuation process will be conducted by KGM in accordance with Expropriation Process.
		Technical	Other Infrastructure Projects	Motorway intersects with the route of railway project planned in the region. Information was requested on the priority levels of both projects.	It has been informed that the land preparation works for the Motorway has already started. However, railway project components have been considered in the design based on the views of the relevant authorities. Underpasses and overpasses will be used for intersection points.
3.5	Headman of Suleymaniye Neighborhood	Environment Socio-economy	Cumulative Impacts	The headman submitted their complaint that the neighborhood will be trapped by the Motorway passing from the north of the settlement and the railway project planned in the south of the settlement.	It has been informed that cumulative impacts on Suleymaniye neighborhood will be considered in the ESIA.
3.6	Headman of Durhasan Neighborhood	Socio-economy	Expropriation Physical Resettlement	It has been informed that 11 houses will be affected by the Project and route revision should be considered as there is available plain in the south of the area.	Process under Turkish law (Resettlement Law) for physical resettlement has been explained. Probable options that may be produced in the scope of international standards (land for land, allocation of treasury lands for construction of houses in the same area, 0% interest rates for new houses) have been introduced. It has been informed that the route is mostly finalized and any route change to be done would result in other impacts.
3.7	Resident of Cayirkoy Neighborhood	Socio-economy	Expropriation Economic Displacement	The Project will result in the restriction of areas used for economic activities. Cayirkoy Access Road will affect the Cayirkoy Plain. Route revision has been suggested.	It has been informed that the route is mostly finalized and any route change to be done would result in other impacts.
		Socio-economy Environment	Cumulative Impacts	It has been suggested that the Project may be integrated with the planned Kandira Double Road (already tendered).	Kandira Double Road Project will be considered in the ESIA.
3.8	Resident of Gokceviran Neighborhood	Socio-economy	Urgent Expropriation	Parcels listed in the urgent expropriation decision and published in the Official Gazette are different from the parcels on the revised route. Reliability of the Official Gazette was questioned.	It has been informed that the parcels listed in the Official Gazette reflect the route of the Motorway at the time of publishing. Revised lists have been prepared for the final route and a new decision will be published in the Official Gazette with regard to urgent expropriation decision.
3.9	Resident of Bayraktar Neighborhood	Socio-economy	Benefits of the Project for Locals	The participant submitted his concerns regarding the selection of the access road route as it is considered that this route has been selected to provide benefits to the Asim Kibar Organized Zone and not to local people engaged with agricultural activities.	It has been informed that the connection of the route to organized zone will be considered and evaluated in the ESIA.

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		Stakeholder Engagement	Public Consultation Meetings	The participant requested an explanation on the reason why the authorities/representatives from KGM have not attended the meeting.	It has been informed that the participation of authorities/representatives from KGM's 1st Regional Directorate was requested by means of invitations made but the Directorate administration did not prefer to attend the meetings.
3.10	Resident of Hacioglu Neighborhood	Environment Socio-economy	Soil Community Health and Safety	It was suggested that vehicle/wheel wash basins are constructed to minimize transportation of sediments/mud and pollution/dustiness of public roads.	It has been informed that the suggestion will be considered in the ESIA.
3.11	Resident of Akmese Ataturk	Stakeholder Engagement	Public Consultation Meetings	An additional meeting was requested to be held at a central location close to Akmese Ataturk, Suleymaniye, Karaabdulbaki and Sapakpinar. The participants from these settlements complained about the distance of the Cayirkoy meeting location to their settlement and the capacity of the teahouses.	It has been informed that the suggestion will be considered by the Project team in consideration of the ESIA schedule.
3.12	Resident of Cayirkoy Neighborhood (Business Owner)	Socio-economy	Expropriation Economic Displacement	The participant informed that their marble workshop will be affected.	Local people have been recommended to submit their information request/proposal through Project's grievance/comment mechanisms so that they would be considered.
4	**Sakarya, Adapazari, Korucuk Neighborhood (15.03.2017)**				
4.1	Resident of Korucuk	Technical	Location of Engineering Structures	Information was requested on the locations of interchanges in the region.	Information has been provided on the locations of the interchanges in this region. Additional information has been provided on the numbers and locations of the underpasses and overpasses, as well as their dimensions.
4.2	Headman of Besevler Neighborhood	Environment	Noise	Information was requested on the noise studies conducted.	Information has been provided on the baseline noise measurements conducted and the noise modeling studies to be performed as a part of the ESIA. It has been added that necessary measures, such as noise barriers, etc., will be planned and implemented based on the results of the ESIA.
		Socio-economy	Urgent Expropriation	Parcels listed in the urgent expropriation decision and published in the Official Gazette are different from the parcels on the revised route.	It has been informed that the parcels listed in the Official Gazette reflect the route of the Motorway at the time of publishing. Revised lists have been prepared for the final route and a new decision will be published in the Official Gazette with regard to urgent expropriation decision. Additional information will be provided through neighborhood headmen.
4.3	Resident of Adapazari District (Business Owner)	Socio-economy	Expropriation	Information was requested on the expropriation program and procedure (e.g. how compensation for the crops will be obtained, when the compensation amounts will be paid) as this would affect the	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law has been given including the steps such as identification of owners, notification, valuations and negotiation. It has

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				cultivation activities (e.g. foreseen date for expropriation, activities to be conducted on the cultivated lands)	been informed that the expropriation process would be completed within 45-60 days if agreement is settled. Compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification.
4.4	Resident of Karapinar Neighborhood (Board Member of Chamber of Agriculture)	Stakeholder Engagement	Grievance/Comment Mechanism	It was questioned if grievance/comment boxes will be placed at all settlements including Karapinar Neighborhood or will local people living in other settlements be required to bring their forms to nearby settlements, which would not be practical for them.	It has been informed that placement of boxes are going on. It will be checked and if not placed yet, boxes will be placed at Karapinar Neighborhood.
4.5	Resident of Korucuk Neighborhood	Socio-economy	Expropriation	Information was requested regarding the partial expropriation of lands (for an example case of 20 da of land, of which 15 da is located within the expropriation corridor and 5 da is located outside the expropriation corridor)	For the given example case, it has been informed that only the area located within the expropriation corridor would be expropriated as the remaining land would still be viable for economic activities. It has been further explained that if the land portion remaining from expropriation would not be viable anymore, eligible persons may request the expropriation of the entire parcel including the remaining portion, even if this portion is out of the expropriation corridor.
4.6	Headman of Korucuk Neighborhood	Stakeholder Engagement	Public Consultation Meetings	The headman claimed that headmen of the nearby settlements did not receive any information/invitation for the meeting. He stated that all the headmen in the region are interested in the Project, irrelevant of the fact that their settlement is directly affected or not, and suggested that such information can be effectively disseminated if done by/in coordination with headmen.	Information has been provided on the methods used for informing stakeholders such as newspaper announcements and letters delivered to neighborhood headmen and invitations sent to relevant public authorities (governorates, municipalities). It has been added that some of the headmen from this region have participated in the Cayirkoy meeting.
5	**Sakarya, Akyazi, Osmanbey Neighborhood (16.03.2016)**				
5.1	Headman of Budaklar Neighborhood	Socio-economy	Expropriation	Information was requested on the expropriation program and procedure (e.g. how compensation for the crops will be obtained, when the compensation amounts will be paid and construction will start) as this would affect the cultivation activities (e.g. foreseen date for expropriation, activities to be conducted on the cultivated lands)	Information on the expropriation/land acquisition procedure being/to be followed under Expropriation Law has been given. It has been informed that the expropriation process would be completed within 45-60 days if agreement is settled. Compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification. All the structures (trees, ladders, walls, fences, etc.) present on the lands at the time of notification will be considered in valuation of lands in accordance with the Expropriation Law. Information on the lawsuit processes has also been provided.

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5.2	Resident of Osmanbey Neighborhood	Socio-economy	Expropriation	Information was requested regarding the partial expropriation of lands (for an example case of 10 da of land, of which 5 da is located within the expropriation corridor and 5 da is located outside the expropriation corridor)	For the given example case, it has been informed that only the area located within the expropriation corridor would be expropriated as the remaining land would still be viable for economic activities. It has been further explained that if the land portion remaining from expropriation would not be viable anymore (200-300 m^2), eligible persons may request the expropriation of the entire parcel including the remaining portion, even if this portion is out of the expropriation corridor.
5.3	Resident of Kizilcikorman Neighborhood	Socio-economy	Expropriation	The participant informed that no notification has been received and how they will be informed of their affection status.	It has been explained that the expropriation has started at priority areas (such as viaduct locations, etc.) and notifications will be made by KGM within a schedule at all areas to be expropriated.
5.4	Resident of Budaklar Neighborhood	Socio-economy	Expropriation	Information was requested again on the expropriation program and procedure (e.g. how compensation for the crops will be obtained, when the compensation amounts will be paid and construction will start)	It has been informed one more time that compensation would be provided for the existing crops at the time of notification/valuation. No further compensation would be provided for crops cultivated after the date of notification.
5.5	Resident of Budaklar Neighborhood	Technical	Engineering Structures	Question was raised against the risk of flooding at the underpasses locations.	It has been informed that number of overpasses is more in Section 6 when compared to number of underpasses mainly due to the soil conditions in the area. Depending on the soil and groundwater conditions, there may be a risk of water accumulation in the underpass. Thus in such cases overpasses have been planned. Inclination at the overpasses will be optimized to ensure that large vehicles such as harvesters can effectively use the road.
5.6	Resident of Budaklar Neighborhood	Socio-economy	Expropriation	Information was requested regarding the procedure to be applied for renters having rental agreements.	It has been informed that legal owners of the lands (owner of the title deed) will receive the notification and compensations. Business relations with legal owners and renters should be made internally.
5.7	Resident of Budaklar Neighborhood	Socio-economy	Expropriation	Complaints were submitted related with cases where drilling works were conducted on lands which have not been expropriated yet.	Technical team informed that privately-owned lands are used only if official consent letters are taken from the owners. In such cases, studies are conducted under the terms of official commitment letters. For other cases where consent and commitment letters were missing, participants have been recommended to record such cases, if there is any, together with the neighborhood headman. It has been informed that such work can only be conducted on privately owned lands if bilateral agreements are done with the owners. Participants have also been recommended to submit their complaints through Project's grievance/comment mechanisms so that they would be considered and corrective measures

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					would then be taken.
5.8	Resident of Kizilcikorman Neighborhood	Socio-economy	Expropriation	Information was requested on the procedure to be followed for the notification of right holders for the expropriation of joint-owned parcels.	It has been informed that inititally share holders are identified through registry offices and e-state mechanism and all the eligible share holders will be separately contacted. Afterwards negotiations will be done individually with each share holder and it will not be required to achieve agreement of all shareholders. All the shareholders will be compensated in the ratio of his/her share.
5.9	Resident of Budaklar Neighborhood	Socio-economy	Expropriation Economic Displacement	It has been claimed that a factory is affected by the route.	It has been informed that route change has been done and the factory is not being affected in the current situation.
5.10	Resident of Budaklar Neighborhood	Environment	Water Resources	It has been stated that the drainage channels constructed in previous railway projects are not functioning effectively.	Information on the technological advancements has been given and drainage projects developed for the collection of surface runoff along the Motorway by means of ditches are in accordance with motorway standards.
5.11	Resident of Osmanbey Neighborhood	Environment Socio-economy	Benefits of the Project for Locals	Information was requested on the benefits of the Project for local people and settlements.	National benefits of the Project have been explained.
5.12	Resident of Osmanbey Neighborhood	Socio-economy	Expropriation	Information was requested on the procedure to be applied for parcels with title deed and parcels being used for 17 years.	Information has been given on the procedure to be followed for the preparation of entitlement lists. The question was handled as a special case and it has been informed that eligibility will be evaluated by KGM.

APPENDIX 11.3

GRIEVANCE FORM

	ŞİKAYET VE ÖNERİ FORMU	MARMARA OTOYOL İNŞAATI ADİ ORTAKLIĞI TİCARİ İŞLETMESİ Dök.No.: E01.F01 Rev.0

***Bu kısım Sosyal Etki Uzmanı tarafından doldurulacaktır.**			
Şikayet/Öneri No.	Kesim _____	Şikâyet □ Öneri □	Sıra No. _____
Yer	Kesim _____ Güzergâh KM'si _____ Mahalle _____		
Şikayet/Öneri'nin Hangi Kanalla Alındığı	□ Yazılı □ Sözlü (_____)		
Şikayet/Öneri Sahibi			
Ad-Soyad (İsminizi belirtmek istemiyorsanız lütfen "İSİMSİZ" şeklinde belirtin)	_____		
İletişim Bilgileri Sizinle ne şekilde irtibata geçilmesini istiyorsunuz?	□ **Posta yoluyla** (lütfen posta adresiniz belirtin): _____ □ **Telefonla** (lütfen telefon numaranızı belirtin): _____ □ **E-posta** (lütfen e-posta adresinizi belirtin): _____		
Şikayet/Öneri Açıklaması			
Şikâyet/Öneri Türü	□ Çevresel	□ Sosyal	
Şikâyet/Öneri Aşaması	□ İnşaat	□ İşletme	
Şikayet/Öneri Nedeni	□ Toz Oluşumu □ Gürültü/Titreşim □ Atıklar □ Su/Toprak Kirliliği	□ Kamulaştırma □ İş gücü temini/Çalışma koşulları □ Trafik yoğunluğu □ Diğer (_____)	
Şikayeti/Öneriyi Açıklayın (Ne oldu? Nerede oldu? Kim sebep oldu? Sorunun neticesi ne?):			
Şikayet/Öneri Tarihi: __ __ - __ __ - 201__	□ Tek seferlik olay/şikâyet □ Birden fazla kez mi oldu (kaç defa? _____) □ Devam eden (aynı problem halen yaşanıyor) Evet □ Hayır □		
Belirtilen sorunun çözümü için ne yapılmasını istersiniz?			
İmza ve Tarih:_____ **E-posta:** info@marmaraotoyolu.com **Telefon hattı:** 0212 338 76 00 pbx **Adres:** MARMARA OTOYOLU ADİ ORTAKLIĞI 3.Köprü Şantiyesi Marmara Otoyolu Merkez Ofis Binası PK:34450 Garipçe/İSTANBUL			

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	ŞİKAYET VE ÖNERİ FORMU	**MARMARA OTOYOL İNŞAATI** ADİ ORTAKLIĞI TİCARİ İŞLETMESİ *Dök.No.: E01.F01 Rev.0*

Kapanış Açıklaması	
Kapanış Tarihi	__ __ - __ __ - 201__
Şikayetin/Önerinin Değerlendirmesi	
Değerlendiren Yetkili	**Ad-Soyad** _____ **İmza** _____
İzleme Değerlendirmesi	
İzleme Gerekliliği	□ Gerektiriyor □ Gerektirmiyor
İzleme Faaliyeti	
İzleme Süresi/Sıklığı	
İzleme Yeri	
Sorumlu Taraf	
Tamamlanma Tarihi	__ __ - __ __ - 201__
İzleme Sonucu	
	İmza ve Tarih:_____

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