



 **ARKATEK**

ABOUT US

ARKATEK, which has been serving in geotechnical sector since 2000, came to this day thanks to its machine park, which is suitable for developed soil technologies, and its staff, which consists of its skilled personnel and experts, with an efficient growth.

ARKATEK works on 4 subjects with making constructions such as bored pile, mini pile, jet grouting, anchorage, soil nail, diaphragm wall, and these are; project management, basic strengthening, soil improvement, shoring manufacturing works.

- Basic Strengthening
- Soil Improvement
- Shoring Manufacturing Works
- Project Management

ARKATEK gets its power from completing every work that it started flawlessly successful, along with its fund of knowledge that it elicited and its state-of-the-art technology machine park that it owns. Thanks to the self-confidence it owns and the investments that it made, our firm, which is taking firm steps forward, it chose to “have a voice” in the international platform as its goal.



OUR SERVICES

- BORED PILE
- MINI PILE
- ANCHORAGE
- GROUND NAIL
- ROCK BOLT
- GUNNED CONCRETE
- JET GROUTING
- GROUT
- FOUNDATION ON WELLS
- DIAPHRAGM WALL
- STONE COLUMN
- VERTICAL DRAINAGE TUBE
- WELL POINT
- PUMPED WATER



OUR ACTIVITIES

BORED PILE

These are the piles that constructed for solid soil to carry the load of the building in the soils, which have low bearing capacity. These piles are bored piles and their methods are depend on the situation of the construction site, soil structure, diameter and depth of the pile. Bored pile's bore diameter can be between 50 cm and 250 cm. Construction methods;

Drilling Method

The forage of the concrete piles, which its diameter is decided in the project, will be done with rotary drilling machines, which are mounted to crawler crane, or hydraulic drilling machines.

Preparation of the reinforcement cage and lowering to the wells

- The irons will be transform into the cage formation, with using necessary templates in near the pile locations.
- Adding cages will be done with clips in the case of tie wire, seam or being very heavy.
- The reinforcing cage that prepared will be lowered to the wells with using service crane.
- The reinforcement cage will be suspended from the top to prevent it from sinking during



Cementation

- ◆ After the reinforcement cage is lowered into the wells, the tremie pipe will be lowered with the service crane.
- ◆ The segregation of the concrete to be made will be prevented with cementation tremie pipe.
- ◆ Tremie concrete requires a high slump (minimum 15 cm) and a late set (minimum 3 hours).
- ◆ Tremie pipe will be raised 30-40 cm from the bottom before the cementation starts.
- ◆ In order to prevent groundwater from mixing with the concrete, the tremie pipe will remain in the concrete continuously and at least 2 m.
- ◆ Cementation shall be continued until clean concrete is obtained from the well mouth.

Quality control

- ◆ During the forage, the well yardage will be measured with the kelly height and the weight attached tape meter, after the forage.
- ◆ 4 samples will be taken from each 100 m3 concrete and 7-28 days of crushing results will be reported.
- ◆ Pile loading test will be done on request.
- ◆ PIT (continuity test) will be performed upon request.

OUR ACTIVITIES

MINI PILE

Preventing vertical displacement in the foundation pile or deep excavations is the vertical elements of the system in order to secure the structures against rotation.

Construction methods;

Drilling Method

With the marking of the field measurement group of the places given in the project, the production begins with the material selected according to the structure of the soil.

Pulsed, rotary and both methods are used in the anchor drill.

Rotary Drilling Method

The pressure and rotational force given by the machine is transferred to the rock drill at the end of the rods. Drilling can be performed using the following equipment.

⇒ **Rock bit**

It consists of a body and cone bearings. There are hardened inserts on the bearings. The number of these ends is relative to the hardness of the soil.

⇒ **Auger**

It is used for expurging of hard plastic surfaces such as clay and materials.

⇒ **Progression through regulator cover**

It is used to prevent debris during drilling in soils containing packing material or under ground water.

⇒ **Hammer drill method**

This method is used in hard rocks. With the help of a compressor, the hammer is operated at the bottom of the hole (Down the Hole).

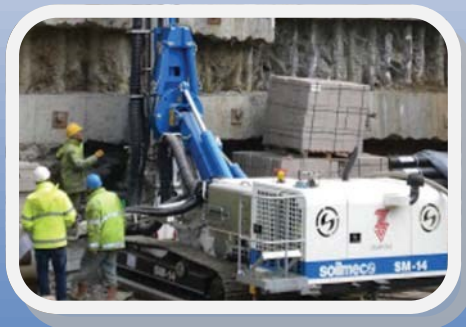


⇒ **Down the hole (d.t.h.)**

In this method, the rotational movement of the machine is transferred to the gun at the bottom of the hole by means of the rods.

⇒ **Cleaning method**

In order for the hole to proceed effectively, it is essential that the cut material that is accumulated at the bottom of the hole is continuously ejected and that the hole is kept clean.



⇒ **Grout method**

The iron reinforcement which its quality specified in the project is lowered to the well. The water / cement ratio in the mini pile grout should be 0,4 - 0,45.

Mix the cement mortar in the mixer for 3 minutes and then press the well.

OUR ACTIVITIES

ANCHORAGE

Preventing vertical displacements in deep excavations are horizontal elements made to secure structures against rotation. Construction methods;

Drilling method

Pulsed, rotary and both methods are used in the anchor drill.

Rotary Drilling Method

The pressure and rotational force given by the machine is transferred to the rock drill at the end of the rods. Drilling can be performed using the following equipment.

⇒ **Rock bit**

It consists of a body and cone bearings. There are hardened inserts on the bearings. The number of these ends is relative to the hardness of the soil.

⇒ **Auger**

It is used for expurging of hard plastic surfaces such as clay and materials.

⇒ **Progression through regulator cover**

It is used to prevent debris during drilling in soils containing packing material or under ground water.

⇒ **Hammer drill method**

This method is used in hard rocks. There are two types of implementations. One is on the head of the machine (Top Hammer) and the other with a hammer at the bottom of the hole.

⇒ **Top hammer**

The rotational movement of the machine is transferred to the floor by means of hammers and rods in the head.

⇒ **Down the hole (d.t.h.)**

In this method, the rotational movement of the machine is transferred to the gun at the bottom of the hole by means of the rods.

⇒ **Preparation of prestressed anchorage bundle**

1 or more polyethylene pipes are attached to the anchor bundle for grouting. The anchor bundle is lowered into the completed hole.

⇒ **Cleaning method**

The methods used to evacuate the material during the drilling process affect both the drilling speed and the quality of the hole.



OUR ACTIVITIES

⇒ Grout method

After the drilling is completed, the anchor bundle is lowered into the hole. Then the guide is filled upwards with the help of the hose. After 1 hour a second grout is performed.

⇒ Composition of cement mortar

Portland cement is generally used in the construction of cement mortar.

The cement used must be fresh. The used water should be of the same quality as the concrete mixing water.

JET GROUT

This construction method involves the treatment of the ground with the Jet Grout Column. Construction methods;

Drilling method

Columns in cm diameter seen in the project will be produced at the points shown in the project.

Drilling will be done with the help of water as rotary and 90 mm diameter. The drilling will be carried out in one step and up to the specified depth. The jet grout pre-punch will be made up to the depths shown in the project with the aid of a 4" or 90 mm diameter drilling tool and water jet.

Test

Before starting the studies, several test columns are produced to determine the parameters to be used in the production of jet grout columns, preferably near the working areas and in the same formation and 1-2 days after the opening is observed. The parameters used in the nearest diameter to the specified diameter are used in the implementation.

Creating a jet grout column

When the desired depth is reached, the cement orifice, at the drill bit will be closed and a 1/1 cement/water mixture from the two nozzles, which is defined as the monitor and just behind the punch tip, will be pressed to the ground with high pressure. The jet grout mixer unit must be capable of mixing a sufficient amount of 1/1 cement/water mixture and automatically adjust the mixing ratio to the jet grout column.

Jet grout material and mixing ratio to be applied

When the jet grout equipment is brought to the site, it will be determined that the drilling, mixer plant, pump unit will be checked and working after the installation. The Employer's approval will be obtained for the equipment to be used in the manufacturing and will not be used until the defective equipment is repaired. The cement to be used in the



OUR ACTIVITIES

GROUND NAIL

Preventing vertical displacements in deep excavations are horizontal elements made to secure structures against rotation. Construction methods;

Drilling method

Pulsed, rotary and both methods are used in the anchor drill.

Rotary Drilling Method

The pressure and rotational force given by the machine is transferred to the rock drill at the end of the rods. Drilling can be performed using the following equipment.

⇒ **Rock bit**

It consists of a body and cone bearings. There are hardened inserts on the bearings. The number of these ends is relative to the hardness of the soil.

⇒ **Auger**

It is used for expurging of hard plastic surfaces such as clay and materials.



⇒ **Progression through regulator cover**

It is used to prevent debris during drilling in soils containing packing material or under ground water.

⇒ **Hammer drill method**

This method is used in hard rocks. There are two types of implementations. One is on the head of the machine (Top Hammer) and the other with a hammer at the bottom of the hole (Down the Hole).



⇒ **Top hammer**

The rotational movement of the machine is transferred to the floor by means of hammers and rods in the head. Hole diameter may vary between 35-133 mm.

⇒ **Down the hole (d.t.h.)**

In this method, the rotational movement of the machine is transferred to the gun at the bottom of the hole by means of the rods. While the gun rotates on the one hand, it works with the help of the air supplied with the compressor and makes the rocking movement with the hobnailed bit of the at the tip.

⇒ **Cleaning task**

The methods used to evacuate the material during the drilling process affect both the drilling speed and the quality of the hole. Cleaning will cause the whole team to remain in the hole when the bit jam occurs with the rods are breaking from their attachment sites.

OUR ACTIVITIES

⇒ Grout method

The adhesion strength between the grout mortar and the steel bar depends on the mixing ratio of the materials in the grout, the manner of preparation and the method of application to the hole.

⇒ Gunned concrete construction procedure

Production of the desired thickness of the concrete in the project according to the location of the construction site mixed or ready mixed concrete in the dry mix by taking the appropriate mixture of gunite powder in the concrete mixer machine, the compressor is mixed with water in the mouth of the hose is started to be applied by

SOIL EXPLORATION

As a result of investigations carried out in the field, we determine the area to be surveyed according to the size of the land, the location of the land and the condition of the building. This area will usually not exceed the underground lines and the ground will be done at the most important points in the foreseeable tests. Sensitivity is very important in this regard. A structure conforming to the earthquake regulation is still undergoing a ground survey project in line with the earthquake regulation. The engineers coming to the field here after taking the necessary measurements, the seismic analyzer and the ground study will determine where our soil exploration machine will work. The number of drilling, seismic analysis and research pits are increased based on the size of the land.



In general, the land can be a certain height of the filled soil. After this filled soil, we can reach the actual soil where we will make the foundations of our building. In some areas, this soil is very deep. This is paid attention to the boring. The boring is done according to the depth of the soil. The resulting samples are maintained according to a certain order and depth. The samples are sent to the Ministry of Public Works approved laboratories. Here, they pass the tests about strength, stiffness, carrying power, etc., and sent back to our company as a report. Again, when the seismic analyzer is installed on the land, values are revealed and sent to our company.

OUR ACTIVITIES

DIAPHRAGM WALL

This construction method describes the formation of an impermeable reinforced concrete curtain for deep excavations in high water levels. Construction methods;

Guide wall construction

Guide wall fronts must always be upright and smooth. The diaphragm wall will be made in the guide wall construction. The excavation of the guide walls will be done with an existing back-hoe and the alignment will coincide with the diaphragm wall, in order to be able to work within the dipper, it shall be made at least 5 cm wide and shall be at least 1 m deep.

Panel excavation

Excavation may be made in the form of 2.5 - 5 m of lifts. Once the required markings have been made, the diaphragm wall excavation will start after the bentonite mud is filled between the guide walls. The bentonite mud will ensure that the trench remains vertical and does not degrade during excavation.

Use of iron reinforcing cage

According to the project, the excavated diaphragm will be lowered to the well with the help of the iron reinforcement service crane in the field cage system, which is 2.50 m from each panel. In order to prevent the free movement of the tremie tube to be used during the concrete casting, sufficient working spaces will be left on the cage.



Lowering stop-end pipes

In the diaphragm wall screen, the tubular stop-end pipes will be lowered by adding to the bottom to ensure the stiffness between the lifts and increase the water tightness. After cementation, concrete will be pulled up with special pumps as it passes through the wall.

Preparation of well to cementation and cementation

Diaphragm wall concrete casting process will be done by using tremie pipes after positive results of bentonite test, and these pipes with diameters ranging from 25 to 35 cm will be adjusted to the width of the shaft and lengths to the shaft depth.

Cap beam

After the production of diaphragm wall, head beam will be made according to the project to connect the panels.

Testing and controls

Each diaphragm wall lift will be tested in bentonite in the well before cementation, density and sand. When the production is finished, the horizontal displacements of the diaphragm wall panels will be measured at the excavation stage.

Records

A plug will be held for each diaphragm wall panel. The date and time of this plug, the date of the concrete lawn, the start and end time of the concrete, the amount of m3 concrete poured, the depth of the excavation, the bentonite values tested, panel number, panel elevation, panel width, panel bottom elevation, iron reinforcement weight shall be indicated.

OUR ACTIVITIES

GROUT

Punching and Grout work is called as soil consolidation, impervious screen (rock or alluvium) and fill-contact (concrete-rock, concrete-concrete). Construction methods;

Drilling

The drilling method can be of two types. Rotary and Roto-Percussion. It can be made as two types as rotary core and non-coring drill.

Roto-Percussion drilling can have two types as well.

- ◆ It is the drilling method which is used by using the gun with the bottom of the gun and with the rotation and its other name is DTH.
- ◆ The other method in Roto-Percussion is the drill with a drifter gun on the head. In this method, rotation and impulse are given by the gun which is located on the top and is considered drifter.

Grout

There are two main types of grout systems. These are respectively;

- ◆ Grout with descending step: Grout with a lowering stage is generally used on weak and alluvial soils.
- ◆ Grout with ascending step: In this method, the drilling is done up to the final depth and the grout is done with the steps determined by the floor and/or engineer.

Pressure and refusal

The pressures to be used in the grout must be measured and monitored with precision manometers. Application pressure may vary depending on soil type, grout type and purpose. Pressure values are indicative and are given by the Engineer according to the ground conditions and the purpose of the work.

Grout material

Water, cement, bentonite, plasticizer and seal accelerator additives can be used as grout mixture. Depending on the purpose of the work, the grout mixes from the thin mixture to the thin mixture at each injection stage are determined by the Engineer. Mixing ratios are variable



Testing and controls

Prior to the grout of the punch, preliminary parameter tests are applied to confirm the suitability of the selected method, depending on the engineer's request. At the end of the work core drilling can be requested by the engineer.

Records

The daily work reports submitted for the approval of the engineer should include the following information for each well.

- ⇒ Start and end times of drilling
- ⇒ Grouting start and end time and grout quantities
- ⇒ Material used for filling each well
- ⇒ Pressure water testing reports
- ⇒ Thoughts





MACHINE PARK

XCMG - XR220D / 2014

SANY - SCC900 / 2017

SOILMEC - SR-40 / 2010

XCMG - QUY55 / 2015

LIEBHERR - LB-24 / 2011

CASAGRANDE - C-6 / 2007

SANY - SR280R / 2016

COMACCHIO - MC15 / 2013

SANY - SR36R / 2017



REFERENCES

- **ÖZYAZICI CONSTRUCTION—YALI ATAKÖY PROJECT / ZETAŞ**
4.200 m Q120 BORED PILE / 2013
- **HARAMİDERE 4TH PART RENOVATION CONSTRUCTION**
6A, 7A, 8A BRANCH POINT BORED PILE WORKS / M-ARSLAN CONSTRUCTION
4.000 m Q100 SECANT PILE / 2013-2014
- **KUZU CONSTRUCTION—SEA PEARL PROJECT / DOĞA SONDAJ**
3.000 m Q80 BORED PILE / 2015
- **HUNUTLU THERMAL POWER STATION SOIL CONSULTANCY / EMBA ENERJİ**
SOIL CONSULTANCY / 2014-CONTINUING
- **4B GAYRİMENKUL A.Ş. ÜMRANİYE PLAZA PROJECT / HSC GAYRİMENKUL**
10.000 m Q65 BORED PILE, 17.500 m ANCHORAGE / 2015-CONTINUING
- **HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATE ROAD**
V-01 VIADUCT BORED PILE WORKS / MAKYOL CONSTRUCTION
2.000 m Q100, 3.300 m Q120 BORED PILE / 2015-CONTINUING
- **GEMLİK GÜBRE SANAYİ A.Ş.**
GEMLİK BURSA NEW PIER CONSTRUCTION / ASTRAL CONSTRUCTION
10.000 m Q100 BORED PILE / 2015-CONTINUING
- **ÜMRANİYE RESEARCH HOSPITAL OUTBUILDING / YDA CONSTRUCTION**
10.000 m Q100 BORED PILE, 25.000 m ANCHORAGE / 2013
- **ASKA THERMAL POWER STATION**
35.000 m JET GROUTING / 2012
- **ISPARTAKULE VIADUCT / KALYON—AKSİYON CONSTRUCTION**
15.000 m BORED PILE / 2012-2013
- **KASIMPAŞA-SÜTLÜCE, TAŞ KIZAK TUNNEL CONSTRUCTION / MAKYOL CONSTRUCTION**
1.500 m Q100 BORED PILE-1.000 m Q80 BORED PILE / CONTINUING

REFERENCES

- **HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATE ROAD**
V-04 VIADUCT BORED PILE WORKS / MAKYOL CONSTRUCTION
16.000 m Q120 BORED PILE / 2016
- **HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATE ROAD**
V-05 VIADUCT BORED PILE WORKS / MAKYOL CONSTRUCTION
42.000 m Q120 BORED PILE / 2016
- **HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATE ROAD**
ARNAVUTKÖY JUNCTION BORED PILE WORKS / MAKYOL CONSTRUCTION
37.000 m Q120 BORED PILE / 2016
- **METE AUTO CENTER / METE AUTOMOTIVE**
3.000 m Q80 BORED PILE, 7.000 m 3*0,6" ANCHORAGE / 2016
- **ÜMRANİYE TANTAVİ HOUSUNG PROJECT / KONTAŞ İNŞ.**
2.500 m Q65 BORED PILE, 4.000 m 3*0,6" ANCHORAGE, 1.500 m² GUNNED CONCRETE CONSTRUCTION / 2016
- **WORKS OF THE WAY INFRASTRUCTURE CONSTRUCTION IN İSTANBUL**
KAYAŞEHİR VIADUCT PILES / EZE- MAKYOL ORT.
12.000 m Q165 BORED PILE / 2015-2016
- **WORKS OF THE WAY INFRASTRUCTURE CONSTRUCTION IN İSTANBUL**
SEYRANTEPE ETFAL HOSPITAL PILES / EZE- MAKYOL ORT.
8.600 m Q120 BORED PILE / 2015-2016
- **MODAFEN SCHOOLS ÇEKMEKÖY MOD 2 CAMPUS SCHOOL PROJECT / EDUKA TEKNİK**
7.000 m Q80 BORED PILE, 27.000 m 3*0,6" ANCHORAGE / 2016
HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD
HIGHWAY KM:22+368 SUBWAY BORED PILE WORKS / MAKYOL CONSTRUCTION
2.118 m Q120 BORED PILE / 2017
HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD
HIGHWAY KM:19+105 SUBWAY BORED PILE WORKS / MAKYOL CONSTRUCTION
3.568 m Q120 BORED PILE / 2017

REFERENCES

- **HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD
K02 ARNAVUTKÖY JUNCTION 3 KOLU BORED PILE WORKS / MAKYOL CONSTRUCTION**
4.480 m Q120 BORED PILE / 2017
- **İKİTELLİ O.S.B. LOGISTICS CENTER CONSTRUCTION WORKS / METALSAC TİC. VE SAN.**
7.300 m BORED PILE, 30.000 m ANCHORAGE / 2017
- **HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD K03 TERMINAL
01 JUNCTION C05 SUBWAY BRIDGE BORED PILE WORKS / MAKYOL CONSTRUCTION**
3.150 m Q165 BORED PILE / 2017
- **HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD K03 TERMINAL
01 JUNCTION C06 SUBWAY BRIDGE BORED PILE WORKS / MAKYOL CONSTRUCTION**
4.125 m Q165 BORED PILE / 2017
- **HASDAL JUNCTION K.BURGAZ- YASSIÖREN STATE ROAD
MAIN CONSTRUCTION LANDSLIDE PILES FOR BORED PILE WORKS / MAKYOL
CONSTRUCTION**
6.000 m Q120 BORED PILE / 2017
- **İZMİR - İSTANBUL HIGHWAY PROJECT GEMLİK LANDSLIDE PILES / MAKYOL
CONSTRUCTION**
4.300 m Q165 BORED PILE / 2017
- **M YAPI MALTEPE HOUSUNG PROJECT / M YAPI**
3.000 m BORED PILE, 7.000 m ANCHORAGE / 2017
- **PLUS GRUP KAYIŞDAĞI HOUSUNG PROJECT / PLUS GRUP İNŞ.**
2.500 m BORED PILE / 2017
- **BURSA FAST TRAIN PROJECT / TORUN - DUYGU MÜH**
5.000 m Q120 BORED PILE / 2017
- **BEYKENT UNIVERSITY AYAZAĞA CAMPUS / KONTAŞ İNŞ.**
10.000 m 3*0,6" ANCHORAGE / 2017
- **KUZEY MARMARA HISGHWAY PROJECT KINALI PART V-05 VIADUCT / KALYON
CONSTRUCTION**
10.000 m Q120 BORED PILE / 2017

REFERENCES

- **KUZEY MARMARA HISGHWAY PROJECT KINALI PART V-07 VIADUCT / KALYON CONSTRUCTION**
3.500 m Q120 BORED PILE / 2017
- **SULTANBEYLİ NECİP FAZIL İMAMHATİP SCHOOL / ÖZSOY CONSTRUCTION**
11.000 m Q100 BORED PILE, 9.700 m ANCHORAGE / 2018
- **KUZEY MARMARA HIGHWAY - GEBZE / LİMAK İNŞ. AŞ.**
2000 m Q165 BORED PILE / 2018
- **KUZEY MARMARA HIGHWAY - TAYAKADIN K-24 BRIDGE / KALYON CONSTRUCTION**
5.000 m Q120 BORED PILE / 2018-CONTINUING
- **KUZEY MARMARA HIGHWAY - TAYAKADIN K-25 BRIDGE / KALYON CONSTRUCTION**
5.700 m Q120 BORED PILE / 2018-CONTINUING
- **KUZEY MARMARA HIGHWAY - TAYAKADIN K-26 BRIDGE / KALYON CONSTRUCTION**
12.000 m Q120 BORED PILE / 2018-CONTINUING
- **ÜMRANİYE-ATAŞEHİR-GÖZTEPE METRO**
ATAŞEHİR STATION / GÜLERMAK-NUROL-MAKYOL
5.500 m Q80 BORED PILE, 32.500 m ANCHORAGE / 2018-CONTINUING
- **KAYAŞEHİR VIADUCT PILES / MAKYOL-İSPA**
1.500 m Q165 BORED PILE / 2018-CONTINUING
- **İ.B.B. SOLID WASTE VE ENERGY PRODUCTION FACILITIES / MAKYOL**
81.000 m BORED PILE, 45.000 m ANCHORAGE / 2018-CONTINUING
- **LEVAZIM - DOLMABAĞÇE TUNNEL / MAKYOL-METGÜN- KALYON**
9500 m Q120 BORED PILE, 30.000 m ANCHORAGE / 2018-CONTINUING
- **GEBZE YÖNTEM FACTORY CONSTRUCTION / OMEGA KONSEPT**
10.000M Q65 BORED PILE, 19.000M ANCHORAGE / 2018-CONTINUING
- **GEBZE İZMİR HIGHWAY CONSTRUCTION / GEBZE İZMİR OTO.İNŞ.NÖMAYG A.O.**
6.747 METRE BORED PILE / 2018



HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATEROAD



IBB SOLID WASTE AND ENERGY PRODUCTION



4B GAYRİMENKUL A.Ş. ÜMRANIYE PLAZA PROJECT





IBB SOLID WASTE AND ENERGY PRODUCTION



IBB SOLID WASTE AND ENERGY PRODUCTION



HASDAL JUNCTION K.BURGAZ-YASSIÖREN STATEROAD

ATAŞEHİR METRO STATION REVETMENT WORKS



DOLMABAĞCI-LEVAZIM TUNNEL CONSTRUCTION



GEBZE IZMIR HIGHWAY CONSTRUCTION





NORTH MARMARA HIGHWAY - DILOVASI



**HASDAL JUNCTION K.BURGAZ-YASSIÖREN
STATEROAD**



**HASDAL JUNCTION K.BURGAZ-YASSIÖREN
STATEROAD**



IBB SOLID WASTE AND ENERGY PRODUCTION

MODAFEN SCHOOLS ÇEKMEKÖY MOD 2 CAMPUS SCHOOL PROJECT



MODAFEN SCHOOLS ÇEKMEKÖY MOD 2 CAMPUS SCHOOL PROJECT



NORTH MARMARA HIGHWAY



NORTH MARMARA HIGHWAY



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