



ATM HEALTH KAYSERI INVESTMENT AND OPERATION COMPANY



KAYSERI INTEGRATED HEALTH CAMPUS PROJECT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED COMPANY**

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6	PICTURES
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8	METEOROLOGY BULLETIN
9	TABLE OF PERSONNEL WHO PREPARED THE REPORT

ABBREVIATIONS

EMP	ENVIRONMENTAL MANAGEMENT PLAN
ESAP	ENVIRONMENTAL AND SOCIAL ACTION PLAN
TSİ	TURKISH STATISTICAL INSTITUTE
SPEA	SPECIALLY PROTECTED ENVIRONMET AREAS
PPP	PUBLIC-PRIVATE PARTNERSHIP
IFC	INTERNATIONAL FINANCE CORPORATION
EP	EQUATOR PRINCIPLES
OG	OFFICIAL JOURNAL
EC	EUROPEAN COMISSION
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
TURKAK	TURKISH ACCREDITATION AGENCY
TÜİK	TURKISH STATICAL INSTITUTE
PM	PARTICULATE MATTER
KASKİ	KAYSERİ WATER AND SEWERAGE ADMINISTRATION
SHW	STATE HYDRAULIC WORKS
WPCR	WATER POLLUTION CONTROL REGULATION

1. DESCRIPTION OF THE PROJECT

1.1 DESCRIPTION AND REQUIREMENT OF THE PROJECT

Kayseri Health Campus will rise on those lands of Lot no 45 of Şeker Quarter and Lot no 7093 and Parcel no 17 borough of Kocasinan in Kayseri. The healthcare needs of the society have undergone significant changes, depending on the today's ever-increasing population, technological developments, and, the last but not the least, the evolution in people's perception of and expectations from the healthcare.

One of the investments that Ministry of Health plans to undertake and carry out on the basis of the stocktaking studies conducted by us to meet the healthcare needs of our people, is the healthcare campus project with a total capacity of 1583 beds in Kayseri the province, comprising Training Research Hospital with 1157 beds; Physical Therapy and Rehabilitation Hospital with 200 beds; Psychiatry Hospital with 126 beds and High-Security Forensic Psychiatry Hospital with 100 beds. The need for healthcare services is ever increasing in Kayseri due to the high population growth in the province. With a total estimated population of 1.234.651 people in 2006 according to Turkish Statistical Institute, Kayseri welcomed 335,910 tourists that year.

A great majority of the population (67.9%) lives in the city proper. The fact that almost ten percent of the population has been issued with green card means that the only alternative for approximately 150,000 people is the hospitals run by the Ministry of Health. Moreover, thousands of students rush to the city from other towns every year thanks to its university. Enjoying a hub position in healthcare services in the region not unlike the other areas, Kayseri also offers healthcare services to other provinces. So, the hospitals in the city proper have some troubles in offering service to the local population. Kayseri the province is surrounded by Cayıralan and Bogazlıyan, two districts of Yozgat, to its north and north-east; by Gemerek, Sarkısla, Kangal and Gurun, the districts of Sivas, to its north and north-east, by Afsin and Goksun, the districts of Kahramanmaraş, to its east, by Tufanbeyli, Saimbeyli, Feke and Karaisali, the districts of Adana to its south, by Nigde the city proper and Camardı, the districts of Nigde, to its southwest and Derinkuyu, Urgup and Avanos, the districts of Nevşehir to its west. Everyday thousands of people from these towns visit Kayseri to use its healthcare services.

Besides, the fact that Kayseri sits on the transit route to the Eastern and Southeastern Turkey and that it is a highly developed province results in a great number of people from the surrounding provinces flocking to Kayseri for treatment purposes. Kayseri is also a center that offers healthcare services to the provinces around it. In addition to the local provincial folks, a high number of visitors from surrounding and faraway provinces visit Kayseri for its healthcare services. When the examined patient count, a significant criterion of use of the healthcare services, is checked, the number of patients examined annually increases. Among the most important reason of such increase is the population rise, and the visitors from the surrounding provinces seeking healthcare services, given the fact that Kayseri is by its nature a regional province. In harmony with the development of the province, the need for bed capacity and healthcare personnel, including in particular, the physical spaces, is ever increasing in the healthcare sector. Health institutions already available in the city proper have been physically expanded to their utmost limits thanks to additional projects, and it is now out of the question for them to expand more in the face of the lands/ buildings that they are located on.

When one looks at certain criteria, such as number of beds per room and the area per bed in Kayseri hospitals, it is quite easy to see that they fall short of meeting the desired level. Moreover, the State Hospital is sandwiched between the business centers in the city proper

due to the provincial development. **Source:** Kayseri Integrated Health Campus Pre-Feasibility Report, 2009.

In the light of the above, it was determined that Kayseri needs a modern healthcare facility that will offer health care services at world standards for Kayseri and the surrounding provinces. The said project designed to meet this need in the short term Kayseri Integrated Health Campus Project is designed. On the scope of project, healthcare campus with a total capacity of 1583 beds comprising Training Research Hospital with 1157 beds; Physical Therapy and Rehabilitation Hospital with 200 beds; Psychiatry Hospital with 126 beds and High-Security Forensic Psychiatry Hospital with 100 beds is planned. This project in question, planned with shaped up by "Public-Private Sector Partnership" as the higher concept, whereas the implementary model may be shaped up in the form of "Build-Lease-Transfer". Considering the urgent needs of our country in the field of healthcare infrastructure, this method makes it possible to undertake and realize big, important and urgent investment projects such as health towns which would be hard to erect if the public resources were to be used, and the design and management of the related services so that healthcare services will be offered more efficiently and effectively thanks to the capital, experience and skilful approach of the private sector. General settlement plan of the project is shown in the Figure 1. Total constant investment of the project costs 672.930.277 TL. The contract of the project was signed on 11th August 2011 between **Ministry of Health Public Private Partnership Office and ATM Health Kayseri Investment and Business Inc.** which was established by *YDA Construction Industry Trade Inc. & INSO Sistemi Per Le Infrastrutture Sociali S.P.A.* To be undertaken and executed on the basis of Public Private Partnership (PSP) investment-financing model, the project's investment period will take three years whereas operating period will last 30 years.

"Provision of Health Facilities Rental Service Areas Other Than In The Medical facilities with the renewal of the Service Regulation on the Provision and Operation of the fields, "according to Article 31" of land or land handed over to the Contractor to be taken according to the legislation governing the responsibility of all reports required to be prepared with all the permissions that belong to the Ministry of Health ". The approval given by the Ministry of Finance General Directorate of National Real Estate is given in Appx-1. In addition to this, the document given by the District Directorate of Land Title Registration District and approval by the City of Kocasinan 1 / 1000 scale zoning plan application is given in Appx-1. Both official document of Finance registered as Land and Urban Service Area of the project area (health campus). The nationalization of the entire project area is done, and its transfer right is belong to the Ministry of Health.

1.2 PHYSICAL AND TECHNICAL PROPERTIES OF THE PROJECT

To be built on a land with medical premises covering 384.295 m² and commercial premises covering 200,000m², the project will meet the healthcare services needs of almost 2,800,000 people in the provinces in the region, in particularly, Kayseri, Nigde, Nevsehir, Yozgat, Sivas and Tokat. When the campus is commissioned to offer its services in full capacity, almost 10,000 citizens per day will have access to healthcare services under modern conditions in the burn unit, hyperbaric oxygen therapy center and high-security forensic psychiatry hospital next to the general hospital clinics with 411 specialized and general practitioners and 1536 assistant healthcare personnel in medical premises. Kayseri Integrated Health Campus Project comprises Cardiology, Neurology, Internal Medicine, KVC, neurology, Endocrinology and Metabolism, Dermatology, Infectious Diseases, ENT, Plastic Surgery, Pediatric Surgery, Ophthalmology, Orthopedics, General Surgery, Thoracic Surgery, Brain Surgery, Urology, Gastrology, Hematology, Oncology, Pulmonary Diseases and Psychiatric Services on the scope of Training and Research Hospital with 1157 beds. Moreover, there is a Physical Therapy and Rehabilitation Hospital with 200 beds and a High-Security Forensic Psychiatry Hospital with 100 beds will be in campus. Hospital buildings in campus will have luxury single rooms with private WC and shower for the patients and also have apart areas for patient's companion. The doctors' office will take place in clinics so that patients' waiting time will be reduced also. Facility will include a heliport areas and patients who brought by helicopter will be taken directly to operating room or intensive care rooms. This project will carry out with Public Private Partnership (PPP) investment-finance modeling. At the same time, support services and medical support services will be supplied by *YDA Construction Industry Trade Inc & INSO Sistemi Per Le Infrastrutture Sociali S.P.A* partnership throughout 25 years.on the scope of this, Building Land Services, Emergency Care and Repair Service, the Joint Services Management, Location and Garden Maintenance Service, Furnishing Service, Parking Services, Fumigation Services, Materials Management Service, Cleaning / Room Cleaning Service, Hospital Information Management System, Other Medical Support Services, Washing and Laundry Services, Food Services, Laboratory Services, Imaging Services, Sterilization and Disinfection Services, Rehabilitation Services, Waste Management Services will be given by this partnership. Medical services will continue to be given by Ministry of Health as with the existing public hospitals. In other words, when this project complete, citizens will get services with international standards from state hospital. The information about area of the hospitals and bed numbers are given respectively in Table 1 and Table 2.

Table 1. Medical area information of Kayseri Integrated Health Campus

TYPE OF HOSPITAL	AREA
Main Hospital and Psychiatric Hospital	295,233 m ²
Rehabilitation Hospital	50,555 m ²
High Security Criminal Psychiatric Hospital	25,104 m ²
Technical Serv. Center	13,404 m ²
Total Area	384,296 m²

Table 2. Number of Beds of Kayseri Integrated Health Campus

Main Hospital	1,283 beds
Rehabilitation Hospital	200 beds
High Security Criminal Psychiatric Hospital	100 beds
Total Number of Beds	1,583 beds

The site plan of Kayseri Health Campus Project is given in Appendix 2. General settlement plan which belongs to project is shown in Figure1 and also figures from 2 to 5 show 3D views of the project area.

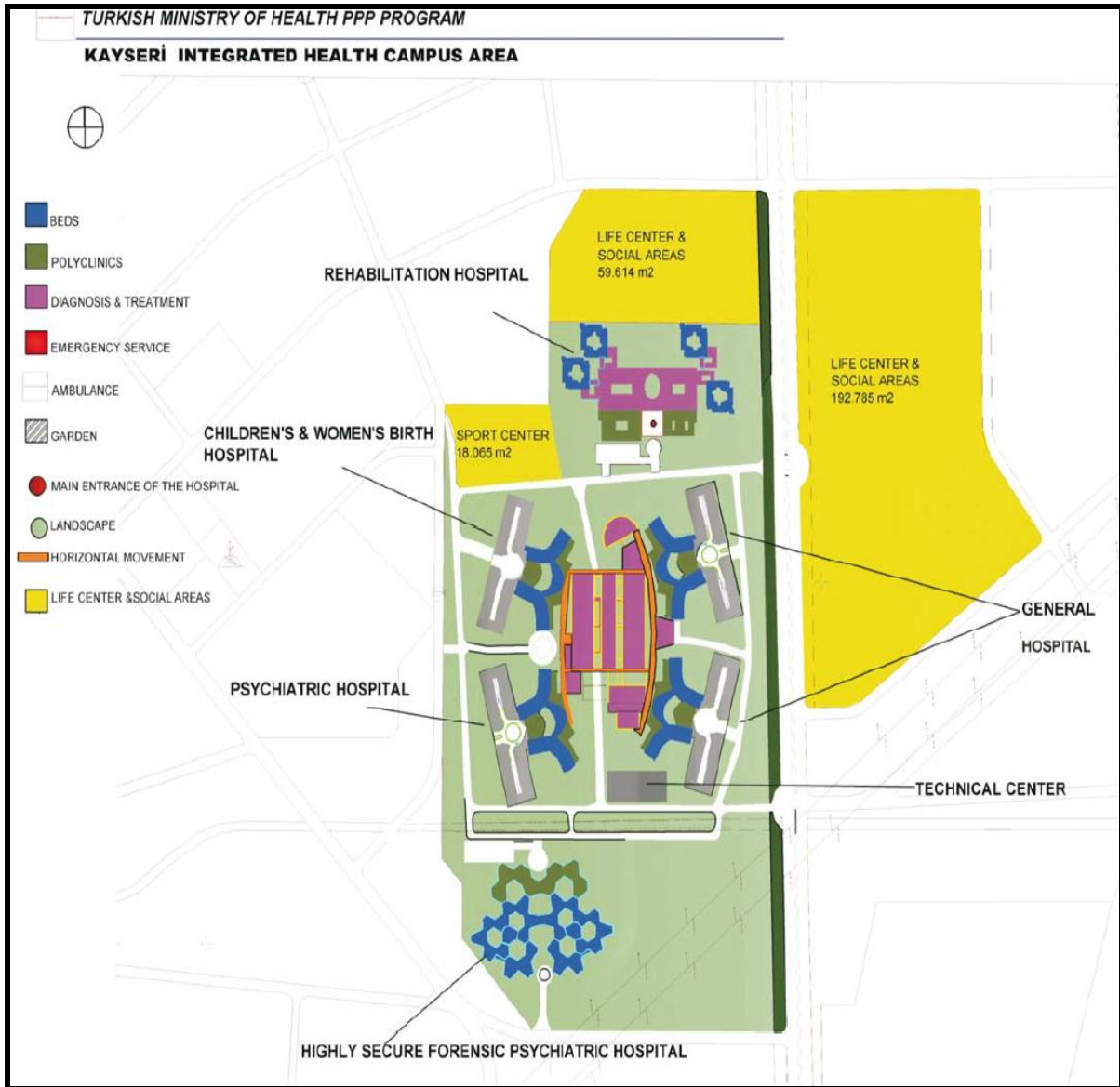


Figure 1. General Settlement Plan

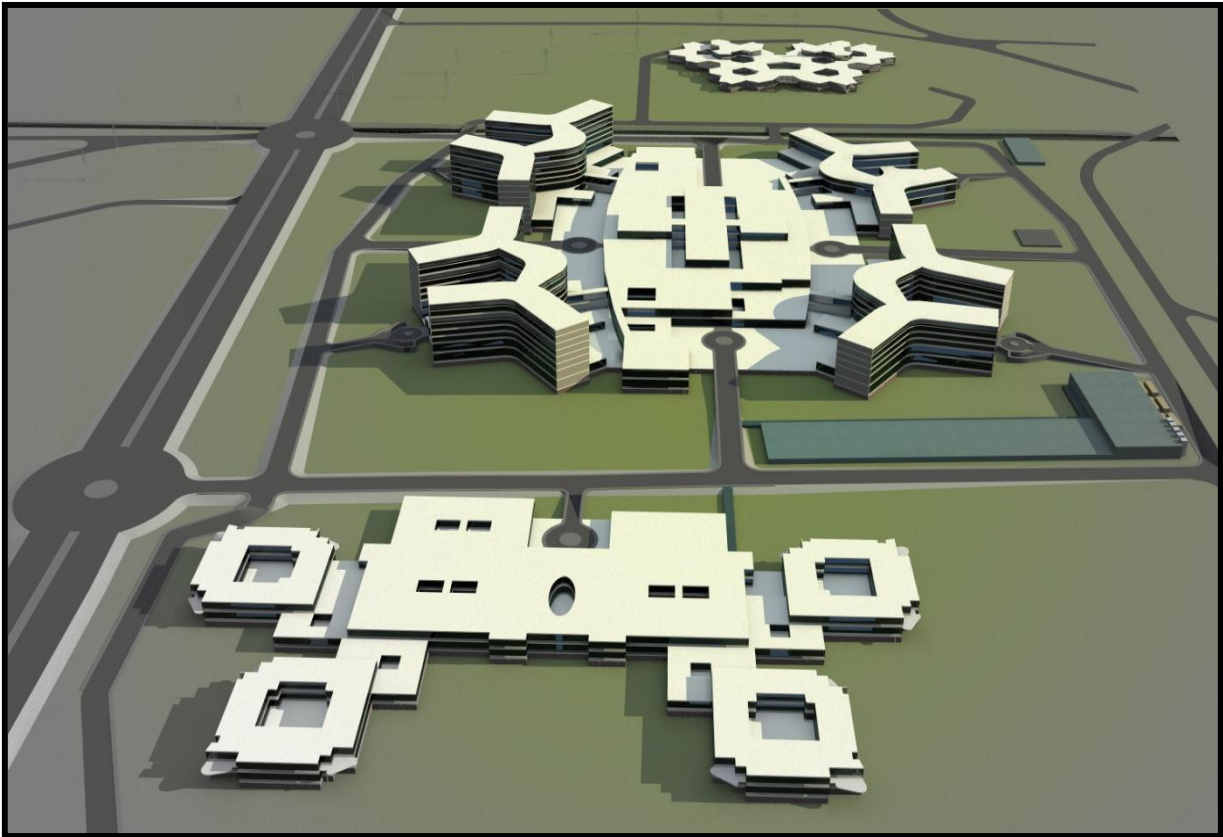


Figure 2. 3D Views of the Kayseri Integrated Health Campus (A)

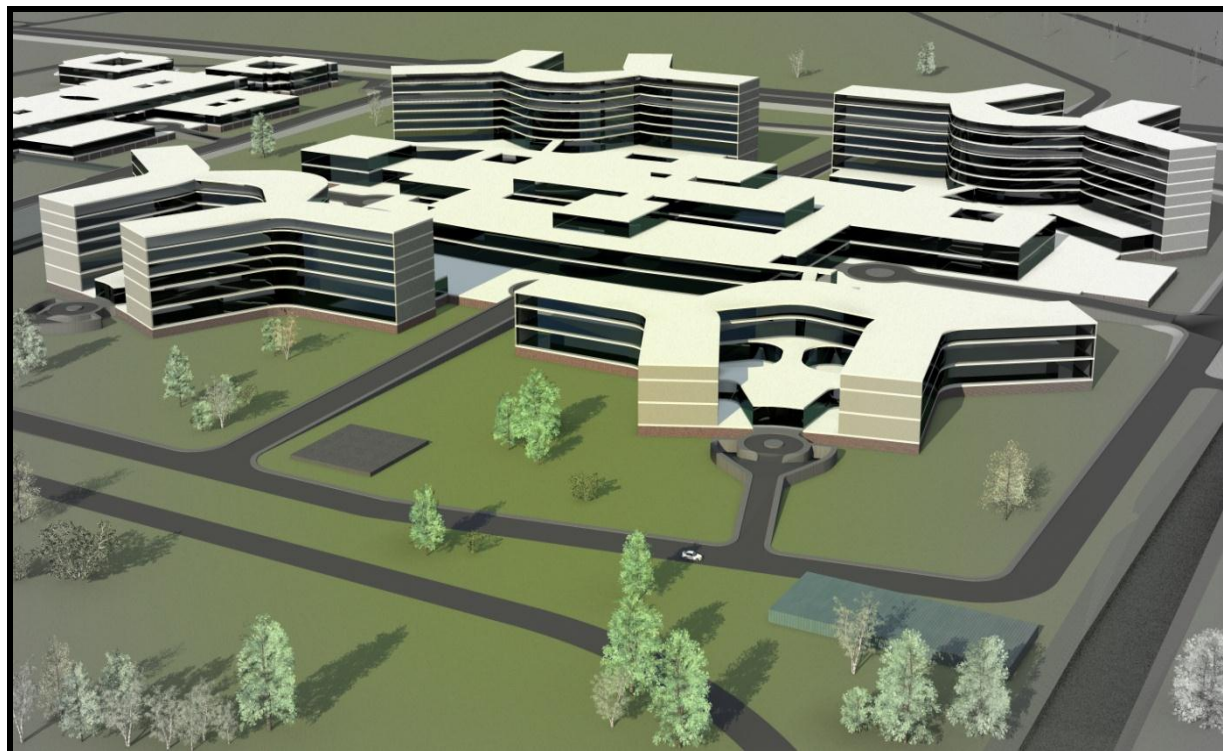


Figure 3. 3D Views of the Kayseri Integrated Health Campus (B)



Figure 4. 3D Views of the Kayseri Integrated Health Campus (C)



Figure 5. 3D Views of the Kayseri Integrated Health Campus (D)

1.3 SUMMARY OF THE POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

Kayseri Health Campus is a health complex project with a total capacity of 1,583 beds composed of Training Research Hospital with 1,157 beds, and Physical Therapy and Rehabilitation Hospital with 200 beds, and Psychiatry Hospital with 126 beds, and High Security Forensic Psychiatry Hospital with 100 beds. Health campus project will meet the healthcare services needs in particularly, Kayseri, Nigde, Nevsehir, Yozgat, Sivas and Tokat. When the campus is commissioned to offer its services in full capacity, almost 10,000 citizens per day will have access to healthcare services under modern conditions in the burn unit, hyperbaric oxygen therapy center and high-security forensic psychiatry hospital next to the general hospital clinics with 411 specialized and general practitioners and 1536 assistant healthcare personnel in medical premises. Environmental and socio-economic impacts resulting from the project are given below with main headings. These impacts are detailed in Chapter 4.

1.3.1 Environmental Impacts

Environmental impacts will be resulting from construction and operation phase. Impacts which will occur in mentioned phases are listed below;

- Wastewater
- Air Emissions
- Noise
- Excavation Waste
- Hazardous Waste
- Medical Waste
- Radioactive Waste
- Traffic

1.3.2 Socio-economic Impacts

The healthcare needs of the society have undergone significant changes, depending on the today's ever-increasing population, technological developments, and, the last but not the least, the evolution in people's perception of and expectations from the healthcare. In harmony with the development of the province, the need for bed capacity and healthcare personnel, including in particular, the physical spaces, is ever increasing in the healthcare sector. The new facility will be a prestigious hospital for the region, playing a significant role in boosting our country's prestige in the eyes of foreign tourists that visit the region and Nevsehir. A significant part of the services to be offered in the new hospital will concentrate on emergency cardiology intensive care, traumatology, emergency diagnosis and examinations. The new hospital will assume a part of the intensive patient density reaching to a high number of 2,500,000 patients per year which is shouldered by the present state hospital located in the city proper so that patients will get better services.

It is expected that when operation phase starts, number of beds for each room and area of each bed will be increase until desired level. So, in the province Kayseri will reach AB standards beyond Turkish average regarding health services. At the same time, the Physical Therapy and Rehabilitation Hospital planned to be built with a capacity of 200 beds in Kayseri health campus is thought to meet a part of the healthcare services need in our country, and will offer tremendous value for the region. Moreover, the Psychiatry Hospital with a capacity of 200 beds and High-Security Forensic Psychiatry Hospital with a capacity of 100 beds, which are planned to be built in Kayseri health campus, are thought to meet to an extent the need in the health care services in the region.

1.4 LEGAL AND INSTITUTIONAL FRAMEWORK OF THE PROJECT

Legislation and standards which are taken in the account for construction and operation phases of the Kayseri Integrated Health Campus are given in two headings.

1.4.1 National Legislation

- 2872 numbered Environmental Law
- “Water Pollution Control Regulation” as published in 31.12.2004 dated and 25687 numbered Official Journal
- “Caused by Hazardous Substances in Water and its Environment Pollution Control Regulation” as published in 26.11.2005 dated and 26005 numbered Official Journal
- “Solid waste control regulation” as published in 14.03.1991 dated and 20814 numbered Official Journal
- “Packaging Waste Control Regulation” as published in 24.08.2011 dated and 28035 numbered Official Journal
- “Industrial Source Air Pollution Control Regulation” as published in 03.07.2009 dated and 27277 numbered Official Journal
- “Air Quality Assessment and Management” as published in 06.06.2008 dated and 26898 numbered Official Journal
- “End of Life Tyre Control Regulation” as published in 25.11.2006 dated and 26357 numbered Official Journal
- “Hazardous Waste Control Regulation” as published in 14.03.2005 dated and 25755 numbered Official Journal
- “Waste Oil Control Regulation” as published in 30.07.2008 dated and 26952 numbered Official Journal
- “Excavation Soil, Construction and Demolition Waste Control Regulation” as published in 18.03.2004 dated and 25406 numbered Official Journal
- “Soil Pollution Control and Point Source Site Pollution Regulation” as published in 08.06.2010 dated and 27605 numbered Official Journal
- “Medical Waste Control Regulation” as published in 03.12.2011 dated and 28131 numbered Official Journal
- “Regular Storage of Waste Regulation” as published in 26.03.2010 dated and 27533 numbered Official Journal
- “Protection of Wetlands Regulation” as published in 17.05.2005 dated and 25818 numbered Official Journal (change: 26.08.2010 dated and 27684 numbered)
- “Environmental Impact Assessment Regulation” as published in 17.07.2008 dated and 26939 numbered Official Journal
- “Environmental Noise Assessment And Management Regulation” as published in 04.06.2010 dated and 27601 numbered Official Journal
- “Waste Batteries and Accumulators Control Regulation”, as published in 31.08.2004 dated and 25569 numbered Official Journal (change: 30.03.2010 dated and 27537 numbered)
- “Permissions and Licenses have to be taken in regard to Environmental Law” as published in 29.04.2009 dated and 27214 numbered Official Journal
- 2863 numbered” Protection of Cultural and Natural Properties Law and Related Regulations” (3386 and 5226 numbered revision)
- 4857 numbered “Labor Law and Related Regulations”
- “General Principles about Waste Management Regulation” as published 05.07.2008 dated and 26927 numbered Official Journal
- “Exhaust Gas Emission Control Regulation” as published 04.04.2009 dated and 27190 numbered Official Journal
- “Electric Heavy Current Facilities Regulation” as published 30.10.2000 dated and 24246 numbered Official Journal

- “Occupational Health and Safety Services Regulations” as published 27.11.2010 dated and 27768 numbered Official Journal
- “Occupation of Temporary or Certain Time Limited Occupational Health and Safety Services Regulations” as published 22.05.2003 dated and 4,857 numbered Official Journal

1.4.2 International Legislation

For The Kayseri Integrated Health Campus Project, the criteria will be fitted according to International Finance Corporation (IFC) and World Bank criteria especially EU Directives. Overall stringent directives and information of standards are given below.

- IFC Performance Standards,

Kayseri Integrated Health Campus “Environmental and Social Impact Assessment Report” contains IFC Performance Standards that listed below;

Performance Standard 1: Social and Environmental Assessment and Management Systems

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

- Equator Principles

The equator principles are a set of ten principles used by the financial industry as a benchmark looking at socio-environmental risks in projects over US\$ 10 million. Kayseri Integrated Health Campus “Environmental and Social Impact Assessment Report” contains Equator Principles that listed below;

Principle 1: Review and Categorization

Principle 2: Social and Environmental Assessment

Principle 3: Applicable Social and Environmental Standards

Principle 4: Action Plan and Management System

Principle 5: Consultation and Disclosure

Principle 6: Grievance Mechanism

Principle 7: Independent Review

Principle 8: Covenants

Principle 9: Independent Monitoring and Reporting

Principle 10: EPFI Reporting

- World Bank Environmental Management Plan (OP 4.01 Environmental Assessment Annex-C),
- “World Bank Pollution Prevention and Abatement Handbook”, “1998”
- EU EIA Directives, 85/337 EEC and 97/11/EC Directive revision,
- “Air Quality Framework Directive”, 96/62/EC,
- “Water Framework Directive”, 2000/60/EC),
- “Directive on Environmental Noise”, 2002/49/EC,
- “Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora”, 92/43/EEC,

- “Directive on the Conservation of Wild Birds”, 79/409/EEC,
- “Commission Decision Concerning a Site Information Format for Proposed Natura 2000 Sites”, 97/266/EC,
- CITES Convention (EEC/362/82, EEC/3418/83 and EC/338/97),
- Hazardous Waste EU Directives, 1991/689/EEC,
- Waste Incineration EU Directives, 2000/76/EC,
- Packaging Waste EU Directives (94/62/EC),
- Regular Storage EU Directives (99/31/EC),
- Waste Framework Directives (75/442/EEC (revised: 2006/12/EC)),

2. LOCATION OF THE PROJECT AND ALTERNATIVES OF SETTLEMENT

Kayseri Health Campus will rise on those lands of Lot no 45 of Şeker Quarter and Lot no 7093 and Parcel no 17 borough of Kocasinan in Kayseri. Kayseri the province lies at 340 56' and 360 59' E longitude and 370 45' and 380 18' N latitude in the upper Kızılırmak zone in the Central Anatolia. The surface area of the province is 17,043 km² and the surface area of the Borough of Kocasinan is 320 km². Kayseri the province is surrounded by Cayıralan and Bogazlıyan, two districts of Yozgat, to its north and north-east; by Gemerek, Sarkisla, Kangal and Gurun, the districts of Sivas, to its north and north-east, by Afsin and Goksun, the districts of Kahramanmaras, to its east, by Tufanbeyli, Saimbeyli, Feke and Karaisali, the districts of Adana to its south, by Nigde the city proper and Camardı, the districts of Nigde, to its southwest and Derinkuyu, Urgup and Avanos, the districts of Nevsehir to its west. Kayseri is surrounded by extensions of Central Taurus Mountains to its south and east, and a big lava plateau with a huge expanse to its north and west. Position finding map of the project area is given in Figure 6.

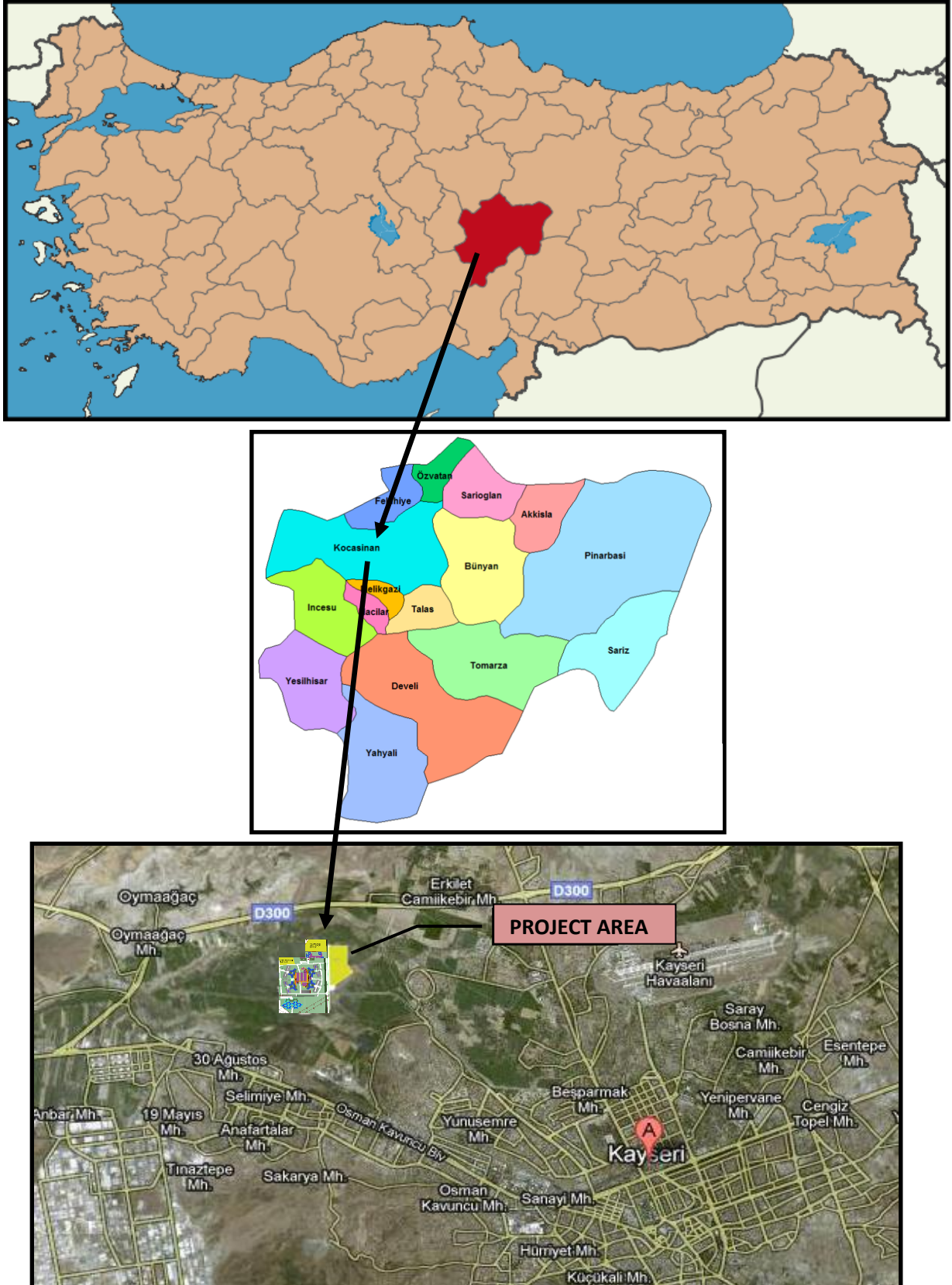


Figure 6. Position finding map

2.1 POPULATION OF THE PROJECT AREA AND IMMEDIATE SURROUNDINGS

The scan by Turkish Statistical Institute revealed that Kayseri had a population of 1,234,651 people in 2010. The majority of the population (67.9%) lives in the city proper. Information about population Kayseri the province and its boroughs are given in Table3.

Table 3. Information of the population of Kayseri

BOROUGH	POPULATION			Area(km ²)	Number of Municipality	Number of Village
	Centre	Village	Total			
Bünyan	12,250	19,977	32,227	1,452	5	25
Develi	36,708	28,128	64,836	454	2	1
Felahiye	1,946	5,199	7,145	546	3	5
İncesu	18,118	4,539	22,657	1,356	8	24
Pınarbaşı	11,253	17,730	28,983	1,887	5	45
Sarıoğlu	3,270	13,166	16,436	412	3	9
Sarız	4,036	7,722	11,758	184	1	2
Tomarza	10,136	16,994	27,130	872	1	8
Yahyalı	20,235	18,032	38,267	320	2	4
Yeşilhisar	9,051	7,899	16,950	3,383	3	112
Akkışla	2,136	5,339	7,475	699	6	18
Talas	93,769	6,081	99,850	1,220	2	35
Kocasinan	353,353	6,259	367,048	329	1	12
Melikgazi	473,170	17,753	476,855	1,485	3	46
Hacılar	11,607	18,157	12,529	1,546	2	28
Özvatan	3,126	7,897	4,505	986	1	21
Total	1,064,164	178,593	1,234,651	17,043	48	395

Source: TÜİK Population Data (2010)

Şeker Quarter which project area is located on has a population 1,271 in 2010 and the surface area of the quarter is 12,035,621 m². Population density map of the Kayseri city is given in the Appx-2.

2.2 SPECIAL STATUS AREAS OF THE PROJECT AREA AND IMMEDIATE SURROUNDINGS

Kayseri Integrated Health Campus Project is located in city centre. There isn't any residence adjacent the project area. There is a junk collection centre and interurban bus station on the south, some arable areas on the north and west and also Muhsin Yazıcıoğlu Boulevard on the east of the project area.

2.2.1 Cultural, Historical and Archeological Areas

Opinion was requested from Kayseri Protection of Cultural Assets Region Directorate to determine the location and properties of cultural assets lies on the project area. It was denoted that there isn't any cultural assets onto or surroundings of the project area by the land etudes (Appx-1). Also included in the project area from Kayseri Province, the Hittites, Romans, Seljuks, Ottomans and the works of many civilizations left has a unique history and cultural heritage. Especially the Seljuk-era artifacts, works of Seljuk civilization stands out as the most eminent. Kayseri Archaeological Museum, Kayseri Ethnographic Museum, Kayseri Atatürk Museum and Gevher Nesibe Medical History Museum are throwing the light on Kayseri's history from the past. Location and properties of cultural assets in Kocasinan borough are detailed in Table 4.

Table 4. Location and properties of cultural assets in Kocasinan borough

NAME	LOCATION	TYPE	CLASS
Kültepe(Kanış Karum) Historical Places	Güneşli Kas. Karahöyük village /Kocasinan	I. Degree Archaeological Conservation	Historical Places
Çifte Kümbet Tumuli	Konaklar Quarter. Çifte Kümbetler Mevkii /Kocasinan	I. Degree Archaeological Conservation	Tumuli
Hıdırellez Tumuli	Erkilet Bucağı/ KOCASINAN	Archaeological Conservation	Tumuli
Tumuli	Cırkalan village / KOCASINAN	Archaeological Conservation	Tumuli
Hırkaköy Tumulus	Hırka / Erkilet/ KOCASINAN	Archaeological Conservation	Tumulus
Eski Çeşme Tumulus	Elmalı village /Kocasinan	I and 2Degree Archaeological Conservation	Tumulus
Mahzemin Tumulus	Mahzemin/Kocasinan	I. Degree Archaeological Conservation	Tumulus
Engir Lake	Kocasinan	I. and 2.Degree Archaeological Conservation	Lake
Ümmet Tumulus	Erkilet Town Mollahacı village /Kocasinan	I. Degree Archaeological Conservation	Tumulus
Demircibağları Kaya settlement	Yemliha town /Kocasinan	I. Degree Archaeological Conservation	Settlement
Demircibağları Tumuli	Yemliha town /Kocasinan	I. Degree Archaeological Conservation	Tumuli
Karabayır Tumuli	Yemliha town/Kocasinan	I. Degree Archaeological Conservation	Tumuli
Akçakalebaşı Tumuli	Yemliha town /Kocasinan	I. Degree Archaeological Conservation	Tumuli

NAME	LOCATION	TYPE	CLASS
Taşgöl Tumulus	Yemliha town /Kocasinan	I. Degree Archaeological Conservation	Tumulus
Hörin Tumulus and Rock settlement	Boğazköprü village, Hörin Mevkii / Kocasinan	I. Degree Archaeological Conservation	Tumulus
Avgun Tumulus	Düver village, Avgun Mevkii / Kocasinan	I. Degree Archaeological Conservation	Tumulus
Köprüsekisi Tumulus	Emmiler village/Kocasinan	I. Degree Archaeological Conservation	Tumulus
Bayramhacılı Düz Settlement	Bayramhacılı village / Kocasinan	I. Degree Archaeological Conservation	Archaeological Conservation
Molu Soğulcak Tumulus	Molu village / Kocasinan	I. Degree Archaeological Conservation	Tumulus
Molu Kepez hill settlement	Molu village / Kocasinan	I. Degree Archaeological Conservation	Settlement
Saraycık Tumulus	Karadere Mevkii / Saraycık Köyü / Kocasinan	I. Degree Archaeological Conservation	Tumulus
Dadağı Tumulus	Dadağı Quarter /Kocasinan	I. Degree Archaeological Conservation	Tumulus
Alaattin Keykubat Lake (Şeker Lake)	Şeker Quarter / Kocasinan	2. Degree Archaeological Conservation	Lake
Beydeğirmeni Tumulus	Beydeğirmeni village / Kocasinan	I. Degree Archaeological Conservation	Tumulus
Boyacı Tumuli	Boyacı Quarter / Erkilet Kasabası / Kocasinan	I. Degree Archaeological Conservation	Tumuli
Eskiömerler villageTumuli	Eskiömerler village / Kocasinan	I. Degree Archaeological Conservation	Tumuli

Source: Kayseri Protection of Cultural Assets Region Directorate

On behalf of information which is given in Table 4, it can be said that the closest archaeological conservation area is as the crow flies 8 km far from the Kayseri Integrated Health Campus Project area. So, there is no impact which is originated from the project on this archaeological site.

2.2.2 Special Protection Areas

The closest national parks to project area in the province Kayseri are Sultan Marsh National Park and Ala Mountains National Park. Kayseri Integrated Health Campus doesn't make an impact on mentioned national parks.

a) Sultan Marsh National Park

Sultan Marsh is located at the inner Anatolia, within the boundaries of the city of Kayseri. Actually the region is located in the middle of the triangle of Develi, Yahyalı and Yesilhisar settlements. It is 42 km so far enough from the project area. Sultan Marsh is an important area for the immigrant birds. The two main lines from Europe and Africa pass over on this region. Sultan Marsh contains some endemic plant and animal species. Some of these are endemic for Turkey; some of them are endemic just for Sultan Marsh. Thus the place is valuable for the birds and bird population studies. Main properties of Sultan marsh as a special protection area;

- It has salt and fresh water lakes in the steppe ecosystem
- It contains worldwide endangered species
- Biogeographically waterfowl population is greater than 1%
- 20,000 of bird is regularly stay at Sultan Marsh.
- It states on the Water birds migration route and has an independent population of more than 1%
- It contains priority species with European-wide protection

b) Ala Mountains National Park

Ala Mountains National Park lies south of Kayseri. The park is adjacent to the main highway from Niğde to Kayseri, and can also be accessed from Yahyalı. Inside this huge park of around 55,000 hectares, the summit of Demirkazık at 3,756m is the highest point in the middle Taurus mountain range. There is a huge range of flora and fauna, and visitors may fish in the streams full of trout. Wildlife includes wild goats, bears, lynx and sable. The park has extremes of climate, with hot summers and very cold and snowy winters, with snow-capped peaks throughout the year. There is also a huge difference between night and day temperatures; with the lake usually freezing at night yet can reach up to 30°C during the day.

2.2.3 Forest Areas

The territory of the province of Kayseri, as well as on the plains, mountains and hilly areas are dominated by the steppe vegetation. The higher parts of the province, good forest cover is found in some places but the land is usually covered with degraded forest and shrubs. The southern part of the province black pine, red pine, fir, spruce and oak types are available mostly in the Taurus Mountains. Forests can be considered good characteristics found in Tomarza, Yahyalı and Develi districts. Almost every part of the province has a variety of oaks and junipers. There is no forest areas along the inland areas of the province, rare large shrubs and vegetations can be seen in the mountains. Although debris basins between mountains and plains were formerly dominated by steppe vegetation, then these segments become largely agricultural area. The slopes of the mountains are covered by rocks and often vegetation. 40.84% of the Provincial land is meadow and pasture land, 39.64% of agricultural area, 6.34% of forest and bush area and 3.18% of consists of non-agricultural land. (**Source:** Kayseri Province Culture and Tourism Directorate) Kayseri Integrated Health Campus project area doesn't include forest area on it.

2.2.4 Agricultural Areas

There are 29,393 pieces of agricultural enterprises in province of Kayseri. Agricultural enterprises in the province usually product along with crop and livestock and 68.4% of all enterprises product like that. These enterprises followed by businesses engaged in only crop production with 30.2% and enterprises engaged in animal production with 1.4%.

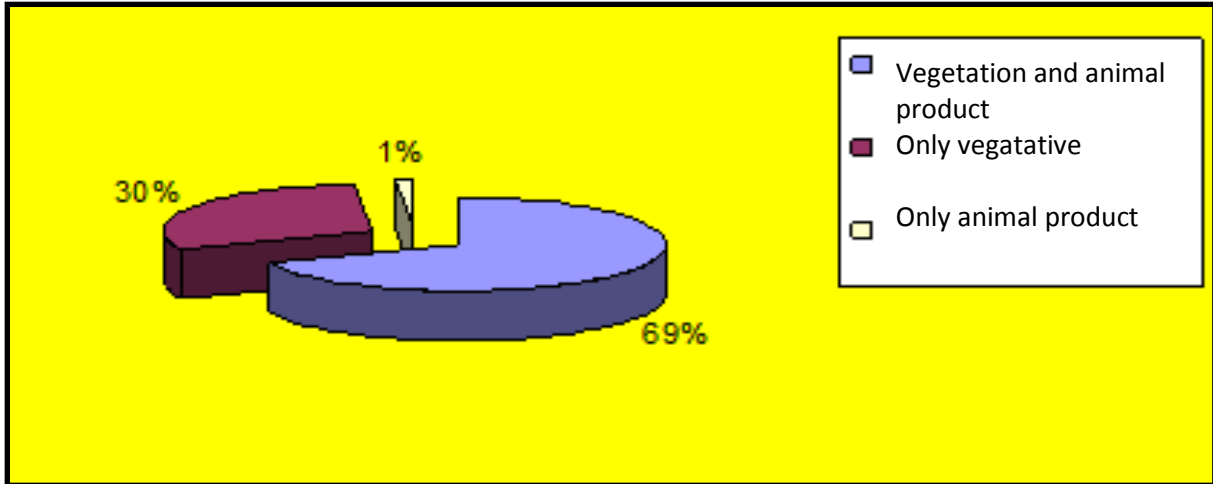


Figure 7. In The Province of Kayseri, Distribution of Areas of Agricultural Enterprises

Source: TÜİK, 2001 General Agricultural Account

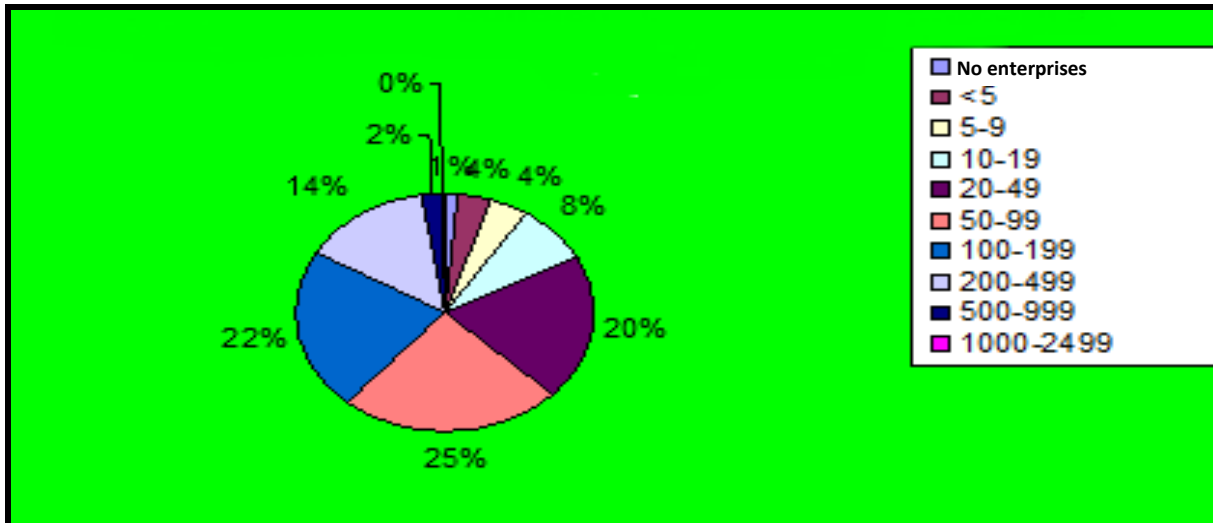


Figure 8. Distribution of Size of Agricultural Enterprises

Source: TÜİK 2001 General Agricultural Account

Table 5. Size of Agricultural Management and Land Acquisition Format in the Province of Kayseri

The Size Of Land(Da.)	Business Number	Land (Da.)	Businesses With Their Own Land				Businesses Without Their Own Land			
			Enterprises Operates Only Their Own Land		Enterprises Operates Both Their Own Lands And Others Land		Enterprises Operates Only With Rent		Enterprises Operates Only With A Corporation	
			A	B	A	B	A	B	A	B
Enterprises which haven't got land	379									
<5	1,115	2,897	1,082	2,777	0	0	5	5	0	0
5-9	1,229	8,913	1,070	7,934	43	257	116	722	0	0
10-19	2,366	30,543	1,777	22,559	198	2,699	268	3,352	0	0
20-49	5,886	187,955	4,685	147,990	790	28,170	205	5,426	34	1,373
50-99	7,266	512,971	6,120	428,379	835	61,866	236	16,844	0	0
100-199	6,540	947,714	5,173	741,692	1,222	186,967	74	9,374	0	0
200-499	4,249	1,232,022	2,288	606,163	1,537	522,878	175	48,188	46	9,263
500-999	677	423,891	239	144,581	428	271,959	11	7,350	0	0
>999	65	77,084	0	0	65	77,084	0	0	0	0
Total	29,772	3,423,990	22,434	2,102,075	5,118	1,151,880	1,090	91,261	80	10,636

Source: TÜİK, 2001 General Agricultural Account A-business number B-size of the land (Da.)

As it seen in the table, 22,434 pieces of enterprises operates only their own lands. Area of land which operates like this is 2102,075 da. Enterprises which operate area of land between 20-200 da constitute the majority with %66.

In the province Kayseri, like Turkey, separate lands are formed resulting from Inheritance Law and lands gradually decrease. For this reason the smallest lands cannot be operated as an agricultural area.

Table 6. Information of Agricultural Area, In the Province Kayseri

Total Area (decare)	Operating agricultural area(decare)	Fallow Area (decare)	Area of vegetable garden (decare)	Area of fruit garden(decare)
6,032,063	3,824,262	1,942,579	119,174	146,048

Source: TÜİK data base of crop production statics (2010)

Agricultural production support services provided by government organizations and cooperatives. Also non-governmental organizations and the private sector serve. In the province Kayseri, there are a large number of agricultural cooperatives and they help and serve to farmers. In recent years, it is seen that the number of dairy cooperatives engaged in Agricultural Development Cooperative have increased. These cooperatives help their members for not only procurement of animal, but also marketing products.

To sum up, Kayseri Integrated Health Campus Project area doesn't include any productive and fruitful land. As it can be seen in Appx 2, project doesn't have any impact on productive land areas which lies on surround.

2.3 ALTERNATIVES OF PROJECT LOCATION

There are urban developments in many parts of Kayseri the province, but the most noticeable one is the expansion that goes along Ankara motorway. One can see noticeable urban development areas along the ring road lying parallel to Ankara motorway and the northern ring road of 40m that connects the ring road to the motorway. One of the most important investments built alongside the road is the intercity bus station. Zoning plan decisions show that the city will continue to expand and grow in that area. The fact that the city will continue to expand towards this area was also confirmed by the development plan decisions. The fact that the area is identified and set as an urban servicing area (*commercial facilities, centers, hotels, shopping malls, healthcare facilities etc*) on the zoning plan, given the said urban development and expansion predictions, current investments and trends allows the investors to undertake and carry out all kinds of activities. For this reason the fact that Kayseri Healthcare Campus area will sit alongside 40m northern ring road, which is expected to significantly shape up the development of the city, will bring tremendous advantages. It was reported that a healthcare campus land should be positioned close to such important transport arteries and ways as it is considered that such healthcare campus will cause to a massive population transport (patients and their relatives) with considerable size in the region. Other urban servicing areas, commercial spaces and housing developments which will encircle the campus land and already come up with a zoning plan will boost the already ongoing development in this part of the city. The Municipality regards the exhibition area lying to the east of the health campus as a prestigious site where local and international trade goods and services will be displayed. The university area which lies to the north of the hospital (*the Private University for which investments are expected to start soon*) will contribute much to the economic, social, cultural and urban development of the city. The inter-city bus station that list to the south of the area has turned out to be one of the noticeable attractive points for this region which will shape up the way Kayseri develops and evolves. In the face of the Municipality transport-traffic studies and following the bus station investment that lies to the south of the campus area, the campus investment will offer greater value, especially when coupled with the rail system project which the Municipality plans to extend up to the university zone along the 40m.road which crosses the land in parallel. Considering all these things, the area where the health campus is considered to be erected will be in a great position with easy access and investment opportunities when coupled with the other investments encircling it, and will offer great value for further development.

3. EXISTING ENVIRONMENTAL CONDITIONS

Determination of current environmental conditions of Kayseri Integrated Health Campus Project area and its vicinity was conducted in 2 phase. In the first of these phases of analysis and measurements which belongs to project area and its environs were made. In the second one, environmental data which were supplied by public institutions in the relate region were evaluated. Analysis and measurements required for the Project were done by laboratories which have a TÜRKAK accreditation and authorized by the Ministry of Environment and Urbanism. Data and information of these analysis and measurements are given in subtitles.

3.1 METEOROLOGICAL AND CLIMATIC FEATURES

Where in the province of Kayseri in Central Anatolia is continental climate characterized. The region is a little hot in summers, cold in winters and the intensity of cold is increasing towards the eastern part of Central Anatolia. Natural vegetation consists of steppe in lowlands due to the summer drought and dry forests at high. Average temperature is -0.7°C in January and 22°C in June. Average annual temperature is 10.8°C . Average total rain amount is 413.8 mm and the most rainy days are in spring. Average annual relative humidity value is %63.7.

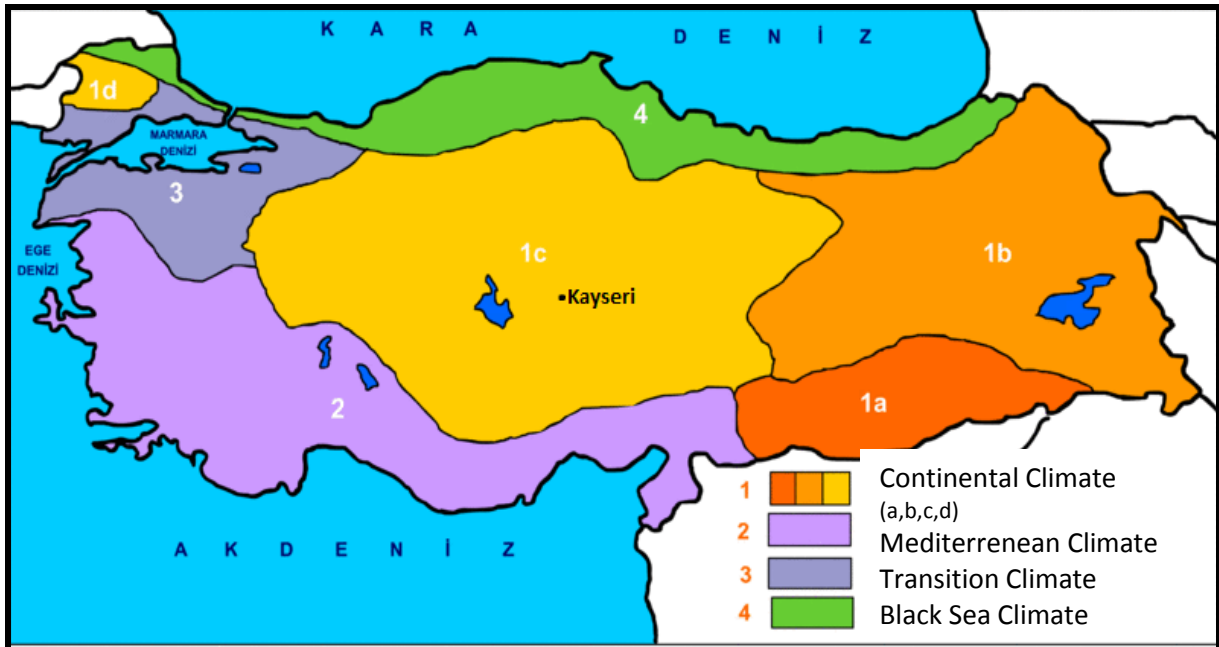


Figure 9. Climate map of Turkey

The closest meteorology station to the Kayseri Integrated Health Campus project area is "Kayseri Centre Meteorology Station". All determination for meteorological and climatic features was formed by the help of data which were given from this station. Information about this station is given below;

Name :Kayseri Center Station
 Latitude :38
 Longitude :35
 Height :1,093m
 Date Of Data :1970-2010

Newsletter of meteorology of Kayseri Center Station is given in Appx-8. Tables which are formed with the help of newsletter of meteorology are given in the rest of the report.

3.1.1 Wind

Wind data in the province Kayseri is given in Table 7 according to observer data in 2010.

Table 7. Average speed and direction of wind in the province Kayseri

	MONTHS											
MONITORING RESULTS IN 2010	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Avg. wind speed at 7am (m/s)	1.3	1.5	1.4	1.2	0.9	0.8	0.8	0.5	0.5	0.9	1.1	1.4
Avg. wind speed at 2pm (m/s)	2.0	2.5	3.3	3.6	3.2	2.9	2.7	2.7	2.6	2.3	1.8	1.9
Avg. wind speed at 9pm (m/s)	1.6	1.8	2.1	2.2	1.8	1.7	1.7	1.7	1.6	1.5	1.4	1.5
Avg. wind speed (m/s)	1.6	1.9	2.2	2.4	2.0	1.8	1.7	1.6	1.6	1.5	1.5	1.6
The maximum wind speed (m/s)	41.5	39.0	39.9	32.2	29.8	26.0	24.4	20.3	22.4	33.7	34.0	36.0
Direction of the maximum wind speed	SE	SSE	S	SSE	SSE	SSW	E	S	SW	SW	ESE	SE
The avg. no. of stormy days (=17.2 m/s)	2.7	2.8	3.5	3.9	2.0	0.9	0.4	0.2	0.7	1.0	1.8	2.4
no. of stormy days 10.8-17.1 m/s)	2.0	3.1	6.3	9.2	9.3	6.8	3.9	3.0	2.9	3.5	2.9	2.7
Total no. of N wind blowing	1,503	1,180	1,186	1,208	1,347	1,693	2,026	1,964	1,593	1,447	1,149	997
Avg. N wind speed	1.2	1.4	1.5	1.6	1.6	1.7	1.8	1.7	1.5	1.3	1.2	1.2
Total no. of NNE wind blowing	1,465	1,456	1,246	1,205	1,517	1,650	2,166	2,026	1,474	1,283	1,003	993
Avg. NNE wind speed	1.3	1.5	1.6	1.7	1.6	1.6	1.8	1.7	1.5	1.4	1.2	1.3
Total no. of NE wind blowing	1,255	1,162	1,166	923	1,060	1,070	1,185	1,236	965	993	784	1,171
Avg. NE wind speed	1.4	1.6	1.7	1.6	1.5	1.7	1.8	1.7	1.4	1.3	1.3	1.3
Total no. of ENE wind blowing	1,267	1,178	1,178	838	931	961	1,220	1,016	746	925	719	1,006
Avg. ENE wind speed	1.5	1.6	1.8	1.8	1.5	1.6	1.6	1.5	1.4	1.3	1.3	1.5
Total no. of E wind blowing	1,384	1,057	916	765	792	783	981	771	692	691	723	1,020
Avg. E wind speed	1.5	1.7	1.8	1.8	1.5	1.3	1.5	1.3	1.3	1.2	1.3	1.4
Total no. of ESE wind blowing	1,382	1,238	1,124	1,107	1,340	1,258	1,288	1,145	1,076	1,039	1,205	1,392
Avg. ESE wind speed	2.1	2.1	2.2	2.2	1.7	1.4	1.4	1.3	1.2	1.5	1.7	1.9
Total no. of SE wind blowing	2,000	1,622	1,579	1,897	1,869	1,972	1,870	2,149	2,307	2,351	2,131	-
Avg. SE wind speed	1.8	1.9	2.1	2.2	1.6	1.3	1.3	1.2	1.2	1.3	1.5	-
Total no. of SSE wind blowing	2,689	2,512	2,906	3,127	2,869	2,484	2,289	2,439	2,774	3,503	3,470	-
Avg. SSE wind speed	1.6	1.9	2.4	2.4	1.8	1.5	1.3	1.3	1.3	1.4	1.5	-
Total no. of S wind blowing	4,092	3,320	3,495	3,250	3,382	2,802	2,649	2,989	3,709	4,069	4,682	4,197
Avg. S wind speed	1.3	1.5	1.6	1.7	1.5	1.3	1.2	1.2	1.2	1.2	1.2	1.3

MONITORING RESULTS IN 2010	MONTHS											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Total no. of SSW wind blowing	3,082	2,749	2,951	2,576	2480	2090	1694	1838	2377	2742	3091	3234
Avg. SSW wind speed	1.3	1.5	1.9	2.1	1.7	1.5	1.4	1.3	1.4	1.4	1.3	1.3
Total no. of SW wind blowing	2084	1944	2098	1583	1324	1075	991	960	1139	1572	1780	2168
Avg. SW wind speed	1.4	1.5	1.8	2.0	1.9	1.7	1.6	1.5	1.5	1.4	1.4	1.4
Total no. of WSW wind blowing	2,815	2,835	3,252	2,624	2,344	1,887	1,445	1,060	1,393	2,002	2,232	2,559
Avg. WSW wind speed	1.6	1.9	2.2	2.4	2.2	2.2	2.0	2.0	1.9	1.7	1.5	1.6
Total no. of W wind blowing	1,729	1,718	1,919	2,052	1,794	1,475	1,241	1,257	1,315	1,763	1,697	1,564
Avg. W wind speed	1.6	1.9	2.1	2.4	2.3	2.2	2.2	2.0	2.0	1.7	1.5	1.6
Total no. of WNW wind blowing	1,491	1,806	2,462	3,066	3,217	3,190	3,439	3,205	2,780	2,496	1,890	1,778
Avg. WNW wind speed	1.6	1.8	2.2	2.4	2.4	2.3	2.4	2.2	2.0	1.7	1.5	1.6
Total no. of NW wind blowing	962	881	1,286	1,570	1,563	2,020	2,020	2,335	2,026	1,486	1,316	1,004
Avg. NW wind speed	1.3	1.6	1.8	2.0	2.1	2.1	2.1	2.0	1.8	1.4	1.4	1.3
Total no. of NNW wind blowing	973	1,004	1,480	1,686	2,241	3,046	3,791	3,941	3,035	2,024	1,367	998
Avg. NNW wind speed	1.3	1.5	1.7	1.9	1.8	1.9	2.0	1.9	1.7	1.4	1.3	1.2

Source: General Directorate of Meteorology 2010

3.1.2 Pressure

Measured steam pressure values and maximum and minimum pressure data are given in Table 8.

Tablo 8. Average pressure values which belongs to centre of the province Kayseri

Meteorological Data	Period	Months												Annual average
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Average Pressure (Hpa)	41 years	893.7	891.9	891.0	890.4	891.5	891.2	890.1	890.8	893.3	895.3	895.4	894.4	892.4
Maximum Pressure(Hpa)	41 years	913.2	906.3	906.6	903.5	901.7	899.9	897.8	898.8	902.8	906.1	907.6	909.8	913.2
Minimum Pressure (Hpa)	41 years	868.3	870.3	869.6	874.3	878.2	880.7	882.1	883.2	881.8	884.1	878.6	866.2	866.2
Average Steam Pressure (Hpa)	41 years	4.3	4.6	5.7	7.6	9.9	11.7	13.1	12.6	10.1	8.3	6.2	4.9	-

Source: General Directorate of Meteorology 2010

3.1.3 Humidity

The highest relative humidity value was measured as 76.7% in December and the lowest value was 2% in March. Data in 2010 are given in Table 9.

Table 9. Average relative humidity values which belongs to centre of the province Kayseri

Meteorological Data	Months												Annual average
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Avg. relative hum. at 7am (%)	86.1	85.7	85.5	82.3	78.6	73.5	71.2	74.5	80.8	87.1	88.5	86.5	81.7
Avg. relative hum. at 2pm (%)	62.4	57.0	47.8	43.0	40.3	36.2	32.7	32.1	33.1	40.6	50.9	61.9	44.8
Avg. relative hum. at 9pm (%)	80.4	76.8	67.4	63.5	64.4	57.7	48.0	47.1	51.7	64.9	75.5	81.6	64.9
Minimum relative hum.(%)	13	8	2	3	4	4	6	4	4	5	13	4	2
Average relative hum. (%)	76.3	73.1	66.9	62.9	61.1	55.8	50.6	51.2	55.2	64.2	71.7	76.7	63.8

Source: General Directorate of Meteorology 2010

3.1.4 Temperature

The highest temperature value was measured as 30.6°C in August and the lowest value was -7.2°C in January. Data in 2010 are given in Table 10.

Table 10. Average relative humidity values which belongs to centre of the province Kayseri (°C)

Meteorological Data	MONTHS												Annual
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
Avg. Temperature at 7am	-5.3	-3.9	0.2	6.3	11.1	15.0	17.3	15.6	10.2	5.1	-0.1	-3.1	5.7
Avg. Temperature at 2pm	2.6	4.7	10.3	16.1	20.7	25.1	29.1	29.2	25.4	19.2	11.3	4.7	16.5
Avg. Temperature at 9pm	-2.8	-0.5	4.8	10.1	14.0	18.1	21.9	21.3	16.4	10.9	4.0	-0.9	9.8
Average Temperature	-2.1	0.0	5.0	10.7	14.9	19.1	22.5	21.9	17.1	11.5	4.8	-0.1	10.4
Average Temperature > 5,0 C (day)	2.7	5.5	16.0	27.7	30.9	30.0	31.0	31.0	30.0	29.0	15.8	5.2	21.2
Average Temperature > 10,0 C (day)	0.2	0.6	4.7	16.5	28.6	30.0	31.0	31.0	29.3	20.7	3.6	0.5	16.4
Average HighTemperature	3.8	6.0	11.8	17.6	22.2	26.6	30.6	30.5	26.6	20.3	12.4	5.8	17.9
Average LowTemperature	-7.2	-5.3	-1.4	3.4	6.6	9.7	12.1	11.4	7.3	3.6	-1.3	-5.0	2.8
Number of hot days	9	14	28	23	23	5	30	8	2	1	1	1	30
Maximum temperature	17.8	20.1	26.6	31.2	33.4	36.0	40.7	40.0	36.0	32.6	24.8	21.0	40.7
The highest				0.2	1.1	6.7	17.9	18.2	6.4	0.5			4.3

Meteorological Data	MONTHS												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Temperature > 30,0 C (day)													
The highest Temperature > 25,0 C (day)			0.1	2.6	9.8	20.3	29.2	29.4	20.7	6.8			9.9
The highest Temperature > 20,0 C (day)		0.0	2.2	10.5	21.8	28.3	30.9	31.0	27.9	17.5	1.8	0.0	14.3
The highest Temperature > -1,0 C (day)	7.8	5.0	0.8	0.0							0.6	4.6	1.6
Average minimum temperature on the soil	-8.9	-7.0	-3.4	1.2	4.5	7.4	9.6	8.7	4.7	1.2	-3.4	-6.7	0.7
Minimum temperature on the soil	- 32.5	- 32.0	- 30.0	- 38.5	-7.0	-2.4	2.0	0.0	-4.9	- 15.0	- 24.1	- 32.8	-38.5
Minimum temperature on the soil < -0,1 C (avg. day)	28.9	24.6	22.8	11.1	3.1	0.1			2.6	11.7	22.4	27.1	12.9

Source: General Directorate of Meteorology 2010

3.1.5 Evaporation

For 41 years observing, average evaporation value is 1058.6 mm and the highest evaporation amount was measured as 18.2 mm in June and the highest evaporation value was 221 mm in June in 2010. Details about evaporation are given in Table 11.

Table 11. Evaporation values which belongs to centre of the province Kayseri

Meteorological Data	Obs. period (year)	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Average open surface evaporation (mm)	41	-	-	0.5	59.2	130.8	176.1	221.0	202.2	139.7	69.3	2.3	-
Maximum open surface evaporation (mm)	41	-	-	3.8	16.2	13.2	17.5	18.2	13.3	14.5	13.3	4.6	-

Source: General Directorate of Meteorology 2010

3.1.6 Precipitation

Rain and snow values are given in Table 12 and Table 13

Table 12. Precipitation values which belongs to centre of the province Kayseri

Meteorological Data	MONTHS												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Avg. Precipitation at 7am (mm)	13.3	14.2	16.8	20.7	14.1	5.7	1.9	0.7	3.9	10.9	12.9	15.7	10.9
Avg. Precipitation at 2pm (mm)	8.6	7.3	9.6	10.4	12.3	6.6	1.8	0.7	1.6	6.8	9.8	9.9	7.1

Meteorological Data	MONTHS												
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Avg. Precipitation at 9pm (mm)	10.3	10.4	15.4	27.1	27.5	24.1	8.0	4.9	6.6	15.6	13.2	12.8	14.7
Avg. Precipitation (mm)	32.0	32.3	41.8	57.3	53.7	37.8	11.9	6.2	11.7	33.3	35.7	38.4	392.1
Maximum Precipitation (mm)	36.7	25.5	29.6	47.2	51.8	51.2	39.6	35.6	19.4	38.3	36.5	26.0	57.3
Precipitation > 0,10 mm (avg.day)	12.1	11.7	12.6	13.9	13.4	8.7	2.5	2.0	3.8	8.0	9.0	12.1	9.2
Precipitation > 10,0 mm (avg.day)	0.8	0.6	1.0	1.6	1.4	1.0	0.4	0.2	0.3	1.0	1.1	1.0	0.9
Precipitation > 50,0 mm (avg.day)					0.0	0.0							0.0
Number of snowy days	8.7	7.8	5.7	1.3	0.1					0.2	2.8	6.9	33.5
Number of hailing days	0.1		0.3	0.7	0.9	0.4	0.1		0.0	0.1		0.0	2.6
Avg.Number of hoarfrost days	7.9	7.2	10.2	3.1	0.4				1.0	7.5	14.3	9.9	61.5
Avg.Number of thunderstormy days	0.1	0.1	0.7	3.0	6.0	4.9	1.8	1.5	1.9	1.1	0.3	0.1	21.5

Source: General Directorate of Meteorology 2010

Table 13. Snow values which belongs to centre of the province Kayseri

Meteorological Data	Obs. period (year)	MONTHS												
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Annual
Number of snowy days	41	8.7	7.8	5.7	1.3	0.1	-	-	-	-	0.2	2.8	6.9	33.5
Number of snow covered days	41	16.6	11.2	4.3	0.4	0.0	-	-	-	-	0.0	2.8	10.8	46.1
Maximum thickness of snow (cm)	41	48	51	37	17	1	-	-	-	-	10	42	36	51

Source: General Directorate of Meteorology 2010

Graphs which were drawn by using meteorological data are given blow;

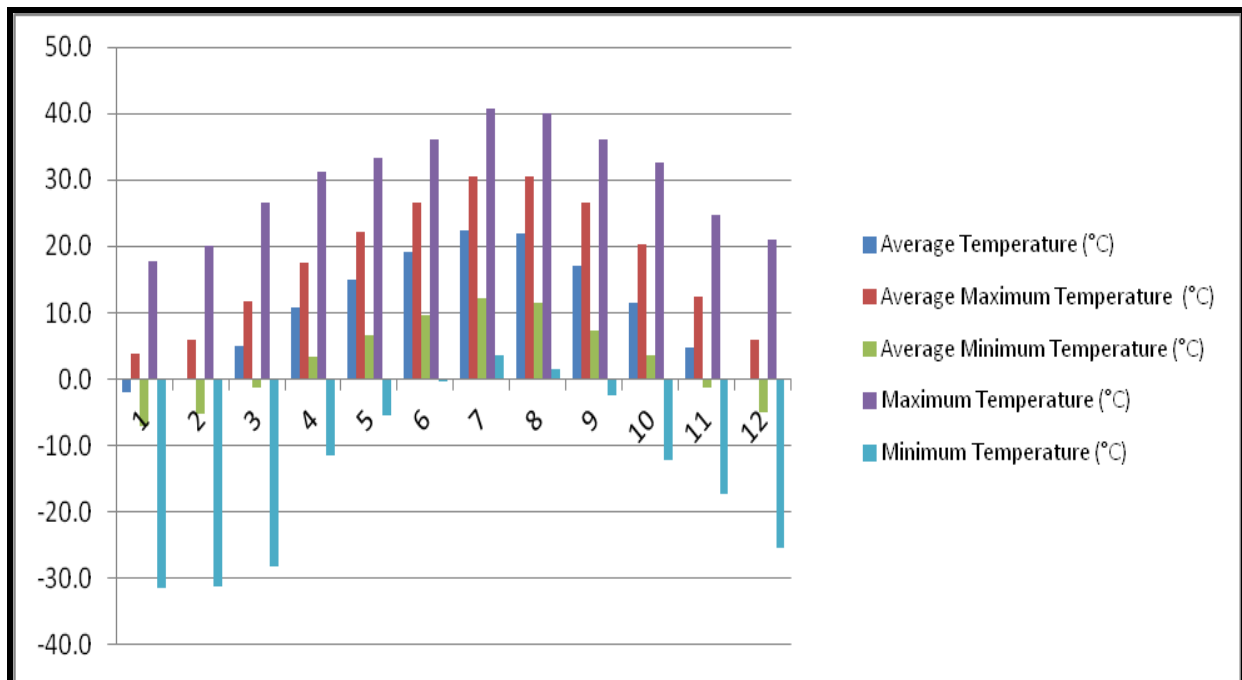


Figure 10. Temperature data

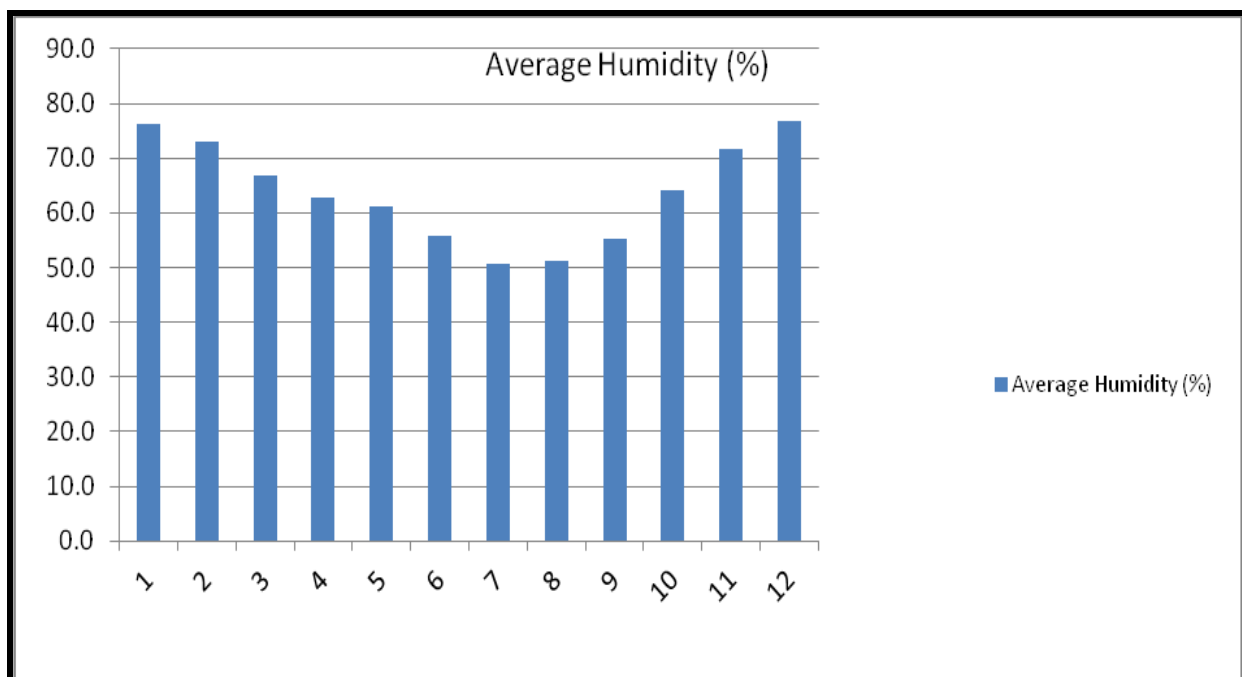
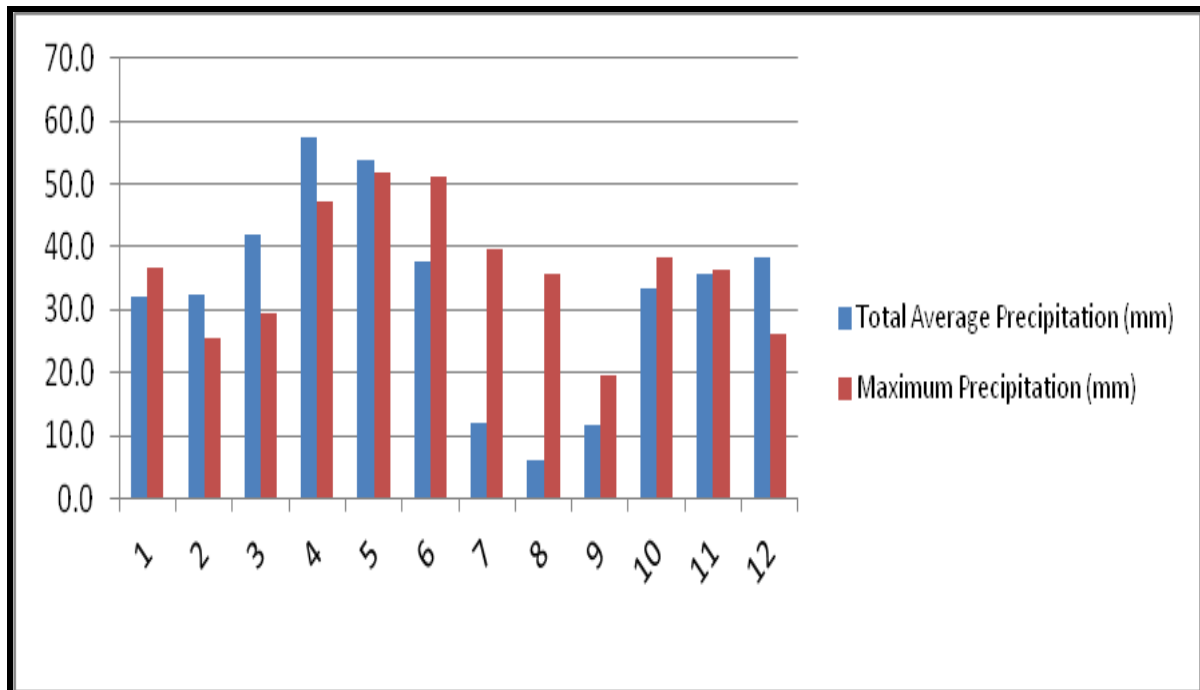
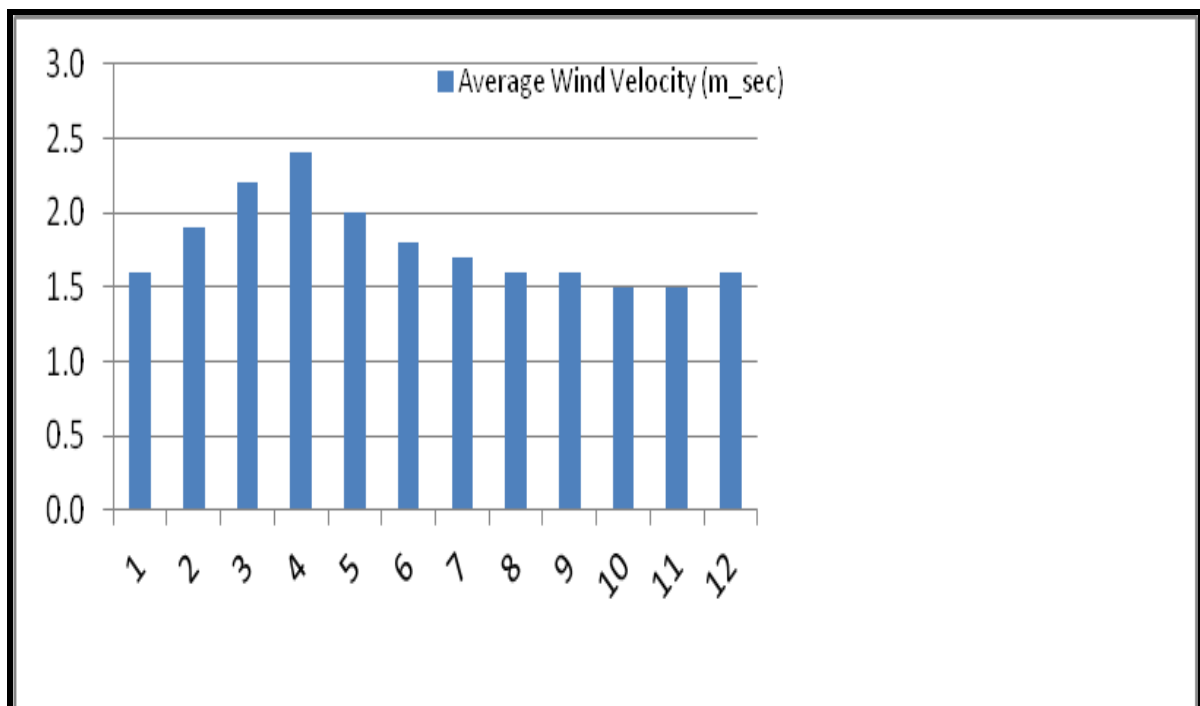


Figure 11. Humidity Data

**Figure 12.** Precipitation Data**Figure 13.** Wind Data

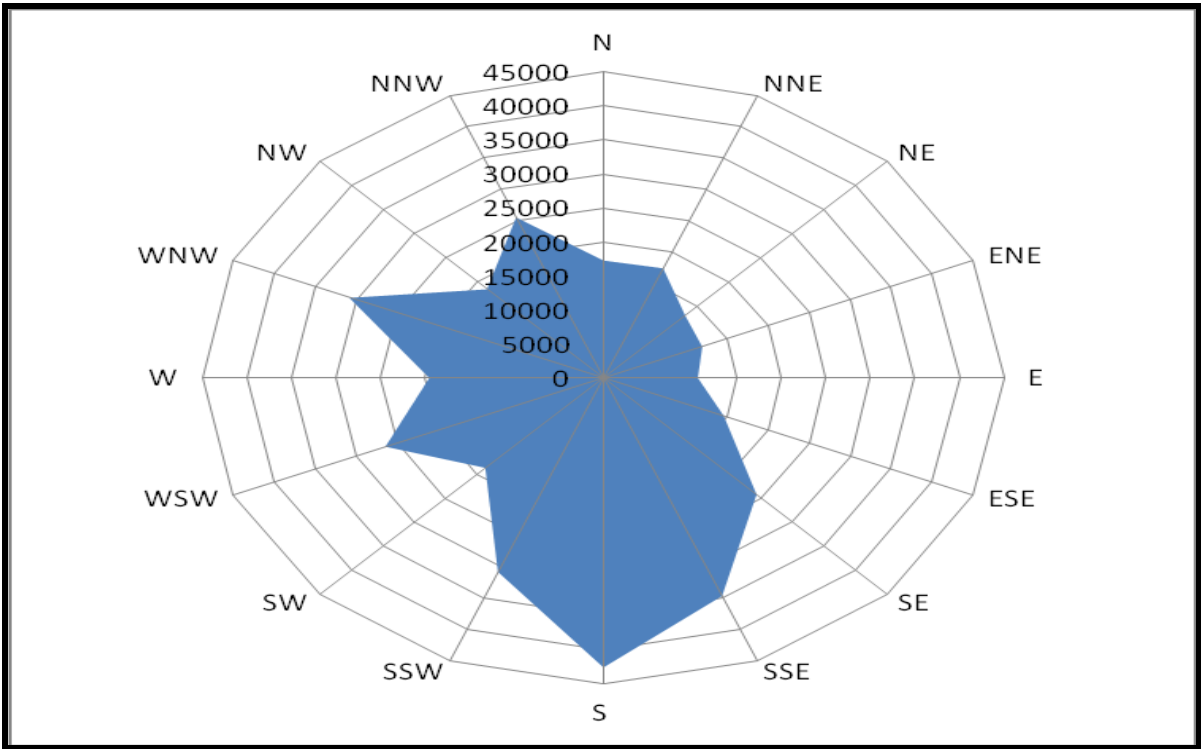


Figure 14. Wind blowing number data

3.2 GEOLOGICAL AND GEOMORFOLOGICAL FEATURES

3.2.1 General Geology

The basement of the region is composed of the Paleozoic metamorphic rocks namely the Kırşehir massif the Upper Cretaceous ophiolitic rocks and plutonic rocks intruded into these rocks in Senonian Paleozoic metamorphic are divided into two units namely the Gümüşler and the Bozçaldağ formations. They grades to each other laterally and vertically, and their metamorphic fades is green schist-amphibolite reflecting the low to moderate pressure/high temperature. Tertiary sedimentary and volcanic rocks overlie these units with an angular unconformity.

The lower to Middle Eocene rocks are composed of terrestrial conglomerates (Baraklı formation) and a shallow marine sequence of muds tone, sandstone and limestone alternation (Çayraz formation) which grades to the former laterally and vertically. They are overlain by the Tekgözköprü (alkaline lavas and pyroclastics). Kaletpe and Develi volcanic.

The overlying unit is the Upper Miocene Ürgüp formation composed of terrestrial conglomerates with volcanic interlevels. The Upper Miocene succession is also containing andesitic volcanic, dasitic domes and basaltic lava flows with numerous extrusion center.

These units are overlain by the Lower Pliocene Kızılkaya ignimbrite in the southwest part of the studied area where as Upper Pliocene incesu Ignimbrite of the Koçdağ volcanic to the north. The Koçdağ volcanic are of Late Pliocene aged and are composed of lavas and pyroclastics in andesite and basaltic andesite composition and incesu ignimbrite. The ignimbrites are unconformably overlain by the Kışladağ formation composed of lacustrine clays tone and limestone.

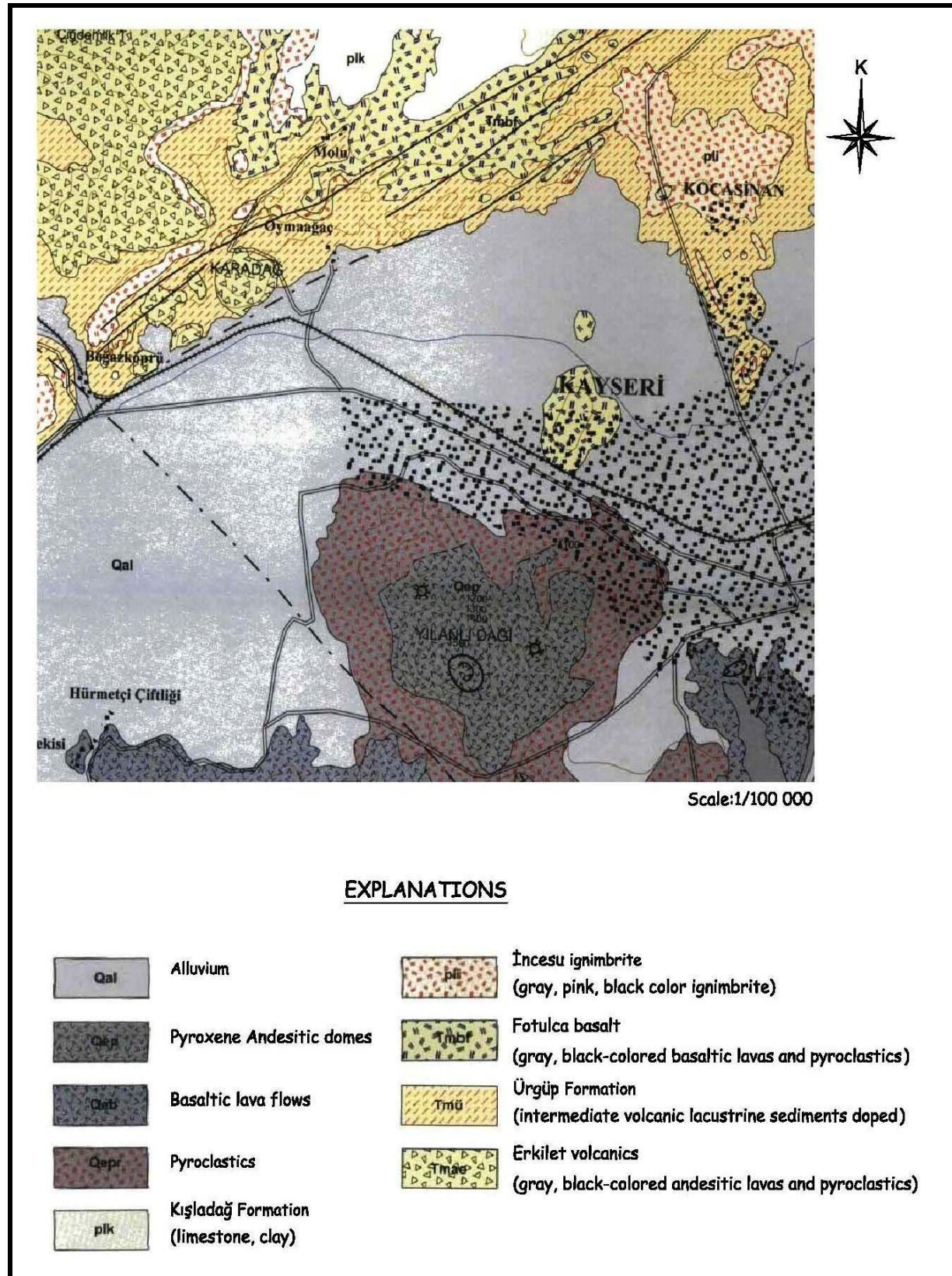


Figure 15. Geological Map of Project Area and Surrounding Environment

Stratigraphy

The region is surfacing with metamorphic rocks belonging to Paleozoic old Kırşehir massif, rocks of high Cretaceous settlement old ophiolitic melange and Senonian old plutonic rocks crossing the melange, Eocene old sediment rocks, Middle Miocene old volcanic rocks, Upper Miocene old terrestrial rocks and volcanic rocks and Quaternary old volcanic rocks (Figure 16)

Urgup Formation (Tmü)

Ürgüp formation is surfacing on a wide area in Kayseri-K.34 section. The unit has a horizontal and vertical interdigitation with contemporaneous volcanics. Volcanic middle-level formation, mainly consisting of clastic rocks are named by Pasquare (1968). Urgup formation corresponds to a part of Kızılırmak formation of Biriği and et al. (1975). It consists of red-brown, non-layered or thin-layered, pebble stone, sandstone, mudstone, gypsum and anhydrite, limestone and ignimbrite interlevels. Contents of the settled units under the terrestrial conditions vary depending on the unit where it placed. Some parts represented with hillside rubble are red and grain unsupported pebble stone consists of a small amount of sandstone and mudstone containing in the sandstones. Unit constituting the canal facies are red-brown, cross-layered and in the form of band and lenticularis of pebblestone, sandstone and mudstone. The parts relatively forming the upper parts of the unit and represented with middle catchment lacustrine facies consist of loose sandstone, mudstone, gypsum and anhydrites. It also includes from place to place limestone and ignimbrite bands and lenticularis. Urgup formation includes Sarıca volcanite member, Tahar ignimbrite member, Gördeles ignimbrite member and Salur pebblestone member respectively in the study field.

Sarıca Volcanite member (Tmüs)

The unit consisting of grey-black homogenous olivine basalt, basalt, basaltic andesite, pyroxene andesite compound lava and mainly pyroclastic is called as Sarıca volcanite member. This unit is mainly spread around the Sarıca Village which is at the South of Develi District and it is surfacing in a limited area in the study field which is located in Urgup District-Akkoy valley bottom. Volcanism is monitored as inter-level in many places through deposits. Lavas near the Akkoy (Urgup) are defined as Olivine basalt. Age determination conducted through K/Ar method reveals that the age is 8.9 ± 0.03 my (Dönmes and et al. 2003). This data reveals that volcanism is active in the upper Miocene. This unit is equal to Damsa basalt and Sarıca agglomerate defined by Pasquare (1968) and Damsa Lava defined by Temel (1992).

Tahar İgnimbrite Member (Tmüt)

The unit including pink-grey-white rock pieces of pumice, andesite and basaltic is defined by Pasquare (1968) as Tahar ignimbrite member. It is monitored as inter-level through the deposits of Urgup formation near Akkoy, Baskoy, Erkilet, Tashan, Cevril villages and Himmetdede town. Thickness of this unit reaches up to 50m around Tahar village. It is stated that the source areas may be the bottom of Hodul Mountain (Temel, 1992).

Gördeles İgnimbrite Member (Tmüg)

The unit constituting of a single pyroclastic flow including grey-purple and in some places pink pumice, lentic and vitric pieces is defined by Beekman (1966) as Gördeles ignimbrite member. Gördeles ignimbrite member spreads in a limited area at the western part of Karakaya village. The unit is fine-grained and in ash-size and monitored as inter-level through Urgup formation deposits. Age determination conducted by Innocenti and et al. (1975) reveals that the age of the unit is 6.8 ± 1.4 and 7.8 ± 1.6 my. Accordingly, the volcanism providing ignimbrites as the product are effective in Upper Miocene.

Erkilet Vulkanites (Tmae)

The volcanites at the North of Erkilet District constituting of a lot of outlet centers, andesite, basaltic andesite, pyroxene andesite compounded lava and pyroclastics are defined by Dönmez and et al. (2003) as Erkilet volcanite. The rocks have a porphyritic texture and include plagioclase, pyroxene and sometimes olivine phenocrystals. The dough has a intergranular texture and plagioclase microlites are filled with granulated pyroxene and granulated opaque minerals. the volcanism overlies on Urgup formation; however, is it overlain by Incesu ignimbrite. Considering the Statigraphic situation of the volcanism, it is stated that it is active in the Upper Miocene.

Fotulca Basalt (Tmbf)

The volcanites composing mainly of black, dark grey flow-structured basaltic compound lava is defined by Turkecan and et al. (1998) as Fotulca basalt. Rocks have porphyritic texture and include olivine and pyroxene as phenocrystal. The dough has a subophitic texture. It spreads at the North of Erkilet around Erkilet, Emmiler and Cevril villages. It constitutes ledges in the topography. The unit is located on the Urgup formation and it is overlain by Incesu ignimbrite. Considering the general stratigraphic situation of the volcanism, it is stated that the volcanism is active in the Upper Miocene.

Incesu Ignimbrite (pli)

Grey, red, black and well-combined and cloumn-disintegrated Ignimbrites which are widely spreading in the study field, in Himmetdede, Incesu, Erkile and at the east of Erciyes mountain are defined by Pasquare (1968) as Incesu Ignimbrite. Although it is thought as equal to Kızılkaya ignimbrite in many studies, those two ignimbrites have very different lithological and stratigraphic characteristics. Age determination conducted by Innocenti and et al. (1975) reveals that the age of the unit is approximately 3.0±0.1 my. According to this measurement, the age of the unit is Upper Pliocene.

Kışladan Formation (pik)

The white-colored unit composing of clay Stone in the lower parts, clayed limestone and mainly lacustrine limestones is called Kışladan formation. This unit is equal to the Kışladan member defined by Pasquare (1968). It is wide-spread especially at the North of Himmetdede town and Erkilet and it forms wide plains here. In most places thin bedding is formed and thickness of the beddings is not more than a few centimeters. It is observed in these areas as field soil. It covers all previous units inharmoniously. Considering the stratigraphic structure of the unit, it is thought that the unit is at age of Upper Pliocene. This unit is equal to Akdag limestone and Kışladan member defined by Pasquare (1968) and Yucekayalar formation defined by Turkecan and et al (1998).

Erciyes Vulkanites

Erciyes volcanites constitutes a group represented with quaternary old volcanites. In this group, six main volcanic products are differentiated including Erciyes mountain. These volcanites are defined as andesitic lava flow, hyalo-andesitic domes, pyroclastics, basaltic lava flow, dacitic-pyroxene andesitic domes including Erciyes mountain and cinder cones. The youngest Erciyes volcanites are at the age of 0.11±0.03 my (at the peak of the mountain) (Ercan and et al. 1994).

Andesitic Lava Flow (Qea)

The volcanites which are monitored around Erciyes mountain and formed by adventive cones and consisting of dark grey, black, basalt, basaltic andesite and pyroxene andesite compounded lava and pyroclastic rocks are classified as andesitic lava flows. Samples mainly in vesicular texture are formed generally in porphyritic texture and cellular structure and consisting of plagioclase and pyroxene phenocrystal and dough. The dough has an intersertal texture and cavities between plagioclase sticks and pyroxene microcrystals are filled with volcanic glass. This unit spreads around Kızıören, Sakarcıtlığı, Sarıkürklü, İmamli, Kocaoglan villages.

Hyalo-Amndesitic Domes (Qeh)

Those are hylo-andesitic domes consisting of grey, white and in some places totally volcanic glasses. They are surfacing at the North of Erciyes mountain and around Perikartın hill and Karagüllü hill. This unit is consisting of volcanic glasses and crystals. Volcanic glasses include lots of gas pockets and microlites. Crystals are plagioclase, amphibol, biotite and pyroxene.

Pyroclastites (Qepr)

The unit which is widely spreading especially at the South and North part of Hacılar District and consisting of loose, not fitted, white and yellow-colored and glassy textured pumices is called pyroclastites. Although they are active in different stages of Erciyes volcanites, it is really difficult to distinguish them each other. This unit is defined by Turkecan and et al. (1998) as Kızık tuffs.

Basaltic Lava Flows (Qeb)

Volcanites which are monitored around Erciyes mountain and formed by adventive cones and consisting of dark grey-black colored basalt, olivine basalt and pyroxene andesite type lava and pyroclastic rocks are classified as basaltic lava flows. It spread in the study field around Karpuzseki, Hacılar, Kanlıcardak, Avsar, Surtme, Eski Seyhsaban villages.

Pyroxene Andesitic Domes (Qep)

Rocks which are composing of main Erciyes cone, pyroxene and andesitic domes and including volcanic centers are classified as pyroxene andesitic domes. This unit consists of fine-grained, pink-grey colored, dacite, hyalo-andesite and pyroxene-hornblend andesite compounded lavas. The parts included in the study field of the volcanites observed around Erciyes Mountain are main cones of Erciyes Mountain, Bozdağ, Gökdağ, Yılanlıdağ and Kolonludağ domes.

Cinder Cones (Qec)

Those are the stromboliene type, dark grey-black-red colored cinder cones which are observed around the Erciyes Mountain and having the characteristic of olivine basalt, mainly observed along with the basaltic lava flows. They are called Kızıltepeler on the map. They are densely present in the Project site and are also widely spread in Küçük Kızıltepe, Kırmızıtepe and Kolanlıdağ and Bozdağ villages.

Travertine (Qtr)

They are surfacing around Hirka village and Bayramhacili town. Travertines are white-beige-cream colored active carbonate formations formed by hot water activities developed with young tectonic movements affecting the region.

Hillside Rubble (Qym)

Those are the units forming of pebble observed on the mountainsides or at the cliffs and block-size unfitted rock.

Old Alluvions and Alluvions (Qal-Qeal)

Those are pebble, sand and clay storages forming the old valleys, valleys and riverbeds and plains.

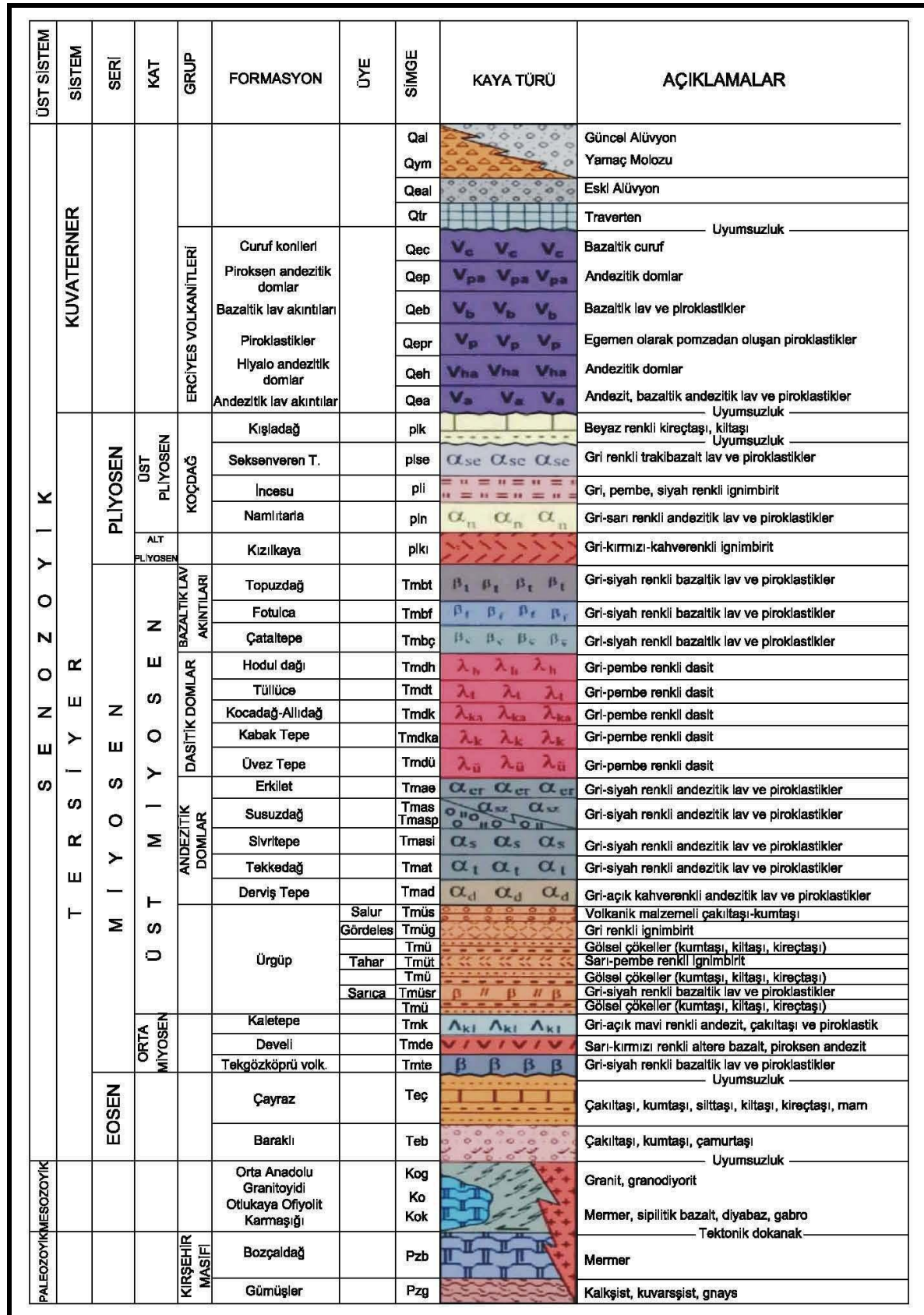


Figure 16. Investigation Area and Its Stratigraphic Column Cross Section

3.2.2 Structural Geology

Stacking representing region, from south to north due to tectonism, settled in the form of thrust. Thus, stacks have won the general locations of today. The main fault of the region, Ecemiş, lies from Erciyes Mountain to west of Mersin. Ecemiş fault has approximately 80 ± 10 km left side beat. Tectonic deformations generally characterized by parallel to the fault trending fault systems, minor fractures and crush zones. Although multi-faceted faults systems developed in the study area, especially in dense limestone faults trending NE-SW and NS. Thrust and the formation of multi-fracture systems are related much more intense tectonism which occurs in different geological periods.

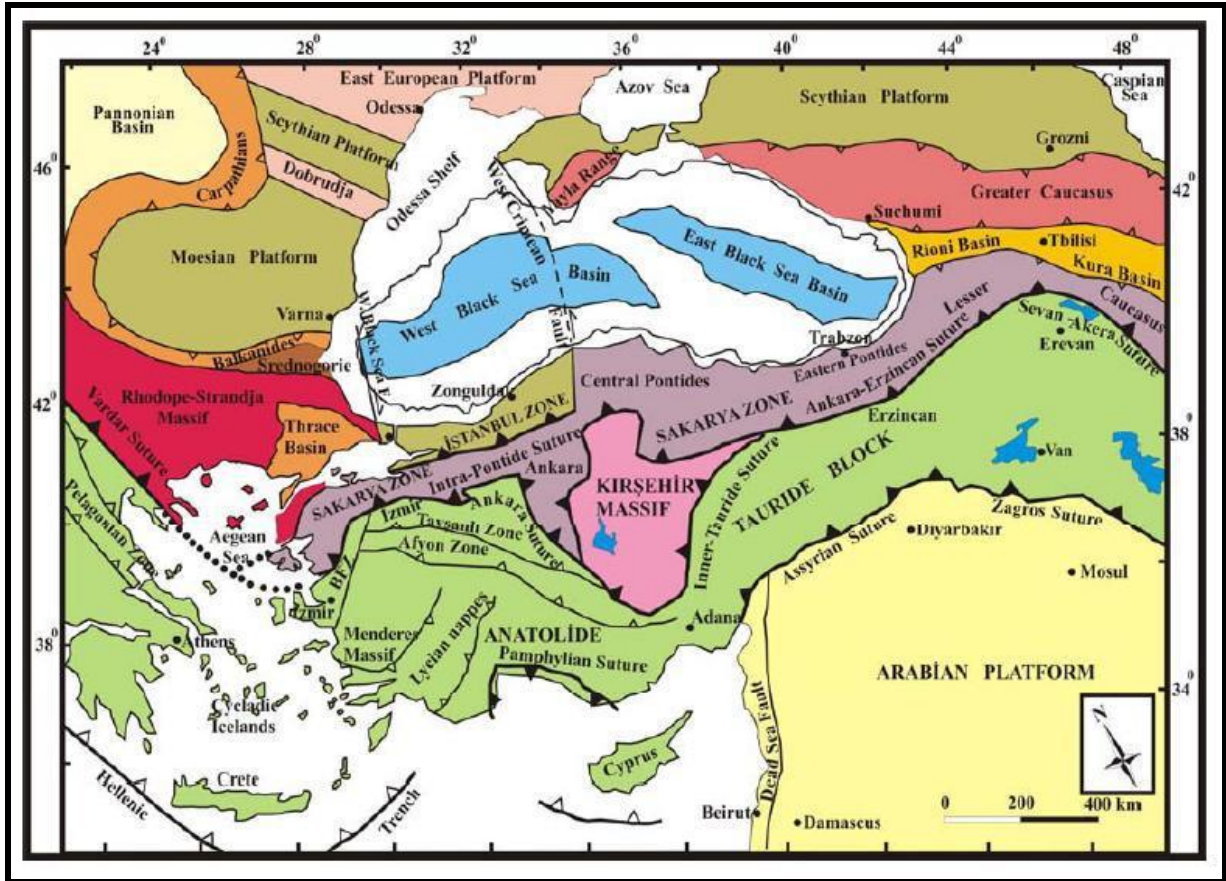


Figure 17. The Paleotectonic Units of Turkey (Okay & Tüysüz 1999)

3.2.3 Engineering Geology Of Investigation Area

Project area is in Kayseri city, Kocasinan district. Site topography is very flat. The field observations and the results of the borings indicate that the project area is formed by alluvial deposits (Qal). Age of this unit is quaternary. Between 0.30-20.00m from the surface, high and low plastic, medium to stiff consistency, light greenish gray colored, slightly sandy, clayey SILT- silty CLAY layers (Classified as CL-CH, according to USCS) were encountered. Thin Sand layers were observed in the main Silty CLAY layers in many levels. (Classified as SC, SM, SW-SM, according to USCS).

3.3 EARTHQUAKE PARAMETERS

Project site is in 3. Degree Earthquake zone according to Turkish Codes. i.e. T.R. Ministry of Public Works and Settlement General Directorate of Natural Disasters Earthquake Research Department as shown in Figure. 18.

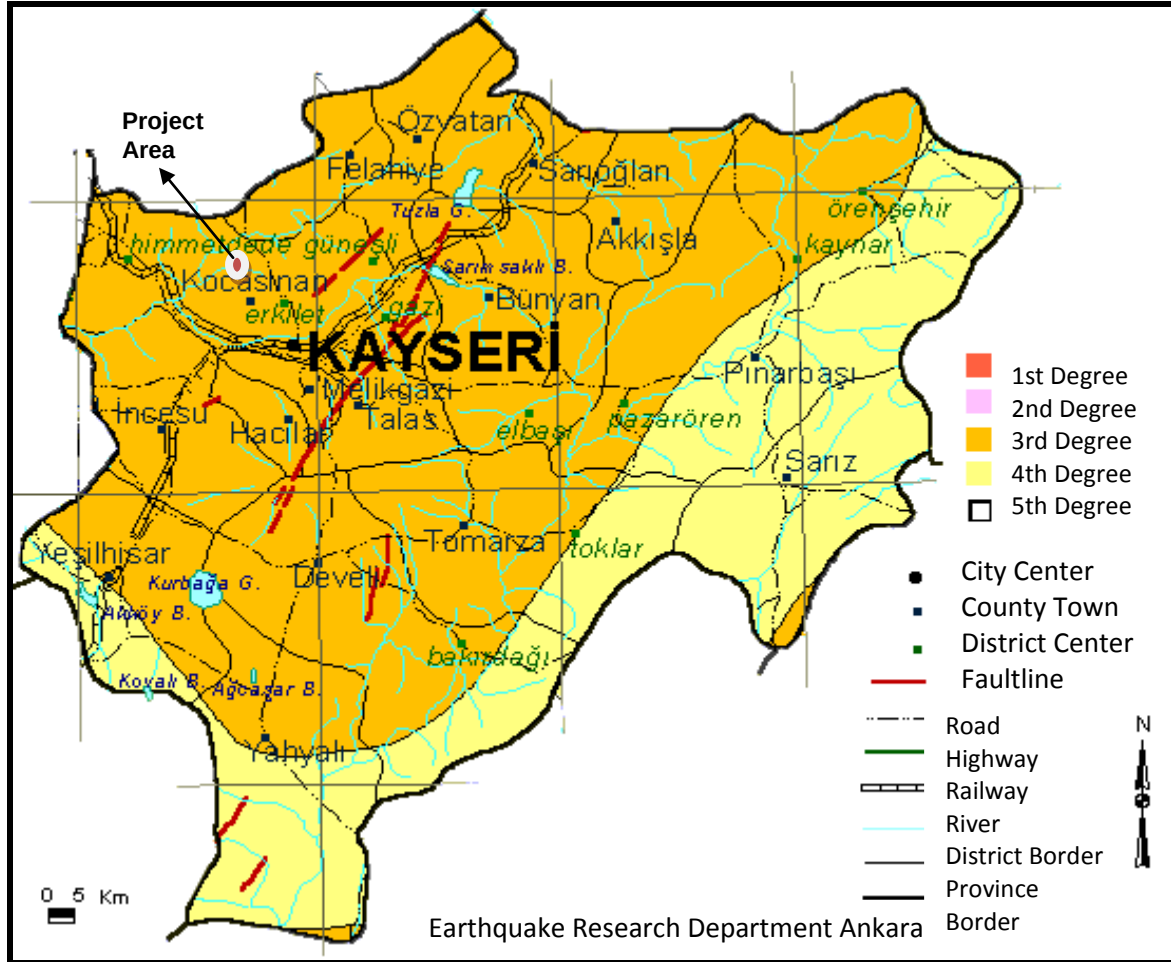


Figure 18. Earthquake map of the province Kayseri

Ground properties and seismicity data which are results of soil etude of the Kayseri Integrated Health Campus are given in Table 14.

Table 14. Classification of homogeny soil (TSE-2519-April 1977)

Soil Group	Description Of Soil	Spt -N	Relative Stringency (%)	Free Pressure Resistance (Kpa)	Slip Wave Speed
(A)	- Massive volcanic rocks and undifferentiated, metamorphic rocks are solid, hard cement sedimentary rocks; -Very dense sand and gravel -Hard clay and silty clay	- > 50 >32	- 85-100 -	> 1,000 - > 400	> 1,000 > 700 >700

(B)	- Such as the loose volcanic tuff and agglomerate rocks, the planes of discontinuity weathered sedimentary rocks are cemented -Tight sand-gravel -Very stiff clay and clayey silt	- 30-50 16-32	- 65-85 -	500-1,000 - 200-400	700-,1000 400-700 300-700
(C)	-Discontinuity planes in-Soft Very weathered metamorphic rocks and cemented sedimentary rocks; -Medium dense sand and gravel Silty clay and clay-Solid	- 10-30 8-16	- 35-65 -	< 500 - 100-200	400-700 200-400 200-300
(D)	- The ground water level is high soft, thick layers of alluvium; -Loose sand Soft clay, silty clay	- < 10 < 8	- < 35 -	- - < 100	< 200 < 200 < 200

3.4 HYDROLOGICAL AND HYDROGEOLOGICAL FEATURES

3.4.1 Surface Water Sources

Sarımsaklı Main Discharge Channel and Erkilet Camızağıl Flood Protection Channel which belongs to SHW are passing through into the project area. Opinion of the SHW is given in the Appx-1. Except this channel, there is neither dry nor fluid surface water source on the project area. The closest river to the project area is Sarımsaklı (Ambar) River which is far from 700m to the project area.

3.4.2 Groundwater Level

Wells were drilled up to 20m. depth and groundwater table were observed at 1.15 to 2.20 m depths below ground surface. Depths of the water level were summarized in Table below.

Table 15. Groundwater level data

WELL	DATE	GROUND WATER(m)
SK-1	12.08.2011	1.22
SK-2	12.08.2011	1.20
SK-3	12.08.2011	1,30
SK-4	12.08.2011	2.05
SK-5	12.08.2011	2.20
SK-6	12.08.2011	2.00
SK-7	12.08.2011	1.15
SK-8	12.08.2011	2.10
SK-9	12.08.2011	1.78
SK-10	12.08.2011	1.40
SK-11	12.08.2011	1.80
SK-12	12.08.2011	1.77
SK-13	12.08.2011	1.55

3.5 ECOLOGY AND BIOLOGICAL LIFE

3.5.1 Flora-Fauna

This Project which is the subject of the studies is a 1,583-bed Integrated Health Campus Project planned to be constructed in Kayseri Province, Kocasinan District, Şeker Quarter, Lot no 7093 and Parcel no 17.

Method of the Study

Field study and literature search are already conducted for the flora-fauna analysis of the Project site.

Equipment used for the field study:

1. Nikon 8x40 magnifying field glasses
2. Samsung PL 55 and Nikon P100 camera
3. Magellan brand GPS device
4. Notebook
5. 1/25,000-scale topographic map of the region

Habitat types were primarily specified by field study and then observations were conducted in the Project site and impact area considering the flora-fauna elements.

“TUBITAK Turkish Plants Data Service (TUBIVES)” and “Flora Of Turkey and the East Aegean Islands, *P. H Davis*” were used as main reference sources during the literature search for flora analysis. Additionally, thesis study titled “Research on the City Flora of Kayseri” was also used a reference. The book titled “RED DATA BOOK OF TURKISH PLANTS (Pteridophyta and Spermatophyta) TÜRKİYE BİTKİLERİ KIRMIZI KİTABI (Eğrelti ve Tohumlu Bitkiler) EKİM, T., KOYUNCU, M., VURAL, M., DUMAN, H., AYTAÇ, Z., ADIGÜZEL, N. ANKARA 2000” was used as a reference for IUCN category of endemic and rare plant species specified as a result of literature search. “Dictionary of Turkish Plant Names/Türkçe Bitki Adları Sözlüğü/Turhan BAYTOP-3.Print-Ankara: Turkish Linguistic Society, 2007” was also used as a reference for the Turkish names of the plant species.

Regarding fauna analysis, “N. YİĞİT, E. ÇOLAK, Environmental Impact Analysis (EIA)” and DEMİRİSOY, A. “Study on the Systematic and Biological Characteristics of Turkish Vertebrated Fauna and Determination of Protection Methods (Amphibia, Reptiles, Mammalia)” and “Herpetology-Prof. Abidin BUDAK, Ass. Prof. Bayram GÖÇMEN, 2005, Second Edition” were used as a reference. Regarding the preparation of the section on the bird species which might live in Project site and impact area, “KİZİROĞLU, İ (2008): Red List of Turkish Birds (Aves)” and “Lecture Notes on Ornithology, YİĞİT, N. et al. Ankara-2008” were used as reference sources.

Besides these reference sources, web sites www.turkherptil.org on amphibia and reptile observations, www.trakus.org on bird watching, www.tramem.org on mammal observations and www.treknature.com on general flora-fauna observations were used as reference sources.

3.5.1.1 Flora

Assessment of the Project Site in terms of Bio-Geography

Turkey is included in Boreal and Tethys Sub-Kingdoms of Holarctic Kingdom. Turkey is divided into three parts regarding the plant geography. These are; Euro-Siberian, Mediterranean and Irano-Turanien plant geographies. Region including the Eastern Black Sea of Euro-Siberian plant geography constitutes the “COLCHIC” Part, western region constitutes the “EUXINE” part.

The Project site and impact area are located in the western part of Anatolian Diagonal regarding the plant geography and under the effect of Irano-Turanien phytogeographical region. Additionally, according to the Grid Quadrature Method of P.H. Davis (Flora of Turkey and the East Aegean Islands), it is located in B5 square.

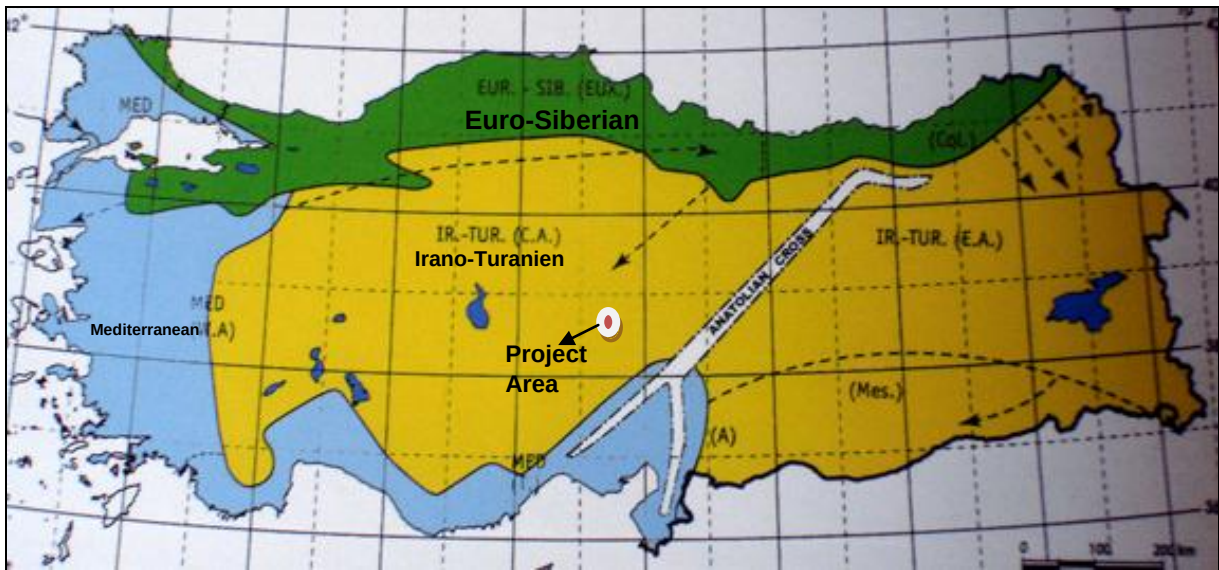


Figure 19. Distribution of Plant Geography in Turkey

Note: This map has no scale, Project site is randomly marked.

Vegetation Structure of the Project Site and Its Surroundings

General Vegetation of Kayseri Province;

Throughout the region steppe climate prevails due to the climatic factors of Kayseri province. Accordingly, climatic factors affect vegetation structure. Steppe vegetation prevails in the plains of Kayseri. Agricultural lands were established by destroying the steppe vegetation in plains. Kayseri has very low forest vegetation throughout the city. Forest vegetation only exists in mountain areas.

Vegetation Structure of Project Site;

The Project site and impact area mainly consist of agricultural lands. Therefore, natural vegetation was destroyed to a great extent by anthropogenic effects. Natural vegetation was replaced by cultivated plants. Redbeet, wheat and sunflower grow depending on the season in these agricultural fields. There are herbaceous vigorous growing ruderal plant community in the agricultural field and surroundings. Additionally, ruderal plant vegetation grows on the roadsides and empty fields.

A drying canal passes through the Project site. Therefore, aquatic vegetation plants rarely grow in this site.

Project site and its surroundings have a poor vegetation structure because of the anthropogenic effect. The area mainly contains herbaceous plants. However there are also few woody plants.

Assessment of the Project Site according to the Important Plant Areas (IPA)

Turkey is the richest country of Europe, Northern Africa and the near east with a one third of special vegetation of 11,000 various phanerogam and pteridophyta species (<http://www.obanettr.net>).

Important Plant Area (IPA) can be defined as “the area which has a very rich plant diversity and is including the rich communities and habitats (natural living space) of rare and/or endemic (not growing naturally anywhere in the world) species (<http://www.obanettr.net>).

The web site “<http://www.obanettr.net>” was used as a reference for the assessment of the Project site and impact areas according to the Important Plant Areas of Turkey. Important Plant Areas in Central Anatolia Region are presented below and “Erciyes Mountain” and “Sultansazlığı” are defined as closest Important Plant Areas to the Project site and impact area. The Project site and impact area are not located within the boundaries of Important Plant Site and there is no negative effect on this area due to the Project.

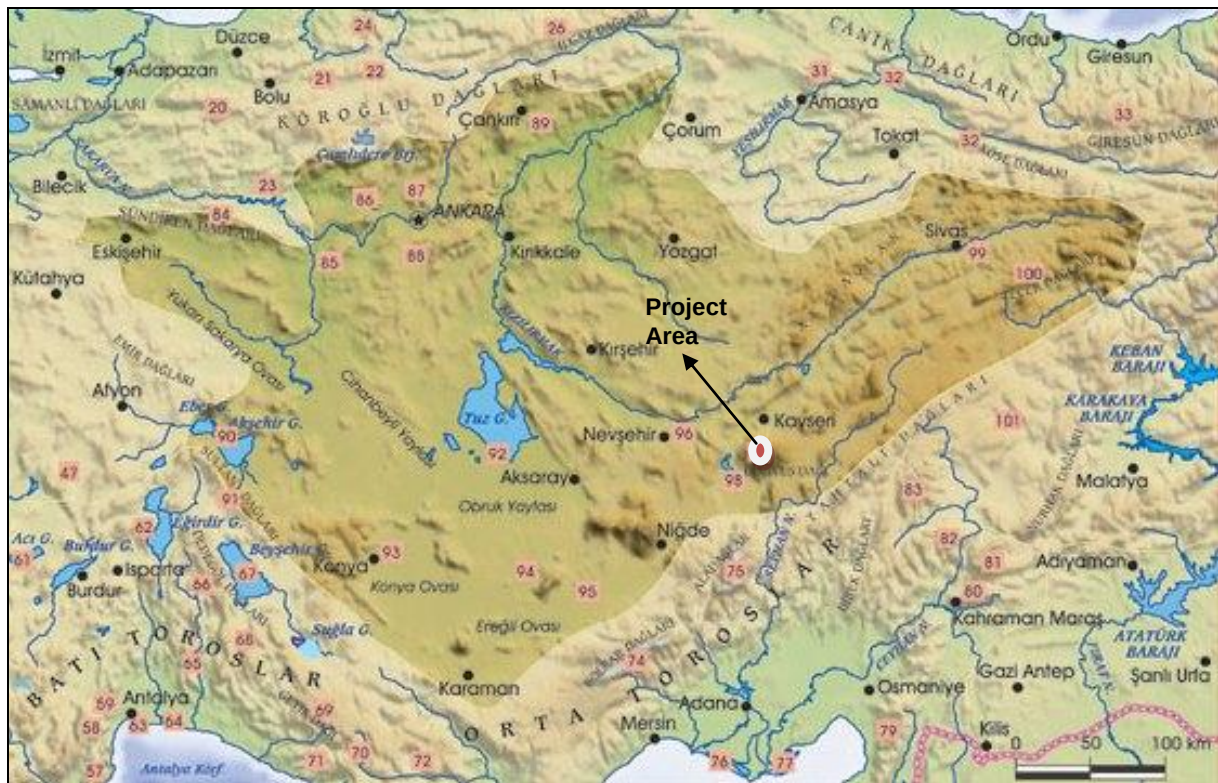


Figure 20. Important Plant Areas (IPA) in the Central Anatolia Region

Note: This map has no scale, Project site is randomly marked.

All related information on the family, type, species, Turkish names, state of endemism, topographical region of the plant species detected in the Project site and impact area and their IUCN Red Data Book danger category stated in Red Book of Turkish Plants and the information on the species taken under preservation according to the national legislation and international agreements are presented in Flora Table below. The sign (-) is used for wide

spreading species or for the species, phytogeographical region of which is not exactly determined.

Primarily, agreements on the protection status of flora species and all necessary explanations regarding the protection status are presented in detail below and then Flora Table is shown.

Agreements on the Protection Statuses of Floristic Species, Protection Status and Explanation

Endemism and IUCN Red Data Book

Turkey has a very rich and diverse flora. However while some species are widely distributed in Turkey, some certain species are only seen in certain regions. Wide spread species which can be seen in every region are defined as “**cosmopolite**” and the rarely seen species which only grow in certain regions are defined as “**endemic**”. Areal of the endemic species can be show a great variation. While the endemic species seen in a specific region are defined as “local endemic”, other endemic species with a wide-areal are defined as “widespread endemic species”.

According to the literature search by TUBIVES, no endemic species was seen.

Classification of flora and fauna species according to IUCN risk groups have been conducted in European countries since 1970.

IUCN Red Data Book categories used in Red Data Book of Turkish Plants and all related explanations are stated below:

EX-Extinct: If there is no doubt about the death of the final plant, this taxon is regarded in EX category. Some certain taxa which are regarded as growing in Turkish Flora but cannot be found despite all the studies conducted by our colleagues are included in this category.

EW-Extinct In the Wild: If the taxon cannot be found in its regions through the detailed searches conducted during different times of the year or if this taxon is living under cultivation, it is regarded as extinct in the wild and included in this group.

CR-Critically Endangered: If the taxon is under the extinction risk in the very near future, it is included in this group.

Plant taxa, the population of which is envisaged to be damaged in the near future according to the floristic studies conducted are included in this group.

EN-Endangered: If a taxon is under the high risk and danger of extinction in the near future, however not yet included in CR group will be included in EN group.

VU-Vulnerable: If a taxon in the wild is under the danger of extinction in the middle term future, it cannot be included in CR and EN groups but be included in this group.

Some certain species which are estimated to be extinct in the middle term and are seen in different localities (more than one) and not at the risk of extinction yet are included in this group in order to be protected in the future.

LR-Lower Risk: Species which are not included in the above-mentioned groups and have better populations than the others are included in this category.

Species of good population and seen in at least 5 localities are included in this category. There are three sub-categories which can be listed in terms of threat risk according to the future statuses:

- a- (cd) Conservation Dependent:** The taxa which are expected to be included in the abovementioned categories in the next 5 years. Those taxa are conservation dependent in terms of species and habitat.
- b- (nt) Near Threatened:** The taxa which cannot be included in the previous group but can be included in VU category.
- c- (lc) Least Concern:** The taxa which are not conservation dependent and are not under any threat.

DD-Data Deficient: If a taxon has insufficient data on the distribution and abundance, it is included in this group. Even though there are sufficient data on the biology of the taxon in this group, the data on its distribution and abundance is insufficient. Therefore, the taxon in DD category reveals not only that it is under threat but also that additional information relating to the taxon is needed. Following the data collection, the taxon is included in an appropriate category.

NE-Not Evaluated: Those are the taxa which cannot be evaluated according to any above-mentioned category.

Further Information on Some Criteria

Additional criteria accepted for **CR**, **EN** and **VU** categories are stated below:

CR Category - Decisions related to the plants which are under extinction in the wild in a very short time can be made according to the below-listed criteria.

A) If the population is decreasing as a result of the below-mentioned threats:

The probabilities of 80% decrease in the population in 10 years because of the mentioned reasons are given below.

- a- A change in the characteristic of the habitat and decrease in the closure degree of the species.
- b- Being under an actual and potential collection threat.
- c- Being under the invasion threat of other taxon, hybridization, illness, not inseminating, pollution, being under the effect of competitive and parasites.

B) In the event that the total distribution area of the plant is less than 100 km² and single spreading area is less than 10 km² and it is seen in too many different places or known only from one localization.

EN Category- It is expected due to the risk of above-mentioned threats that there will be 50% of decrease in the population in 10 years or in 3 generations on condition that it is spreading up to 5000 km² or the single localization area is 500 km² or the number of plants is less than 2500 and it is known at the most from 5 localizations.

VU Category- Those are the species which are expected to experience 20% of decrease in the population in 10 years or in 3 generations because of the above-mentioned threats; its distribution area is not more than 10 localizations, it has a total 20,000 km² distribution area, number of mature plants is less than 10,000 or there is a possibility of 10% decrease in the population in 100 years during the field studies.

Convention on the Conservation of European Wild Life and Natural Habitats (BERN)

Bern Convention provides the conservation of wild flora-fauna and their habitats and all necessary precautions required for the endangered or possible to be endangered species and popularizes the wild flora-fauna training. List of Annex and related explanations of BERN Convention are stated below:

Table 16. BERN Convention, List of Annex and Explanations (For Flora Species)

Annex-I	Strictly Protected Flora Species
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Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES Convention is binding for the certain permits and documents required for any and all kind of international trade (export-import) of wild flora and fauna among the contracting parties. List of Annex of CITES Convention and all related explanations are stated below:

Table 17. CITES Convention, List of Annex and Explanations

Annex-I	It includes all species affected or to be affected by the trade and endangered species. It is obligatory in order not to expose the rest of the species to any risk that the trade of the samples of these species is subjected to strict legislations and this kind of trade will only be permitted under exceptional circumstances.
Annex-II	(a) It includes the species which are not yet endangered but having the risk of extinction on condition that trade of samples is not realized according to the strict legislations required in order to prevent the usage harming the continuity of the generations; and (b) It includes other species needed to be subjected to the legislation in order to efficiently control the trade activities of the samples of certain species stated in Clause (a).
Annex-III	It includes all species subjected to certain amendments under the scope of authority in order to prevent or limit the usage of any party and species required collaboration of all parties for the control of the trade.

None of the flora species in the study field is included in Annex I of BERN and List of Annex of CITES.

Table 18. Project area and flora species which will be existed in the impact area and its protection status

SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM	HABITAT	IUCN	BERN	RESOURCE
	APIACEAE/UMBELLIFERAE	UMBELLIFERAE						
1	<i>Berula erecta</i> (HUDS.) COVILLE		-	-	Creeks, Marsh areas	-	-	L (*)
2	<i>Lisaea papyracea</i> BOISS.		Persia-Turan	-	Fields, cultivated regions	-	-	L (*)
	ASTERACEAE/COMPOSITAE	DAISY FAMILY						
3	<i>Carthamus tinctorius</i> L.	Safflower	-	-	Culture and fallow fields	-	-	L (*)
4	<i>Centaurea depressa</i> BIEB.	Ryegrass	-	-	Field, roadside	-	-	L (**)
5	<i>Centaurea solstitialis</i> L. subsp. <i>solstitialis</i> L.	Wild apricot barb	-	-	Fallow free field	-	-	L (*), (**)
6	<i>Cichorium intybus</i> L.	Chicory	-	-	Cultivated region, free field	-	-	L (**)
7	<i>Cirsium arvense</i> (L.) SCOP.	Creeping thistle	-	-	Cultivated region, pasturage, riverside, fields	-	-	L (**)
8	<i>Crepis foetida</i> L. subsp. <i>commutata</i> (SPRENG.) BABCOCK		-	-	Fieldside, steppe	-	-	L (**)
9	<i>Helianthus annuus</i> L.		-	-	Culture	-	-	L (*)
10	<i>Lactuca serriola</i> L.	Succory, sowthistle	Europe-Siberia	-	Cultivated or fallow fields, fieldside	-	-	L (*)
11	<i>Senecio vernalis</i> WALDST. ET KIT.	Groundsel	-	-	Free field, fields	-	-	L(**)
12	<i>Taraxacum butleri</i> VAN SOEST	Common dandelion	-	-	Roadside, fields	-	-	L (*)
13	<i>Tripleurospermum -parviflorum</i> (WILLD.) PODEB.		-	-	Fields	-	-	L (**)
	BORAGINACEAE	BORAGINACEAE						
14	<i>Heliotropium dolosum</i> DE NOT.	Heliotrope	-	-	Fields, roadside, steppe	-	-	L (**)
	BRASSICACEAE/CRUCIFERAE	MUSTARD FAMILY						
15	<i>Camelina laxa</i> C. A. MEY.		-	-	Fieldside	-	-	L (**)
16	<i>Capsella bursa-pastoris</i> (L.) MEDIK.	Shepherd's purse	-	-	Cultivated regions, free field	-	-	L (**)
17	<i>Cardaria draba</i> (L.) DESV. subsp. <i>chalepensis</i> (L.) O. E. SCHULZ	Centranthus	-	-	Cultivated regions	-	-	L (**)
18	<i>Cardaria draba</i> (L.) DESV. subsp. <i>draba</i> (L.) DESV.	Centranthus	-	-	Cultivated regions	-	-	L (**)
19	<i>Descurania sophia</i> (L.) WEBB EX PRANTL		-	-	Free field	-	-	L (**)



SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM	HABITAT	IUCN	BERN	RESOURCE
20	<i>Eruca sativa</i> MILLER	Garden rocket	-	-	Fields, free field	-	-	L (**)
21	<i>Lepidium perfoliatum</i> L.		-	-	Cultivated regions, free field	-	-	L (**)
	FABACEAE/LEGUMINOSAE	LEGUME FAMILY						
22	<i>Alhagi pseudalhagi</i> (BIEB.) DESV.	Thistle	Persia-Turan	-	Riverside	-	-	L (**)
23	<i>Medicago lupulina</i> L.		-	-	Fields, barren spot	-	-	L (**)
24	<i>Melilotus officinalis</i> (L.) DESR.		-	-	free field	-	-	L (**)
25	<i>Trigonella coerulescens</i> (BIEB.) HAL.		Persia-Turan	-	Fallow fields, steppe	-	-	L (**)
26	<i>Vicia cracca</i> L. subsp. <i>stenophylla</i> VEL.	Bitter vetch	-	-	Cereal and fallow fields, roadside	-	-	L (**)
27	<i>Vicia sativa</i> L. subsp. <i>nigra</i> (L.) EHRH. var. <i>nigra</i> (L.) EHRH.	Bitter vetch	-	-	Fields	-	-	L (**)
	GERANIACEAE	CRANEBILL FAMILY						
28	<i>Geranium pyrenaicum</i> BURM. FIL.		-	-	Rivers	-	-	L (**)
	MALVACEAE	MALVACEAE						
29	<i>Malva neglecta</i> WALLR.	Common mallow	-	-	Steppe, fields, roadside, barren spot	-	-	L (**)
	PAPAVERACEAE	PAPAVERACEAE						
30	<i>Fumaria officinalis</i> L.	Fumitory	-	-	Free fields	-	-	L (**)
31	<i>Glaucium flavum</i> CRANTZ		-	-	Free fields	-	-	L (**)
	POACEAE/GRAMINEAE	POACEAE						
32	<i>Bromus tectorum</i> L.		-	-	Dry open meadows, free field	-	-	L (**)
33	<i>Cynodon dactylon</i> (L.) PERS. var. <i>villosus</i> REGEL		-	-	Steppe, riverside	-	-	L (**)
	POLYGONACEAE							
34	<i>Rumex crispus</i> L.		-	-	Barren spot, rivers	-	-	L (**)
	RANUNCULACEAE	BUTTERCUP FAMILY						
35	<i>Consolida orientalis</i> (GAY) SCHROD.	Purple flower	-	-	Culture and fallow fields	-	-	L (**)
36	<i>Nigella arvensis</i> L.		-	-	Fields	-	-	L (**)
	RESEDACEAE							
37	<i>Reseda lutea</i> L. var. <i>lutea</i> L.		-	-	Roadside, fields	-	-	L (**)
	RUBIACEAE							



SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	PHYTOGEOGRAPHICAL REGION	ENDEMISM	HABITAT	IUCN	BERN	RESOURCE
38	<i>Galium verum</i> L. subsp. <i>verum</i> L.		Europe -Siberia	-	Fallow fields, Riverside	-	-	L (**)
	SALICACEAE	WILLOW FAMILY						
39	<i>Salix</i> sp.	Willow	-	-	Waterside	-	-	L (*)

Resource: L(*) TUBİVES L(**) Study on the Flora of Kayseri City



Figure 21. Certain Flora Species Detected during Literature Search -1



Figure 22. Certain Flora Species Detected during Literature Search -2

3.5.1.2 Fauna

During the identification of fauna, not only the Project site but also the surroundings are considered because elements of fauna are moving species and the movement of short term migration for their vital activities (nutrition, relaxation, etc.) is an important factor. Therefore, they can be observed in different habitats due to the fact that they are not leading a settled life.

Project site and its surroundings have a poor vegetation structure, causing poor population density of fauna elements and poor diversity.

Fauna species already existing or possible to exist in the Project site and its surroundings are identified in consequence of literature search as: Amphibia species, Reptilia species, **Aves** species and Mammalia species. "Family and Turkish name, Population Density, IUCN 2011.2 category, the category of Demirsoy A., Red Data Book of every species are stated in the related Tables and it is shown that in which list of the Bern Convention Annex-2 (Fauna Species certainly taken under conservation) and Annex-3 (Fauna Species Taken under Conservation) those species will be placed. The sign (-) is used for the species not included in the lists of Annex-2 and Annex-3 of Bern Convention. Additionally, fauna studies are evaluated in accordance with the annex lists of "Hunting Period of 2011-2012 Central Hunting Commission Decision" enacted by being published in Official Journal dated 06.18.2011 and no. 27968 of Ministry of Environment and Urban Planning General Directorate of Natural Conservation and National Parks, Department of Hunting and Wild Life.

Conventions and agreements used for the conservation of the faunal species, conservation statuses and related explanations

IUCN Risk Classes 2001

IUCN Red List Classes are established in order to classify the species of high extinction risk. IUCN Risk Classes are explained briefly below:

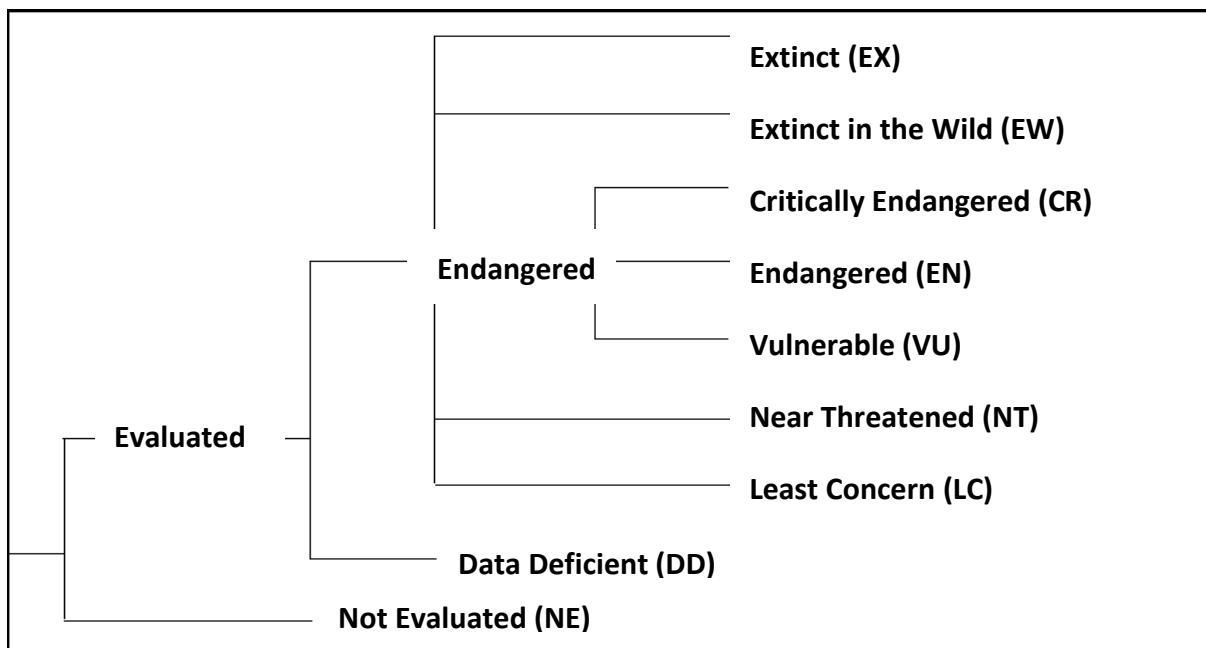


Figure 23. IUCN Risk Classes

EX: “EXTINCT” When there is no doubt that the final individual is dead, the taxon is regarded as “extinct”.

EW: “EXTINCT IN THE WILD” The taxon living, only in the agriculture, under captivity (e.g.in cages) or living in populations placed very far away from the previous distribution is regarded as Extinct in the Wild.

CR: “CRITICALLY ENDANGERED” The taxon is classified as “Critically Endangered” in the event that available best evidences reveal that the taxon meet any criteria from A to E for the critical class. Therefore it is accepted that risk of extinction in the wild is very high.

EN: “ENDANGERED” The taxon is classified as “Endangered” in the event that available best evidences reveal that the taxon meet any criteria from A to E for the critical class. Therefore it is accepted that risk of extinction in the wild is very high.

VU: “VULNERABLE” The taxon is classified as “Vulnerable” in the event that available best evidences reveal that the taxon meet any criteria from A to E for the critical class. Therefore it is accepted that risk of extinction in the wild is very high.

NT: “NEAR THREATENED” Evaluating according to the criteria, it is clear that the taxon which cannot be included in Critical, Endangered or Vulnerable Classes but very close to meet these criteria or having the possibility of being defined as endangered in the near future is classified as “Near Threatened”.

LC: “LEAST CONCERN” The taxon which is not included in Critical, Endangered or Vulnerable Classes following the evaluations according to the criteria is classified as “Least Concern”. Wide-spreading and high population taxa are included in this group.

DD: “DATA DEFICIENT” Taxa which cannot be evaluated in terms of the extinction risks considering the distribution and population status because of the fact that the data is deficient is classified as “Data Deficient”.

NE: “NOT EVALUATED” The taxon which is not evaluated yet according to those criteria is classified as “Not Evaluated”.

Red Data Book Categories used for the Ornithofauna and related Explanations

Red Data Book categories about the bird species specified by Prof. İlhami Kızıroğlu are stated below. Explanations of the symbols used for the conservation conditions and statuses of the bird species on the table are presented as below:

A.1.0= Those are the species which are extinct without any doubt and are not seen any more in the natural life.

A.1.1= Those are the domestic species, natural population of which is extinct or are not seen in natural life in the last 15-25 years but living only in cages or voliers.

A.1.2= The population of this species dramatically decreased in Turkey. They are represented as **1 individual-10 pairs**(=1- 20 individual).

A.2= The number of this species differs between 11-25 pairs (22-50 individuals) in the regions where they are observed. Those are critically endangered species.

A.3= The population of this species all around the Turkey varies between 52-500 individuals depending on the region where they are observed. They are also vulnerable for extinction and critically endangered species in the wild life.

A.3.1= There is a decrease in the population of these species in the regions where they are observed. The population of these species varies between **251-500 pairs** (502-1,000 individuals).

A.4= Density of these species according to the IUCN and ATS criteria are not endangered. However there is a local decrease in the population and they are expected to be under the risk of extinction in process of time. The population of these species varies between **501-5,000 pairs** (=1,002-10,000 individuals) in the regions where they are observed.

A.5= There is no threat of decrease or extinction considering the population of these species.

A.6= It includes the species about which there is insufficient research and data. Since they only depend on one or a few observations as “**accidental species = AS**”, there is no chance of reliable evaluation and it should be studied in detail.

A.7= It is not possible to conduct any evaluation related to those species because of the fact that available resources of these species in Turkey are not reliable. According to the IUCN criteria, these species included in **NE: (Not Evaluated)** is included in this group. These species are not evaluated in terms of the compliance with the above-mentioned criteria and are marked with “*” in the related tables.

Species in “**B**” group are winter visitors or transit migrants. These species are critically endangered and will be subjected to the evaluation stated in “A” group. Therefore, criteria stated in B.1.0 – B.7 will be used for “B” group species:

B1.0= There is no example regarding the species which are included in this status and having the record of being in Turkey during the winter time however today become extinct.

B.1.1= Those species use Turkey as winter quarters or transition region but their populations are under the threat of extinction. Natural population of the winter quarters of these birds included in this group is already extinct. However, these are domestic species living under artificial conditions such as volier or cages. There is no chance of survival in the wild life for these species. In the event that they are returned to the wild life, there is no possibility for them to adapt the wild life conditions.

B.1.2= The population of these species dramatically decreased throughout Turkey and they are represented with **1 individual-10 pairs** (1-20 individual) in the regions where they are observed. Since these species are under the threat of extinction to a great extent, they have to be protected throughout Turkey.

B.2= The number of these species varies between **11-25 pairs** (22-50 individuals) in the regions where they are observed. These species are under the threat of extinction.

B.3= The population of these species throughout Turkey varies between **26-50 pairs** (52-500 individuals) in the regions where they are observed. These species are under the threat of extinction in the wild life. They can also be regarded as vulnerable and have a great risk of becoming extinct in the wild life.

B.3.1= There is a decrease in the population of these species in the regions where they are observed. Their population varies between **251-500 pairs** (502-1,000 individuals). They include certain species inclined to decrease in the number according to the old records.

B.4= Population density of these species are not yet under the threat of extinction in the regions where they are observed and there is a local decrease in the population. They are expected in the process of time to be included in the endangered group. The populations of these species vary between **501-5000 pairs** (1,002-10,000 individuals) in the regions where they are observed.

B.5= There is no decrease or risk of extinction in the observed populations of these species.

B.6= It includes the species about which there is insufficient research and data. Since they only depend on less than two observations as “**accidental species = AS**”, there is no chance of reliable evaluation and it should be studied in detail.

B.7= It is not possible to make an evaluation related to those species because of the fact that they have insufficient and unreliable records.

WV: Winter Visitors Those species are mainly western origin and spend the winter in mild zones of Turkey, especially Region of Lakes or wetland area in the southern part of Turkey.

T: Transit Migrants These species use Anatolia as a transit route during their spring and autumn time migrations.

A: Accidental Species There is irregular records regarding these species and the number of individuals is quite low.

R: Rare Species These species are not included in the above-mentioned statuses and there is no reliable data about them.

Convention on the Conservation of European Wild Life and Natural Habitats (BERN)

Annex List of the Convention and related explanations are presented below:

Table 19. BERN Convention Annex List and Explanations (For Fauna Species)

Annex-II	SPFS- Strictly Protected Fauna Species
Annex-III	PFS- Protected Fauna Species

Convention on International Trade in Endangered Species of Wild Life Fauna and Flora (CITES)

CITES Convention and Annex List are presented in Table 17, under the title “flora”.

Red Data Book Categories according to Demirsoy, A. (1996)

Red Data Book Categories according to Demirsoy, A. are presented below:

Tablo 20. Red Data Book Categories according to Demirsoy, A. (1996)

E	Endangered: The related taxon (species or sub-species) is endangered; factors causing the extinction are still active.
Ex	Extinct: Related taxa are not living anymore in the beforementioned area or their number decreased below the renewable number.
I	In determinate: current situation of the taxon is not known.
K	Insufficient known: the current situation of the taxon cannot be classified due to deficient data.
nt	Not threatened: wide-spread, abundant and not under any threat
O	Out of danger: once under the threat of extinction but survived thanks to the precautions taken.
R	Rare: Living in small populations, not under any threat right now, there is no observation on their shifting to vulnerable group; but they are under risk.
V	Vulnerable: The related taxon is becoming extinct at a fast pace. If the factor causing extinction are ongoing, they are expected to become extinct in the near future.

2011-2012 Central Hunting Committee Decision (C.H.C.)

Central Hunting Committee meets every year in accordance with the Land Hunting Law no. 4915 and establishes hunting animals to be protected during the hunting period, hunting animals allowed for the hunting and their hunting period, time and dates, amount of hunting, forbidden hunting equipment and tools, hunting areas to be prohibited and basis and procedures for struggle purpose hunting (www.milliparklar.gov.tr). Central Hunting Committee Decisions and Explanations are stated below:

Table 21. Central Hunting Committee Decisions and Explanations

Annex-1	Wild Animals taken Under Protection by Ministry of Environment and Forestry
Annex-2	Hunting Animals Taken Under Protection by Central Hunting Committee
Annex-3	Hunting Animals allowed to be hunted during certain periods according to the Central Hunting Committee Decision

Classis-1: Amphibia

Amphibia means bilateral manner of life (amphi: mutual, bilateral, bios: life). Their skins are naked and include a lot of secretory glands in order to keep moisture. Their developments are mainly through metamorphosis. Most of the matures are carnivorous. They are not durable to drought and saltiness. Three types of animal stil surviving and having very different appearances from each other. Those are: Tailless Frogs (Anura= Salientia), tailed frogs (Semenders) (Urodela= Caudata) and legless frogs (Apoda= Gymnophiona) at first sight resembling to snake and worms.

This classis is defined as Amphibia due to the manner of life because many of the species spend their times partially in water, partially on land. Most of them are both terrestrial and aquatic. Additionally, there are some species which are totally terrestrial or aquatic. Anurans are aquatic during their early years but are terrestrial during their adolescence period. They live on land as adolescence but are aquatic during the times of propagation. Generally female leaves the eggs in water. Main characteristics of anurans are:

Their skins are totally naked except the fossil species. There are no skin derivations such as scale, feather or hair. However, Apoda (legless frog) has small scale on the skin. Their skins contain a lot of glands. Mucous released by some glands (mucus-like gland) keeps the skin wet and lubricious (mucous glands). Additionally there are toxin-producing glands (serous glands). Toxin glands have generally milk-color secretion but they are only active in the event of a pressure or maltreatment of the animal.

They are included in the Anamnia group of the vertebrates along with the fish. Embryo is naked and there are no amnion membranes. Body temperature varies depending on the

environment (Poikilotherm). The heart consists of three chambers as of two atriums and one ventricle. There are two different circulation systems as of the body and pulmonary, excluding the group of Perennibranchiata (perenni: permanent, herdem; branch: branchia). The first one is called “systemic circulation” and the second is called “pulmonary circulation”.

Generally there are 4 types of respiration excluding the Perennibranchiata.

Pulmonary Respiration (adolescent)

Branchia Respiration (Larva)

Cutaneous Respiration (adolescence and terrestrial forms)

Oral-Pharyngeal Respiration (adolescence terrestrial forms)

Although they are the first vertebrates shifting from aquatic life to terrestrial life, even the adolescents go to the water during propagation period. Most of them lay eggs in the water and the young complete the growing process in the water. One of the interesting characteristics is that even the eggs are left on land, they do not have hard shell as are reptiles and birds but they have soft gelatinous cover. The eggs do not need hard shells since they are placed in the water.

Amphibians are terrestrial and aquatic. However, even the terrestrial animals take shelter in humid places. They are not drought-resistant. Aquatic species are typical freshwater animals. They are not seen in the sea or salty lakes. However, some of them are resistant to slightly hard water and brackish water.

Adolescents are carnivorous and hunt various animals depending on their sizes such as : worm, escargot, little fish for the big animals, reptiles and mammals. Nutrition patterns are different in the larval stage. Semender larvas are carnivorous as the adolescents. Anura larvas are herbivorous at the early stages and shifts to the carnivorous nutrition during the adolescence. Amphibians generally live close to the sea level but some can be found in the mountains. Vocal cords are quite developed in the terrestrial forms. Anurans have a special and complex receiver and peripheral nervous system in order to process the acoustic signals in a selective way for the voice detection. External area is generally the primary voice detectors in most of the species but front unit are also able to detect voices.

Protection Status of Species Detected as a result of Studies

Drying canal passing through the Project site establishes a suitable living space for the amphibians. Therefore, population density of amphibian fauna increases near the drying canal. Two types of amphibia (*Bufo viridis* and *Rana ridibunda*) are identified in the Project site and its surrounding as a result of the studies.

According to the Bern Convention; first type is stated in Bern Convention, List of Annex-II and the other one is stated in Bern Convention, List of Annex-III.

According to IUCN Red List; both species are included in “LC” category according to the IUCN criteria. Both species are included in “nt” category according to Demirsoy, A. (1996) Red Data Book categories.

According to the endemism; species detected are not endemic; on the contrary they are wide-spread cosmopolite species in Turkey.

According to the decision of Central Hunting Committee; amphibian species detected are not included in annex lists of Central Hunting Committee. Amphibians species detected in the Project site are stated in Table 22.

Classis 2: Reptilia

Main characteristics of the reptilia: Reptilia constitute the second classis of vertebrates called “terrestrial vertebrates” or “Tetrapoda”. There are 5 fingers on every leg and keratin toenails. However, snakes have no legs including the fossil forms. It is understood from the back leg fossils that older ancestor forms of this group have legs (e.g. Boa, Eryx). It is also known from some lacertilian species (e.g. Ophisaurus). Reptilia have an amnion membrane covering the embryo. As in all Amniote group, adolescents have metanephros renal and embryos have mesonephros renal as excretion organ.

Reptilians have double aort arch as Amphibians. Hearts have three or four chambers. Generally their hearts involves a ventricles partly divided by two Atrium and incomplete inter-ventricular septum. There is no external ear as in Amphibians. However, “legena” part develops as an extension of Sacculus under the semicircular canals in Labyrinth where hearing and balance organs develop in internal ear. This structure is a trace-like structure in Amphibians. There is Columella bone in the middle ear in order to transmit the vibrations to internal ear as in Amphibians and birds. They are gonochoristic. There are Penis, Hemipenis in different numbers depending on the groups excluding the Sphenodon and fertilization is always internal fertilization. Chelonians have Penis and lacertilians have Hemipenis. There is a hard calcareous cover around the eggs as are the birds. It is only possible to adapt the terrestrial life through such an egg structure. That cover protects the egg against drought and mechanical effects.

There is no larva stage (metamorphosis) throughout their developments. They resemble to bird and mammals in this respect. One of the important characteristics is that skin is covered with keratin scales (epidermic) and plates. They protect the skin against mechanical effects and prevent excessive dehydration. Their skins are dry and poor in terms of glands. There is almost no secretory gland. All reptilia have real teeth in the chin excluding the chelonians.

Protection Status of Species Detected as a result of Studies

Both the agricultural land and drying canal are suitable living spaces for reptilia fauna. Four types of reptilia species are detected in the Project site and its surroundings as a result of the literature search.

According to Bern Convention; three of the species are stated in Bern Convention, List of Annex-II, the other one is stated in Bern Convention, List of Annex-III.

According to IUCN Red List; three species are included in “LC” category according to IUCN Criteria. Both species are included in “nt” category according to Demirsoy, A. (1996) Red Data Book categories.

According to the endemism; there is no endemic species among the detected species.

According to the decision of Central Hunting Committee; all species are included in List of Annex-I according to the final lists including “2011-2012 Hunting Period of Central Hunting Commission Decision” enacted by being published in Official Journal dated 06.18.2011 and no. 27968 of Ministry of Environment and Forestry General Directorate of Natural Conservation and National Parks, Department of Hunting and Wild Life. Reptilia species identified detected in the Project site are presented in Table 23.



Figure 24. L Reptilia Species-I detected as a result of Literature Search.

Classis 3: Aves

Avesis included among reptilia and mammals in the vertebrates group. The main characteristics is that is front extremities transformed into wings enabling them to fly. Additionally, they are warm-blooded (constant temperature) and body is covered with feathers. Since their bones are empty, they have a light skeleton structure.

Protection Status of the Species Detected as a result of the Studies

The Project site and its surroundings are not rich in ornithofauna. Mainly the domestic species are seen around the Project site. However there are no suitable places around the Project site for the propagation, nutrition and relaxation. These areas are Hörmətçi Reed bed, Sultansazlıđı (Sultan Reed-bed) and Engir Lake. Approximate air distances of these areas to the Project site are as: Hörmətçi Reed-bed 7.8 km, Sultansazlıđı 30 km and Engir Lake 15.5 km.

Those areas which are important in terms of ornithofauna are not included in the Project site and its surroundings. Therefore, no negative effects of the Project on those areas are expected.

As a result of the studies, 21 aves species are detected in the Project site and impact area.

According to Bern Convention;

10 species are stated in Bern Convention, List of Annex-II, 6 species is stated in Bern Convention, List of Annex-III.

According to IUCN Red List;

All species are included in “LC” category according to IUCN criteria.

According to endemism;

There is no endemic species in the ornithofauna detected.

According to the Decision of the Central Hunting Committee;

11 species are stated in Annex-1 and 5 species are stated in Annex-2 according to the final lists including “2011-2012 Hunting Period of Central Hunting Commission Decision” enacted by being published in Official Journal dated 06.18.2011 and no. 27968 of Ministry of Environment and Forestry General Directorate of Natura Conservation and National Parks, Department of Hunting and Wild Life. Number of the aves species stated in Annex-3 is 5.

Aves species detected in the study field are presented in Table 24.



Figure 25. Ornithofauna-1 detected as a result of Literature Search



Figure 26. Ornithofauna-2 detected as a result of Literature Search

Classis 4: Mammalia

Ventral and pleural cavity is divided by a muscular diaphragm, there are wide-spread mammary and preparatory glands, the eggs are small and without shell. The skeleton is totally ossified. Male members have copulation (testicle) organ.

Protection Status of Species Detected as a result of Studies

As a result of the studies, 7 mammal species are detected in the Project site and impact area.

According to Bern Convention; one species is included in Annex-III of Bern Convention.

According to IUCN Red List; four species are included in “LC” category according to IUCN criteria.

Seven species are included in “nt” category according to Demirsoy, A. (1996) Red Data Book categories.

According to Endemism; there is no endemic species detected in mammal fauna.

According to the Decision of Central Hunting Committee; there is no species stated in the final lists including “2011-2012 Hunting Period of Central Hunting Commission Decision” enacted by being published in Official Journal dated 06.18.2011 and no. 27968 of General Directorate of Natural Conservation and National Parks, Department of Hunting and Wild Life.

Mammalia species detected in the study field is presented in Table 25.

**Table 22.** Project area and Amphibia species which will be existed in the impact area and its protection status

SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	HABITAT	POPULATION DENSITY	RED DATA BOOK (Demirsoy, A.)	BERN	IUCN 2011.2	M.A.K	RESOURCE (*)
	BUFONIDAE	TOAD FROG							
1	<i>Bufo viridis</i> LAURENTI, 1768	Night frog	Garden, open stony place, wetlands, all over the Turkey upmost 4600 m	Moderate	nt	Annex-II	LC		L
	RANIDAE	WATER FROG							
2	<i>Rana ridibunda</i> PALLAS, 1771	Green frog, water frog, marsh frog	Vegetation growth pond, lake and sluggish rivers, all over the Turkey upmost 2500 m	Moderate	nt	Annex-III	LC		L

(*)Resource: O: Observation L: Literature R: Research

Resource: YİĞİT, N., ÇOLAK, E. Ankara 2002 "Environmental Impact Assessment (EIA)", Demirsoy, A. "TURKISH VERTEBRATE AMFIBIA, 2006", http://www.biltek.tubitak.gov.tr/bilgipaket/canlilar/TR_tur_listesi/liste_amfibi.htm, <http://www.turkherptil.org>

Table 23. Project area and Reptilia (Reptile) species which will be existed in the impact area and its protection status

SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	HABITAT	POPULATION DENSITY	RED DATA BOOK (Demirsoy, A.)	BERN	IUCN 2011.2	M.A.K.	RESOURCE (*)
	LACERTIDAE	LIZARDS							
1	<i>Lacerta trilineata media</i> LANTZ&CYREN, 1920	Big green lizard	Roadside, scrubby places	Low	nt	Annex -II	LC	Annex -1	L
2	<i>Ophisops elegans</i> MENESTRIES, 1832	Field lizard	Steppes in Turkey open stony place	Moderate	nt	Annex -II	-	Annex -1	L
	COLUBRIDAE								
3	<i>Natrix natrix persa</i> (PALLAS, 1814)	Water snake with earring	Wetlands, scrubby places, still rivers, rarely gardens	Low	nt	Annex -III	LC	Annex -1	L
4	<i>Natrix tessellata</i> (LAURENTI, 1768)	Water snake	Wetlands all over the Turkey	Low	nt	Annex -II	LC	Annex -1	L

(*)Resource: O: Observation L: Literature R: Research

Resource: YİĞİT, N., ÇOLAK, E. Ankara 2002 "Environmental Impact Assessment (EIA)", Demirsoy, A. "TURKISH VERTEBRATE AMFIBIA, 2006", http://www.biltek.tubitak.gov.tr/bilgipaket/canlilar/TR_tur_listesi/liste_surungen.htm, <http://www.turkherptil.org>

**Table 24.** Project area and Aves (Bird) species which will be existed in the impact area and its protection status

SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	STATUS	RED DATA BOOK (KIZIROĞLU, İ.)	BERN	IUCN	M.A.K	RESOURCE (*)
	CICONIIDAE	WHITE STORK FAMILY						
1	<i>Ciconia ciconia</i> (L., 1758)	White stork	O, Y	A.3.1	Annex -II	LC	Annex -1	L
2	<i>Ciconia nigra</i> (L., 1758)	Black stork	O, Y	A.3	Annex -II	LC	Annex -1	L
	ACCIPITRIDAE	HAWKS						
3	<i>Buteo buteo</i> (L.,1758)	Falcon	Y	A.3	Annex -II	LC	Annex -1	L
4	<i>Buteo rufinus</i> (Cretzschmar, 1827)	Long-legged buzzard	Y	A.3	Annex -II	LC	Annex -1	L
	FALCONIDAE	GOSHAWK						
5	<i>Falco tinnunculus</i> (Linne, 1758)	Common kestrel	Y	A.2	Annex -II	LC	Annex -1	L
	COLUMBIDAE	COLUMBIFORMES						
6	<i>Columba livia</i> (Gmelin, 1789)	Rock dove	Y	A.5	Annex -III	LC	Annex -3	L
7	<i>Streptopelia decaocta</i> (Frisvaldsky, 1838)	Collared dove	Y	A.5	Annex -III	LC	Annex -2	L
	APODIDAE	SWIFTS						
8	<i>Apus apus</i> (L., 1758)	Common swift	O	A.3.1	Annex -III	LC	Annex -1	L
	UPUPIDAE	HOOPOES						
9	<i>Upupa epops</i> (L., 1758)	Hoopoe	O	A.2	Annex -II	LC	Annex -1	L
	ALAUDIDAE	LARKS						
10	<i>Galerida cristata</i> (L., 1758)	Crested lark	Y	A.3	Annex -III	LC	Annex -2	L
11	<i>Alauda arvensis</i> (L., 1758)	Skylark	Y	A.4	Annex -III	LC	Annex -2	L
	HIRUNDINDAE	SWALLOWS						
12	<i>Hirundo rustica</i> (L., 1758)	Barn swallow	O	A.5	Annex -II	LC	Annex -1	L
13	<i>Delichon urbicum</i> (L., 1758)	House martin	O	A.3	Annex -II	LC	Annex -1	L
	CORVIDAE	CORVUS						
14	<i>Pica pica</i> (L., 1758)	Magpie	Y	A.5	-	LC	Annex -3	L
15	<i>Corvus monedula</i> (L., 1758)	Jackdaw	Y	A.5	-	LC	Annex -3	L
16	<i>Corvus corone</i> (L., 1758)	Hooded crow	Y	A.5	-	LC	Annex -3	L
	STURNIDAE	STARLING						
17	<i>Sturnus vulgaris</i> (L., 1758)	Common starling	Y	A.5	-	LC	Annex -2	L
	PASSERIDAE	SPARROW						
18	<i>Passer domesticus</i> (L., 1758)	House sparrow	Y	A.5	-	LC	Annex -3	L



	FRINGILLIDAE	FINCHS						
19	<i>Carduelis chloris</i> (L., 1758)	Greenfinch	Y	A.3	Annex -II	LC	Annex -1	L
20	<i>Carduelis carduelis</i> (L., 1758)	Goldfinch	Y	A.3.1	Annex -II	LC	Annex -1	L
	EMBERIZIDAE	BUNTINGS						
21	<i>Emberiza hortulana</i> (L.,1758)	Bunting	O	A.3	Annex -III	LC	Annex -2	L

O: Observation L: Literature R: Research

(*)Resource: KIZIROĞLU, İ. (2008): Red List of Turkey Birds, Desen Matb., Ankara., YİĞİT, N., ÇOLAK, E. Ankara 2002 "Environmental Impact Assessment (EIA)" <http://www.trakus.org>**Table 25.** Project area and Mamalia (Mammal) species which will be existed in the impact area and its protection status

SPECIE NO	FAMILY and SPECIE NAME	ENGLISH NAME	HABITAT	POPULATION DENSITY	RED DATA BOOK (Demirsoy, A.)	BERN	IUCN 2011.2	M.A.K.	RESOURCE (*)
	SORICIDAE	SHREWS							
1	<i>Crocidura leucodon</i> (HERMANN, 1780)	Field shrew	Open field, timber lines, scrubby places. All over the Turkey except eastern black sea region	Moderate	nt	Annex -III	LC	-	L
	CRICETIDAE	HAMSTERS							
2	<i>Cricetulus migratorius</i> (PALLAS, 1773)	Gray dwarf hamster	Plateau, forest culture fields	Moderate	nt	-	LC	-	L
	MURIDAE	MOUSES, RATS							
3	<i>Rattus rattus</i> (Linnaeus, 1758)	House rat	Riverside, scrubby places Anatolian region	Moderate	nt	-	LC	-	L
4	<i>Mus domesticus</i> LINNAEUS, 1758	House mouse	All over the Turkey	Low	nt	-	LC	-	L
	CANIDAE	DOGS							
5	<i>Canis familiaris</i> MARGO, 1891	Pet dog	All over the Turkey	Moderate	nt	-	-	-	L
	FELIDEA	CATS							
6	<i>Felis catus</i> LINNAEUS, 1758	Pet cat	All over the Turkey	Moderate	nt	-	-	-	L
	BOVINAE	CATTLES							
7	<i>Bos taurus</i> (=Bos primigenius taurus) LINNAEUS, 1758	Tame cattle	All over the Turkey	Low	nt	-	-	-	O

(*)Resource: O: Observation L: Literature R: Research

Resource; "YİĞİT, N., ÇOLAK, E. Ankara 2002 Çevresel Etki Değerlendirme (ÇED)", "Demirsoy, A. "TÜRKİYE OMURGALILARI MEMELİLER, 2006" <http://www.tramem.org>

3.6 AIR QUALITY

On the project area PM₁₀ measurements were done with three different points in 25.11.2011. Results of measurements and “Industrial source air pollution control regulation (Appx-1)” were compared. As a result of this, it was seen that PM₁₀ results are lower than limited levels in regulation. Coordinates and methods of measurements are given in Table 26.

Table 26. Coordinates and methods of measurements

Point	Parameter	GPS Coordinates	Method
Point 1	Dust	E: 709337 N: 4293426	TS EN 12341:2002
Point 2	Dust	E: 708794 N: 429377	TS EN 12341:2002
Point 3	Dust	E: 709324 N: 4294459	TS EN 12341:2002

Results of air quality measurements are given in Table 27.

Table 27. Results of air quality measurements

Point	Results(mg/Nm ³)	Limit level (mg/m ³)	Temperature (°C)	Standard volume (m ³)
Point 1	0,74	3*	6	1.08
Point 2	0,56	3*	6.2	1.07
Point 3	0,65	3*	5.8	1.08

* Industrial source air pollution control regulation (Appx- 1b2)

All the results for PM₁₀ measurements, done in Kayseri Integrated Health Campus project area, are accordance with the Turkish Environment Legislation.

There are two air quality measurement stations which belong to Environment and Urbanization Ministry around the project area. Information about these stations in question is shown in Table 28.

Table 28. Air quality measurement stations

Name Of The Station	Coordinates	Measured Parameters	Distance From Project Area
Kayseri OSB Station	E: 706440	PM ₁₀ SO ₂	4150 m
	N: 4290717		
Hürriyet Station	E: 714653	PM ₁₀ SO ₂ NO _x CO	7260 m
	N: 4289000		

Source: Air quality monitoring station web site (www.havaizleme.gov.tr)

There is an air quality monitoring station which belongs to Environment and Urbanization Ministry in the province Kayseri. PM₁₀ and SO₂ are measured in Kayseri OSB and Hürriyet Stations. In addition to this, in Hurriyet Station, also NO and CO parameters are measured. Air quality data from 01.08.2010 to 31.08.2011 are summarized in tables below.

As it can be seen in Figure 27, PM₁₀ concentrations were measured in Kayseri OSB station increases in winter due to warm-up requirement.

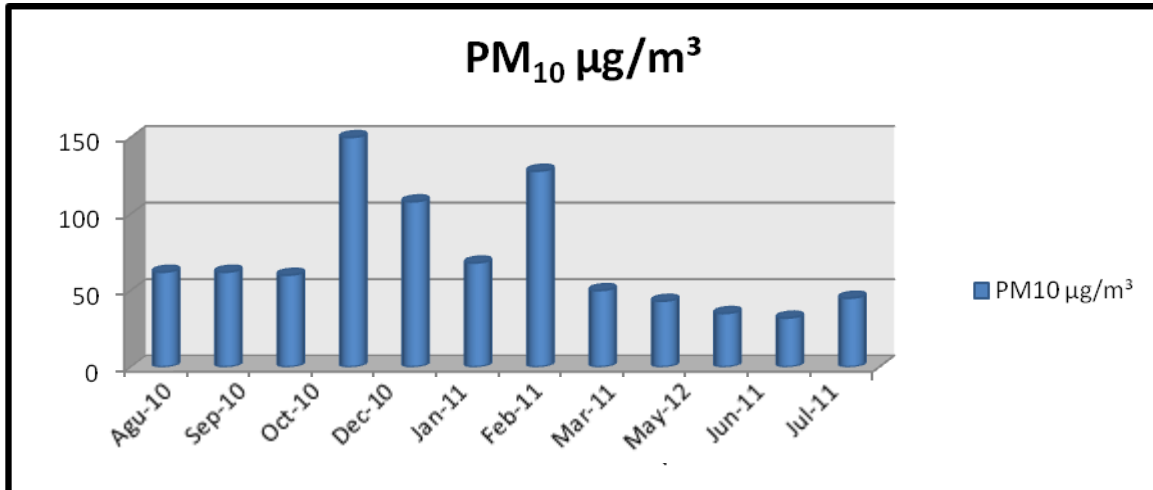


Figure 27. PM₁₀ concentrations vs. months in Kayseri OSB station

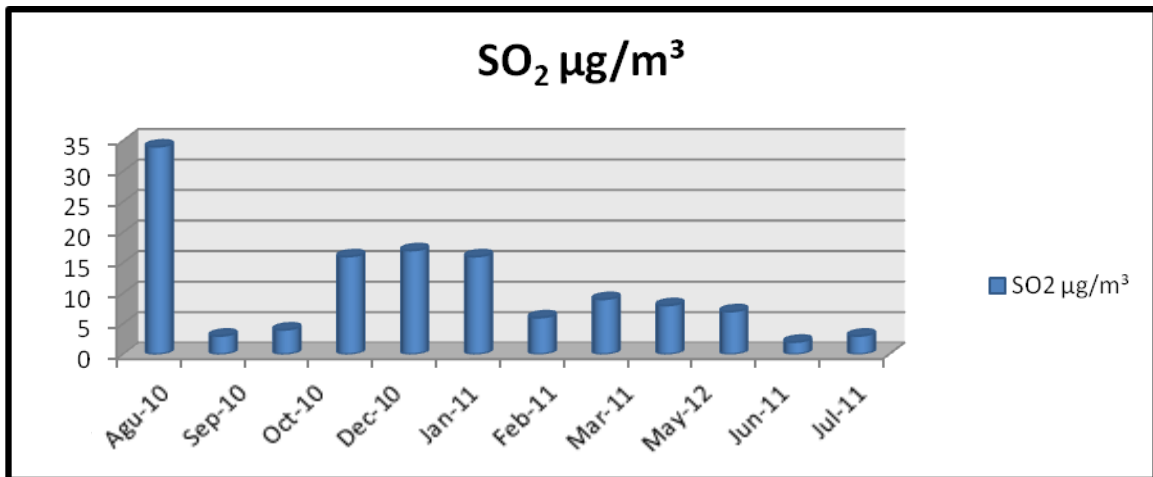


Figure 28. SO₂ concentrations vs. months in Kayseri OSB station

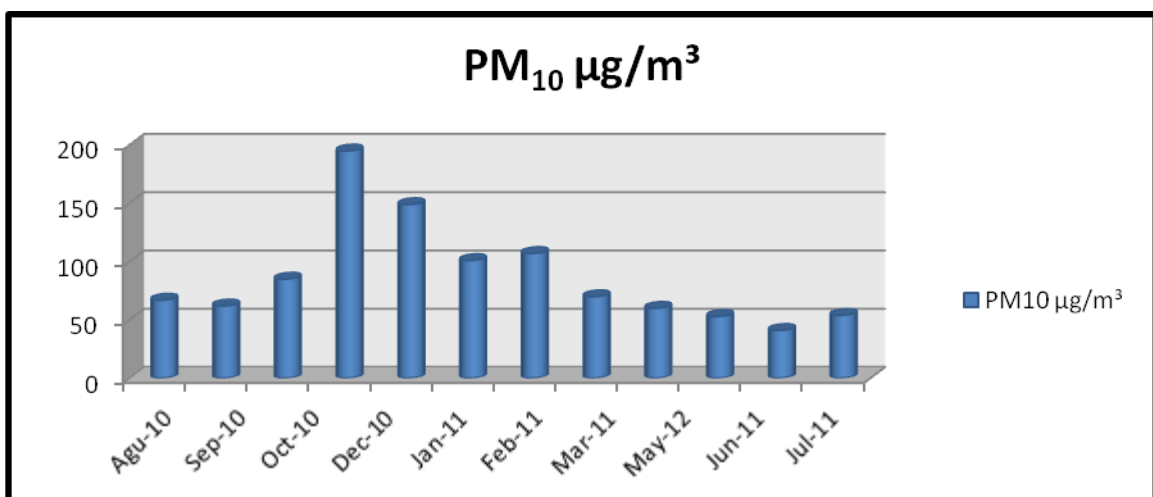


Figure 29. PM₁₀ concentrations vs. months in Hurriyet station

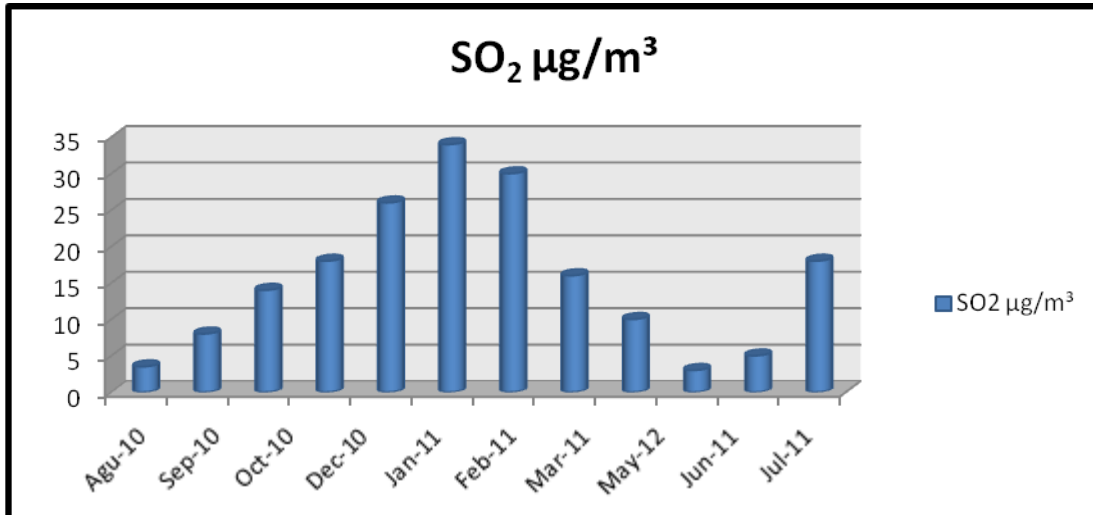


Figure 30. SO₂ concentrations vs. months in Hurriyet station

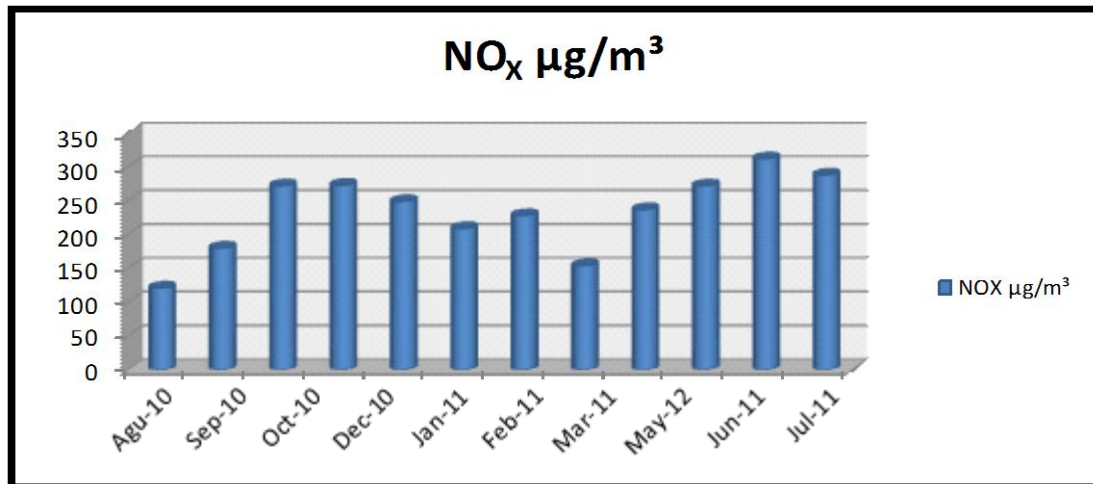


Figure 31. NO_x concentrations vs. months in Hurriyet station

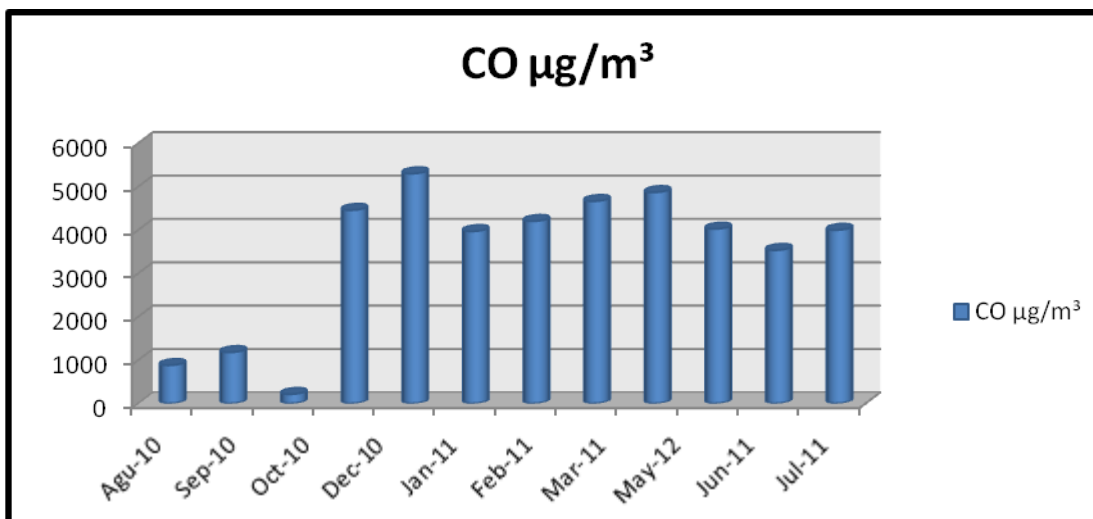


Figure 32. CO concentrations vs. months in Hurriyet station

3.7 SOIL QUALITY

On the Kayseri Integrated Health Campus project area, soils were analyzed at three different points in 25.11.2011. Standard efficiency analyses were applied on samples by a laboratory which is authorized by Agriculture Ministry. Samples were taken from a depth of approximately 25 cm. According to measurements, organic matter, available phosphorus, potassium, and high amounts of lime were found in the soils. According to the measurement results, remediation activity is not needed for soil. Results of analyses are given in Tables below.

Table 29. Soil analyze results at point 1

Parameter	Results	Level	Unit
pH	8.51	Strong Alkali	**
Electrical Conductivity	1.18	Salt-Free	dS/m
Total Lime	23.14	Excess Lime	%
Organic Matter	4.54	High	%
Available Phosphorus	6.95	Sufficient	Kg/da
Available Potassium	198	Sufficient	Kg/da
Texture	88.22	Clayed	%

Table 30. Soil analyze results at point 2

Analysis Name	Results	Level	Unit
pH	8.00	Weak Alkali	**
Electrical Conductivity	1.11	Salt-Free	dS/m
Total Lime	24.88	Excess Lime	%
Organic Matter	6.50	High	%
Available Phosphorus	40.58	Excess	Kg/da
Available Potassium	158.10	Sufficient	Kg/da
Texture	94.38	Clayed	%

Table 31. Soil analyze results at point 3

Analysis Name	Results	Level	Unit
pH	8.75	Strong Alkali	**
Electrical Conductivity	1.11	Salt-Free	dS/m
Total Lime	32.54	Too Much Lime	%
Organic Matter	3.62	Normal	%
Available Phosphorus	19.15	Excess	Kg/da
Available Potassium	119.10	Sufficient	Kg/da
Texture	80.96	Clayed	%

3.8 WATER QUALITY

Water qualities of two different water sources were measured on project area. These are surface water and well water respectively.

3.8.1 Surface water

The quality of flood protection channel water was measured in the construction area of the project in 26.11.2011. Results are given in Table 32 according to parameters. Water samples were taken by TS EN ISO 5667-6:2008 standard and they were kept in laboratory conditions according to TS EN ISO 5667-3:2007 standard. Analyses were done with waste water treatment facilities, technical procedures notification Table E7.2 was developed to Assessment of Chemical Quality of Irrigation Water. According to the results, it can be say that water categorized as 2.class because of its ratio of the sodium absorption and conductivity parameters.

It is considered to be less-middle as degree of damage to use. It has a property of 1.class in terms of total dissolved suspended solid matter, boron and chlorine. This type of water hasn't got degree of damage so remediation activity is not needed for the surface water. Results of analyses are given in Table 32.

Table 32. Results of surface water analyses

Parameter-Unit	Results	Irrigation Water Quality Classes		
		I.Class	II. Class	III. Class
pH	8.13	6.5-8.5	6.5-8.5	6.0-9.0
Conductivity (µS/cm)	784	< 700	700-3000	>3000
Saltiness (‰)	0.4	-	-	-
Total dissolved solid (mg/L)	383	< 500	500-2000	>2000
TSS (mg/L)	<10	-	-	-
Boron (mg/L)	<0.3	< 0.7	0.7-3.0	> 3.0
Chloride (mg/L)	36.5	< 140	140 –350	> 350
Sodium (mg/L)	37	< 70	> 70	-
SAR (meq/L)	1.83	≥ 2.9	2.9-1.3	< 1.3

3.8.2 Well water

Well water quality was measured on the project area in 25.11.2011. Results are given in Table 33 according to parameters. Samples were measured on the scope of "Water Pollution Control Regulation", classification of water sources according to quality. With reference to this, water quality is categorized four classes. These classes are as follows;

- Class 1 :High quality water
- Class 2 :Less polluted water
- Class 3 :Polluted water
- Class 4 :Much polluted water

pH, temperature, TDS, total coliform, chemical oxygen demand, biochemical oxygen demand, chrome +6, color, phenol, fluoride chlorine, sulfate, nitrate, boron, mercury, cadmium, copper, chrome zinc, nickel, manganese, sodium, cobalt, ferrous, selenium, Arsenic, aluminum, Barium, Total organic carbon, Mineral oil, cyanide and foam parameters have characteristics of Class 1 water. Ammonium nitrogen and nitrite nitrogen have characteristics of Class 2 whereas Total Kjeldahl Nitrogen has characteristics of Class 3.

It is understood with the help of coli form and fecal results that, samples generally doesn't contain human or animal resource waste from bacteriological aspect. Pesticide which is a type of pesticide residue wasn't found in the sample. Sample can be categorized as Class 1 from the chemicals aspect, also can be categorized as Class 2 and 3 from some organic parameters aspect. At the same time, sample can be categorized as Class1 in terms of heavy metal concentrations.

Table 33. Well water analyze data

Parameter	Result	WPCR Table-1 Water Quality Classes			
		I	II	III	IV
pH	7.32	6.5-8.5	6.5-8.5	6.0-9.0	6.0-9.0
Temperature (°C)	8.1	25	25	30	>30
Dissolved Oxygen (mg/L)	7.2	8	6	3	<3
Oxygen Saturation (%)	87.1	90	70	40	<40
Total Dissolved Solid (mg/L)	104	500	1500	5000	>5000
Fecal coliform (KOB/100 mL)	0	10	200	2000	>2000
Total coliform (KOB/100 mL)	0	100	20,000	100,000	>100,000
Chemical Oxygen Demand (KOl) (mg/L)	<10	25	50	70	>70
Biochemical Oxygen Demand (BOl) (mg/L)	<4	4	8	20	>20
Chrome +6 (Cr ⁺⁶) (µg/L)	<20	-	20	50	>50
Color (Pt-Co)	5	5	50	300	>300
Oil (mg/L)	<10	0.02	0.3	0.5	>0.5
Phenol (mg/L)	<0.001	0.002	0.01	0.1	>0.1
Chlorine (µg/L)	<100	1,000	1,500	2000	>2,000
Chloride (mg/L)	11	25	200	400	>400
Sulfate (mg/L)	6.5	200	200	400	>400
Sulfur (µg/L)	<100	2	2	10	>10
Total Kjeldahl Nitrogen (mg/L)	2.4	0.5	1.5	5	>5
Ammonium Nitrogen(mg/L)	0.45	0.2	1	2	>2
Nitrate Nitrogen (mg/L)	1.4	5	10	20	>20
Nitrite Nitrogen (mg/L)	0.0052	0.002	0.01	0.05	>0.05
Total Phosphor (mg/L)	0.15	0.02	0.16	0.65	>0.65
Free chloride (µg/L)	<20	10	10	50	>50
Boron (µg/L)	<300	1,000	1,000	1,000	>1,000
Mercury (µg/L)	<1	0.1	0.5	2	>2
Cadmium (µg/L)	<3	3	5	10	>10
Copper (µg/L)	<10	20	50	200	>200
Chrome (total) (µg/L)	<20	20	50	200	>200
Zink (µg/L)	90	200	500	2,000	>2,000
Nickel (µg/L)	<20	20	50	200	>200
Manganese (µg/L)	<10	100	500	3,000	>3,000
Sodium (mg/L)	17.74	125	125	250	>250
Cobalt (µg/L)	<10	10	20	200	>200
Lead (µg/L)	<50	10	20	50	>50
Ferrous (µg/L)	37	300	1,000	5,000	>5,000
Selenium (µg/L)	<1	10	10	20	>20
Arsenic (µg/L)	8.7	20	50	100	>100
Aluminum (mg/L)	<0.3	0.3	0.3	1	>1
Barium (µg/L)	<500	1,000	2,000	2,000	>2,000
Total Organic Carbon (mg/L)	<5	5	8	12	>12
Mineral oil and etc. (mg/L)	<0.003	0.02	0.1	0.5	>0.5
Total Pesticide (mg/L)	<0.06	0.001	0.01	0.1	>0.1
Cyanide (Total) (µg/L)	<10	10	50	100	>100
Detergent (MBAS) (mg/L)	<0.025	0.05	0.2	1	>1.5

The closest wells to the project area are Mahrumlar and Molu wells whose chemical and physical quality of the water was measured by Kayseri Metropolitan Municipality. Mahrumlar well is 6.5 km as the crow flies far away from the project area. Results of the analyses for water of the Mahrumlar well are given in Table 34.

Table 34. Results of the analyses for Mahrumlar well

Months	pH	Conductivity EC $\mu\text{S/cm}$	Turbidity (NTU)	Active chlorine (mg/l)	Ammonium NH_4^{+1} (mg/l)	Nitrite NO_2 (mg/l)	Chloride Cl^{-1} (mg/l)	Oxygen (mg/l O_2)	Coliform bacteria (number/100ml)
Limit value*	6.5-9.5	2,500	**	0.5	0.5	250	5	0	6.5-9.5
January 2011	7.32	413	0.30	0.45	N/A	N/A	28.83	0.76	0
February 2011	7.28	406	0.18	0.40	N/A	N/A	28.83	0.46	0
March 2011	7.44	406	0.24	0.45	N/A	N/A	29.39	0.73	0
April 2011	7.49	542	0.16	0.41	N/A	N/A	28.68	0.65	0
June 2011	7.41	408	0.16	0.47	N/A	N/A	30.53	0.72	0
July 2011	7.34	407	0.24	0.42	N/A	N/A	28.97	0.56	0
August 2011	7.40	405	0.20	0.37	0.009	<0.001	28.4	0.65	0
September 2011	7.76	402	0.12	0.37	0.005	<0.001	29.3	1.31	0
October 2011	7.46	409	0.12	0.35	N/A	N/A	28.12	0.60	0

* According to max drinkable water levels human consumption proposed water regulation.

** Acceptable for consumer.

Molu well is 5 km as the crow flies far away from the project area. Results of the analyses for water of the Molu well are given in Table 35.

Table 35. Results of the analyses for Molu well

Months	pH	Conductivity EC $\mu\text{S/cm}$	Turbidity (NTU)	Active chlorine (mg/l)	Ammonium NH_4^{+1} (mg/l)	Nitrite NO_2 (mg/l)	Chloride Cl^{-1} (mg/l)	Oxygen (mg/l O_2)	Coliform bacteria (number/100ml)
Limit value*	6.5 -9.5	2,500	**	0.5	0.5	250	5	0	6.5-9.5
January 2011	7.69	421	0.29	0.32	N/A	N/A	12.78	0.44	0
February 2011	7.60	423	0.37	0.34	N/A	N/A	13.92	0.52	0
March 2011	7.68	497	0.19	0.37	N/A	N/A	14.34	0.49	0
April 2011	7.72	420	0.44	0.30	N/A	N/A	13.35	0.44	0
June 2011	7.76	422	0.17	0.34	N/A	N/A	13.77	0.06	0

July 2011	7.58	422	0.38	0.30	N/A	N/A	12.07	0.32	0
August 2011	7.76	418	0.20	0.32	N/A	N/A	13.35	0.30	0
September 2011	8.01	420	0.14	0.34	N/A	N/A	12.07	0.24	0
October 2011	8.01	420	0.14	0.34	N/A	N/A	12.07	0.24	0

* According to max drinkable water levels human consumption proposed water regulation.

** Acceptable for consumer.

3.9 NOISE

Noise was measured on the Kayseri Integrated Health Campus project area in 25.11.2011. In order to determine existing noise of the project area, 4 measurements were done with a period of 8 minutes. Results were record far from reflective surfaces and 1.5m height from project area.

Result of noise measurements are given in Table 36, at the same time noise report can be found in Appx-36.

Table 36. Noise quality

No	Temperature (°C)	Humidity (%)	Coordinates	Result
1	6,6	30	709335 - 4293419	45.70
2	6,4	32	708778 - 4293785	45.00
3	6,0	34	709070 - 4293993	42.20
4	6,3	35	709350 - 4294468	45.50

3.10 SOCIO-ECONOMIC PROFILE

Kayseri Health Campus will be built in the Şeker Quarter, borough of Kocasinan in Kayseri. The scan by Turkish Statistical Institute revealed that Kayseri had a population of 1,234,651 people in 2010. The province Kayseri which has 17,043 km² surface area is one of the touristic city in Turkey. Borough of Kocasinan has the biggest surface area in the province Kayseri. There are five settlement areas around the project area. Information about these settlements is given in Table 37.

Table 37. Location and population of the closest settlements to project area

Settlement	Distance (km)	Population (people)
Şeker Quarter	Project area	1,271
Oymaağaç Quarter	9.4	565
Selimiye Quarter	3.5	11,717
Keykubat Quarter	7.6	17,589
Yenidoğan Quarter	3.4	8,015
Oruçreis Quarter	4.7	3,267

3.10.1 Health

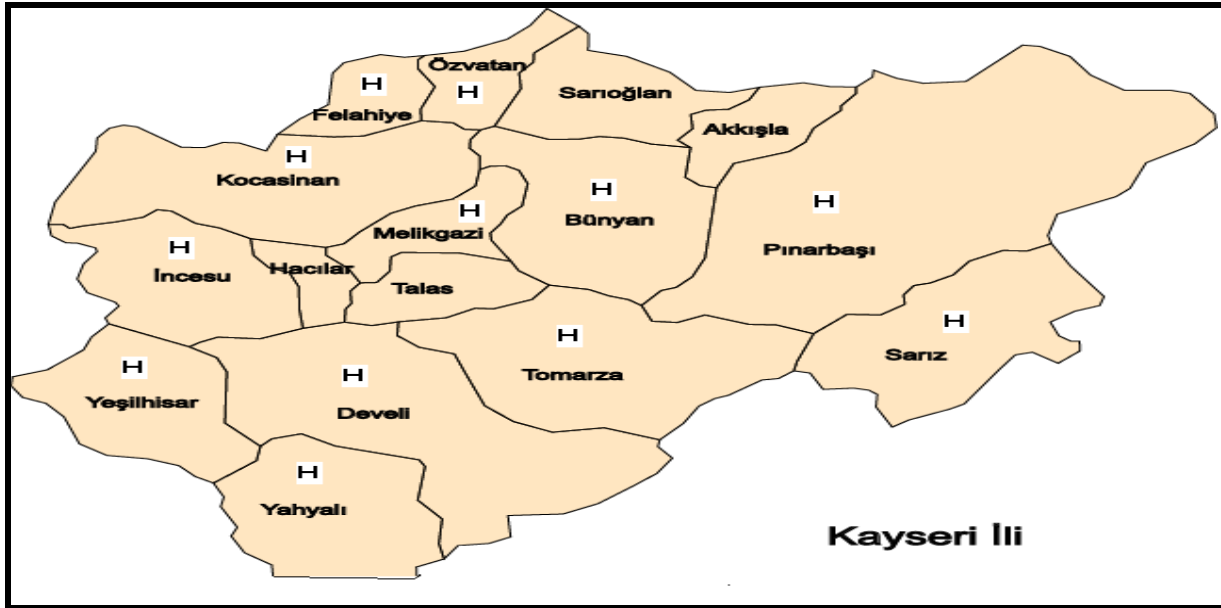


Figure 33. Hospitals run by the Ministry of Health in Kayseri the province

Kayseri is also a center that offers healthcare services to the provinces around it. In addition to the local provincial folks, a high number of visitors from surrounding and faraway provinces visit Kayseri for its healthcare services. When the examined patient count, a significant criterion of use of the healthcare services, is checked, the number of patients examined annually increases. Among the most important reason of such increase are the population rises, and the visitors from the surrounding provinces seeking healthcare services, given the fact that Kayseri is a regional province by its nature.

Table 38. Health information about Kayseri

1)HOSPITALS		2008		2009		2011	
		Number	Number of bed	Number	Number of bed	Number	Number of bed
University Hospital		1	1.133	1	1.229	1	1.216
State hospital		13	1.632	13	1.673	13	1.884
Military hospital		1	100	1	100	1	100
Tuberculosis Dispensary		2		1			
Private hospitals		12	535	13	607	15	827
Health centre		101		64			
Health unit		121		156			
2) PERSONNEL		2008		2009		2011	
Specialist Dr.	person	943		981		825	
Practitioner Dr.	person	1047		578		608	
Dentist	person	251		267		92	
Pharmacist	person	412		419		32	
Health officer	person	374		527		1461	
Nurse	person	1.939		2.046		1623	
Midwife	person	870		887		953	
Technician	person	1.385		1.439		625	

Source: Provincial Directorate of Health

Table 39. Number of health personnel per person in Kayseri and Turkey

	Doctor	Nurse	Midwife	Dentist	Pharmacist
Kayseri	1.00	1.10	0.50	0.10	0.20
Turkey	1.44	1.14	0.59	0.25	0.34

Source: Provincial Directorate of Health

Table 40. Number of beds and their surface areas of hospitals in Kayseri

HOSPITAL	Number of beds	Total area(m ²)	Closer area (m ²)	Administrative area (m ²)	Area per one bed (m ²)
Kayseri Training and Education Hospital	973	61,129	52,374	6,181	54
Kayseri Obstetrics and Gynecology and Pediatric Diseases Hospital	200	10,000	12,063	611	60
Nuh Naci Yazgan Cheast Diesase Hospital	125	10,000	7,000	602	56
Bünyan State Hospital	42	7,542	4,280	430	102
Develi State Hospital	75	6,750	4,379	329	58
Felâhiye District Hospital	0	6,762	640	75	-
İncesu District Hospital	0	1,282	650	120	-
Özvatan District Hospital	30	22,900	1,890	85	76
Pınarbaşı State Hospital	14	4,438	2,381	295	170
Sarız District Hospital	0	11,346	5,800	580	-
Tomarza State Hospital	0	9,193	2,174	160	-
Yahyalı State Hospital	47	5,904	3,740	280	80
Yeşilhisar State Hospital	8	4,490	950	245	119
Total	1514	161,736	98,321	9,993	64.9

Source: Republic Of Turkey Ministry Of Health Public Private Partnership Office

The total number of beds in the province is 1,514 (hospitals run by the Ministry of Health) and the average closed area per bed is 64.9m².

3.10.2 Economy

The population of age 12 and above in the labor force is 49% according to the results of the 2000 census in the province of Kayseri. This ratio displays a huge difference when it comes to genders. The male population in labor force is 67% whereas the female 24 population in labor force is 32%. According to the results of the 2000 census, out of 805,751 people at the age of 12 and above living in Kayseri, 401,496 people were employed and 404,247 people were not in the labor force whereas 34,163 people are unemployed. The unemployment rate

in the province is 8.5%. This ratio turns out to be 9.6% in male population, and 6.2% in the female population.

Table 41. Economic status of population

Status	Year	
Gross National Product per person	2009	1,806 USA \$
Tax per person	2009	0.9 thousand TL.
Ratio of loans to deposits	2008	89.0%
Numbers Members of Turkey Employment Agency	2009	34,885 people
Locality of Development Priority Status	-	Normal Locality
Employment rate of employees in the agricultural sector	2009	26.7%
Employment rate of employees in the industry sector	2009	25.3%

Source: Provincial Directorate of Industry and Commerce of Kayseri.
(Status Report of Industry and Trade in 2009)

3.10.3 Education

In terms of schooling ratio, Kayseri has an average that is above the national one in primary and secondary education except for the higher education. While the national average in schooling ratio is 23% in higher education, this figure drops to 16% in Kayseri. 220,000 students are enrolled for primary and secondary education with 9,500 teachers offering their services. Erciyes University boasts 26,000 students and 1,612 lecturers.

Table 42. Sociological status of population

Status	
Ratio of literacy	93.6%
Number of published local newspaper	28
Number of local TV station	5
Number of local radio station	22
Number of trademarks	4,685

Source: Provincial Directorate of Industry and Commerce of Kayseri.
(Status Report of Industry and Trade in 2009)

3.11 CULTURAL HERITAGE

Opinion was requested from Kayseri Protection of Cultural Assets Region Directorate to determine the location and properties of cultural assets lies on the project area. It was denoted that there isn't any cultural assets onto or surroundings of the project area by the land etudes. It can be said that the closest archaeological conservation area is as the crow flies 8km far from the Kayseri Integrated Health Campus Project area. So, there is no impact which is originated from the project on this archaeological site. If there is any archaeological asset is found in the land during construction, works will be stopped immediately and then 4. article of the "Protection of Cultural and Natural Assets Law" will be applied. This article is as follows;

" The person who found the mobile or immobile cultural and natural assets or knowing that theese assets are found by some other person or just heard about the assets are found by some other person must tell the closest museum directorate or mukhtar of a village or other supervisor of civil administrations at the latest within three days. If theese asset are found in the military garrisons or restricted areas, it should be duly informed to the authorized commander. The mukhdar or civilian authority who informed about this issue must take the necessary precautions in order to safety of the assets. Mukhtar must tell the closest supervisor then the supervisor must inform the Ministry of Culture

and Tourism within the ten days. The Ministry and the museum director will done the necessary documentation according to the related Law.

4. ENVIRONMENTAL AND SOCIAL IMPACTS ARISING FROM THE PROJECT AND THE MEASURES TO BE TAKEN FOR ELIMINATING SUCH IMPACTS

Formation of environmental and social impacts is in question due to construction and operation activities of Kayseri Integrated Health Campus.

Environmental impacts arising from Kayseri Integrated Health Campus whose investment period is 3 years and operation period is 25 years shall be assessed separately for both construction and operation phases. In addition to this, potential environmental and social impacts and the things to be done for solving the same shall be examined in this section.

4.1 IMPACTS DURING THE CONSTRUCTION PHASE

It is planned that 2,000 persons shall be employed during construction period of Kayseri Integrated Health Campus project. Employees shall stay in life areas that are located at the west of the project site.

Impacts likely to occur in this phase shall be examined as sub-titles in Table 43 specified below:

Table 43. Effects of construction stage in project

NO	EFFECTS OF CONSTRUCTION STAGE
1	Wastewater
2	Air Emissions
3	Noise
4	Excavation Waste
5	Solid Waste
6	Hazardous Waste
7	Medical Waste

4.1.1 Wastewater

It is expected that only domestic wastewater shall be produced during construction period. 2,000 persons shall be employed during construction phase and daily consumed water volume has been calculated below.

Required water volume per person=150 lt/day

$$Q = q \times N$$

Q = Daily total wastewater volume

q = Daily wastewater volume arising from one person

N = The number of employee

Depending on the foregoing, daily solid waste volume likely to emerge during construction activities is;

$$Q = 150 \text{ lt/persons-day} \times 2,000 \text{ persons} = 300,000 \text{ lt/day} = 300 \text{ m}^3/\text{day}$$

If entire water used is accepted to come out as wastewater, it is seen that total domestic wastewater volume likely to emerge on the site is 300 m³/day.

Water requirement required during construction phase is planned to be met from 5 groundwater well to be opened on the project site. Samples shall be taken from the wells that shall be subject to permitting to the Law on Groundwater numbered 167 and their analyses shall be conducted. In case analyses results fail to conform to potable water standards, it shall be met from potable water network belonging to Kayseri Water and Sewage Administration General Directorate (KASKİ). The letter given by KASKİ in relation to the said issue has been provided in Appx-1.

Domestic wastewater likely to occur during construction phase shall be transferred to sewage system existing in the borders of the project site. An application has been made to KASKİ for the said issue and it has been learned from the writing dispatched for answer that wastewaters may be delivered to canal network in Ø 500 mm diameter passing from the project site. The letter given by KASKİ has been provided in **Appx-1**.

Sewage system of KASKİ to which wastewaters created from Kayseri Integrated Health Campus shall be transferred ends in Kayseri Advanced Biological Treatment Wastewater Facility. Kayseri Advanced Biological Treatment Wastewater Facility was put into service in the vicinity of Karasu brook on Ankara road, Boğazköprü location on 20 February 2004 for treating domestic and partially industrial wastewaters. Advanced Biological Wastewater Treatment procedures ensures neutralization of nutrition substances such as nitrogen (N) and phosphor (P) causing contamination in water sources as well as carbon available in wastewater.

Concrete batch plant will be established on the project site for the concrete required during construction phase of the project. Capacity of the said concrete batch plant is 90m³/hour and 8 hours daily operation is planned. Since the capacity of the concrete batch plant will be less than 100m³/hour, EIA study will not be needed. It has been assumed that 190lt water is used for 1m³ concrete. It has been calculated that the facility needs total 137m³ water consumption for daily 720m³ concrete production of the facility.

Wastewater likely to emerge during washing procedure of transmixer:

3 transmixer 200 lt = 600 lt = 0.6 m³ (per time)

If it is regarded that 3 transmixers shall perform 18 times average per day;

0.6 m³ x 18 times/day = 11 m³ times/day (total for 3 mixers)

As a result of procedure of washing of mixers in the facility, approximately amount of 11 m³/day wastewater shall be created. Suspended solid substance concentration and turbidity are fairly high in emerged wastewaters. For this end, it is planned to perform sedimentation pool in measurements that shall bear approximately 11 m³/day wastewater capacity with 24 hours waiting. Water and aggregate of transmixer whose interior has been washed out shall be delivered to sedimentation pool and solid materials inside the transmixer shall be enabled to be removed from the water.

Material at the bottom of sedimentation pool shall be cleansed in periodic intervals. Mud accumulated in the deep part of pool shall be disposed according to the provisions of Turkish Environmental Legislation. (Regulation on Control of Solid Wastes published by the Official Journal dated 14.03.1991 and numbered 20814).

Water treated from suspended solid substance direction and available in the pool is planned to be re-used in washing of transmixers by making recycling. Since wastewater likely to occur from washing of transmixers shall be used alternately, no wastewater discharge shall be made to receiving environment.

4.1.2 Air Emissions

Impacts towards air quality are expected due to

- Construction works such as excavation-backfilling etc.
- Tools and equipment to be used in the works

In Kayseri Integrated Health Campus project Information regarding such impacts has been provided below.

4.1.2.1 Construction Phase Dust Emission Calculation

Dust emission shall occur arising from excavation works during construction phase of the project (material dismantling, loading, handling, unloading etc.), movements of construction machines on the project site and transportation procedures onto the project site.

Emission factors have been used for dust emissions arising from the works realized in quarrying, rock crushing and classification facilities in the Regulation on Control of Industrial Source Air Pollution effectuated by being published in the Official Journal dated 03.07.2009 and numbered 27277 in calculation of dust emissions likely to occur during excavation works. Emission Factors have been specified in Table 44.

Table 44. Emission factors used for the calculation of dust emission mass flow

Sources	Emission Factors	
	Uncontrolled	Controlled
Demounting	0.025 kg/ton	0.0125 kg/ton
Uploading	0.010 kg/ton	0.0050 kg/ton
Transportation (Total Distance)	0.700 kg/ton	0.3500 kg/ton
Dumping	0.010 kg/ton	0.0050 kg/ton
Storage	5.800 kg/ton	2.9000 kg/ton

Resource: IOAQCR, Table 12.6

Mass flow of dust emission likely to occur arising from construction operations for Kayseri Integrated Health Campus has been calculated below.

It is planned that excavation works to be performed on the project site shall be completed within 1.5 years. Vegetable soil scraping works from the site shall be executed in parallel with excavation work. In this case, 52,500 m³ (by assuming that there is vegetable soil in average 0.35 cm thickness) of approximately 600,000 m³ excavation works to be conducted on the project site shall be vegetable soil. (Reference: Kayseri Integrated Health Campus Soil Survey and Foundation Engineering Report).

Mass flows of dust emissions likely to occur arising from vegetable soil scraping and other excavation works in line with the emission factors set out in Table 44 have been calculated as follows for uncontrolled case.

a) Dust Emission Calculation Arising From Vegetable Soil Scraping Activities

Vegetable soil intensity has been taken average 1.5 ton/m³ in calculations.

- Excavation Period 180 day (6 months)
- Daily Operation Period 10 hours/day
- Excavation Volume 52,500 m³ (d=1.5 ton/m³, 78,750 ton)
- Daily Excavation Volume 440 ton
- Hourly Excavation Volume 44 ton/hours

- Truck Bearing Capacity 20 ton/vehicles
- Average Bearing Capacity Within Facility Site 300 m

Excavation

Dust Emission During Excavation (Uncontrolled)= 44 ton/hour x 0.025 kg/ton

Dust Emission During Excavation (Controlled)= **1.1 kg/hour**

Loading

Dust Emission During Loading (Uncontrolled) = 44 ton/hour x 0.01 kg/ton

Dust Emission During Loading (Controlled)= **0.44 kg/hour**

Handling

Dust Emission During Handling (Uncontrolled)= 0.7 kg/ton x 2 times/day x 1day/1 hour x 0.6 km/times (arrival & departure)

Dust Emission During Handling (Uncontrolled)= **0.84 kg/hour**

Unloading

Dust Emission During Unloading (Uncontrolled)=44 ton/hour x 0.01 kg/ton

Dust Emission During Unloading (Uncontrolled)= **0.44 kg/hour**

Temporary Storage

If vegetable soil material is assumed to be stored in average 2 meters height in temporary storage in appropriate areas within the project site borders, surface area shall be 10 m² for vegetable soil to be stored in daily basis. Dust volume likely to occur during storage shall be as follows:

Emission During Material Storage (Uncontrolled): 5.8 kg/ha-day x 10 m²/day x 1 ha/10,000 m² x 1 day/10 hour

Emission During Material Storage (Uncontrolled): **0.00058 kg/hour**

➤ Dust emission volume likely to occur during vegetable soil scraping works: Qa,

Qa(Uncontrolled)= Excavation + Loading + Handling + Unloading + Storage

Qa(Uncontrolled)= 1.1 kg/hour + 0.44 kg/hour + 0.84 kg/hour + 0.44 kg/hour + 0.00058 kg/hour

Qa=0.82 kg/hour.....(1.a)

b) Dust Emission Calculation Arising From Excavation Activities

Approximately 547,500 m³ shall be performed apart from vegetable soil. Intensity of soil to be excavated has been accepted as 1.6 ton/m³.

- Excavation Period 547 day (1,5 years)
- Daily Operation Period 16 hour/day
- Excavation Volume 547,500 m³ (d=1.6 ton/m³, 876,000 ton)
- Daily Excavation Volume 1,601 ton
- Hourly Excavation Volume 100 ton/hour
- Truck Bearing Capacity 20 ton/vehicle
- Average Bearing Capacity Within Facility Site 300 m
- Backfilling Volume 600,000 m³ (d=1.6 ton/m³, 960,000 ton)
- Hourly Backfilling Volume 110 ton/hour

Excavation

Dust Emission During Excavation (Uncontrolled) = 100 ton/hour x 0.025 kg/ton

Dust Emission During Excavation (Uncontrolled) = **2.5 kg/hour**

Loading

Dust Emission During Loading (Uncontrolled) = $100 \text{ ton/hour} \times 0.01 \text{ kg/ton}$

Dust Emission During Loading (Uncontrolled) = **1.00 kg/hour**

Handling

Dust Emission During Handling (Uncontrolled) = $0.7 \text{ kg/ton} \times 80 \text{ times/day} \times 1 \text{ day/16 hour} \times 0.6 \text{ km/times (arrival \& departure)}$

Dust Emission During Handling (Uncontrolled) = **2.10 kg/hour**

Unloading

Dust Emission During Unloading (Uncontrolled) = $100 \text{ ton/hour} \times 0.01 \text{ kg/ton}$

Dust Emission During Unloading (Uncontrolled) = **1.00 kg/hour**

Temporary Storage

If vegetable soil material is assumed to be stored in average 4 meters height in temporary storage in appropriate areas within the project site borders, surface area shall be 250 m^2 for vegetable soil to be stored in daily basis. Dust volume likely to occur during storage shall be as follows:

Emission During Material Storage (Uncontrolled): $5.8 \text{ kg/ha-day} \times 250 \text{ m}^2/\text{day} \times 1 \text{ ha/10,000 m}^2 \times 1 \text{ day/16 hour}$

Emission During Material Storage (Uncontrolled): **0.01 kg/hour.**

Backfilling Material Handling

Dust Emission During Handling (Uncontrolled) = $0.7 \text{ kg/ton} \times 80 \text{ times/day} \times 1 \text{ day/16 hour} \times 0.6 \text{ km/times (arrival \& departure)}$

Dust Emission During Handling (Uncontrolled) = **2.1 kg/hour**

Backfilling

Backfilling (Uncontrolled) = $110 \text{ ton/hour} \times 0.01 \text{ kg/ton}$

Backfilling (Uncontrolled) = **1.1 kg/hour**

➤ **Dust emission volume likely to occur during excavation works. Qb,**

$Q_b(\text{Uncontrolled}) = \text{Excavation} + \text{Loading} + \text{Handling} + \text{Unloading} + \text{Storage} + \text{Backfilling Material Handling} + \text{Backfilling}$

$Q_b(\text{Uncontrolled}) = 2.5 \text{ kg/hour} + 1.0 \text{ kg/hour} + 2.1 \text{ kg/hour} + 1.00 \text{ kg/hour} + 0.01 \text{ kg/hour} + 2.1 \text{ kg/hour} + 1.1 \text{ kg/hour}$

$Q_b = 9.8 \text{ kg/hour} \dots\dots\dots(1.b)$

Total dust = Vegetable Soil Study+ Excavation Study

$= 2.82 + 9.8 = 12.62 \text{ kg/hour}$

Mass flow value of dust emission arising from construction activities exceeds limit value (1.0 kg/hour) provided in relation to making modeling of air quality specified in Annex-2 Table 2.1, Regulation on Control of Industrial Source Air Pollution. Thus, contribution value for air pollution has been calculated by performing dust distribution modeling for uncontrolled case.

4.1.2.2 Air Quality Modeling

ISCTC distribution model developed with certification by American Environmental Agency has been used in modeling studies of air quality. Distribution model results for dust emissions deposited and particle matter likely to occur as a result of construction activities from the construction phase of Kayseri Integrated Health Campus have been provided below.

Construction Phase Particle Matter (PM) Concentration Distribution

a. Daily PM Distribution

Contribution values of daily air pollution for particle matter emissions during construction as a result of the works of air quality distribution modeling realized have been found out as follows.

- The highest value $63.02 \mu\text{g}/\text{m}^3$

Daily limit value ($80 \mu\text{g}/\text{m}^3$) to be effective in 2016 has been met for particle matter concentration set out in the Regulation on Air Quality Assessment and Management effectuated by being published in the Official Journal dated 06.06.2008 and numbered 26898.

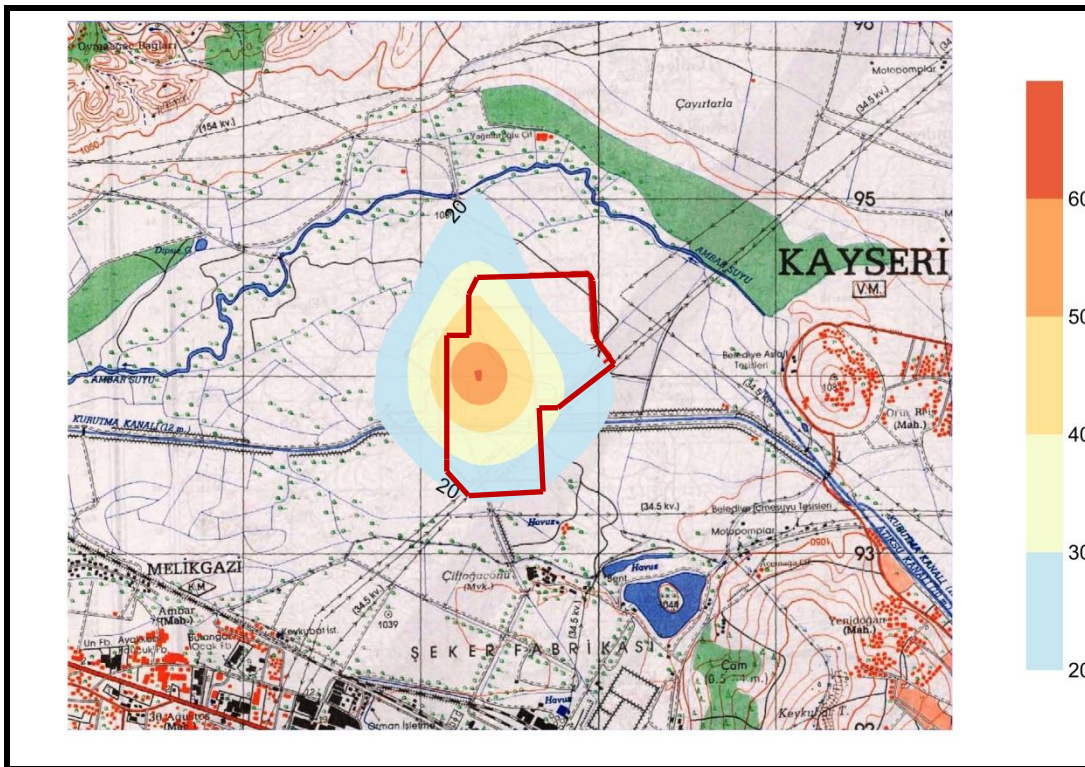


Figure 34. Construction Phase Daily Particle Matter Concentration Distribution Graphic ($\mu\text{g}/\text{m}^3$)

b. Annual PM Distribution

Contribution values of annual air quality for particle matter emissions during construction phase as a result of the study of realized air quality distribution modeling have been found out as follows.

- The Highest Value $25.02 \mu\text{g}/\text{m}^3$

Annual limit value ($54 \mu\text{g}/\text{m}^3$) to be effective in 2016 has been met for particle matter concentration set out in the Regulation on Air Quality Assessment and Management effectuated by being published in the Official Journal dated 06.06.2008 and numbered 26898.

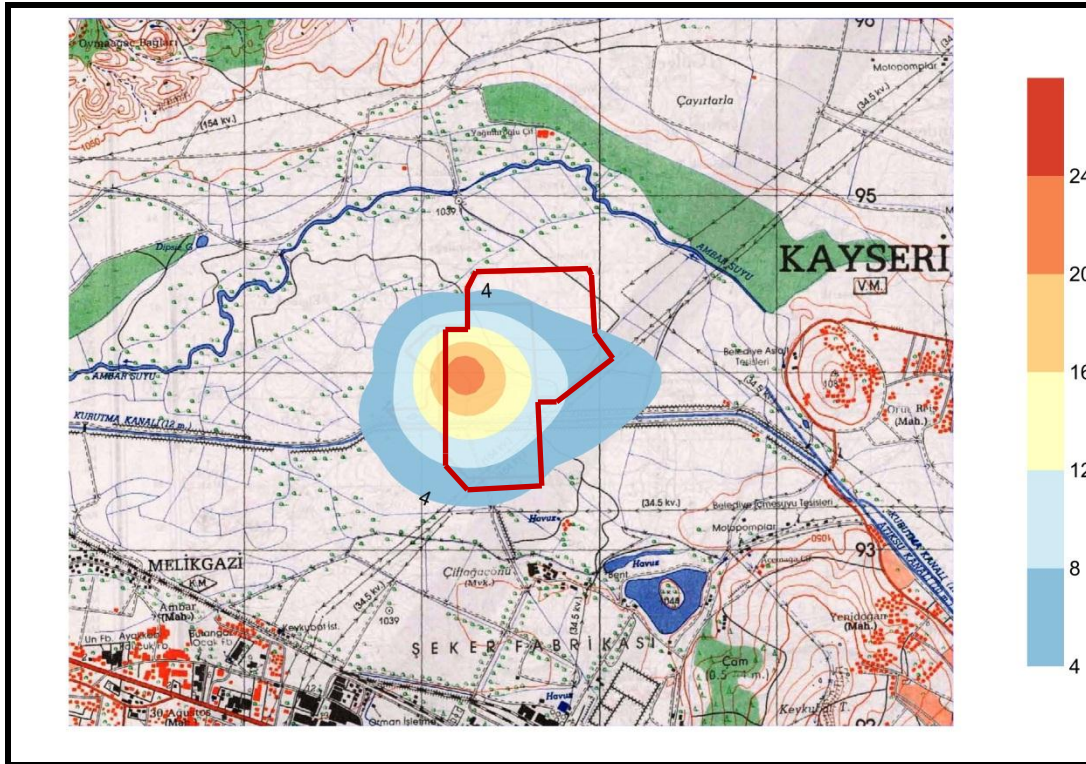


Figure 35. Construction Phase Annual Particle Matter (PM) Concentration Distribution Graphic ($\mu\text{g}/\text{m}^3$)

Construction Phase Deposited Dust Concentration Distribution

a. Daily Deposited Dust Distribution

Contribution values of daily air pollution for deposited dust emissions during construction as a result of the study of realized air quality distribution have been found out as follows.

- The Highest Value $18.27 \text{ mg}/\text{m}^2\text{day}$

Daily limit value ($390 \text{ mg}/\text{m}^2\text{day}$) to be effective following 2013 has been met for deposited dust concentration set out in the Regulation on Control of Industrial Source Air Pollution effectuated by being published in the Official Journal dated 03.07.2009 and numbered 27277.

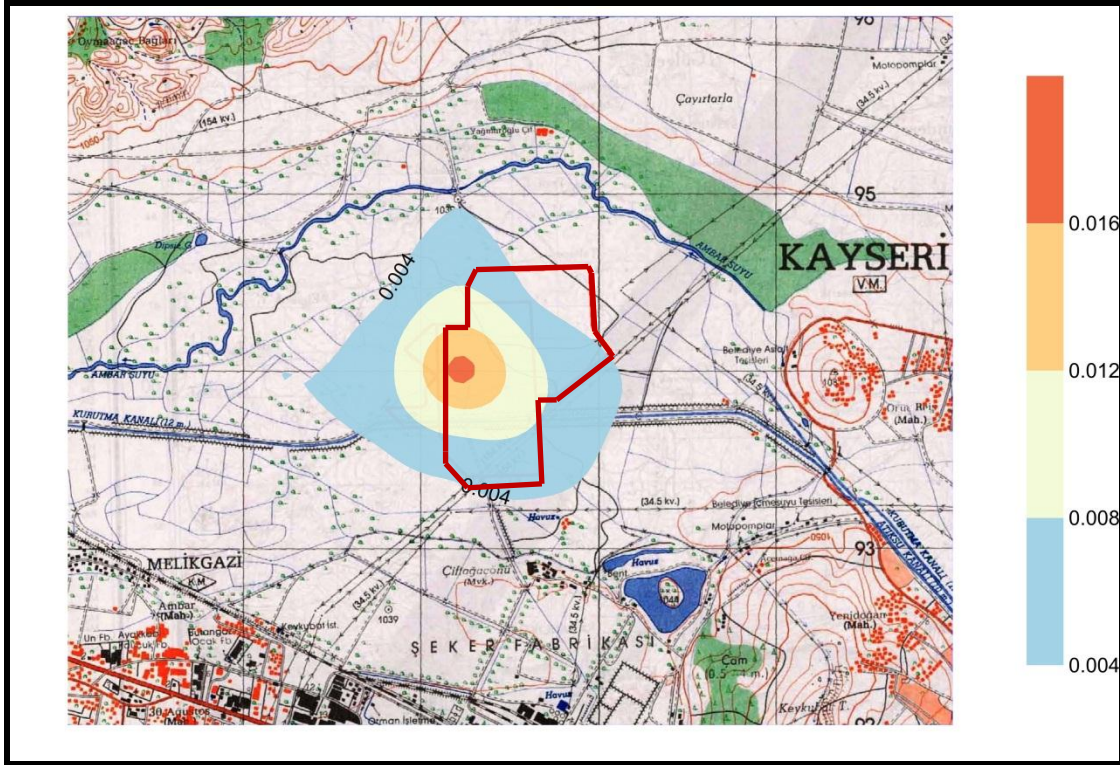


Figure 36. Construction Phase Daily Deposited Dust Emission Concentration Graphic ($\text{g/m}^2.\text{day}$).

b. Annually Deposited Dust Distribution

Contribution values of annual air pollution for deposited dust emissions during construction phase as a result of the study of realized air quality distribution modeling has been found out as follows.

- The Highest Value $5.14 \text{ mg/m}^2\text{day}$

Annual limit value ($210 \text{ mg/m}^2\text{day}$) to be effective following 2013 has been met for deposited dust concentration set out in the Regulation on Control of Industrial Source Air Pollution effectuated by being published in the Official Journal dated 03.07.2009 and numbered 27277.

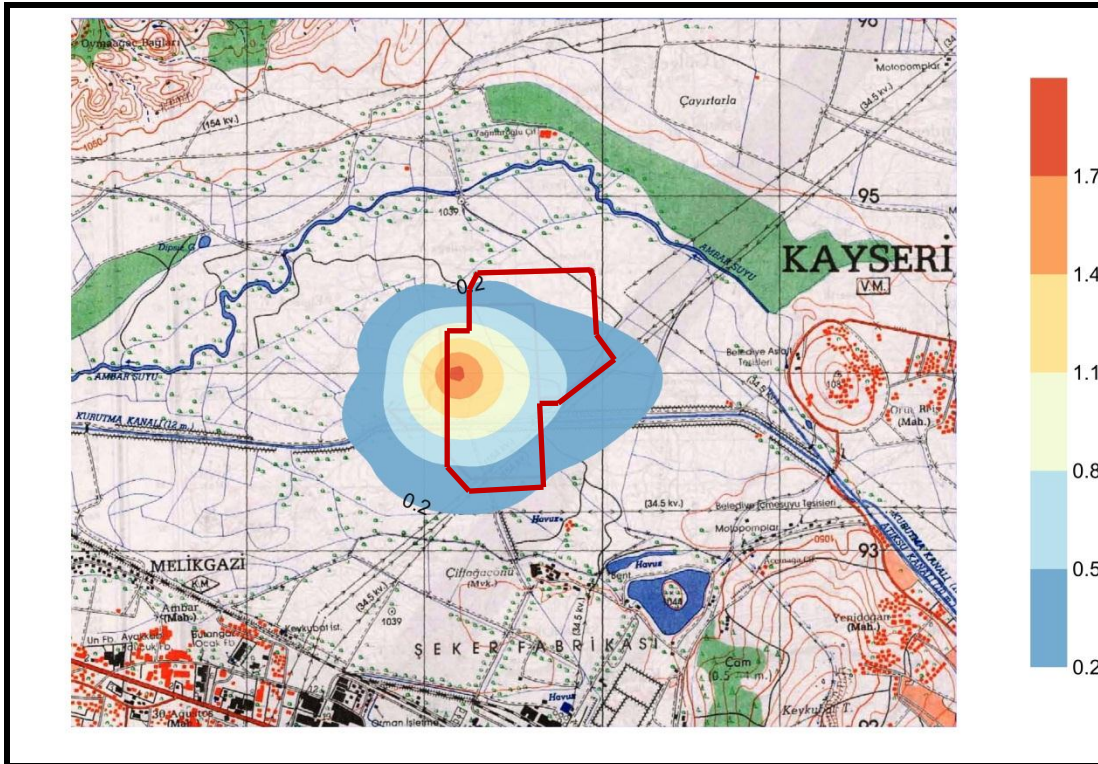


Figure 37. Construction Phase Annually Deposited Dust Emission Concentration Graphic ($\text{g/m}^2\cdot\text{year}$).

4.1.2.3 Construction Phase Exhaust Emission

Under this title, emissions likely to be created depending on fuels to be used during construction phase starting from preparation of land until commissioning of units have been assessed. Emission source during construction phase shall be exhaust gases created as a result of use of fuel (diesel oil) in construction machines.

NO_2 , HC, CO, SO_2 , PM emissions arising from diesel oil use in construction machines shall be created. There shall be continuous alteration in the number and location of construction machines to be employed within the scope of the project. Thus, exhaust emission volume arising from construction machines is not able to be calculated for certain.

New construction machines shall be used to the extent possible for checking emission arising from construction machines during construction and machine maintenance shall be ensured to be performed periodically. All required measures shall be taken in order for emissions arising from construction machines to be used not to exceed regulation limit values.

It shall be complied with the provisions of “Regulation on Control of Industrial Source Air Pollution” effectuated by published in the Official Journal dated 03.07.2009 and numbered 27277, “Regulation on Air Quality Assessment and Management” effectuated by being published in the Official Journal dated 06.06.2008 and numbered 26898, and “Regulation on Control of Exhaust Gas” published in the Official Journal dated 04/04/2009 and numbered 27190.

4.1.3 Noise

Primary noise sources likely to create noise during open excavation, concrete lining, building construction and equipment settlement phase to be performed during facility and ancillary

facility constructions in construction studies of Kayseri Integrated Health Campus are construction machines. Engine powers and noise power of machine and equipment stipulated to be used during construction phase have been provided in Table 45. "Regulation Relating to Noise Emission In the Environment Created by Equipment Used In Outdoor Location" published in the Official Journal dated 30.12.2006 and numbered 26392 issued by the Ministry of Industry and Commerce for calculation of noise power levels of some vehicles to be used in construction phase has been taken as a basis. The values set out in catalogues pertaining to vehicles have been made use of in noise power levels of machines and equipment not laid out within the scope of the said regulation.

Table 45. The Numbers of Construction Machines to be used during Excavation-Backfilling Works and Noise Power Levels

Vehicle type*	Number	Motor Power	Noise Power Level** (dB)
Transmixer	10	114 kW	104.63
Excavator	5	108 kW	106.37
Concrete Pump	1	85 kW	103.22
Loader (*)	17	110 kW	104.83
Truck	1	119 kW	104.83
Roller	3	121 kW	108.91
Lifter (*)	14	450 kW	111.20
Carrier (*)	28	110 kW	104.47
Concrete Plant	1	250 kW	112.00
Loader	1	74 kW	105.00

* Equipment with similar intended use has been evaluated under single title.

** Noise power levels pertaining to the said vehicles have been found out by calculating according to calculation methods set out in respective Table in relation to "Noise Power Levels Permitted by Respective Regulation on Noise Emission in Environment Created by Equipment Used in Outdoor Location" effectuated by being published in the Official Journal dated 30.12.2006 and numbered 26392 by taking as a basis vehicle engine powers.

Equivalent noise levels likely to be created in operation area and its vicinity have been presented under the titles provided below by being calculated for construction phase by accepting that all machines are operated at the same time;

Total noise power level arising from construction machines used on the project site has been calculated with the help of following formula from noise power level of each

$$\text{source } L_{Wt} = 10 \log \sum_{i=1}^n 10^{L_{wi}/10}$$

L_{wi} = Noise power levels (dB) values of noise sources

L_{Wt} = Total noise power level

Reference: Prof. Dr. Nevzat ÖZGÜVEN, Endüstriyel Gürültü Kontrol, Makine Mühendisi Odası Yayını (Industrial Noise Control, the Chamber of Mechanical Engineer)

$$\begin{aligned}
 L_{Wt} &= 10 \log \sum_{i=1}^n 10^{L_{wi}/10} = 10 \log [(10 \times 10^{104.63/10}) + (5 \times 10^{106.37/10}) + (1 \times 10^{103.22/10}) + (17 \times \\
 &10^{104.83/10}) + (1 \times 10^{104.83/10}) + (3 \times 10^{108.91/10}) + (14 \times 10^{111.20/10}) + (28 \times 10^{104.47/10}) + (1 \times 10^{112.00/10}) + \\
 &1 \times 10^{105.00/10}] \\
 &= 126.15 \text{ dB}
 \end{aligned}$$

Construction machines are generally operated between 500-4.000(Hz) Central Frequency range. Since A and C-Weighted correction factors in this octave band central frequency ranges may be neglected because they are small values as seen below, total noise power level (dB) is accepted as equal to A and C-Weighted Noise pressure level. Correction Factors for A and C-Weighting have been provided in Table 46.

Table 46. A and C-Weighting Correction Factors

Octave tracker frequency	250	500	1000	2000	4000
A- Weighting	-8.6	-3.2	0	+1.2	1
C- Weighting	0	0	0	-0.2	-0.8

After total noise pressure level has been calculated, noise pressure level as to distances with the help of following formula is calculated. While the results are provided in Table 47, its graphical representation has been provided in Figure 38.

$$L_{eq} = L_{wt} + 10 \log \frac{Q}{4\pi r^2}$$

L_{wi} = Noise power level (dB) values of noise sources

L_{wt} = Total noise power level

L_{eq} = Total Equivalent Noise

Q = Directivity coefficient as to location of noise source

R = Distance (m)

Reference: Prof. Dr. Nevzat ÖZGÜVEN, Industrial Noise Control, Chamber of Mechanical Engineer Odası Publication

Table 47. Digging-filling Activities Originated Distributions of Noise according to Distance

Distance(m)	Sound Pressure Levels (dBA)
10	98.0
50	84.0
100	78.0
150	74.4
200	71.9
250	70.0
300	68.4
400	65.9
500	64.0
600	62.4
700	61.1
800	59.9
900	58.9
1000	58.0

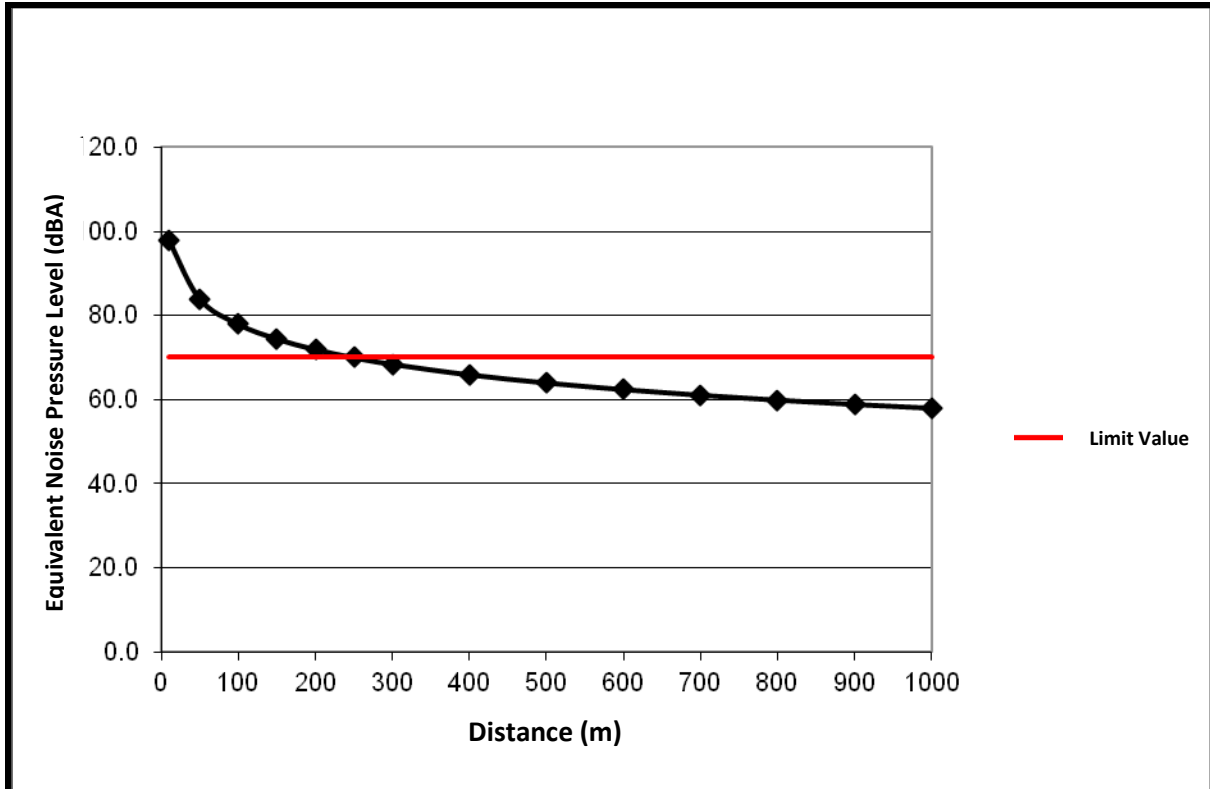


Figure 38. Distribution of Noise Levels Arising from Construction Works as to Distances

As seen in Figure 38, noise level arising from the equipment to be used on construction site does not exceed 70 decibel after 250 meters which is a limit value provided in Annex-7, Table 5 “Regulation on Environmental Noise and Assessment and Management of Environmental Noise” published in the Official Journal dated 04.06.2001 and numbered 27601 and there is no settlement place in the vicinity of 250 meters to the project site. All calculations have been made by assuming that all equipment is working at the same time. However, it is expected that noise level arising from not working at the same of the said equipment during construction shall lower.

4.1.4 Excavation Wastes

Excavation wastes are the wastes created as a result of excavation and similar operations conducted during the phase of land preparation prior to construction. Excavation study of 600,000 m³ shall be performed throughout total 1.5 years within the scope of the project. It is hereby estimated that 52,500 m³ of excavation material shall be vegetable soil. This scraped vegetable soil shall be used in landscaping arrangement in the studies of landscaping repair of project site. 547,500 m³ excavation surplus contemplated to be built is planned to be used as filling material. The remaining portion of total 600,000 m³ filling amount planned to be built is planned to be supplied from licensed quarries that have taken its licenses. Excavation wastes not used as filling shall be disposed of in accordance with Turkish Environmental Legislation. (Regulation on Control of Excavation Soil, Construction and Debris Wastes effectuated by being published in the Official Journal dated 18.03.2004 and numbered 25406). Accordingly, excavation residual materials shall be stored on an appropriate location on the project site and shall be taken to disposal sites with excavated materials with permit in the region. Excavation residual materials shall not be dumped into brooks and dry brooks.

4.1.5 Solid Wastes

It is contemplated to employ 2,000 persons at construction phase of the project. Domestic solid wastes from approximately 2,000 persons that shall work during construction phase shall occur. Domestic solid waste mass has been calculated below by using 1.15 kg value.

The number of employee	= 2,000 persons
Unit solid waste volume	= 1.15 kg/person/day ¹
Solid waste volume	= 2,000 x 1.15 = 2,300 kg/day

Those that fall into recycle classification out of domestic solid wastes (paper, glass, plastic, metal boxes etc) shall be taken into account and shall be collected separately pursuant the provisions of Turkish Environmental Legislation and shall be accumulated and shall be delivered to the firms that have obtained environmental permit and license. Collection, accumulation and disposal of solid wastes likely to occur during construction phase shall be performed as set out in Environmental Legislation. Domestic solid wastes shall be accumulated in containers with their mouths closed that shall be kept available on the project site and they shall be enabled to be taken from the project site by licensed firm. Solid wastes likely to occur during construction shall be enabled to be disposed of on regular storage site nearest to solid wastes.

The provisions of Turkish Environmental Legislation shall be complied with during preparation of the land and construction phase. (Regulation on Control of Solid Wastes published in the Official Journal dated 14.03.1991 and numbered 20814 and Regulation on Control of Packaging Wastes published in the Official Journal dated 24.08.2011 and numbered 28035).

4.1.6 Hazardous Wastes

Kayseri Integrated Health Project site is the center of Kayseri city. During the construction phase of the project; maintenance-repair of the construction equipment is planned to be supplied from the licensed maintenance stations in the city center. Therefore; hazardous wastes such as waste oil, dirty cloth and cotton waste that are caused by maintenance activities will be minimized. In case above-mentioned hazardous wastes and waste oil from petroleum products are caused during the construction phase, provisions of the Waste Oil Control Regulation, which was published in 30.07.2008 dated and 26952 numbered Official Journal; will be applied.

Hazardous wastes during the construction phase will be collected in the temporary hazardous waste storage area within the project site and they will be taken by the carrier company, which has the carriage license ,from the project site and will be given to the disposal plants that have environmental permission and license. ("Hazardous Wastes Control Regulation" which took effect after being published in 14.03.2005 dated and 25755 numbered Official Journal).

4.1.7 Medical Wastes

In order to provide health care services such as first aid and emergency treatment to the personnel who will work during the construction phase; an infirmary unit will be established in construction site. The amount of the medical wastes that will be created depends to the number of people who will use beneficiary. But; as it is impossible to make an assumption about the type and features of the medical intervention, precise information cannot be given about the amount of the medical wastes that will be created.

¹ TÜİK, 2006 Municipality Solid Waste Statistics

As per the Turkish Environment Legislation; the medical wastes caused by the infirmary unit to be established during the construction phase will be collected separately from the other wastes in special leakproof medical waste bags. Collection and disposal of the medical wastes will be done in line with the related provisions in Turkish Environment Legislation (“ Medical Waste Control Regulation” published in 03.12.2011 dated and 28131 numbered Official Journal)

Disposal of the medical wastes will be done in Kayseri Medical Waste Treatment Sterilization Center in Molu region which has been authorized by Kayseri Metropolitan Municipality.

4.2 IMPACTS DURING THE OPERATION PHASE

In operation phase of the planned Kayseri Integrated Health Project; it is assumed that in total there will be 4,583 people who will receive service/provide service if there are 1,583 hospital patients, 2,000 healthcare personnel and 1,000 visitors. The impacts which will come about at this phase will be analyzed in captions as seen in Table 48 below.

Table 48. Impacts of the Project in Operation Phase

NO	IMPACTS IN OPERATION PHASE
1	Medical Wastes
2	Hazardous Wastes
3	Radio-active wastes
4	Solid wastes
5	Waste water
6	Air quality
7	Traffic

4.2.1 Medical Wastes

As the project is a healthcare campus; the most important wastes of the plant are Medical Wastes.

Collection and disposal of the medical wastes in the project will be done in line with the Turkish Environmental Legislation (“Medical Wastes Control Regulation” published in the 22.07.2005 dated and 25883 numbered Official Journal). Once the necessary protocols are completed, medical waste disposal processes will be sent to the licensed Medical Waste Disposal Plant in the region.

The issues below will be taken into account in order to minimize the possible negative effects of the medical wastes to human health and environment.

- The training will be provided for the relevant employees responsible for the management of medical wastes and it will be ensured that the wastes are classified, collected, carried within the unit and temporarily stored by a special team,
- System will be established in order to minimize the wastes in their resource,
- They will be classified, collected, carried and treated separately from domestic wastes,
- These wastes will be temporarily stored in a way not to cause any harm for environmental and human health,
- It will be documented that they have been carried to the final disposal area safely,
- It will be ensured that it is documented that the medical wastes have been disposed of without causing any harm to human health and environment and it will also be ensured that this information is sent each year to the Ministry of Environment and Urban Planning,

- Medical equipment maintenance and repair work, according to the advice of manufacturers, the hospital Infection Control Committee with the recommendation of hygienic rules and conditions will be made on a regular basis,
- The use of medical equipment during the safety application will be held in accordance with the OSHA, T.R. Ministry of Health legislation and the Occupational Health and Safety regulations. As stated in the Contract, responsibility of renewal of the medical equipment and furnishings are in the Administration control,
- An instruction covering detailed information about the measures and things to do in case of accidents and it will be distributed to the relevant department of the unit in order to be implemented.

Medical wastes caused by project during the operation phase and their resources can be seen in Table 49:

Table 49. Medical wastes caused by Project

No	Kind of waste	Description	Source of the waste
1	Pathological waste	Tissues, organs, body parts, human fetus as a result of medical intervention, autopsy, or anatomic study.	Anatomic waste tissues, organs and body parts and body fluids that come out during operations, autopsy etc. Medical interventions.
2	Infectious waste	All kinds of blood and blood products, All kind of body fluid, human tissue, organs etc. Which are known to bear infectious agents or which probably bear these agents; gloves, covers, sheets, bandage, plaster, tampons, swabs and similar wastes;	Microbiological laboratory wastes, blood and blood products and objects contaminated by them, used operation clothes (cloth, gown and gloves etc.) dialysis waste water(wastewater and equipment), quarantine wastes, air filters including bacteria and virus,
3	Cutting-penetrating waste	Injector needle; other cutters that include needle, lancet, lamina-lamella, glass, Pasteur pipette, broken glass etc.	Wastes such as Syringe, injector and other subcutaneous intervention needles, lancet, knife, serum set needle, suture needles, biopsy needles, intraket, broken glass, ampoule, lamina-lamella , broken glass tube and petri dishes ,which can cause scars and wounds

4.2.2 Hazardous Wastes

Hazardous wastes must not be poured to the sewage system, directly released to the air, burnt at low temperature, put with domestic wastes and disposed by storing.

Possible hazardous wastes raised due to the project can be listed as follows:

- Pharmaceutical Wastes (expired medicines)
- Disinfectants (aldehyde, acidic, basic etc.)
- Organic Solvents (xylene, alcohol, acetonitrile etc.)
- Inorganic Solvents (HCl, Ammoniac, etc.)
- Pathological Waste (solvents involving undefined anatomical particles)
- Pressure Vessels
- Contaminated Package (chemical substance vessel, dye back etc.)
- Laboratory Chemicals
- Cartridge –Toner
- Air Filters
- Oil-Fuel Filters
- Battery-Accumulator
- Insulating Materials

- Contaminated Cable
- Fluorescent Lamp and similar wastes.

The aforementioned wastes shall be stored individually at the temporary storage area prepared in accordance with the standards. Hazardous wastes shall be recorded and packaged and labeled in accordance with the accepted international standards required by licensed recycling or disposal facility to where the waste will be sent. These wastes shall be transferred to the disposal companies authorized by the Ministry of Environmental and Urban Planning with licensed vehicles.

The Provisions of Turkish Environmental Legislation shall be observed during operation. ("Regulations on Control of Hazardous Wastes" effectuated by publishing on the Official Journal dated 14.03.2005 numbered 25755).

Collection and disposal of the waste batteries and accumulators shall be performed in accordance with the Turkish Environmental Legislation. ("Regulations on Control of Waste Batteries and Accumulators" published on the Official Journal dated 31.08.2004 numbered 25569).

4.2.3 Radioactive Wastes

There may be radioactive wastes from body and organ imaging, tumor localization and similar units in the hospital units partaking to the project. The amount of wastes to be raised cannot be determined since these wastes may vary according to the usage amount. Radioactive wastes raised due to the project shall be disposed in accordance with the Turkish Atomic Energy Authority Legislation. Radioactive wastes will be stored in lead made containers before transporting to authorized disposal facility.

4.2.4 Solid Wastes

It is planned that approximately 4.583 people will get service or provide service in a day during operation of the project. Domestic solid wastes from 4,583 people will be raised during operation. The amount of domestic waste has been calculated by using 1,15kg value as follows.

Number of people to be active	: 4,583 people
Amount of unit solid waste	: 1.15 kg/person/day
Amount of solid waste	: $4.583 \times 1.15 = 5,270.5$ kg/day

Recyclable wastes (paper, glass, plastic, metal boxes etc.) shall be recycled by sending to the companies having environment permission and license in accordance with the provisions of Turkish Environmental Legislation by taking into consideration their reusability. Likewise package wastes shall be stored individually and disposed by sending to the licensed companies active in the region ("Regulations on Control of Package Wastes" published on the Official Journal dated 24.08.2011 numbered 28035).

Domestic solid wastes and package wastes shall be stored in containers with covers to be provided at project area and then sent to the nearest regular storage area. Collection, storing and disposal of solid wastes to be raised during operation shall be performed in accordance with the provisions of Turkish Environmental Legislation ("Regulations on Control of Solid Wastes" published on the Official Journal dated 14.03.1991 numbered 20814).

Kayseri with regular solid waste storage facility project, the Environmental Impact Assessment Positive Certificate received from the Ministry of Environment and Urban Planning and feasibility of the project report which will be completed in the European Union norms. Acceptance of waste to Licensed Solid Waste Landfill in Kayseri will start in 2013.

With the acquisition of the regular operation of solid waste storage facility for solid waste that will cause environmental and public health problems will be prevented.

4.2.5 Wastewater

The resources of the wastewater that will be caused in Kayseri Integrated Health Campus can be classified as follows:

- Personnel
- Hospital patients
- Cafeterias
- Polyclinic patients
- Laundry room
- Dining hall

For the calculation of domestic kind of waste water to be caused during the construction phase; the number for people has been defined to be as 4,583 (1,583 hospital patient, 2,000 personnel, 1,000 daily visitors).

According to this; if the liquid waste amount caused by one person each day is taken as 150lt/day;

$$Q = q \times N$$

Q= Daily total liquid waste amount

q= Daily liquid waste to be caused by one person

N= Number of employees

And the daily domestic kind of liquid waste during the operation activities will be

$$150 \text{ lt/day} \times 4,583 \text{ person} = 687,450 \text{ lt/day} = 688 \text{ m}^3/\text{day}.$$

If it is assumed that whole of the water used will return as waste water; it is seen that the total domestic kind of waste water in the area will be 688 m³/day.

Domestic kind of waste water to be caused during the operation phase will be transferred to the sewage system within borders of project site. Application was sent to KASKİ on this issue; and as a response ASKİ informed that waste water can be given to the sewage network in the project site which has Ø 500 mm diameter. The letter given by KASKİ is presented in Appx-1.

In the operation phase of the Kayseri Integrated Health Campus Project, “Grey Water System” will be used. Grey water is caused from residential showers, bathtubs and sinks resulting from the domestic waste water containing human waste excluding industrial usage. With the help of treatment, grey water is obtained as clean water but not for the drinking purposes. Working principle of grey water is given in Figure 39.

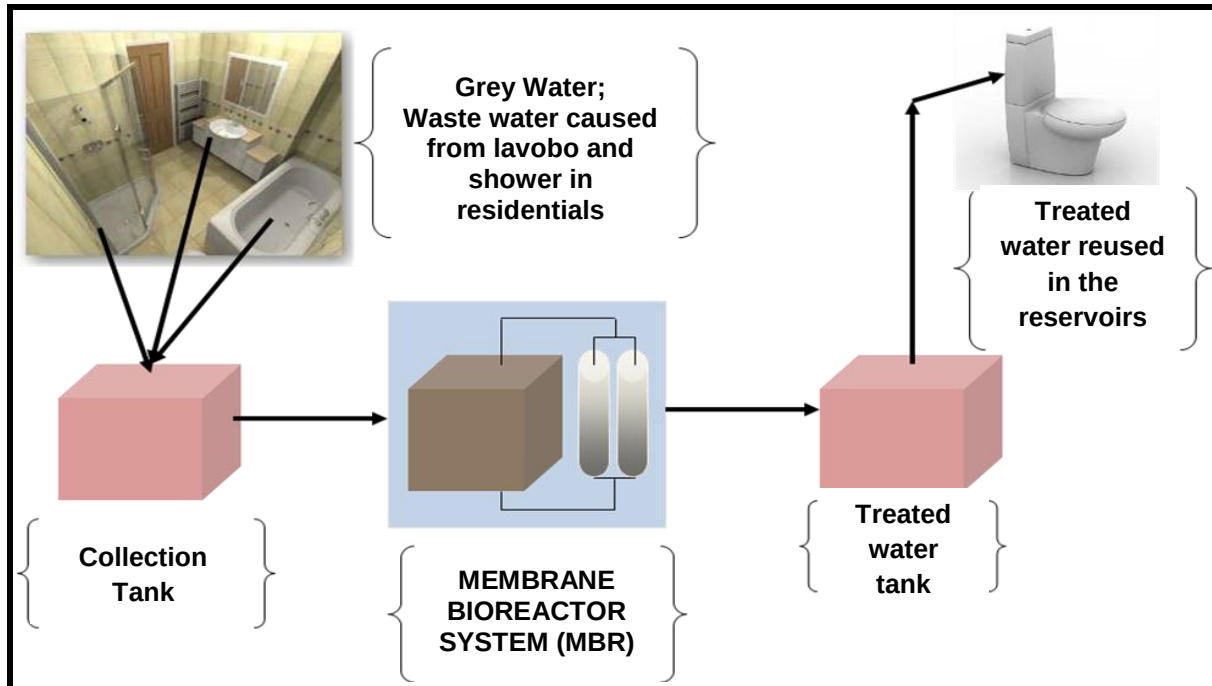


Figure 39: Working principle of grey water

Grey water is provided from Membrane Bioreactors (MBR). MBR's are biochemical oxidation processes (i.e. activated sludge) which are separated physically biomass from treated water with the membrane equipment.

Conventional activated sludge process occurred in two separate biochemical oxidation tank (aeration tank) and water / biomass separation tank (sedimentation and sedimentation tank), MBR systems require less volume of the tank as well as whether a single tank of oxidation in the membrane system is provided with the treatment. MBR system flow schema is given below.

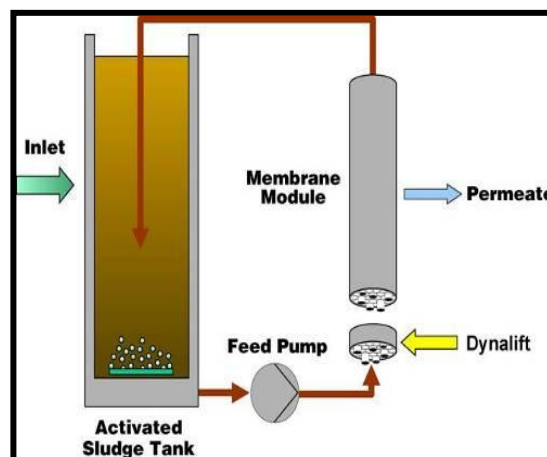


Figure 40. MBR System flow schema

The treated water which obtained from the MBR technology is hygiene in terms of bacteria and viruses free, and blur-free residue, toilet cisterns, suitable quality for use in garden irrigation and car washing purposes.

Thanks to the operation phase of sewage and gray water treatment, we will reuse the water with using the water cycle in nature, conserve the natural water resources, as well as being kept in water costs will be greatly reduced, decrease the consumption of main water to the city sewage discharge into the water, reduce the costs paid due to reduction of the waste

water, reduce the waste water reclamation costs and the sustainability of nature (both natural and economic aspects) will be provided an important contribution.

In operational phase of the Kayseri Integrated Health Campus Project “Rainwater Harvesting” is planned. Rain water harvesting can be described as direct collection of rainwater usage. Rainwater can be collected in two different techniques; storm water from soil surfaces or roofs of the buildings. Stormwater System consists of the rain water from roofs of buildings or the ground collecting, communicating with the gutter system, rain water tank storage, treating and delivering into the building stages respectively. Storm Water System can be used for cleaning, car washing, garden watering, for toilet reservoir purposes.

4.2.6 Air Quality

There are not air emission sources in Kayseri Integrated Health Campus and the impacts seen on the air quality during the operation are assumed only to be emission resources for heating. The energy types to be used during the operation phase of the Kayseri Integrated Health Campus are electricity energy and natural gas. Both these energy types are more environment-friendly when compared with other energy types (coal, petroleum products etc.). Therefore; any negative impact on air quality is not expected because of the type of energy to be used in the campus during the operation phase.

For Kayseri Integrated Health Campus project; in the ventilation, heating and cooling systems, hygienic ventilation and air conditioning systems are used. These systems are designed specifically for use in hospitals in order to regulate parameters such as ambient air pressure and air flow management environment on temperature, humidity, fresh air, particulate matter and microorganisms. In particular, the sections described as a clean room and hygiene environment prevent the spread of infectious and contagious disease according to national and international standards for the hygienic ventilation and air conditioning systems used in accordance with the legislation.

4.2.7 Traffic

Project site is close to the Kayseri city center. Transportation to the project site is provided with the highway network in the region. The map showing the highways in the region can be seen in Figure 41. Standards of the routes to be used for access to the project site are generally high. The whole highway, which is split minimum in two lanes, is covered with asphalt.

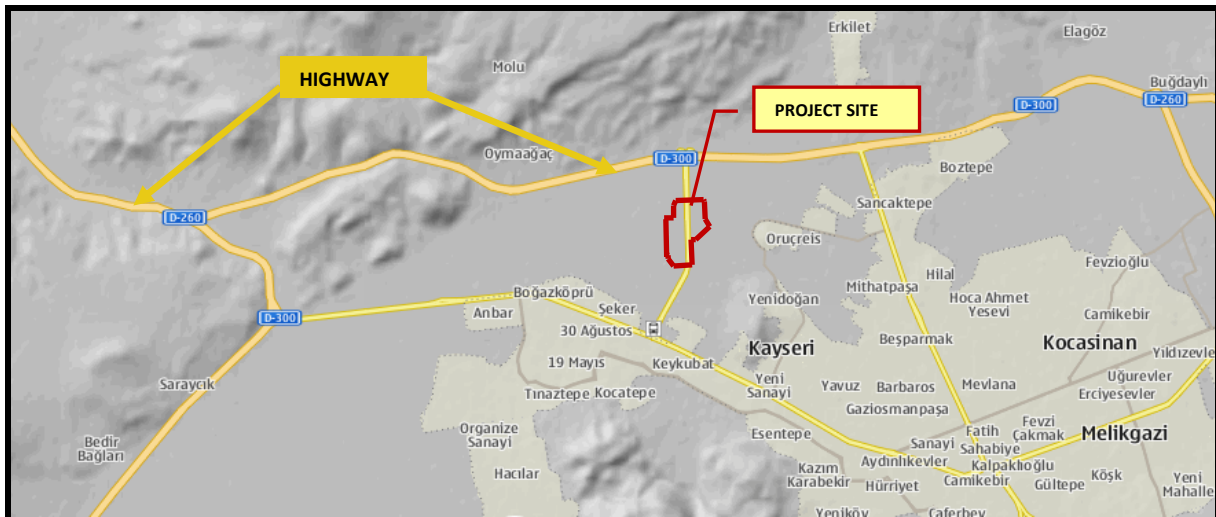


Figure 41. Map showing the highway network within the vicinity of project site

Due to the operation of Kayseri Integrated health campus; an additional traffic load is expected in these ways. However, as there are alternative access routes to the project site, any negative impact is not expected. The map showing the traffic volume in the region prepared by the General Directorate of Highways can be seen in Figure 42.

Table 50. Traffic Volume in the vicinity of project site

Vehicle type	Number
Automobile	13,927
Medium size Commercial Vehicle	1,428
Bus	825
Truck	2,596
Truck+Trailer, tow truck+side trailer	1,410
Total	20,216

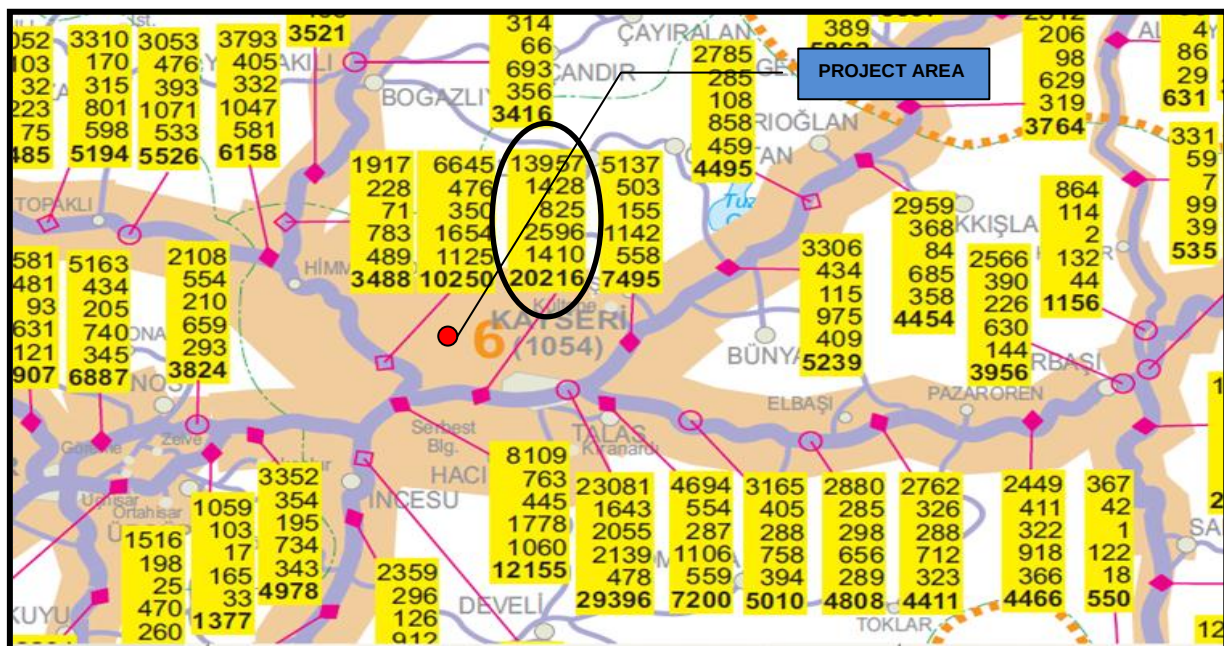


Figure 42. Map showing the traffic volume in Kayseri

4.3 SOCIAL IMPACTS

Kayseri is 320 km far from Ankara, in the passageway to Eastern and South East regions; it is a city which rapidly developed in the recent year. Due to the increasing population, improving technology, improvements in healthcare approach and expectations and similar factors; there have been important changes in public health requirements. Kayseri Integrated Health Campus project is important and it will have contributions to Kayseri primarily on physical opportunities and healthcare personnel requirement.

With the go-live of the project; it is expected that the number of beds per room and the space allocated for one bed will reach to the desirable levels. A significant part of the services to be provided in the new hospital covers cardiology intensive care, orthopedic, emergency diagnosis and examinations. The patient load of the State Hospital located in the city center which reaches annually to a high ratio such as 2,500,000 will be transferred to the new company and quality of the service provided for patients will increase.

The project will be the most important step taken for the improvement of healthcare data in Kayseri region. The facility will be a prestige hospital for the region and it will have an important role in increasing prestige of Turkey before the tourists who visit the region and Nevsehir. In Kayseri health campus; it is also planned to establish a Psychiatry Hospital with 126 beds and Highly Protected Judicial Psychiatry Hospital with 100 beds. These hospitals are very important in terms of ensuring treatment and rehabilitation in its place or in the region, increase patients' access to the service, preventing the busy traffic and unnecessary referral to the hospitals in big cities and reducing the treatment costs.

Therefore; it is thought that it will fulfill the healthcare requirement firstly in the region and in Turkey. Also; Physical Treatment and Rehabilitation Hospital with 200 beds which is planned in the Kayseri Integrated Health Campus will have great contribution to the physical treatment and rehabilitation requirement in the region and in Turkey when the patients with rehabilitation needs and elder population are considered.

4.4 OCCUPATIONAL HEALTH AND SAFETY

The most important factor of peaceful work atmosphere in a workplace is ensuring social, executive and occupational health and safety of the workers under legal and humanitarian conditions. Therefore; various factors and organizations are required in order to provide discipline in a workplace. Rules are always prepared in line with the laws, legislation and regulations which basically observe health and safety of the employees.

When the scope of Kayseri Integrated Health project is evaluated; occupational safety and health issue is important especially during the construction phase. As approximately 2000 people work during the construction; occupational health and safety implementations gain importance. In line with the rules defined in the **YDA Construction Industry and Trade Inc. Occupational Health and Safety in Work Sites Book** which has been prepared by the affiliated company of ATM Health Kayseri Investment and Operation INC.; the main titles of the rules to be complied and implemented during the construction phase are as follows;

- YDA Construction Industry and Trade Inc Occupational Safety Discipline Regulation for Work Sites
- Discipline and Awarding Procedures for Contractors
- Roles and Responsibilities in Work Organization
- General Rules
- Rules for the use of hand tools and equipment
- Rules in Breaking and Screening Plant
- Rules about Excavation / Earthworks
- Warning signs and rules
- Rules for the use of Personal protective Equipment
- General First Aid Information
- Fire Instruction
- Instructions for Security Guards
- General and Special Health and Safety conditions in Open and Closed Construction Sites

4.5 LANDSCAPING WORKS

Kayseri Integrated Health Campus is located in an area of 433.800 square meters and surrounded by areas allocated for social and commercial development. Landscape planning area in the campus is approximately 208.200 square meters. Landscape planning concept of the land is selection and location of different types of plants (tree, bushes, etc.) which are suitable for hospital typology. Plants; which can survive in Central Anatolian habitat were

chosen. Each tree and bush has a special function in the area. The plants were located according to their functions in this kind of city landscaping. For example; Norway maple (*acer platanoides*) seen in Figure 43 is located on both sides of the way as it absorbs carbon dioxide emission in a short period. As seen in Figure 44; birch (*betula alba*) and ash trees (*fraxinus excelsior*) are located in the land borders due to their heights.



Figure 43. Norway Maple (*Acer Platanoides*)

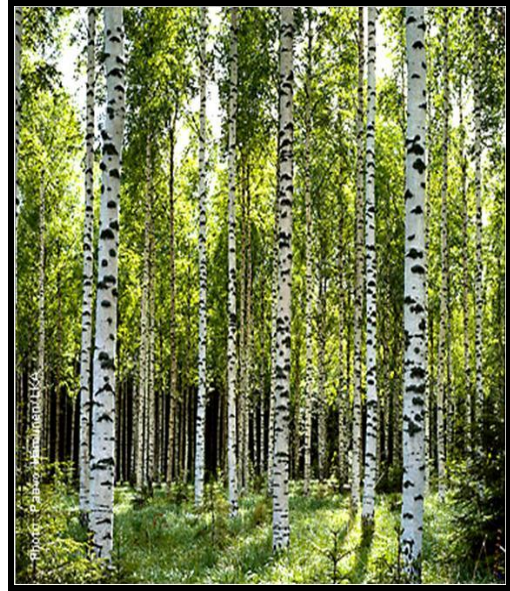


Figure 44. Birch (*Betula Alba*)

Bushes and coniferous trees, which are decorative, are combined in different colors and located between the buildings. Red plum trees (*prunus cerasifera pisardii nigra*) seen in Figure 45 have been chosen for their decorative appearances and in order to provide shade the wide sod areas and reduce water consumption. Fruit trees have not been used which have circulation density.



Figure 45. Red plum (*prunus cerasifera pisardii nigra*) tree

4.6 IMPACT MATRIX

Considering the effective elements and environmental components within the Kayseri Integrated Campus Project; a matrix was created and a detailed impact evaluation was made by examining all the interactions including the construction and operation phases of the project. Prepared Impact Matrix can be seen in Table 51.

In creation of the impact matrix; “Impact Components” and “Effectuated Environmental Components” were used as two basic components. In preparation of the impact matrix; first stage is the definition of impact components.

After that; positive or negative impacts of these on environmental components are evaluated in line with specific criteria and their interactions are put forward.

Criteria used for Kayseri Integration Health Campus Project.

- Value of the Environmental Component
- Impact Density
- Impact Duration
- Scope of the impact

In line with the above given criteria; when the positive or negative impact degrees indicated with the numbers between -3 and +3 range are written in the table and cumulative total impacts are found through a numerical evaluation.

According to these reasons; link between the impact components and elements is evaluated and the important environmental and social impacts of the project are put forward.

The scores; defined for the interaction in impact matrix prepared for the project; have been given assuming that the necessary measures have been taken for each impact component as per legal legislation.



Tablo 51. Impact Matrix

Impact Factors /Environment Components	Air	Water		Soil	Biological		Social, Economical and Cultural					Total Impact Score
	Air Quality	Surface Water Quality	Borehole Quality	Cultivated Areas	Land Flora and Fauna	Protection Areas	Cultural and Archeological Heritage	Socio-Economic Status	Services and Infrastructure	Regional Traffic Load	Visual	
Construction Stage												
Domestic Wastewater	0	0	0	0	0	0	0	0	0	0	0	0
Solid Waste (Domestic)	0	0	0	0	0	0	0	0	0	0	0	0
Waste Oil	0	0	0	0	0	0	0	0	0	0	0	0
Excavation Waste	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Waste	0	0	0	0	0	0	0	0	0	0	0	0
Medical Waste	0	0	0	0	0	0	0	0	0	0	0	0
Dust	-1	0	0	0	0	0	0	0	0	0	0	-1
Noise	-1	0	0	0	0	0	0	0	0	0	0	-1
Traffic Load	-1	0	0	0	0	0	0	0	0	-1	0	-2
Employment	0	0	0	0	0	0	0	+2	+1	0	0	+3
Operation Stage												
Medical Waste	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Waste	0	0	0	0	0	0	0	0	0	0	0	0
Radioactive Waste	0	0	0	0	0	0	0	0	0	0	0	0
Domestic Solid Waste	0	0	0	0	0	0	0	0	0	0	0	0
Domestic Wastewater	0	0	0	0	0	0	0	0	0	0	0	0
Dust	0	0	0	0	0	0	0	0	0	0	0	0
Traffic Load	-1	0	0	0	0	0	0	0	0	-1	0	-2
Employment	0	0	0	0	0	0	0	+1	+1	0	0	+2
Economy *	0	0	0	0	0	0	0	+2	+2	0	0	+4
Total Score for each Environmental Component	-4	0	0	0	0	0	0	+5	+4	-2	0	
Total Score for each Environmental Group	-4	0		0	0		+5					

Score	Explanation
-3	High Negative Impact
-2	Medium Negative Impact
-1	Low Negative Impact
0	Negligible or No Impact
+1	Low Positive Impact
+2	Medium Positive Impact
+3	High Positive Impact

Display	
	The Most Negative Impact
	The Most Positive Impact

4.6.1 Negative Effects

Environmental and social effects have been examined on influence matrix table at two stages as construction and operation; a separate evaluation has been carried out in terms of effect factors and environmental components.

In consequence of this evaluation;

A) Negative effect factor for construction stage has been determined as;

- ✓ Traffic load.

B) Negative effect factor for operation stage has been determined as;

- ✓ Traffic load.

C) Environmental components possible to be exposed to negativity have been determined as

- ✓ Air quality
- ✓ Traffic load.

4.6.2 Positive Effects

In consequence of the evaluation performed on influence matrix table;

A) Positive effect factor for construction stage has been determined as;

- ✓ Employment.

B) Positive effect factors for operation stage have been determined as;

- ✓ Employment
- ✓ Economy.

C) Environmental components possible to be exposed in a positive way have been determined as

- ✓ Services and infrastructure
- ✓ Social-economic cultural structure.

4.6.3 Results

In consequence of the evaluation of influence matrix, all effect factors and environmental components have been evaluated as a whole for construction and operation stage and effects having the most importance for the project have been exhibited.

Environment Management Plan has been prepared for Kayseri Integrated Health Campus Project (Annex-5). The mentioned plan has been prepared in a way to cover all the important negative impacts in impact matrix; it includes the mitigation methods for important environmental and social impacts and defines necessary monitoring conditions and corporate responsibilities for the implementation of Environment Management Project.

In case the plans in Environment Management Project are observed; the negative impacts of the activity on environment will be mitigated to a great extent and taken under control in order to ensure that it gives less harm.

4.7 CUMULATIVE IMPACT ASSESSMENT

The north, east and west of the Kayseri Integrated Health Campus Project, urban service areas and residential areas are located and in the south of the project site scrap dealer site is located. Kayseri Integrated Health Campus project site resulting from construction and operational phases shall not contribute to cumulative environmental and social impacts to the settlements around the project area and the scrap dealer site.

5. ENVIRONMENTAL AND SOCIAL ACTION PLAN

Environmental and Social Action Plan (ESAP) which was prepared for Kayseri Integrated Health Campus Project aims to meet IFC's requirements. ESAP includes mitigation measures to be implemented in order to stay within acceptable limits for environmental and social impacts of the project. The aim of the project is to prepare the implementation plan for both positive and negative potential environmental and social impacts of mitigation measures and actions. To achieve this, construction, operation and all phases of the project should be evaluated according to the IFC requirements the project, must comply with the legislation of the Turkish Republic and the EU as well as IFC's requirements. ESAP should be included environmental benefits, legal requirements, responsibilities, and timing and evaluation criteria of the project for successful implementation of mitigation measures. Environmental and social action plan is given in Appx-4.

6. ENVIRONMENTAL MANAGEMENT PLAN AND ENVIRONMENTAL MONITORING PROGRAMME

Kayseri Integrated Health Campus Project will provide a positive impact in the development of health facilities. The most important phase of the project is construction phase in terms of environmental impacts. At this phase, waste, air quality, noise and etc. and environmental impacts were analyzed in detail and planned to eliminate or minimasyon which purposed workings. Beyond of this, which environmental impacts will occur during the operating phase, is explained in detail in Environmental Management Plan. As a result of all these cases, all the effects and management studies of impacts are identified under the Environmental Management Plan.

EMP includes all the required headings and applied IFC standards within the scope of international procedures. These topics as follows;

- Description of the project
- Legal framework
- Environmental management procedures
- Institutional arrangements

Environmental Monitoring Program which includes especially construction period was created within the scope of Environmental Management Plan. The monitoring program during construction is formed mainly air quality monitoring studies. Especially excavation and earthmoving works and storage of materials will result dust emissions. In addition to air quality, surface and ground water quality, noise and soil quality should be monitored during the construction phase at regular intervals. It is expected that the most significant environmental impact will be wastes. When operation phase begins, necessary monitoring and control studies on the scope of waste management plans will be done. Also, Kayseri Integrated Health Campus Project required to appoint a full time environmental officer or to take environmental consulting services firm which authorized by the Ministry of Environment and Urbanization according to the "Environmental Officer and Environmental Consulting Firms Regulation "during the operating period. Environmental Management Plan and Environmental Monitoring Programme are given Appx-5.

7. SOCIAL MANAGEMENT PLAN

Kayseri Integrated Health Campus Project, primarily well-planned to serve as a comprehensive health care needs of people living in region and local people. Public participation activities are divided into 4 stages on the scope of Environmental and Social Impact Assessment studies. These stages are given below;

- Announcement of project to public
- Taking the opinion of the public about the project and consultation of comments
- Sharing of Environmental and Social Impact Assessment report with public
- Grievance mechanism

7.1 ANNOUNCEMENT OF PROJECT TO PUBLIC

Phase of the announcement of the public of the project in question contains such as internet, television and newspapers with a wide variety of media conducted. The introduction ceremony of the project was done on 10 September 2011 between Ministry of Health Public Private Partnership Office and ATM Health Kayseri Investment and Business Inc. which was established by YDA Construction Industry Trade Inc. & INSO Sistemi Per Le Infrastrutture Sociali S.P.A. National and local media have shown great interest to the ceremony due to the participation of senior government officials including the Prime Minister of the Turkish Republic in particular. The first official announcement about the project was opening ceremony. After that, public was informed by both the announcements in the websites and written media. With the starting of the Environmental and Social Impact Assessment studies, in addition to its pre-announcements and surveys, public information supported by bilateral talks. Information of public was ensured by face-to-face interviews with people in the region about aims and scope of the project.



Figure 46. Opening Ceremony Photo (A)



Figure 47. Opening Ceremony Photo (B)

sabah.com.tr | Ana Sayfa | Ar



Ana Sayfa | Güncel | YDA'dan Türkiye'nin ilk şehir hastanesi

Günde 50 kuruşa İngilizceni

Bölümler

- İLANLAR
- Güncel
- Emlak Rehberi
- > Mortgage
- > Sigorta
- > Mevzuat
- > Emlak Terimleri
- > Doğal Afetler
- > Keşfet!
- > Çevresel Bilgiler
- Galeri
- Dekorasyon / Bahçe
- > Banyo

YDA'dan Türkiye'nin ilk şehir hastanesi



YDA Grup, şimdi de Türkiye'nin Kamu Özel Ortaklığı Modeliyle yapılacak ilk Şehir Hastanesini (Entegre Sağlık Kampüsü) inşa ediyor.

15.09.11

Ankara Nevbahar ve Nevbahar Botanik Konutları, Kayseri Residences, **Sahil** Park ve İstanbul'un en önemli projelerinden

The **İstanbul** Veliefendi gibi prestijli konut projelerinin yanı sıra Avrupa ve Rusya'nın en büyük Havacılık Bakım Onarım Ve Modifikasyon Merkezi olan Türk Hava Yolları Teknik A.Ş'nin Sabiha Gökçen Uluslararası Havalimanı'nda bulunan Habom projesini, Dalaman,

Figure 48. Journal and Internet News-01



Figure 49. Journal and Internet News-02

7.2 THE PUBLIC OPINION ABOUT THE PROJECT AND CONSULTATION OF COMMENTS

Data collections were made via face-to-face interviews and means of questionnaires which were filled out. The team has worked with local people at the settlement areas around the project area. This research includes some topics such as the level of household, what the local people think about project, their comments, if any grievance etc. Thus, research team could understand opinions, comments and grievances of the local people and social impacts about Kayseri Integrated Health Campus project easily. With the helping of these researches some mitigation precautions are taken about noise, dust, labor of construction phase and impacts on existing ground sources. Also public was informed about temporary job opportunities. Environmental and social impacts of the project were evaluated by helping of these studies. The survey form is given at Appx-7.

Two different questionnaires which are Residence and household level were prepared. These tools aim to collect information about the titles given below as groups;

- Ownership status, such as the use by owner or rent
- General demographic information such as age, health facilities, household size and education level
- Household income
- General health status
- Public's comments and opinion of proposed project

Questionnaire studies were carried out through bilateral negotiations with 250 households. Budget-related expenses of the People who participated in the surveys results were evaluated and data are shown in Figure 50. 67% of the Households stated that the most important major expense is specified as a nourishment as well as 22% stated that health care expenditures. Accordingly, health expenses were identified as a major expense item in the region after nourishment.

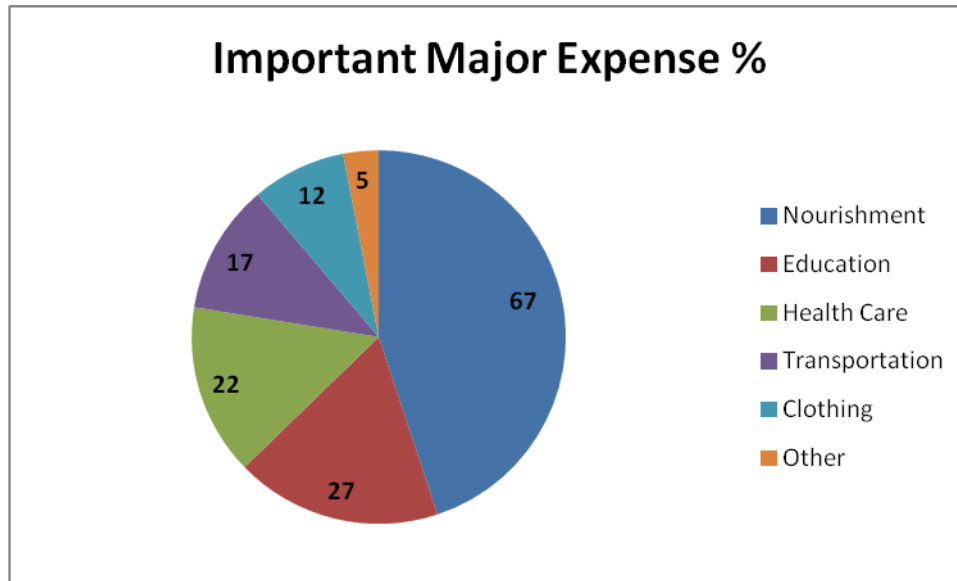


Figure 24. Expenses of households in the region

General health status of 250 households, their opinions and informations about project and their answers which stated in questionnaires are determined meticulously and in the light of these data Table 52 were prepared.

Tablo 17. Questions and answers in the questionnaire.

QUESTION	ANSWER
Is there any member of your family who has cronic health problem?	25.18 % of them said "yes"
Is there anybody who has been ill for the last 12 months in your family?	25.9 % of them said "yes"
Do you have a regular health control?	37.7 % of them have a regular health control
What kind of hospital you prefer when a member of your family ill?(government/private)	65.8 % of them prefer governmental hospital
Are you satisfied with the health facilities in the region?	48.8 % of them satisfied
Is it important for you that the hospital runs as government/private?	53.4 % of them thought that it is important
Do you think health units are adequate in this region?	53.3 % of them found sufficient
Do you have any idea about Kayseri Integrated Healt Campus?	26.6 % of them heard the project
Do you have any idea positive impacts about Kayseri Integrated Healt Campus?	56.29 % of them had a positive opinion

7.3 SHARING OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT REPORT WITH PUBLIC

Environmental and Social Impact Assessment reports need to be shared with views of relevant stakeholders. During Environmental and Social Impact Assessment report of Kayseri Integrated Health Campus project share the final report for the public, some methods were followed.

With the help of the international and national printed media, after the completion of reporting studies and Environmental and Social Impact Assessment studies, contact points which can reach the last report will be announced. Also, owner of the project will be announce the development of the project and Environmental and Social Impact Assessment from the website internet.

7.4 REQUEST AND GRIEVANCE MECHANISM

Request and grievance mechanism is the standart component of the national and international legislation. The main scope of this system is to take into account and rewiew the any request, grievance and advice formally in the any stage of the project by the related person. Request and grievance mechanism will include below topics;

- 1.** Any request, grievance or advice will be obtained in the written form and recorded. According to this purpose, request and grievance form and monitoring form will be used (samples is given below). The ideal time for the response of the recorded applications will be two weeks to the applicant. However, according to detail degree of some request, time might be change. Applicant will be informed in this situation.
- 2.** Records will be updated regularly (monthly, bi-weekly or according to the application number needed value) and added to monthly monitoring reports.
- 3.** Application forms will be prepared in two copies, one of them will be given to applicant and the other one will be filed by the owner of the project.
- 4.** Follow up of the request and grievance mechanism will be in public relation representative's charge.

KAYSERİ INTEGRATED HEALTH CAMPUS Request and Grievance Form	
Date:	Item No :
Manner of Application:	
Applicant: _____	
Explanation of Request/Grievance in detail: _____	

Contact Info of Applicant: _____	
Phone: _____	
Address: _____	
Activity in order to solve the problem:	

Figure 25. Request and Grievance Form Sample

KAYSERİ INTEGRATED HEALTH CAMPUS

Request and Grievance Monitoring Form

Form No:

Item No	Date of Receiving	Taken From	Applicant	Appllicant Contact Info	Explanation of Request/ Grievance	Activities	Approximate Date of Result	Status

Figure 52. Request and Grievance Monitoring Form

8.EXECUTIVE SUMMARY

Nowadays health care services are among the vital needs of Turkey. Important and vital developments in healthcare sector are planned in line with the population increase and healthcare requirements of the society. The data collected from various institutions in Turkey reveals that Turkey cannot catch up with the values needed to be compensated by most of the cities. New Projects are on the agenda in parallel with those data. One of the most important projects planned to be realized is Kayseri Integrated Healthcare Campus Project.

Statistical data of Kayseri reveals that there is a deficiency in the number of practitioners, nurse and midwives in Kayseri according to the Personnel Distribution Scale determining the personnel quota assigned to the healthcare institutions. Departments having the insufficient number of specialist are Obstetrics and Gynecology Specialist, Gastroenterology, Forensic Medicine and Radiation Oncology. Proportions in these departments are below 50% according to PDC. Comparing the number of healthcare personnel with the number of people they serve, it is obvious that Kayseri is very close to the average of Turkey. Additionally, it falls behind not only the average of Turkey but also the OECD countries in terms of healthcare personnel per 1,000 people. However, World Health Organization states that the number of healthcare personnel is really important in order to decrease the infant and maternal mortality. Another outcome of this study is that in the event of sufficient number of healthcare personnel required to work in the hospitals according to the PDC, new health institutions will be required for the employment of those personnel in order to be able to complete the number of healthcare personnel needed by the society in general. There are 13 hospitals in Kayseri under the supervision of Ministry of Health and the number of beds in private hospitals are only 189, which means that the great part of the healthcare service are provided by the public. The number of beds for 10,000 people in Kayseri has increased over the years and now it is very close the average of Turkey (26.7). However those numbers are quite low when it is compared with European Countries. It is obviously seen that there is a need for new healthcare investments both in Kayseri and in Turkey in order to meet the deficit. From this point of view, in the event that the construction of new hospitals planned for the next 3 years by the Ministry of Health, the number will increase to 28.2 in Kayseri. The Project which is planned is 1583-bed healthcare campus including 1,157-bed Training Research Hospital, 200-bed Physical Medicine and Rehabilitation Hospital, 126-bed Psychiatry Hospital and 100-bed High Security Forensic Psychiatry Hospital.

Kayseri Province, Kocasinan District, Seker Quarter is selected as the most appropriate area for this Project. This district is the second densely populated district of Kayseri and open to developments. It is estimated that Kayseri Integrated Healthcare Campus will be a contemporary healthcare facility providing high quality service to Kayseri and other neighbor cities. The campus planned to be constructed will be very beneficial for the society in terms of high quality, cost-effective and technological services. 200-bed Physical Medicine and Rehabilitation Hospital planned to be constructed will be an important alternative for the already existing physical medicine and rehabilitation hospitals in Turkey and will reduce the disorganizations in the service. Considering the changing age characteristics of our population, care of the elderly should be prioritized for the detection of our future objections and requirements. Kayseri Integrated Healthcare Campus which is open for improvement in the future will play an important role to meet the need in this field by increasing the number of beds.

126-bed Psychiatry Hospital and 100-bed High Security Forensic Psychiatry Hospital are other important units planned within the scope of Kayseri Healthcare Campus. These hospitals are important in terms of providing on-site treatment or treatment in that region and

increasing the accessibility of the service for the patients, prevention of overcrowding in the central hospitals and unnecessary referrals and decreasing the cost of treatment. Turkey falls behind the European countries in terms of the number of beds in psychiatry hospitals per 1,000 people. Additional 14,000 beds are required for the transition to Community Psychiatry Model complying with the European Union model. Kayseri Healthcare Campus Project will be a huge step to be taken in this respect.

Environmental impacts of the Project are evaluated as the construction and operation stage within the framework of local legislation and IFC standards. The closest settlement area to the Project site is not closer than 500 meters. Therefore there are no settlement areas to be directly affected by the activities. All negative impacts expected to occur during the construction and operation period such as noise, air quality effects and waste management are evaluated accordingly. Noise level will be controlled around the Project site and in the event of exceeding the related levels, all necessary precautions will be taken. Operation period of the Project will not cause any noise effect or air pollution. During the construction and operation period of the Project, wastes will be produced as a natural result of the construction activities and operation life. However, those wastes will be removed according to the local legislation.

Questionnaires aiming to define the socio-economic characteristics of the local people and their opinions about the Project are already conducted for the analysis of social impacts of this Project and the outcomes are evaluated. There will be no direct or indirect new economic settlement in the Project site. The Project site is allocated by the treasury to Ministry of Health. Additionally, no minority groups or cultural heritage is coincided in this region. A special procedure should be established in accordance with IFC and local legislations for the potential cultural heritage materials which are not known at the previous stages of the Project but found by chance during the excavations. According to the opinions received from the related institutions, there is no possibility for any vulnerable zone or habitat to be affected because of the Project activities. Activity site is not ecologically important or there is no protected flora or fauna included.

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APPENDIX

APPENDIX-1
OFFICAL LETTERS

A) EIA REGULATION EXEMPTION LETTER

T.C.
  VRE VE ŐEHİRCİLİK BAKANLIđI
 evresel Etki Deęerlendirmesi İzin ve Denetim Genel M d rl ę 

Sayr: B.09.0. ED.0.16.01.00-220.01-1094
Konu:  ED Y netmelięi Uygulamaları

05/08/2011

DAđITIMLI

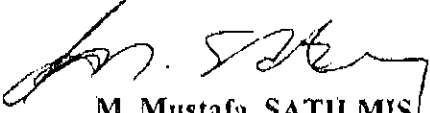
İlgi : Saęlık Bakanlıęı Kamu  zel Ortaklıęı Daire Bařkanlıęı'nın 20.07.2011 tarihli ve 2400 sayılı yazısı.

İlgi yazıda, Saęlık Bakanlıęı'nın 2011-2014 yılı yatırım programında yer alan "Kayseri Entegre Saęlık Kamp s " projesinin Yapım İřleri İle  r n ve Hizmetlerin Temin Edilmesi İři ihalesinin sonu landıęı belirtilerek s z konusu Saęlık Kamp s  projesinin  ED Y netmelięi kapsamında deęerlendirilmesi talep edilmektedir.

"Kayseri Entegre Saęlık Kamp s " projesi 17.07.2008 tarih ve 26939 sayılı Resmi Gazetede yayımlanarak y r rl ę  giren  ED Y netmelięinin Ek-1 ve Ek-2 listelerinde yer almamaktadır. Bundan dolayı s z konusu proje  ED Y netmelięi kapsamı dıřında deęerlendirilmektedir.

Ancak yapılması planlanan projenin inřaat ve iřletme ařamasında 2872 sayılı  evre Kanunu ile 5491 sayılı  evre Kanununda Deęiřiklik Yapan Kanuna ve bu kanunlara istinaden  ıkarılan y netmelikler  er evesinde yapılacak iř ve iřlemler ile ilgili olarak Kayseri Valilięi (İl  evre ve Őehircilik M d rl ę ) ne m racaat edilmesi ve mer'i mevzuat  er evesinde ilgili kurum/kuruluřlardan gerekli izinlerin alınması gerekmektedir.

Bilgilerinizi ve gereęini arz ve rica ederim.


M. Mustafa SATILMIř
Bakan a.
Genel M d r V.

DAđITIM :

Gereęi:

- Saęlık Bakanlıęı
- (Kamu  zel Ortaklıęı Daire Bařkanlıęı)

Bilgi:

- Kayseri Valilięi
- (İl  evre ve Orman M d rl ę )
- (İl  evre ve Őehircilik M d rl ę )

05.08.2011
05.08.2011
05.08.2011
05.08.2011

M h.
Őb.Md.
Dai.Břk.V.
Gn. Md Yrd.V.

:B. SOLGUNTEKİN 
:C. AKSAKAL, 
:A. R. TANAS 
:O.  ZT RK 

05/08/2011

No: 1094

Ministry of Environment and Urbanization

General Directorate of Environmental Impact Assessment Permit and Control

The audience about Kayseri Integrated Health Campus Project which is planned by Public Private Partnership Directorate was requested in the concept of Regulation of Environmental Impact Assessment.

Kayseri Integrated Health Campus Project is not included in Appx-1 and Appx-2 of 17.07.2008 dated and 26939 numbered Regulation of Environmental Impact Assessment.

However, applications and authorizations have to be implemented according to 2872 numbered Environmental Law and 5491 numbered Revised Environmental Law by appealing to Kayseri Province.

Herewith submitted for your kind information and due action.

B) NATURA 2000 DOCUMENT



T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
Doğa Koruma ve Milli Parklar Genel Müdürlüğü



Sayı : B.23.0.DMP.0.11.01-090.04-23783
Konu : Natura 2000 Sahaları

ACELE
02.12.2011

MGS Proje Müşavirlik Mühendislik Ticaret Ltd. Şti.
(Şehit Cevdet Özdemir Mah. 1351 Sk. No: 1/7 Çankaya/ ANKARA)
ANKARA

İlgi : 24.11.2011 tarihli ve 1351 sayılı yazınız.

İlgide kayıtlı yazınızda, gerçekleştirilmesi planlanan "Kayseri Entegre Sağlık Kampüsü" Projesi'nin hayata geçirilmesi için, Avrupa Birliği (AB)'nin belirlediği standartlara göre ihtiyaç duyulan dokümanların hazırlanması ve bu kapsamda da proje alanı ve yakın çevresinin , ülkemizin potansiyel Natura 2000 Korunan Alanlar Ekolojik Ağı'nda yer alıp almadığına dair değerlendirmenin yapılarak Form A'nın doldurulması ve onaylanması talep edilmiştir.

Habitat Direktifi (92/431 EEC) , AB müktesebatı içerisinde doğa koruma adına biyolojik çeşitliliğin korunmasını garanti altına alınmasını amaçlamaktadır. Direktifin ana teması ise; Natura 2000 Korunan Alanlar Ekolojik Ağı'nı tesisini oluşturmaktır.

Ülkemizin AB'ye giriş sürecinde olması nedeniyle, AB'nin doğa koruma mevzuatına yönelik çalışmaları başlamıştır ancak, potansiyel Natura 2000 alanları henüz belirlenmemiştir.

Bahse konu faaliyetin gerçekleştirilmesi hususu Genel Müdürlüğümüz için bir sakınca teşkil etmemekte olup, talep edilen Form A belgesi tarafımızdan düzenlenerek yazımız ekindedir.

Bilgilerinizi ve gereğini rica ederim.

Ahmet ÖZYANIK
Bakan a.
Genel Müdür V.

EK:
-Form A (2 sayfa)

Form A – Önemli risk arz etmeme

**DOĞA KORUMA ÖNEMİNE SAHİP ALANLARIN
DENETİMİNDEN SORUMLU MERCİNİN BEYANI¹**

Sorumlu Mercii.....
Sağlık Bakanlığı Kamu Özel Ortaklığı Dairesi Başkanlığı'nda
(proje konumu)Kayseri İli, Kocasinan İlçesi, Şeker Mahalleri..
yapılacak olan (proje adı)Kayseri Entegre Sağlık Kampüsü Projesi

.....
proje başvurusunu² incelemiş bulunarak;

(uygun kutuyu işaretleyiniz):

- ☐ Aşağıdaki belirtilen nedenlerden dolayı projenin doğa koruma önemine sahip bir alana¹ önemli etkide bulunmasının muhtemel olmadığını;

.....
.....
Dolayısıyla 92/43/ECC yönergesinin 6(3) fıkrasında şart koşulan uygun bir çevre etki değerlendirmesinin gerekli addedilmediğini;

- ☒ 92/43/EEC yönergesinin 6(3) fıkrasına göre uygun bir çevre etki değerlendirmesinin neticesinde, projenin doğa koruma önemine sahip bir alana¹ önemli etkileri olmayacağını;

beyan ederiz.

Proje konumunu ve ilgili (eğer varsa) doğa koruma önemine sahip alanın¹ belirtildiği 1:100.000 (veya mümkün olan en yakın) ölçekli harita ilişikte sunulmuştur.

İmza

Tarih: 2/12/2011

(Doğa koruma önemine sahip alanların denetiminden sorumlu merci)

Resmi Mühür



¹ Bu tanım, Natura 2000 network bünyesinde (Özel Koruma Alanları- SPA ve SAC- dahil olmak üzere korunan alanları, potansiyel Natura 2000 Alanlarını, Ramsar Alanlarını, Uluslar arası Kuş Alanlarını, Emerald Network Alanlarını, veya ilgili diğer alanları içerir.

² 92/43/EEC yönergesinin 6(3) fıkrasının doğal habitatların, vahşi hayvan türleri ve bitki örtüsünün korunmasına yönelik şartları dikkate alarak

02.12.2011

No: 23783

T.R.
MINISTRY OF FORESTRY AND WATER AFFAIRS
General Directorate of Nature Protection and Natural parks

Kayseri Integrated Health Campus Project was requested to be evaluated Form-A according to Natura 2000 Network (including Special Areas of Conservation and Special Protection Areas) which was set by the European Union (EU).

Habitat Directive (92/431 EEC) is aimed to protect the biodiversity on behalf of the EU. The main scope of the directive is to determine the establishment of the Natura 2000 Special Protection Areas Network.

Studies about the consistency of natural protection EU legislation just started but Natura 2000 areas have not determined yet.

The activities of the project will not have significant negative effects for the General Directorate and requested Form A is in the Annex.

Herewith submitted for your kind information and due action.

Appx:

-FormA

Form A – No risk of significant effect

**DECLARATION BY THE AUTHORITY RESPONSIBLE FOR MONITORING
SITES OF NATURE CONSERVATION IMPORTANCE¹**

Responsible Authority.....The Ministry of Health.....

Having examined² the project application

(title).....Kayseri Integrated Health Campus Project.....

which is to be located atKayseri.....

we declare that (tick the appropriate box):

- ☐ The project is not likely to have significant effects on a site of nature conservation importance¹ on the following grounds:

.....
.....

Therefore an appropriate assessment required by Article 6 (3) of Directive 92/43/EEC was not deemed necessary.

- ☒ Following an appropriate assessment, according to Art. 6(3) of Directive 92/43/EEC, the project will not have significant negative effects on a site of nature conservation importance¹.

A map at scale of 1:100.000 (or the nearest possible scale) is attached, indicating the location of the project as well as the site of nature conservation importance¹ concerned, if any.

Signed:

Date 02/12/2011

(Authority responsible for monitoring sites of nature conservation importance)

Official Seal:

Les informations contenues dans ce message et/ou ses annexes sont réservées à l'attention et à l'utilisation de leur destinataire et peuvent être confidentielles. Si vous n'êtes pas destinataire de ce message, vous êtes informés que vous l'avez reçu par erreur et que toute utilisation en est interdite. Dans ce cas, vous êtes priés de le détruire et d'en informer la Banque Européenne d'Investissement.

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¹ This includes sites protected as part of the Natura 2000 network (including Special Areas of Conservation and Special Protection Areas), potential Natura 2000 sites, Ramsar sites, International Bird Areas, sites of the Emerald Network, or others as relevant.

² taking into account the requirements of Art. 6(3) of Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

C) KASKİ LETTERS



T.C.
KAYSERİ BÜYÜKŞEHİR BELEDİYESİ
SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ
(Kanalizasyon Dairesi Başkanlığı)

Sayı : 10-1/287-2559

Konu : Bağlantı Noktaları

21.10.2011

YDA .İNŞAAT SAN.ve TİC.ANONİM .ŞTİ.
Vedat Dalokay Cad. No:112
Tel: 0 554 344 34 35
Gaziosmanpaşa/ANKARA

İlgi: 18.10.2011 tarihli yazınız.

İlgi yazınızda T.C. Sağlık Bakanlığı tarafından ihale edilen ve yüklenici ortağı olduğunuz iş ortaklığı tarafından yaptırılacak olan Kayseri Entegre Sağlık Kampusu Altyapı Projesi için atıksu ve yağmursuyu bağlantı noktalarını sormaktasınız.

İlgi yazınızda belirtilen adreste atıksu bağlantısı için Ø 500 mm. çapında kanal şebekemiz bulunmakta olup; bu şebeke ekteki projede koordinatlı olarak görüleceği üzere inşaat alanınız boyunca paralel gitmektedir. Atıksu bağlantınız bu şebekemize yapılacak olup; tarafınızca proje çalışması yapıp atıksularınızı bu şebekemize getirebileceğiniz noktayı belirledikten sonra onay için kurumumuza sunmanız gereklidir.

Yağmursuyu deşarjı için ise, hastane inşaat alanı içerisinde mevcut olan Sarımsaklı Deresini kullanmanız gerekli olup; tarafınızca hazırlanan yağmursuyu projesi de kurumumuz onayına sunulmalıdır.

Bilgilerinize rica ederim.


Osman ÖZDEMİR
Genel Müdür a.
Genel Müdür Yardımcısı

EK:

1- 1 Adet Proje CD



T.C.
KAYSERİ BÜYÜKŞEHİR BELEDİYESİ
SU VE KANALİZASYON İDARESİ GENEL MÜDÜRLÜĞÜ
(İçme Suyu Dairesi Başkanlığı)

Sayı :14/1-502 - 2576
Konu :Dilekçeniz

24/10/2011

Sayın YDA İNŞAAT SAN.VE TİC.A.Ş.
Büyükesat mah. Vedat Dalokay cad.
No:112 Çankaya / ANKARA

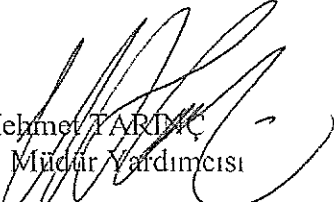
İlgi:18.10.2011 tarih ve 6260 sayılı dilekçeniz.

Yazınızda belirtilen Kayseri Entegre Sağlık Kampusu alanının da içerisinde bulunduğu bölge henüz yeni imarlaşmaya açılması sebebiyle bölgenin her yerinde içme suyu şebeke hattı mevcut değildir. Konu ile ilgili olarak içme suyu temin ve dağıtım proje ve inşaat çalışmaları devam etmektedir.

Bölgede ekteki hava fotoğrafında görüldüğü üzere Q160 PE içme suyu şebeke hattı mevcut olup gerekli olan su ihtiyacını karşılamak için bahsi geçen borudan uygun görülen çapta hat alınabilir. Mevcut boru zeminin 1 metre altındadır.

Gereğini bilgilerinize rica ederiz.


Birol NALBANTOĞLU
İçme Suyu Dairesi Başkanı


Mehmet FARINÇ
Genel Müdür Yardımcısı

Eki:1 Adet hava fotoğrafı

21.10.2011

NO: 10-1/287-2559

T.R.
KAYSERİ METROPOLITAN MUNICIPALITY
GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION
(Department of Sewerage Works)

You are requested to have the joint points of the wastewater and storm water for Kayseri Integrated Health Campus Infrastructure Project.

There is a channel network which has a 500 mm diameter in the near of your stated address and its direction is parallel to your construction site as seen in the project CD. Your wastewater will be discharged to our network so when you will decide the point of your discharge, you should ask for our approval.

For the storm water discharge you need to use existing Sarımsaklı River and also your storm water project will be approved by our General Directorate.

Herewith submitted for your kind information and due action.

Appx: Project CD

24.10.2011

NO: 14/1-502-2576

T.R.
KAYSERİ METROPOLITAN MUNICIPALITY
GENERAL DIRECTORATE OF WATER AND SEWERAGE ADMINISTRATION
(Department of Potable Water)

There is no drinking water network in every point of Kayseri Integrated Health Campus Project area because; the region is newly built up area. Drinking water distribution network project is still ongoing.

The location of Q160 PE drinking water line can be seen in the air photo in appendix and you can supply water demand from this line by using pipe with proper diameter. The line is 1 m under the ground.

Herewith submitted for your kind information and due action.

Appx: Air Photo

**D) KAYSERİ PROTECTION OF CULTURAL
AND NATURAL PROPERTIES REGION
COMMISSION LETTER**



T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Kayseri Kültür Varlıklarını Koruma Bölge Kurulu Müdürlüğü

Sayı : B.16.0.KVM.4.38.00.02-165(38.00/1268)/ **509**
Konu : Kayseri Entegre Sağlık Kampüsü Projesi.

16 Aralık 2011

MGS PROJE MÜŞAVİRLİK MÜHENDİSLİK TİCARET LİMİTED ŞİRKETİ
Şehit Cevdet Özdemir Mahallesi,
Öveçler 4. Cadde,1351(eski 203.) sokak, PK:06640, No: 1/7,
Çankaya/ ANKARA

İlgi: 07.12.2011 gün ve 1417 sayılı yazınız.

Sağlık Bakanlığı, Kamu Özel Ortaklığı Dairesi Başkanlığınca, Kayseri İli, Kocasinan İlçesi, Şeker Mahallesi sınırları içerisinde kalan "Kayseri Entegre Sağlık Kampüsü" Projesinin uygulanacağı alanın 2863 sayılı yasa kapsamında incelenmesi hususuna ilişkin ilgi yazı ve eki incelenmiştir.

Kayseri İli, Kocasinan İlçesi, Şeker Mahallesi sınırları içerisinde kalan, ilgi yazı eki 1/25000 ölçekli harita üzerinde koordinatlı olarak işaretli alan sit alanı dışında yer almakta olup, korunması gerekli taşınmaz kültür varlığı olarak tescil kaydı bulunmamaktadır. Söz konusu 1/25000 ölçekli harita üzerinde koordinatlı olarak işaretli alanın yüzeyinde Müdürlüğümüz uzmanlarınca yapılan inceleme sonucunda; 2863 sayılı yasa kapsamına girebilecek korunması gerekli taşınmaz kültür varlığına rastlanmamıştır. Ancak söz konusu alanda yapılacak olası hafriyat çalışmaları sırasında, herhangi bir kültür varlığına rastlanması durumunda 2863 sayılı yasanın 4. Maddesi gereği çalışmaların durdurularak "en yakın müze müdürlüğüne veya köyde muhtara veya diğer yerlerde mülki idare amirlerine" haber verilmesi gerekmektedir.

Bilgilerinizi ve gereğini rica ederim.


Kemal KURD
Müdür V.

EK:

1-1/25000 Ölçekli Harita Örneği (1 sayfa)



16.12.2011

No: 509

T.R.
MINISTRY OF CULTURE AND TOURISM
Kayseri Cultural Property Protection Regional directorate

Kayseri Integrated Health Campus Project which is planned by Public Private Partnership Directorate was requested to be evaluated according to 2863 numbered Conservation of Cultural and Natural Property.

The Project will be located at Kayseri province, Kocasinan district and Şeker Quarter and the location is out of protected areas. Also, there is no any registered cultural area in the area of Project. As a result of field investigation done by our directorate experts, any cultural real proper was observed.

However, during the construction phase, in case of finding cultural real property, the construction works has to be stopped immediately and an application has to be done to closest museum directorate or civilian authority.

Herewith submitted for your kind information and due action.

Appx: 1/25,000 scale topographic map

**E) STATE HYDRAULIC WORKS 12.
REGIONAL DIRECTORATE LETTER**



T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
Devlet Su İşleri Genel Müdürlüğü 12. Bölge Müdürlüğü



Sayı : B.23.1.DSİ.1.12.02.00.0-045-500618-8729
Konu : Kayseri Entegre Sağlık
Kampüsü Projesi

30/12/2011

Mgs Proje Müşavirlik Mühendislik Ticaret Ltd. Şti. (Şehit Cevdet Özdemir Mahallesi Öveçler
4. Cadde 1351 Eski 203. Sokak P.k:06460 No:1/7 Çankaya/Ankara)

İlgi : 06.12.2011 tarihli ve 1400 sayılı yazınız.

İlgi yazınızda; Kayseri İli, Kocasinan İlçesi, Şeker Mahallesi sınırları içerisinde Sağlık Bakanlığı Kamu-Özel Ortaklığı Dairesi Başkanlığınca planlanan "Kayseri Entegre Sağlık Kampüsü" projesi kapsamında söz konusu projenin Çevresel ve Sosyal Etki Değerlendirme çalışmalarında kullanılmak üzere Bölge Müdürlüğümüzden görüş istenmektedir.

Konu ile ilgili yapılan etüt çalışmaları neticesinde bahse konu proje alanı sınırları içerisinde Sarımsaklı Ana Tahliye Kanalı ve Erkilet Camızağıl Taşkın Koruma Kanalının geçtiği anlaşılmıştır.

1. Sarımsaklı Ana Tahliye Kanalının saha içerisinde kalan kısmının korunması ve kanal şev başlarından itibaren sağa ve sola 10'ar metrelik bir sahanın temizlik, bakım-onarım vb. işler için ayrılması,

2. Erkilet Camızağıl Taşkın Koruma Kanalının inşa sahası içerisinde kalan kısmının korunması, kanalın menba kesiti daraltılmadan korunarak Sarımsaklı Ana Tahliye Kanalına bağlanması ve kanal şev başlarından itibaren sağa ve sola 5'er metrelik bir sahanın temizlik, bakım-onarım vb. işler için ayrılması,

3. Kanalların içerisine herhangi bir atık vb. malzemenin bırakılmaması ve söz konusu kanalların bakım-onarım ve temizliğine engel teşkil edecek yapıların inşa edilmemesi,

4. Projenin inşa ve işletme safhalarında canlı güvenliğinin sağlanması amacıyla söz konusu kanallar boyunca gerekli güvenlik önlemlerinin alınması,

Hususlarına uyulması şartıyla söz konusu faaliyetin gerçekleştirilmesinde Kurumumuz açısından sakınca bulunmamaktadır.

Gereğini rica ederim.

Mikdat TEMİZ
Bölge Müdürü a.
Bölge Müdür Yardımcısı

Güvenli Elektronik İmza
Aşlı İsmayil

Bu belge, 5070 sayılı Elektronik İmza Kanununun 5. Maddesi gereğince güvenli elektronik imza ile imzalanmıştır.



Adres : DSİ 12. Bölge Müdürlüğü Osman Kavuncu Cd. Kocasinan 38060 KAYSERİ
Ayrıntılı Bilgi İçin : F. BALAK Mühendis Telefon : 0 352 3362850 - 1514 Fax: 0 352
3362857
e-posta : fatihbalak@dsi.gov.tr Elektronik Ağ: www.dsi.gov.tr

16.12.2011

No: 8729

T.R.
MINISTRY OF FORESTRY AND WATER AFFAIRS
12. Regional Directorate of State Hydraulic Works General Directorate

The audience about Kayseri Integrated Health Campus Project which is planned by Public Private Partnership Directorate was requested from our directorate.

As a result of field investigation, it was confirmed that Sarımsaklı Main Discharge Channel and Erkilet Camızağıl Flood Protection Channel which belongs to SHW are passing through into the project area.

1. The sections of Sarımsaklı Main Discharge Channel which is located in the project area has to be protected with 10 m protection distance for field cleaning, maintenance, etc.
2. The sections of Erkilet Camızağıl Flood Protection Channel which is located in the project area has to be protected and connected to Sarımsaklı Main Discharge Channel with keeping channel width. Also, 5 m protection distance has to be kept for field cleaning, maintenance, etc.
3. Wastes are not allowed to dump into the channels and any buildings that may make difficult cleaning and maintenance activities are not allowed to close to the channels.
4. Required safety precautions have to be implemented through the channel lines in order to provide security.

Herewith submitted for your kind information and due action.

**F) GENERAL DIRECTORATE OF NATIONAL
REAL ESTATE LETTER**

(184)

T.C.
MALİYE BAKANLIĞI
Milli Emlak Genel Müdürlüğü

Sayı: B.07.0.MEG.0.25/3121-104869

Konu:3359 sayılı Kanun

54210 *20.10.2008

SAĞLIK BAKANLIĞINA
(Kamu Özel Ortaklığı Daire Başkanlığı)

İlgi: 03.06.2008 tarihli ve 512 sayılı yazınız.

Kayseri İlinde bulunan ve halen Bakanlığınız (Temel Sağlık Hizmetleri Genel Müdürlüğü) adına sağlık tesis alanı olarak kullanılmak üzere tahsisli bulunan 3 pafta 45 ada 25 parsel no.lu 500.000 m² yüzölçümlü mülkiyeti Hazine adına kayıtlı taşınmazın enerji nakil hattı, sulama kanalı ve doğalgaz boru hattı olarak kullanılan 32.856,14 m² lik kısmından geriye kalan taşınmaz üzerinde ve ayrıca yine Kayseri İli, Kocasinan İlçesi, Şeker Mahallesi, 4701 ada 1 parsel no.lu 248.551,93 m² yüzölçümlü taşınmazın üzerine 150 yataklı fizik tedavi ve rehabilitasyon hastalıkları hastanesi, 200 yataklı ruh ve sinir hastalıkları hastanesi ve 100 yataklı yüksek güvenlikli adli psikiyatri hastanesi yapılması için 3359 sayılı Sağlık Hizmetleri Temel Kanununun Ek 7 nci maddesinin uygulanmasına ilişkin yayımlanan Sağlık Tesislerinin Kiralama Karşılığı Yaptırılması ile Tesisteki Tıbbi Hizmet Alanları Dışındaki Hizmet ve Alanların İşletilmesi Karşılığında Yenilenmesine Dair Yönetmeliğin 7 nci maddesinin ikinci fıkrasına göre ön izin verilmesi talep edilmiştir.

Konuya ilişkin olarak Kayseri Valiliğinden (Defterdarlık) alınan 02.09.2008 tarihli ve 14426 sayılı yazı ve ekleri ile Bakanlık işlem dosyasının incelenmesi neticesinde;

45 ada 25 parsel no.lu 500.000 m² yüzölçümlü taşınmazın,

-İmar planında kentsel servis alanında kaldığı,

-32.856,14 m² lik kısmının ana tahliye kanalı olarak kullanılmak üzere Çevre ve Orman Bakanlığına tahsisli olduğu ve bu kısım üzerinde DSİ ye ait sulama kanalı ve içerisinden geçen doğalgaz boru hattı bulunduğu,

-457.468,27 m² lik kısmının 1200 yataklı Bölge Eğitim ve Araştırma Hastanesi yapılmak üzere 12.06.2008 tarihli ve 31209 sayılı yazımızla Bakanlıklarına (Temel Sağlık Hizmetleri Genel Müdürlüğü) 2 (iki) yıl süre ile tahsis edildiği,

-Tapu kütüğünün beyanlar hanesinde 04.02.1987 tarihinde başlayan TEK Genel Müdürlüğü lehine daimi irtifak hakkının bulunduğu,

-Kısmen tarımsal amaçlı işgal edildiği,

4701 ada 1 parsel no.lu 248.551,93 m² yüzölçümlü taşınmazın,

-Mülkiyeti Kayseri Büyükşehir Belediye Başkanlığına ait iken 2886 sayılı Devlet İhale Kanununun 51/g maddesine göre trampa sonucu Hazine adına tescil edildiği,

-İmar planında sağlık tesis alanında kaldığı,

-Taşınmazın üzerinde küçük ve büyükbaş hayvan barınakları, atölye binası, süthane, kapalı ve açık ahır, sağımhane ve yem deposu mevcut olduğu ve halihazırda Kayseri Şeker Fabrikası tarafından çiftlik, tarla ve yol olarak kullanıldığı,

../..

Dikmen Caddesi 06100 ANKARA

Telefon: (0312) 415 19 99 Faks : (0312) 425 09 00

e-posta : mileweb@milli.emlak.gov.tr Elektronik Ağ: www.milli.emlak.gov.tr

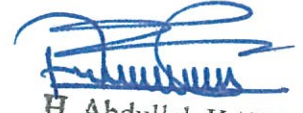
-Defterdarlık Makamının 03.07.2007 tarihli ve 871 sayılı oluru ile sađlık tesis alanı olarak kullanılmak üzere Bakanlıklarına (Temel Sađlık Hizmetleri Genel M¼d¼rl¼ę¼) tahsis edildięi,

-Ayrıca, imar planında hastane alanında kalan bahse konu taşınmazın üzerindeki yapıların, Sađlık Bakanlıęının boş olarak teslim talebinden itibaren 3 ay ierisinde tasfiye edilmesi kořuluyla trampa edildięi,

Hususları tespit edilmiřtir.

Buna g¼re; Bakanlıklarına tahsisli olduęu anlařılan 3 pafta 45 ada 25 parsel no.lu 500.000 m² y¼z¼l¼ml¼ taşınmazın sulama kanalı ve doęalgaz boru hattı olarak kullanılan 32.856,14 m² lik kısmından geriye kalan 467.143,86 m² si ile 4701 ada 1 parsel no.lu 248.551,93 m² y¼z¼l¼ml¼ taşınmazın 3359 sayılı Sađlık Hizmetleri Temel Kanununun Ek 7 nci maddesinin uygulanmasına iliřkin yayımlanan Sađlık Tesislerinin Kiralama Karřılıęı Yaptırılması ile Tesisteki Tıbbi Hizmet Alanları Dıřındaki Hizmet ve Alanların İřletilmesi Karřılıęında Yenilenmesine Dair Y¼netmelik kapsamında deęerlendirilmesinde Bakanlıęımızca bir sakınca bulunmamaktadır.

Bilgi edinilmesini arz ederim.


H. Abdullah KAYA
Bakan. a.
Genel M¼d¼r

T.C.
SAđLIK BAKANLIęI
Genel Evrak M¼d¼rl¼ę¼ Gelen
Evrak Servisi
24 Ekim 2008 14:42 / 49~868


T.R.
MINISTRY OF FINANCE
General Directorate of National Estate

TO THE MINISTRY OF HEALTH
(Department of Public Private Partnership)

Kayseri Integrated Health Campus Project which is planned by Public Private Partnership Directorate was requested to be had the prior authorization according to the regulation about the health facilities renting and operation the service areas except medical service areas, in order to establish the healthcare campus project with a total capacity of 1583 beds in Kayseri the province, comprising Training Research Hospital with 1157 beds; Physical Therapy and Rehabilitation Hospital with 200 beds; Psychiatry Hospital with 126 beds and High-Security Forensic Psychiatry Hospital with 100 beds on a real estate which has the total area of 500,000 m²; specifically 248,551.93 m² of Şeker Quarter borough of Kocasinan in Kayseri and 32,856.14 m² of used as energy transmission line, irrigation channel and natural gas pipe line.

According to the 02.09.2008 dated and 14426 numbered document which is taken from the Kayseri Province;

45 Lot and 25 Parcel numbered, 500,000 m² real estate is,

- In the master plan, it is categorized as urban service area,
- Its 32,856.14 m² area part is used as main discharge canal, irrigation channel and natural gas pipe line of Hydraulic State Works,
- Its 457,468.27 m² area part is used as Training Research Hospital with 1157 beds; Physical Therapy and Rehabilitation Hospital with 200 beds; Psychiatry Hospital with 126 beds and High-Security Forensic Psychiatry Hospital with 100 beds and it is allocated by The General Directorate of Main Health Services for 2 (two) years,
- Partly invaded as agricultural purposes,

4701 Lot and 1 Parcel numbered, 248,551.93 m² real estate is,

- It was in the Kayseri Metropolitan Municipality ownership, according to 2886 numbered State Procurement Law 51/g clause, it enrolled for the Treasury,
- In the master plan, it is categorized as health facility area,
- The real estate has cattle and small cattle shelter, atelier building, milk house, open and closed barn, milking shed, bait stocking area and it used as farm, field and road for the Kayseri Sugar Factory,
- With the 03.07.2007 dated and 871 numbered acceptance of Financial Office, it is allocated to The General Directorate of Main Health Services,
- Moreover, in the master plan, the structure which are included by the real estate are exchanged providing that it is closed out within 3 months, are determined.

According to this; real estate, dedicated to Ministry, Sheet no 3, Lot no 45, Parcel no 25, 500,000 m²; 32,856.14 m² used as irrigational channel and natural gas pipeline, remaining part 467,143.86 m² and Lot no 4701 and Parcel no 1, 248,551.93 m² part, according to the regulation about the health facilities renting and operation the service areas, The assessment of this regulation, it will not have inconvenience for the Ministry.

Herewith submitted for your kind information and due action.

**G) DIRECTORATE OF PUBLIC WORKS AND
URBANISM LETTER**

T.C
KAYSERİ KOCASINAN BELEDİYESİ
İmar ve Şehircilik Müdürlüğü

Sayı : M.38.6.KOC.0.13.İŞM./ 252
Konu :

18.01.2012

Sayın: Ahmet Yavuz Çal
Proje müdürü
Kayseri

İLGİ: 18.01.2012 tarih 286827 sayılı dilekçe.

İlgi dilekçede konu edilen 7093 ada, 17 nolu parselin 1/1000 ölçekli uygulama imar planındaki durumu ekte.

Bilgilerinize rica ederim.

H.Mustafa ÇAPAN
Başkan a.
Başkan Yardımcısı

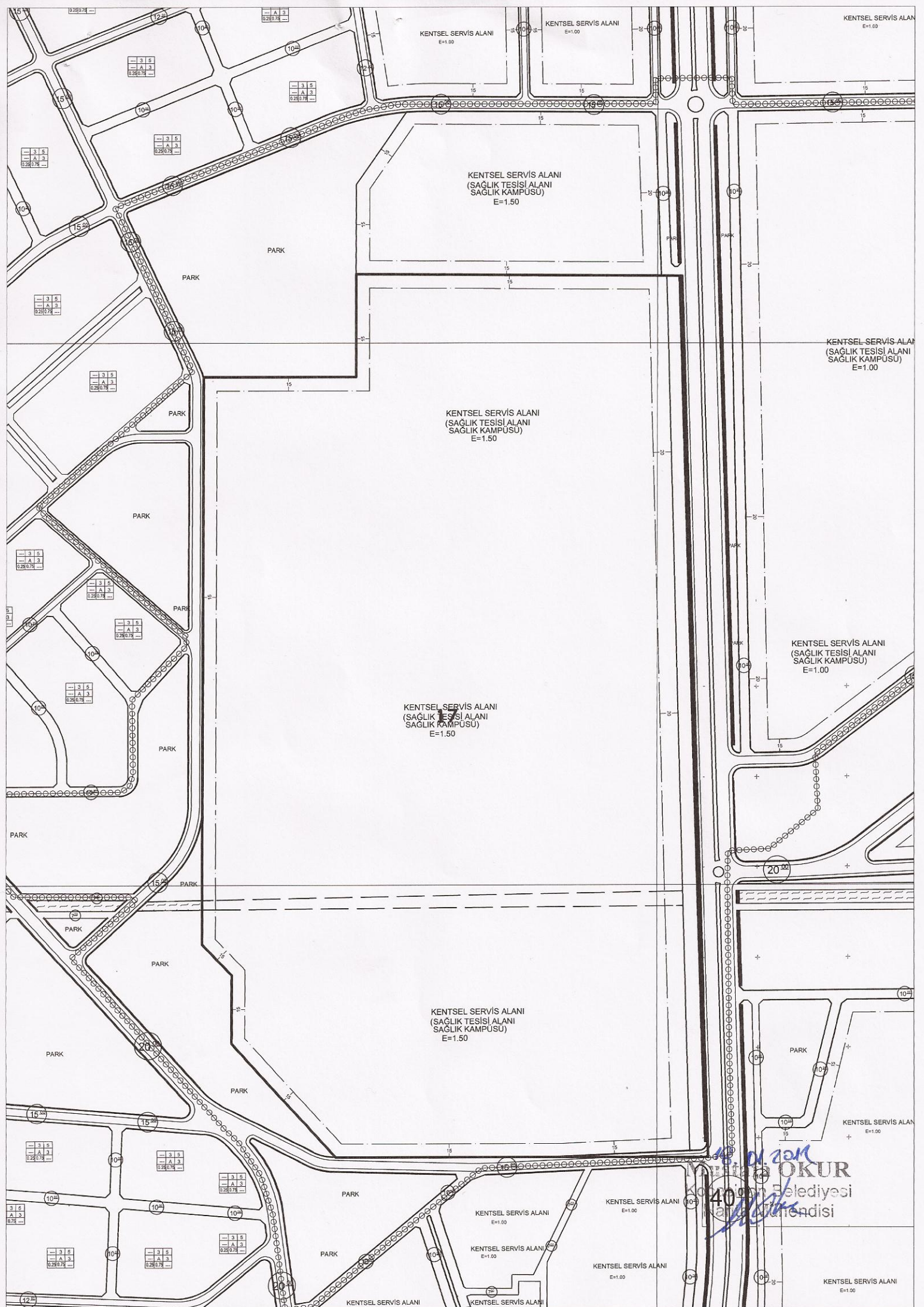
T.R.
KAYSERİ KOCASİNAN MUNICIPALITY
Public Works and Urbanism Directorate

18.01.2012

No: M.38:6.KOC.0.13.İŞM./252

The condition of the Lot no 7093, Parcel No 17, 1/1000 scaled master plan is given in the appendix.

Herewith submitted for your kind information and due action.



H) LAND REGISTRATION CERTIFICATE



T.C.
KOCASINAN KAYMAKAMLIĞI
İlçe Tapu Müdürlüğü

SAYI : B091TKG4284801-106-07/7539
KONU: Kayıt

05/12/2011
KAYSERİ

İL SAĞLIK MÜDÜRLÜĞÜ'NE
KAYSERİ

İLGİ: 05/12/2011 tarih ve 33346 sayılı yazınız.

İlgi sayılı yazınızda bahse konu Kayseri İli Kocasinan İlçesi Şeker mahallesi 7093 ada 20 parsel sayılı taşınmazın tapu kaydı tanzim edilerek yazımız ekinde gönderilmiştir.

Bilgilerinize arz ederim.

Özcan ÇİMEN
Yetkili Müdür Yard.

EKİ: 1 Adet Tapu kaydı

T.R.
KOCASINAN DISTRICT GOVERNORSHIP
Land Registry Directorate

05.12.2011

No: B091TKG4284801-106-07/7539

TO THE LOCAL HEALTH AUTHORITY
KAYSERİ

Land registration of real estate Lot no 7093, Parcel no 20, Şeker Quarter borough of Kocasinan in Kayseri is given in appendix.

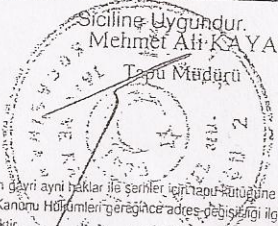
Herewith submitted for your kind information and due action.

İli	KAYSERİ	Türkiye Cumhuriyeti  TAPU SENEDİ	Fotoğraf
İlçesi	KOCASINAN		
Mahallesi	ŞEKER		
Köyü			
Sokağı			
Mevkii			

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü		
0,00	K34B24D1	7093	20	ha	m ²	dm ²
					481.335,48	m2

GAYRİMENKULÜN	Niteliği	ARSA
	Sınırı	Planındadır Zemin Sistem No : 54081063
	Edinme Sebebi	ŞEKER Mah. 7093 Ada 17 Parsel taşınmazının İfraz İşlemi (TCM) işleminden.
	Sahibi	MALİYE HAZİNESİ Tam

Girdisi.	Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi
Cilt No.	19343	27	2641		23/09/2011	Cilt No.
Sahife No	2333					Sahife No.
Sıra No.						Sıra No.
Tarih						Tarih



Mülkiyetin devri aynı haklar ile şerhler içeren tapu kütüğüne müracaat edilmelidir.
Tebliğat Kanunu hükümleri gereğince adres değişikliği ilgili Tapu Sicil Müdürlüğüne bildirilecektir.

TAHSİSLİ TAŞINMAZ TESLİM VE TESELLÜM TUTANAĞI

TAŞINMAZIN			
Taşınmaz No	38010128734	Cinsi	Arsa
Fiili Durumu	Hazinenin Özel Mülkiyetinde	Yüzölçümü (m²)	481.335,48
İli	Kayseri	Hazine Hissesi	Tam
İlçesi	Kocasinan	Tapu Tarihi	23/09/2011
Mahallesi / Köyü	Şeker Mahallesi	Pafta / Cilt No	K34B24D1 / 27
Caddesi / Sokağı	/	Ada / Sahife No	7093 / 2641
Yöresi		Parsel / Sıra No	20 / ...

TAHSİS İLE İLGİLİ BİLGİLER		
Tahsis Edilecek Olan İdare	Sağlık Bakanlığı / Tedavi Hizmetleri Genel Müdürlüğü	
Tahsis Amacı	1200 yataklı devlet hastanesi yapılmak üzere	
Tahsis Süresi / Yüzölçümü	2 Yıl	445.934,24
Yasal Dayanak	327 Sayılı Milli Emlak Genel Tebliği	
Tahsis Yetkisi	Defterdarlık Yetkisinde	
Tahsis Tarih ve No	17/12/2011	1895
Genel Müd. Dosya No		

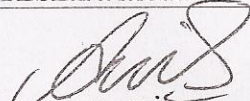
ÜZERİNDE BULUNAN MUHDESATIN	
Cinsi:	
Nevi:	
Miktarı:	

Yukarıda özellikleri yazılı taşınmaz tahsis amacıyla kullanılmak üzere ve tahsis amacı kalmadığında idaremize iade edilmek üzere aşağıda adı, soyadı ve görev ünvanı yazılı bulunan şahsa teslim edildiğine dair iş bu tutanak birlikte tanzim ve imza altına alındı. 13/01/2012

TESLİM EDEN


Kamil YILMAZ
Defterdarlık Uzmanı

TESLİM ALAN


Azmi ŞAHİN
Teknisyen

NOT: Teslim alan idarenin; tahsisli taşınmazı işgal ve tecavüzlere karşı korumak için her türlü tedbiri alması, işgal ve tecavüz halinde idari ve adli yollara başvurusu ve durumu derhal illerde Defterdarlığa (Milli Emlak Müdürlüğü), ilçelerde Malmüdürlüğüne (Milli Emlak Servisi) bildirmesi ve tahsisli taşınmazlarla ilgili olarak harcamalara katılma payı dahil her türlü gideri ödemesi gereklidir.

TAŞINMAZ BİLGİLERİ

Zemin Tipi : Ana Taşınmaz
 Zemin No : 54081063
 İl / İlçe : KAYSERİ/KOCASINAN
 Kurum Adı : Kocasinan TM
 Mahalle / Köy Adı : ŞEKER Mah.
 Mevkii :
 Cilt / Sayfa No : 27 / 2641
 Kayıt Durum : Aktif

Ada/Parsel : 7093/20
 Yüzölçüm : 481.335,48 m2
 Ana Taş. Nitelik : ARSA

TAŞINMAZ ŞERH / BEYAN / İRTİFAK

Ş/B/İ	Açıklama	Malik / Lehdar	Tarih - Yevmiye	Terkin Sebebi - Tarih - Yev
İrtifak	A)M:18867M2 LİK SAHA ÜZERİNDE TEK GENEL MD. LEHİNE DAİMİ İRTİFAK HAKKI (Başlama Tarih:04/02/1987,Bitis Tarih:04/02/1987 - Süre:-)	TÜRKİYE ELEKTRİK KURUMU (TEK)	09/04/2007 - 6774	--
Beyan	İş bu parselin üzerinde enerji nakil , botaş boru hattı ve Kaysu Genel Müdürlüğü hatlarına ait tescilli olmayan irtifak hatları vardır.		09/12/2010 - 22558	--

MÜLKİYET BİLGİLERİ

Sistem No	Malik	Elbirliği No	Hisse Pay/Payda	Metrekare	Edinme Sebebi - Tarih - Yev.	Terkin Sebebi - Tarih - Yev.
153521289	MALİYE HAZİNESİ		TAM	481.335,48	İfraz işlemi (TSM) - 23/09/2011 - 19345-	--

Raporlayan: 7260-Ayşe KARAKAŞ
 Kaydeden: Uygundur.

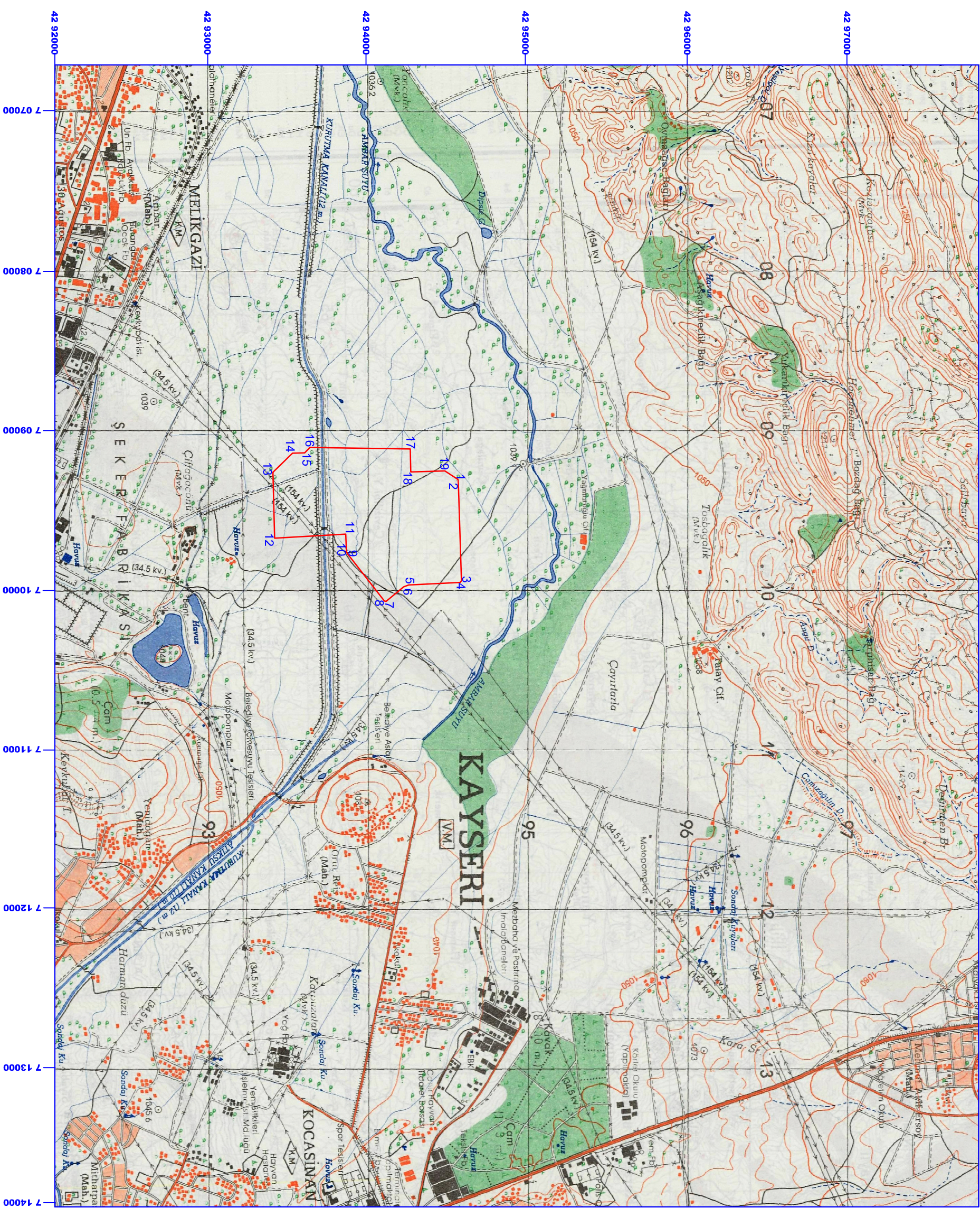


APPENDIX-2

MAPS

A) TOPOGRAPHICAL MAP

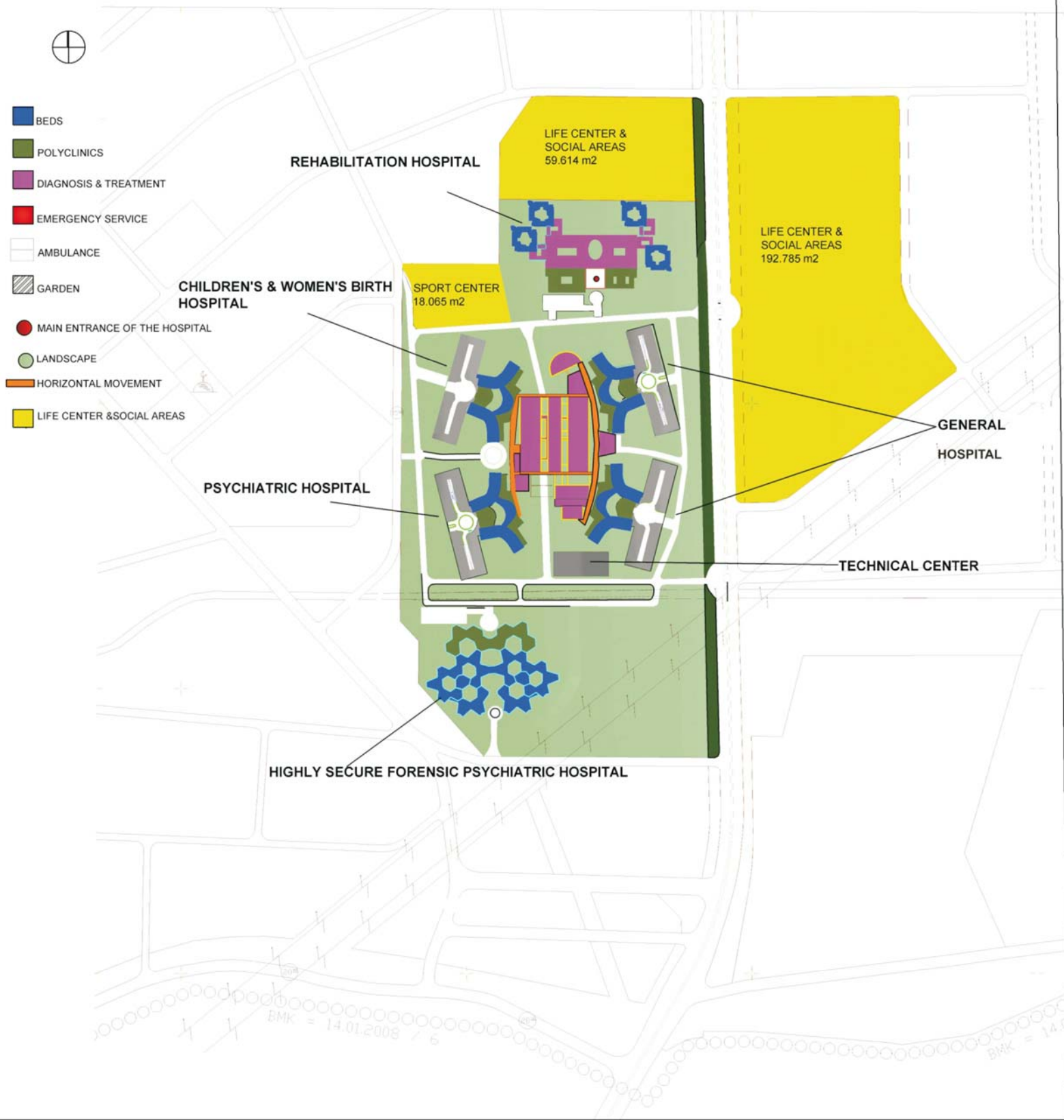
KOORDINAT LİSTESİ			
NO	Y	X	
1	709306.42	4294563.08	
2	709338.12	4294565.74	
3	709940.60	4294584.93	
4	709950.81	4294576.79	
5	709967.13	4294254.40	
6	709978.90	4294223.08	
7	710069.02	4294112.85	
8	710067.72	4294102.41	
9	709771.73	4293871.23	
10	709757.49	4293863.87	
11	709647.80	4293859.58	
12	709673.66	4293414.44	
13	709260.58	4293403.08	
14	709141.53	4293526.66	
15	709139.63	4293601.94	
16	709105.70	4293635.53	
17	709114.34	4294263.38	
18	709258.60	4294267.37	
19	709252.53	4294480.45	



B) LAYOUT PLAN

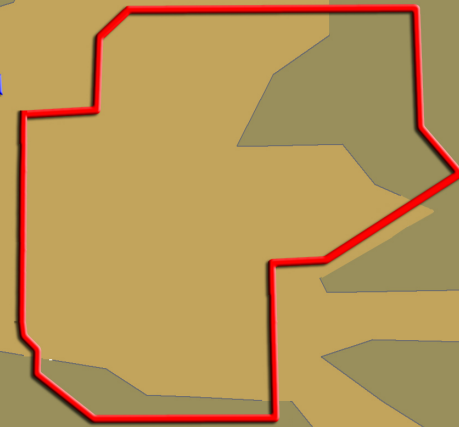
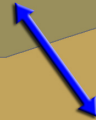


KAYSERİ INTEGRATED HEALTH CAMPUS AREA



C) LAND CLASSIFICATION MAP

KAYSERİ INTEGRATED HEALTH
CAMPUS PROJECT AREA



LEGEND

SCALE: 1/25.000

LAND CLASSIFICATION

- Agricultural areas with natural vegetation
- Irrigated fields
- Industrial and commercial areas
- Dashed urban land
- Areas of vegetation change
- Non irrigated agricultural land
- Natural grassland



KAYSERİ
INTEGRATED
HEALTH PROJECT
AREA



KAYSERİ INTEGRATED HEALTH PROJECT LAND CLASSIFICATION MAP

MGS PROJE MÜŞAVİRLİK
MÜHENDİSLİK TİCARET LTD. ŞTİ
Şehit Cevdet Özdemir Mahallesi
Öveçler 4. Cad. 1351. Sk. (Eski 203) No: 1/7
Çankaya / Ankara
Tel / Faks: 0 312 4798400 / 0.312.479 84 99

PREPARED BY

DRAWN BY

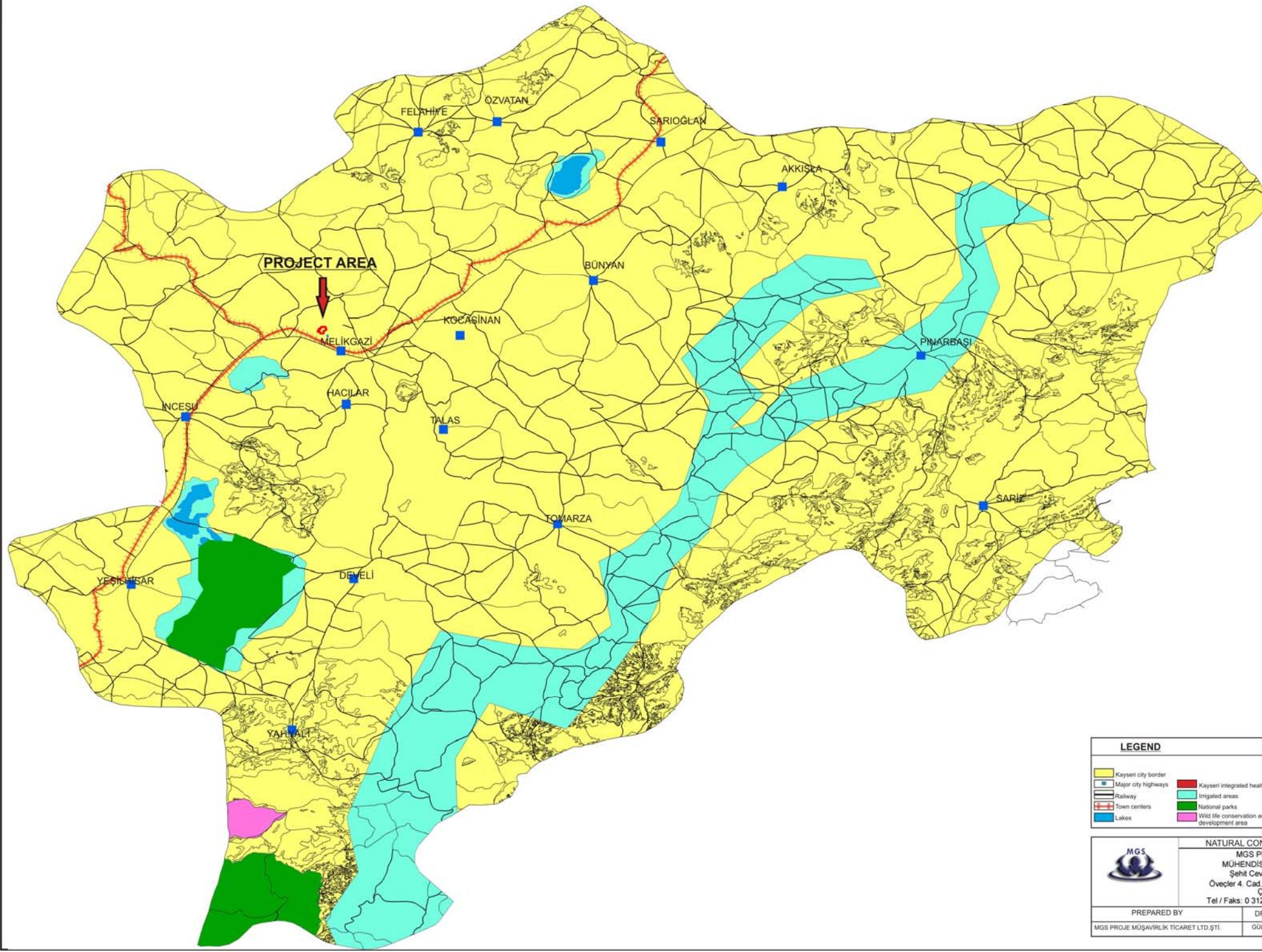
CHECKED BY

MGS PROJE MÜŞAVİRLİK TİCARET LTD. ŞTİ

Hasan ÇALIŞKAN

Çetin ÇAKIR
Mehmet YALÇIN

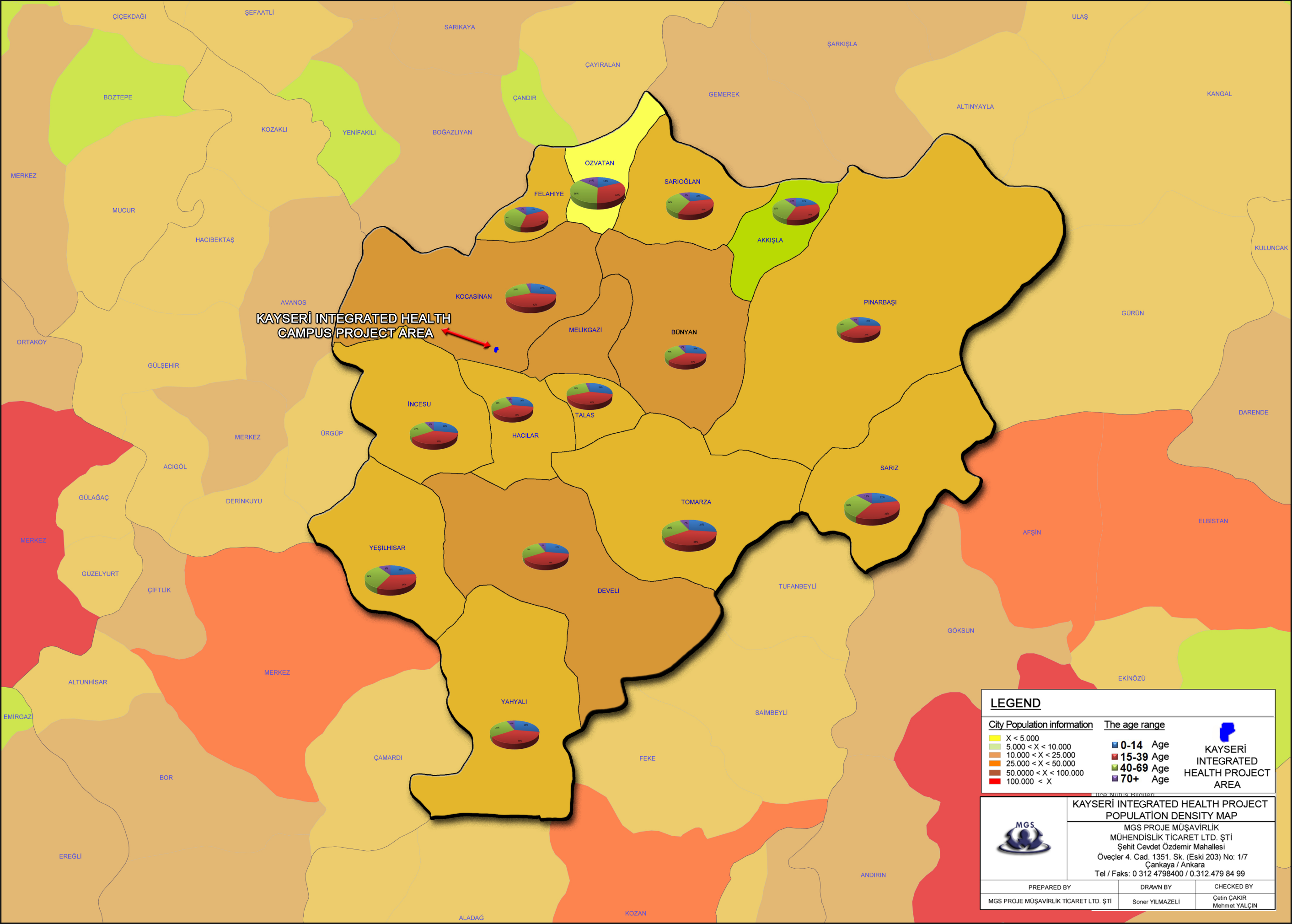
D) NATIONAL CONSERVATION AREAS MAP



LEGEND		SCALE: 1/1000000
	Kayseri city border	 KAYSERİ INTEGRATED HEALTH PROJECT AREA
	Major city highways	
	Railway	
	Town centers	
	Lakes	
	Kayseri integrated health project area	
	Irrigated areas	
	National parks	
	Wild life conservation and development area	

NATURAL CONSERVATION AREAS MAP		
MGS PROJE MÜŞAVİRLİK MÜHENDİSLİK TİCARET LTD. ŞTİ Şehit Cevdet Özdemir Mahallesi Öveçler 4. Cad. 1351. Sk. (Eski 203) No: 1/7 Çankaya / Ankara Tel / Faks: 0 312 4798400 / 0 312 479 84 99		
PREPARED BY	DRAWN BY	CHECKED BY
MGS PROJE MÜŞAVİRLİK TİCARET LTD.ŞTİ.	GÜLCİN DALIOĞ	CETİN ÇAKIR MEHMET YALÇIN

E) POPULATION DENSITY MAP



LEGEND

City Population information

- X < 5.000
- 5.000 < X < 10.000
- 10.000 < X < 25.000
- 25.000 < X < 50.000
- 50.000 < X < 100.000
- 100.000 < X

The age range

- 0-14 Age
- 15-39 Age
- 40-69 Age
- 70+ Age

KAYSERİ
INTEGRATED
HEALTH PROJECT
AREA

MGS

KAYSERİ INTEGRATED HEALTH PROJECT POPULATION DENSITY MAP

MGS PROJE MÜŞAVİRLİK
MÜHENDİSLİK TİCARET LTD. ŞTİ
Şehit Cevdet Özdemir Mahallesi
Öveçler 4. Cad. 1351. Sk. (Eski 203) No: 1/7
Çankaya / Ankara
Tel / Faks: 0 312 4798400 / 0.312.479 84 99

PREPARED BY	DRAWN BY	CHECKED BY
MGS PROJE MÜŞAVİRLİK TİCARET LTD. ŞTİ	Soner YILMAZELİ	Çetin ÇAKIR Mehmet YALÇIN

APPENDIX-3
ANALYSIS AND MEASUREMENT RESULTS

A) SOIL ANALYSIS



USLU LABORATUAR

KİMYASAL MADDE TARIMSAL DANIŞMANLIK
SANAYİ VE TİCARET LTD. ŞTİ



Rapor Tarihi : 08.12.2011

TOPRAK ANALİZ RAPORU

Rapor/L ab. No	Çiftçinin Adı-Soyadı T.C.Kimlik No	Ada Parsel No	Alanı (Da.)	Geçen Yıl Ekilen Ürün	Geçen Yıl Kullanılan Gübre	Sulu/ Kuru	Bu Yıl Ekilecek Ürün	Bulunduğu Yer
13703	SEGAL ÇEVRE SAN.TİC.LTD.ŞTİ.							KAYSERİ
13046	80760582							
Derinlik:0 - 30 cm			1					

TOPRAK ANALİZ SONUÇLARI

Analiz Adı	Analiz Sonucu	Değerlendirme	Brimi
pH	8,51	Kuvvetli Alkali	**
Elektriksel İletkenlik	1,18	Tuzsuz	dS/m
Toplam Kireç	23,14	Fazla Kireçli	%
Organik Madde	4,54	Yüksek	%
Alınabilir Fosfor (P2O5)	6,95	Yeterli	Kg/da
Alınabilir Potasyum (K2O)	198,00	Yeterli	Kg/da
Tekstür (Saturasyon)	88,22	Killi	%

TAVSİYE EDİLEN GÜBRE ÇEŞİTLERİ,MİKTARLARI VE VERİLME ZAMANI :

Gübre Cinsi	İhtiyaç Duyulan Miktar (kg/da)	Uygulanma Şekli


Kezban BÜYÜKKARTAL
Laborant
Lab. Yardımcı Personel


Berrin ÖCAL
Ziraat Mühendisi
Lab. Sorumlu Teknik Persone

*Bu rapor 16.02.2010 tarih ve 435 sayılı Valilik Olur'u ile T.C. Ankara Valiliği İl Tarım Müdürlüğü tarafından Toprak Analiz Laboratuvarı olarak yetkilendirilmiştir yazısına istinaden hazırlanmıştır.

*Bu rapor laboratuara getirilen toprak numunesinin analizi sonucunda düzenlenmiştir.



USLU LABORATUAR

KİMYASAL MADDE TARIMSAL DANIŞMANLIK
SANAYİ VE TİCARET LTD. ŞTİ



Rapor Tarihi : 08.12.2011

TOPRAK ANALİZ RAPORU

Rapor/L ab. No	Çiftçinin Adı-Soyadı T.C.Kimlik No	Ada Parsel No	Alanı (Da.)	Geçen Yıl Ekilen Ürün	Geçen Yıl Kullanılan Gübre	Sulu/ Kuru	Bu Yıl Ekilecek Ürün	Bulunduğu Yer
13704	SEGAL ÇEVRE SAN.TİC.LTD.ŞTİ.							KAYSERİ
13047	80760582							
Derinlik:0 - 30 cm			2					

TOPRAK ANALİZ SONUÇLARI

Analiz Adı	Analiz Sonucu	Değerlendirme	Brimi
pH	8,00	Hafif Alkali	**
Elektriksel İletkenlik	1,11	Tuzsuz	dS/m
Toplam Kireç	24,88	Fazla Kireçli	%
Organik Madde	6,50	Yüksek	%
Alınabilir Fosfor (P2O5)	40,58	Çok Fazla	Kg/da
Alınabilir Potasyum (K2O)	158,10	Yeterli	Kg/da
Tekstür (Saturasyon)	94,38	Killi	%

TAVSİYE EDİLEN GÜBRE ÇEŞİTLERİ,MİKTARLARI VE VERİLME ZAMANI :


Kezban BÜYÜKKARTAL
Laborant
Lab. Yardımcı Personel


Berrin ÖCAL
Ziraat Mühendisi
Lab. Sorumlu Teknik Personel

*Bu rapor 16.02.2010 tarih ve 435 sayılı Valilik Olur'u ile T.C. Ankara Valiliği İl Tarım Müdürlüğü tarafından Toprak Analiz Laboratuvarı olarak yetkilendirilmiştir yazısına istinaden hazırlanmıştır.
*Bu rapor laboratuara getirilen toprak numunesinin analizi sonucunda düzenlenmiştir.

İvedik Organize Sanayi Bölgesi Gülleryüz Sanayi Sitesi 30.Cad. 537.Sok.No. 46 / 06550 Yenimahalle / Ankara
Tel : +90 312 3945315 / 16 / 17 Fax : + 90 312 3945318 / Ulus Vergi Dairesi & 895 003 5015



USLU LABORATUAR

KİMYASAL MADDE TARIMSAL DANIŞMANLIK
SANAYİ VE TİCARET LTD. ŞTİ



Rapor Tarihi : 08.12.2011

TOPRAK ANALİZ RAPORU

Rapor/L ab. No	Çiftçinin Adı-Soyadı T.C.Kimlik No	Ada Parsel No	Alanı (Da.)	Geçen Yıl Ekilen Ürün	Geçen Yıl Kullanılan Gübre	Sulu/ Kuru	Bu Yıl Ekilecek Ürün	Bulunduğu Yer
13705	SEGAL ÇEVRE SAN.TİC.LTD.ŞTİ.							KAYSERİ
13048	80760582							
Derinlik:0 - 30 cm			3					

TOPRAK ANALİZ SONUÇLARI

Analiz Adı	Analiz Sonucu	Değerlendirme	Brimi
pH	8,75	Kuvvetli Alkali	**
Elektriksel İletkenlik	1,11	Tuzsuz	dS/m
Toplam Kireç	32,54	Çok Fazla Kireçli	%
Organik Madde	3,62	İyi	%
Alınabilir Fosfor (P2O5)	19,15	Çok Fazla	Kg/da
Alınabilir Potasyum (K2O)	119,10	Yeterli	Kg/da
Tekstür (Saturasyon)	80,96	Killi	%

TAVSİYE EDİLEN GÜBRE ÇEŞİTLERİ,MİKTARLARI VE VERİLME ZAMANI :

Gübre Cinsi	İhtiyaç Duyulan Miktar (kg/da)	Uygulanma Şekli


Kezban BÜYÜKKARTAL
Laborant
Lab. Yardımcı Personel


Berrin ÖCAL
Ziraat Mühendisi
Lab. Sorumlu Teknik Personel

*Bu rapor 16.02.2010 tarih ve 435 sayılı Valilik Olur'u ile T.C. Ankara Valiliği İl Tarım Müdürlüğü tarafından Toprak Analiz Laboratuvarı olarak yetkilendirilmiştir yazısına istinaden hazırlanmıştır.
laboratuara getirilen toprak numunesinin analizi sonucunda düzenlenmiştir.

*Bu rapor

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CHEMICAL SUBSTANCE AGRICULTURAL CONSULTANCY
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SOIL ANALYSIS REPORT

SOIL ANALYSIS RESULTS 1

Parameter	Results	Level	Unit
pH	8.51	Strong Alkali	**
Electrical Conductivity	1.18	Salt-Free	dS/m
Total Lime	23.14	Excess Lime	%
Organic Matter	4.54	High	%
Available Phosphorus	6.95	Sufficient	Kg/da
Available Potassium	198	Sufficient	Kg/da
Texture	88.22	Clayed	%

*This report is prepared by 12.02.2010 dated and 435 numbered T.R. Ankara Provincial
Agricultural Directorate Approval.

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CHEMICAL SUBSTANCE AGRICULTURAL CONSULTANCY
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SOIL ANALYSIS REPORT

SOIL ANALYSIS RESULTS 2

Analysis Name	Results	Level	Unit
pH	8.00	Weak Alkali	**
Electrical Conductivity	1.11	Salt-Free	dS/m
Total Lime	24.88	Excess Lime	%
Organic Matter	6.50	High	%
Available Phosphorus	40.58	Excess	Kg/da
Available Potassium	158.10	Sufficient	Kg/da
Texture	94.38	Clayed	%

*This report is prepared by 12.02.2010 dated and 435 numbered T.R. Ankara Provincial
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SOIL ANALYSIS REPORT

SOIL ANALYSIS RESULTS 3

Analysis Name	Results	Level	Unit
pH	8.75	Strong Alkali	**
Electrical Conductivity	1.11	Salt-Free	dS/m
Total Lime	32.54	Too Much Lime	%
Organic Matter	3.62	Normal	%
Available Phosphorus	19.15	Excess	Kg/da
Available Potassium	119.10	Sufficient	Kg/da
Texture	80.96	Clayed	%

*This report is prepared by 12.02.2010 dated and 435 numbered T.R. Ankara Provincial Agricultural Directorate Approval.

B) BOREHOLE WATER ANALYSIS

 ÖY-06/203/2010	 SEGAL	
İlk Basım: 03.05.2010 RP.01 / Rev.01 Rev. Tarihi: 20.01.2011 Sayfa 1 / 5	SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Rapor No 1838/11 Rapor Tarihi 09.12.2011

Müşterinin adı/ adresi: Customer Name / Address	MGS MÜH. MÜŞ. ve PROJE HİZM. LTD.ŞTİ. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad. 1351. Sok. No:1/7 Çankaya / ANKARA
<u>Numuneyi Alan Kurum / Kuruluş</u> <u>Sampler Institution / Company</u>	SEGAL Çevre Ölçüm ve Analiz Laboratuvarı (Satılmış DOĞAN)
Numunenin Adı ve Örnekleme Tarihi: Name and Sampling Date of the Sample	Kuyu suyu (1685/11) – 25.11.2011
Numunenin Alınış Şekli: Receipt of the Sample Shape	Anlık
Numuneyi Teslim Eden: Deliverer of the Sample	Satılmış DOĞAN (SEGAL Çevre Ölçüm ve Analiz Laboratuvarı personeli)
Proje Adı ve No: Name and Number of the Project	1080/11
Numunenin Kabul Tarihi: Date of Sample Acceptance	26.11.2011
Numunenin Teslim Koşulları: Delivery Conditions of the Sample	TS EN ISO 5667-3:2007 standardına uygun olarak plastik ve cam kaptaki, soğuk ortamda, kimyasal korumalı ve mühürlü olarak teslim edilmiştir.
Açıklamalar: Remarks	"Kayseri Entegre Sağlık Kampüsü"ne ait kuyu suyu numunesinin SKKY tb 1'e göre analizi
Deneyin yapıldığı Tarih: Date of the Test	26.11.2011 – 07.12.2011
Raporun Sayfa Sayısı: Number of the Pages of the Report	9 sayfa (2 sayfa ALKA Çevre Laboratuvarı raporu, 2 sayfa Ekosistem Çevre Laboratuvarı raporu)
Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve deney/ölçüm metotları takip eden sayfalarda verilmiştir. The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.	
Raporu Hazırlayan Prepared by Emine Aslı AYAN Y. Kimya Mühendisi	Raporu Onaylayan Confirm by Fevzi KARAKAYA Laboratuvar Müdürü

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir. **Sonuçlar sadece deneyi yapılan numunelere aittir.** (This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

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İlk Basım: 03.05.2010 RP.01 / Rev.01 Rev. Tarihi: 20.01.2011 Sayfa 2 / 5		Rapor Tarihi 09.12.2011

NUMUNE ADI ve NO: Kuyu suyu – 1685/11
Sample Name and Number

Parametre-Birim Parameter-Unit	Analiz Sonucu Test Result	SKKY Tablo-1 Su Kalite Sınıfları			
		I	II	III	IV
pH	7,32	6,5-8,5	6,5-8,5	6,0-9,0	6,0-9,0
***Sıcaklık (°C)	8,1	25	25	30	>30
Çözünmüş Oksijen (mg/L)	7,2	8	6	3	<3
Oksijen Doygunluğu (%)	87,1	90	70	40	<40
Toplam Çözünmüş Katı (mg/L)	104	500	1500	5000	>5000
***Fekal Koliform (KOB/100 mL)	0	10	200	2000	>2000
***Toplam Koliform (KOB/100 mL)	0	100	20000	100000	>100000
Kimyasal Oksijen İhtiyacı (KOİ) (mg/L)	<10	25	50	70	>70
Biyokimyasal Oksijen İhtiyacı (BOİ) (mg/L)	<4	4	8	20	>20
Krom +6 (Cr ⁶⁺) (µg/L)	<20	Ölçülemeyecek kadar az	20	50	>50
Renk (Pt-Co)	5	5	50	300	>300
Yağ-Gres (mg/L)	<10	0,02	0,3	0,5	>0,5
Fenol (mg/L)	<0,001	0,002	0,01	0,1	>0,1
Florür (µg/L)	<100	1000	1500	2000	>2000
Klorür (mg/L)	11	25	200	400	>400
Sülfat (mg/L)	6,5	200	200	400	>400
Sülfür (µg/L)	<100	2	2	10	>10
Toplam Kjeldahl Azotu (mg/L)	2,4	0,5	1,5	5	>5
Amonyum Azotu (mg/L)	0,45	0,2	1	2	>2
Nitrat Azotu (mg/L)	1,4	5	10	20	>20
Nitrit Azotu (mg/L)	0,0052	0,002	0,01	0,05	>0,05
Toplam Fosfor (mg/L)	0,15	0,02	0,16	0,65	>0,65
Serbest Klor (µg/L)	<20	10	10	50	>50
Bor (µg/L)	<300	1000	1000	1000	>1000
Cıva (µg/L)	<1	0,1	0,5	2	>2
Kadmiyum (µg/L)	<3	3	5	10	>10
Bakır (µg/L)	<10	20	50	200	>200
Krom (toplam) (µg/L)	<20	20	50	200	>200
Çinko (µg/L)	90	200	500	2000	>2000
Nikel (µg/L)	<20	20	50	200	>200
Mangan (µg/L)	<10	100	500	3000	>3000
Sodyum (mg/L)	17,74	125	125	250	>250
Kobalt (µg/L)	<10	10	20	200	>200
Kurşun (µg/L)	<50	10	20	50	>50
Demir (µg/L)	37	300	1000	5000	>5000

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir. **Sonuçlar sadece deneyi yapılan numunelere aittir.** (This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

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		Rapor No 1838/11
		Rapor Tarihi 09.12.2011

Parametre-Birim Parameter-Unit	Analiz Sonucu Test Result	SKKY Tablo-1 Su Kalite Sınıfları			
		I	II	III	IV
Selenyum (µg/L)	<1	10	10	20	>20
Arsenik (µg/L)	8,7	20	50	100	>100
Alüminyum (mg/L)	<0,3	0,3	0,3	1	>1
Baryum (µg/L)	<500	1000	2000	2000	>2000
* ¹ Toplam Organik Karbon (mg/L)	<5	5	8	12	>12
* ¹ Mineral Yağ ve Türevleri (mg/L)	<0,003	0,02	0,1	0,5	>0,5
* ¹ Toplam Pestisit (mg/L)	<0,06	0,001	0,01	0,1	>0,1
* ² Siyanür (toplam) (µg/L)	<10	10	50	100	>100
* ² Deterjanlar (MBAS) (mg/L)	<0,025	0,05	0,2	1	>1,5

*¹ İşaretli parametreler çevre analizleri yetki belgesi kapsamında "ALKA Çevre Laboratuvarı"na yaptırılmıştır.

*² İşaretli parametreler çevre analizleri yetki belgesi kapsamında "EKOSİSTEM Çevre Laboratuvarı"na yaptırılmıştır.

*** Akreditasyon kapsam dışı parametre

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İlk Basım: 03.05.2010 RP.01 / Rev.01 Rev. Tarihi: 20.01.2011 Sayfa 4 / 5		Rapor Tarihi 09.12.2011

Parametre-Birim Parameter-Unit	Ölçüm Belirsizliği Uncertainties	Analiz Metodu Test Method
pH	% ± 1,10	TS 3263 ISO 10523:1999
***Sıcaklık (°C)	± 0,3	SM 2550 B:2005
Çözülmüş Oksijen (mg/L)	% ± 0,56	TS 5677 EN 25814:1996
Oksijen Doymunluğu (%)	% ± 0,56	TS 5677 EN 25814:1996
Toplam Çözülmüş Katı (mg/L)	% ± 2,68	TS 9748 EN 27888:1996
***Fekal Koliform (KOB/100 mL)	% ± 12,8	TS EN ISO 9308-1:2004
***Toplam Koliform (KOB/100 mL)	% ± 6,42	TS EN ISO 9308-1:2004
Kimyasal Oksijen İhtiyacı (KOİ) (mg/L)	% ± 3,10	SM 5220 B:2005
Biyokimyasal Oksijen İhtiyacı (BOİ) (mg/L)	% ± 3,30	SM 5210 B:2005
Krom +6 (Cr ⁺⁶) (µg/L)	% ± 6,20	SM 3500 Cr B:2005
Renk (Pt-Co)	% ± 8,34	SM 2120B:2005
Yağ-Gres (mg/L)	% ± 6,02	TS 8312:1990
Fenol (mg/L)	% ± 5,04	SM 5530B-C:2005
Florür (µg/L)	% ± 2,70	SM 4500 F ⁻ D:2005
Klorür (mg/L)	% ± 4,10	SM 4500 Cl ⁻ B:2005
Sülfat (mg/L)	% ± 4,40	SM 4500 SO ₄ ⁻² E:2005
Sülfür (µg/L)	% ± 2,78	SM 4500 S ⁻² F:2005
Toplam Kjeldahl Azotu (mg/L)	% ± 3,42	SM 4500 N _{org} B:2005
Amonyum Azotu (mg/L)	% ± 5,52	SM 4500 NH ₃ B-C:2005
Nitrat Azotu (mg/L)	% ± 6,20	EPA METHOD 352-1
Nitrit Azotu (mg/L)	% ± 6,06	SM 4500 NO ₂ B:2005
Toplam Fosfor (mg/L)	% ± 6,66	SM 4500 P B E:2005
Serbest Klor (µg/L)	% ± 5,56	SM 4500 Cl G:2005
Bor (µg/L)	% ± 6,80	SM 4500 B-C:2005
Cıva (µg/L)	% ± 6,90	SM 3112 B:2005
Kadmiyum (µg/L)	% ± 6,20	SM 3111 B:2005
Bakır (µg/L)	% ± 7,04	SM 3111 B:2005
Krom (µg/L)	% ± 6,60	SM 3111 B:2005
Çinko (µg/L)	% ± 8,56	SM 3111 B:2005
Nikel (µg/L)	% ± 6,94	SM 3111 B:2005
Mangan (µg/L)	% ± 8,18	SM 3111 B:2005
Sodyum (mg/L)	% ± 7,68	SM 3111 B:2005
Kobalt (µg/L)	% ± 7,80	SM 3111 B:2005
Kurşun (µg/L)	% ± 4,80	SM 3111 B:2005
Demir (µg/L)	% ± 7,90	SM 3111 B:2005
Selenyum (mg/L)	% ± 6,40	SM 3114 B-C:2005
Arsenik (mg/L)	% ± 5,74	SM 3114 B-C:2005

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir. **Sonuçlar sadece deneyi yapılan numunelere aittir.** (This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

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			Rapor No 1838/11
			Rapor Tarihi 09.12.2011
			İlk Basım: 03.05.2010 RP.01 / Rev.01 Rev. Tarihi: 20.01.2011 Sayfa 5 / 5

Parametre-Birim Parameter-Unit	Ölçüm Belirsizliği Uncertainties	Analiz Metodu Test Method
Alüminyum (mg/L)	% ± 8,66	SM 3111 D:2005
Baryum (mg/L)	% ± 6,36	SM 3111 D:2005
* ¹ Toplam Organik Karbon (mg/L)	-	SM 5310 B:2005
* ¹ Mineral Yağ ve Türevleri (mg/L)	-	TS EN ISO 9377-2:2002
* ¹ Toplam Pestisit (mg/L)	-	TS 2627 EN ISO 6468:1999 EPA 508-1:1995
* ² Siyanür (toplam) (µg/L)	-	SM 4500 CN E:2005
* ² Deterjanlar (MBAS) (mg/L)	-	SM 5540 C:2005

"Numuneler **TS EN ISO 5667-3:2007** – Su Kalitesi – Numune Alma – Bölüm 3: Numunelerin Muhafaza ve Taşıma Kuralları çerçevesinde saklanır. Bu sure içerisinde kimyasal, mikrobiyolojik ve fiziksel açıdan bozulan veya tehlike arz eden numuneler, numune saklama süresinin bitimi beklemeden imha edilir."

Çevre Koşulları:

<u>Hava Durumu</u>	<u>Açık</u>	<u>Yağış</u>	<u>Var</u>	<u>Hava Sıcaklığı</u> °C	<u>Koordinatlar</u>	<u>E</u>	708609
	<u>Kapalı</u>		<u>Yok</u>			<u>N</u>	4293910

Görüş ve Yorumlar:

Mühür

İmza

 ÖY-06/203/2010	 SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Report No 1838/11 Report Date 09.12.2011
First Publish: 03.05.2010 RP.01 / Rev.01 Rev. Date: 20.01.2011 page 1 / 5		

Customer Name / Address	MGS PROJECT CONSULTANCY ENG. TRADE. LTD. CO. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad. 1351. Sok. No:1/7 Çankaya / ANKARA				
<u>Sampler Institution / Company</u>	SEGAL Segal Environmental Measurement And Analysis Laboratory (Satılmış DOĞAN)				
Name and Sampling Date of the Sample	Borehole water (1685/11) – 25.11.2011				
Receipt of the Sample Shape	Instant				
Deliverer of the Sample	Satılmış DOĞAN (SEGAL Environmental Measurement And Analysis Laboratory personnel)				
Name and Number of the Project	1080/11				
Date of Sample Acceptance	26.11.2011				
Delivery Conditions of the Sample	According to TS EN ISO 5667-3:2007, Cold environment in the plastic container chemically protected and stamped.				
Remarks	Borehole water analysis to Kayseri Integrated Health Campus Project				
Date of the Test	26.11.2011 – 07.12.2011				
Number of the Pages of the Report	9 page (2 page ALKA Environmental Lab Report)				
The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report. <table> <tr> <td>Prepared by</td><td>Confirm by</td></tr> <tr> <td>Emine Aslı AYAN Chemical Engineer M.Sc.</td><td>Fevzi KARAKAYA Lab Manager</td></tr> </table>		Prepared by	Confirm by	Emine Aslı AYAN Chemical Engineer M.Sc.	Fevzi KARAKAYA Lab Manager
Prepared by	Confirm by				
Emine Aslı AYAN Chemical Engineer M.Sc.	Fevzi KARAKAYA Lab Manager				

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First Publish: 03.05.2010		Report No 1838/11
RP.01 / Rev.01		
Rev. Date: 20.01.2011		Report Date 09.12.2011
page 2 / 5		

Sample Name and Number: Borehole water – 1685/11					
Parameter-Unit	Test Result	WPCR Table-1 Water Quality Classes			
		I	II	III	IV
pH	7.32	6.5-8.5	6.5-8.5	6.0-9.0	6.0-9.0
***Temperature (°C)	8.1	25	25	30	>30
Dissolved Oxygen (mg/L)	7.2	8	6	3	<3
Oxygen Saturity (%)	87.1	90	70	40	<40
Total Suspended Solids(mg/L)	104	500	1500	5000	>5000
***Fecal Coliform (COD/100 mL)	0	10	200	2000	>2000
***Total Coliform (COD/100 mL)	0	100	20,000	100,000	>100,000
Chemical Oxygen Demand (COD) (mg/L)	<10	25	50	70	>70
Biochemical Oxygen Demand (BOD) (mg/L)	<4	4	8	20	>20
Chrome +6 (Cr ⁺⁶) (µg/L)	<20	-	20	50	>50
Color (Pt-Co)	5	5	50	300	>300
Oil (mg/L)	<10	0.02	0.3	0.5	>0.5
Phenol (mg/L)	<0.001	0.002	0.01	0.1	>0.1
Fluoride (µg/L)	<100	1,,000	1,500	2000	>2,000
Chloride(mg/L)	11	25	200	400	>400
Sulfate (mg/L)	6.5	200	200	400	>400
Sulfur (µg/L)	<100	2	2	10	>10
Total Kjeldahl Nitrogen(mg/L)	2.4	0.5	1.5	5	>5
Ammonium Nitrogen (mg/L)	0.45	0.2	1	2	>2
Nitrate Nitrogen (mg/L)	1.4	5	10	20	>20
Nitrite Nitrogen (mg/L)	0.0052	0.002	0.01	0.05	>0.05
Total Phosphor (mg/L)	0.15	0.02	0.16	0.65	>0.65
Free Chlorine (µg/L)	<20	10	10	50	>50
Boron (µg/L)	<300	1,000	1,000	1,000	>1,000
Mercury (µg/L)	<1	0.1	0.5	2	>2
Cadmium (µg/L)	<3	3	5	10	>10
Copper (µg/L)	<10	20	50	200	>200
Chrome (total) (µg/L)	<20	20	50	200	>200
Zinc (µg/L)	90	200	500	2,000	>2,000
Nickel (µg/L)	<20	20	50	200	>200
Manganese (µg/L)	<10	100	500	3,000	>3,000
Sodium (mg/L)	17.74	125	125	250	>250
Cobalt (µg/L)	<10	10	20	200	>200
Lead (µg/L)	<50	10	20	50	>50
Ferrous (µg/L)	37	300	1,000	5,000	>5,000

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First Publish: 03.05.2010 RP.01 / Rev.01 Rev. Date: 20.01.2011 page 3 / 5		

Parameter-Unit	Test Result	WPCR Table-1 Water Quality Classes			
		I	II	III	IV
Selenium (µg/L)	<1	<1	10	10	20
Arsenic (µg/L)	8,7	8.7	20	50	100
Aluminum (mg/L)	<0,3	<0.3	0.3	0.3	1
Barium (µg/L)	<500	<500	1,000	2,000	2,000
* ¹ Total Organic Carbon (mg/L)	<5	<5	5	8	12
* ¹ Mineral Oil and Derivatives (mg/L)	<0,003	<0.003	0.02	0.1	0.5
* ¹ Total Pesticide (mg/L)	<0,06	<0.06	0.001	0.01	0.1
* ² Cyanide (total) (µg/L)	<10	<10	10	50	100
* ² Detergents (MBAS) (mg/L)	<0,025	<0.025	0.05	0.2	1

*¹ done by "ALKA Environmental Labs"

*² done by "EKOSİSTEM Environmental Labs"

*** Out of Accreditation parameter coverage

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First Publish: 03.05.2010		Report No 1838/11
RP.01 / Rev.01		
Rev. Date: 20.01.2011		Report Date 09.12.2011
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Parameter-Unit	Uncertainties	Test Method
pH	% ± 1.10	TS 3263 ISO 10523:1999
***Temperature (°C)	± 0.3	SM 2550 B:2005
Dissolved Oxygen	% ± 0.56	TS 5677 EN 25814:1996
Oxygen Saturity (%)	% ± 0.56	TS 5677 EN 25814:1996
Total Suspended Solids(mg/L)	% ± 2.68	TS 9748 EN 27888:1996
***Fecal Coliform (COD/100 mL)	% ± 12.8	TS EN ISO 9308-1:2004
***Total Coliform (COD/100 mL)	% ± 6.42	TS EN ISO 9308-1:2004
Chemical Oxygen Demand (COD) (mg/L)	% ± 3.10	SM 5220 B:2005
Biochemical Oxygen Demand (BOD) (mg/L)	% ± 3.30	SM 5210 B:2005
Chrome +6 (Cr ⁺⁶) (µg/L)	% ± 6.20	SM 3500 Cr B:2005
Color (Pt-Co)	% ± 8.34	SM 2120B:2005
Oil (mg/L)	% ± 6.02	TS 8312:1990
Phenol (mg/L)	% ± 5.04	SM 5530B-C:2005
Fluoride (µg/L)	% ± 2.70	SM 4500 F ⁻ D:2005
Chloride(mg/L)	% ± 4.10	SM 4500 Cl ⁻ B:2005
Sulfate (mg/L)	% ± 4.40	SM 4500 SO ₄ ⁻² E:2005
Sulfur (µg/L)	% ± 2.78	SM 4500 S ⁻² F:2005
Total Kjeldahl Nitrogen(mg/L)	% ± 3.42	SM 4500 N _{org} B:2005
Ammonium Nitrogen (mg/L)	% ± 5.52	SM 4500 NH ₃ B-C:2005
Nitrate Nitrogen (mg/L)	% ± 6.20	EPA METHOD 352-1
Nitrite Nitrogen (mg/L)	% ± 6.06	SM 4500 NO ₂ B:2005
Total Phosphorus (mg/L)	% ± 6.66	SM 4500 P B E:2005
Free Chlorine (µg/L)	% ± 5.56	SM 4500 Cl G:2005
Boron (µg/L)	% ± 6.80	SM 4500 B-C:2005
Mercury (µg/L)	% ± 6.90	SM 3112 B:2005
Cadmium (µg/L)	% ± 6.20	SM 3111 B:2005
Copper (µg/L)	% ± 7.04	SM 3111 B:2005
Chrome (µg/L)	% ± 6.60	SM 3111 B:2005
Zinc (µg/L)	% ± 8.56	SM 3111 B:2005
Nickel (µg/L)	% ± 6.94	SM 3111 B:2005
Manganese (µg/L)	% ± 8.18	SM 3111 B:2005
Sodium (mg/L)	% ± 7.68	SM 3111 B:2005
Cobalt (µg/L)	% ± 7.80	SM 3111 B:2005
Lead (µg/L)	% ± 4.80	SM 3111 B:2005
Iron(µg/L)	% ± 7.90	SM 3111 B:2005
Selenium (mg/L)	% ± 6.40	SM 3114 B-C:2005

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 ÖY-06/203/2010	 SEGAL		
			SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY
			Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA
			Tel: 0 312 481 83 00 Fax: 0 312 481 83 99
			mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr
First Publish: 03.05.2010		Report No 1838/11	
RP.01 / Rev.01		Report Date 09.12.2011	
Rev. Date: 20.01.2011			
page 5 / 5			

Arsenic (mg/L)	% ± 5.74	SM 3114 B-C:2005
Parameter-Unit	Uncertainties	Test Method
Aluminum (mg/L)	% ± 8.66	SM 3111 D:2005
Barium (mg/L)	% ± 6.36	SM 3111 D:2005
* ¹ Total Organic Carbon (mg/L)	-	SM 5310 B:2005
* ¹ Mineral Oil and Derivatives (mg/L)	-	TS EN ISO 9377-2:2002
* ¹ Total Pesticide (mg/L)	-	TS 2627 EN ISO 6468:1999 EPA 508-1:1995
* ² Cyanide (total) (µg/L)	-	SM 4500 CN ⁻ E:2005
* ² Detergents (MBAS) (mg/L)	-	SM 5540 C:2005

"Samples **TS EN ISO 5667-3:2007** – – Water Quality – Sample – Part 3: The samples which are spoiled by the chemically, microbial and physically are exterminated.

Environmental Factors:

<u>Weather</u>	<u>Open</u>	<u>Precipitation</u>	<u>yes</u>	<u>Air Temperature</u> °C	<u>Coordinates</u>	<u>E</u>	708609
	<u>Close</u>		<u>no</u>			<u>N</u>	4293910

Comments:

Signature

ANALİZ RAPORU

FİRMA BİLGİLERİ

Adı	: SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LAB. MÜH. MÜŞ. PROJ. HİZ. SAN. LTD. ŞTİ.
Adresi	: AŞAĞI ÖVEÇLER MH. 1322. CADDE (ESKİ 6. CAD.) NO:12 /11-12 ÇANKAYA / ANKARA
Telefon / Fax	: 0 312 481 83 00 / 0 312 481 83 99
Vergi Dairesi / Numarası	: BAŞKENT / 008 076 0582
Başvuru Tarihi	: 18.08.2011
Başvuru Numarası	: T-6019-2011-01

NUMUNE BİLGİLERİ

Numune Cinsi ¹	: Kuyu Suyu
Numune Adı ¹	: 1685/11 numaralı Kuyu Suyu numunesi
Numune Sayısı	: 1
Numune Alınma Tarih ve Saati	: -
Numune Alma Noktası	: -
Numune Alınış Şekli	: -
Numune Geliş Şekli	: Kargo
Numune Miktarı ve Ambalaj Durumu	: 4 adet 500 ml Plastik Kaplarda
Numunenin Laboratuvara Geliş Tarih ve Saati	: 28.11.2011 / 09:00
Şahit Numune Durumu	: Var ☐ Yok ☒
Numune Numarası	: AS-281111-01
Analiz Başlangıç Tarihi	: 30.11.2011
Analiz Bitiş Tarihi	: 07.12.2011
Rapor Tarihi	: 08.12.2011
Rapor Numarası	: R-1078-2011-07



F44D/20.01.2009-4

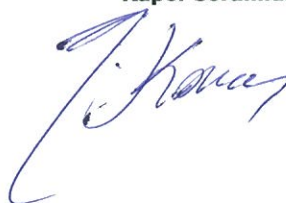
Alka Çevre Laboratuvarları'nın yazılı onayı olmadan SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LAB. MÜH. MÜŞ. PROJ. HİZ. SAN. LTD. ŞTİ. 'ye ait olan bu rapor kısmen veya tamamen çözümlenemez. İmzasız ve mühürlü raporlar geçersizdir. Deney sonuçları, sadece bu numuneyi temsil eder. Sayfa sayısı iki olup, üç nüsha halinde hazırlanmıştır.

Aşağıda verilen sonuçlar Laboratuvarımıza gelen ve R-1078-2011-07 numaralı rapora ait olan 1685/11 numaralı Kuyu Suyu numunesini temsil eder.

NUMUNE ANALİZ SONUÇLARI		
Parametreler	Analiz Sonuçları (mg/ lt)	Analiz Metodu
Toplam Organik Karbon (TOC)	<5	SM 5310 B: 2005
Mineral Yağ	<0,003	TS EN ISO 9377-2: 2002
Toplam Pestisid	<0,06	TS2627 EN ISO 6468: 1999 EPA 508-1: 1995

Analiz Metodu; SM:Standart Methods for Examination of Water and Wastewater 21.th Edition 2005.

Bilgi 1: SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LAB. MÜH. MÜŞ. PROJ. HİZ. SAN. LTD. ŞTİ. tarafından gönderilen analiz istek yazısından alınmıştır.

RAPORU HAZIRLAYAN: Hamza KÖSE Rapor Sorumlusu 	ONAYLAYAN/ KONTROL EDEN: Şerafettin YILMAZ Analiz Laboratuvarı Yöneticisi 	MÜHÜR 
--	--	---

Alka Çevre Laboratuvarları'nın yazılı onayı olmadan SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LAB. MÜH. MÜŞ. PROJ. HİZ. SAN. LTD. ŞTİ. 'ye ait olan bu rapor kısmen veya tamamen çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir. Deney sonuçları, sadece bu numuneyi temsil eder. Sayfa sayısı iki olup, üç nüsha halinde hazırlanmıştır.

ALKA

Environmental Laboratory

SAMPLE INFORMATION

Sample Type : Borehole Water
Sample Name : 1685/11 numbered Borehole sample
Sample Number : 1
Sample Transfer Way : Cargo
Sample Amount and Packaging Conditions : 4 sample in 500 ml plastic container
Sample Code : AS-281111-01
Analysis Starting Date : 30.11.2011
Analysis Ending Date : 07.11.2011
Report Date : 08.12.2011
Report Number : R-1078-2011-07

SAMPLE ANALYSIS RESULTS

SAMPLE ANALYSIS RESULTS		
Parameter	Analysis Results (mg/l)	Analysis Methods
Total Organic Carbon (TOC)	<5	SM5310 B: 2005
Mineral Oil	<0.003	TS EN ISO 9377-2: 2002
Total Pesticide	<0.06	TS 2627 EN ISO 6468:1999 EPA 508-1: 1995

Analysis Method; SM: Standard Methods for Examination of Water and Wastewater 21th Edition 2005.

C) SURFACE WATER ANALYSIS

 ÖY-06/203/2010	 SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Rapor No 1788/11 Rapor Tarihi 29.11.2011
İlk Basım: 03.05.2010		
RP.01 / Rev.01		
Rev. Tarihi: 20.01.2011		
Sayfa 1 / 3		

Müşterinin adı/ adresi: Customer Name / Address	MGS MÜH. MÜŞ. ve PROJE HİZM. LTD.ŞTİ. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad. 1351. Sok. No:1/7 Çankaya / ANKARA
<u>Numuneyi Alan Kurum / Kuruluş</u> <u>Sampler Institution / Company</u>	SEGAL Çevre Ölçüm ve Analiz Laboratuvarı (Satılmış DOĞAN)
Numunenin Adı ve Örnekleme Tarihi: Name and Sampling Date of the Sample	Yüzeysel su (1684/11) – 25.11.2011
Numunenin Alınış Şekli: Receipt of the Sample Shape	Anlık
Numuneyi Teslim Eden: Deliverer of the Sample	Satılmış DOĞAN (SEGAL Çevre Ölçüm ve Analiz Laboratuvarı personeli)
Proje Adı ve No: Name and Number of the Project	1080/11
Numunenin Kabul Tarihi: Date of Sample Acceptance	26.11.2011
Numunenin Teslim Koşulları: Delivery Conditions of the Sample	Plastik kapta, soğuk ortamda, kimyasal korumalı ve mühürlü olarak teslim edilmiştir.
Açıklamalar: Remarks	“Kayseri Entegre Sağlık Kampüsü” inşaatına ait sulama suyu numunesinin “Atıksu Arıtma Tesisleri Teknik Usuller Tebliği”ne göre analizi
Deneyin yapıldığı Tarih: Date of the Test	26.11.2011
Raporun Sayfa Sayısı: Number of the Pages of the Report	3 sayfa

Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve deney/ölçüm metotları takip eden sayfalarda verilmiştir. The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.

Raporu Hazırlayan
Prepared by

Emine Aslı AYAN
Y. Kimya Mühendisi

Raporu Onaylayan
Confirm by

Fevzi KARAKAYA
Laboratuvar Müdürü

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir. **Sonuçlar sadece deneyi yapılan numunelere aittir.** (This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

 ÖY-06/203/2010 İlk Basım: 03.05.2010 RP.01 / Rev.01 Rev. Tarihi: 20.01.2011 Sayfa 2 / 3	 SEGAL SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Rapor No 1788/11 Rapor Tarihi 29.11.2011
--	--	--

NUMUNE ADI ve NO: Yüzeysel su – 1684/11
SAMPLE NAME and NUMBER

Parametre-Birim Parameter-Unit	Analiz Sonucu Test Result	Ölçüm Belirsizliği Uncertainties	Analiz Metodu Test Method
pH	8,13	% ± 1,10	TS 3263 ISO 10523:1999
İletkenlik (µS/cm)	784	% ± 2,66	TS 9748 EN 27888:1996
Tuzluluk (‰)	0,4	% ± 2,00	TS 9748 EN 27888:1996
Toplam Çözünmüş Katı (mg/L)	383	% ± 2,68	TS 9748 EN 27888:1996
AKM (mg/L)	<10	% ± 4,26	TS EN 872:2007
Bor (mg/L)	<0,3	% ± 6,80	SM 4500 B-C:2005
Klorür (mg/L)	36,5	% ± 4,10	SM 4500 Cl ⁻ B:2005
Sodyum (mg/L)	37	% ± 7,68	SM 3111 B:2005
SAR (meq/L)	1,83	% ± 10,20	SM 3111 B:2005

Parametre-Birim Parameter-Unit		Kullanımında zarar derecesi		
		Yok (I.sınıf su)	Az-Orta (II.sınıf su)	Tehlikeli (III.sınıf su)
Tuzluluk				
İletkenlik (µS/cm)		<700	700-3000	>3000
TÇK (mg/L)		<500	500-2000	>2000
Geçirgenlik				
SAR _{Tad}	0-3	EC ≥0,7	0,7-0,2	<0,2
	3-6	≥1,2	1,2-0,3	<0,3
	6-12	≥1,9	1,9-0,5	<0,5
	12-20	≥2,9	2,9-1,3	<1,3
	20-40	≥5,0	5,0-2,9	<2,9
Özgül iyon toksisitesi				
Sodyum (mg/L)	Yüzey sulaması	<3	3-9	>9
	Damlatmalı sulama	<70	>70	-
Klorür (mg/L)	Yüzey sulaması	<140	140-350	>350
	Damlatmalı sulama	<100	>100	-
Bor (mg/L)		<0,7	0,7-3,0	>3,0

Bu rapor, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürlü raporlar geçersizdir. **Sonuçlar sadece deneyi yapılan numunelere aittir.** (This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

 ÖY-06/203/2010	 	
İlk Basım: 03.05.2010	SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Rapor No 1788/11
RP.01 / Rev.01		Rapor Tarihi 29.11.2011
Rev. Tarihi: 20.01.2011		
Sayfa 3 / 3		

“Numuneler **TS EN ISO 5667-3:2007** – Su Kalitesi – Numune Alma – Bölüm 3: Numunelerin Muhafaza ve Taşıma Kuralları çerçevesinde saklanır. Bu süre içerisinde kimyasal, mikrobiyolojik ve fiziksel açıdan bozulan veya tehlike arz eden numuneler, numune saklama süresinin bitimi beklemeden imha edilir.”

“Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.”

Çevre Koşulları:

<u>Hava Durumu</u>	<u>Açık</u>	<u>Yağış</u>	<u>Var</u>	<u>Hava Sıcaklığı</u>	<u>Koordinatlar</u>	<u>E</u>	709546
	<u>Kapalı</u>		<u>Yok</u>	<u>°C</u>		<u>N</u>	4293724

Görüş ve Yorumlar:

Mühür

İmza

 ÖY-06/203/2010	 SEGAL	
First Publish: 03.05.2010 RP.01 / Rev.01 Rev. Date: 20.01.2011 page1 / 3	SEGAL ENVIRONMENTAL MEASUREMENT and ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1788/11 Report Date 29.11.2011

Customer Name / Address	MGS PROJECT CONSULTANCY ENG. TRADE. LTD. CO. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad. 1351. Sok. No:1/7 Çankaya / ANKARA
<u>Sampler Institution / Company</u>	SEGAL Segal Environmental Measurement And Analysis Laboratory (Satılmış DOĞAN)
Name and Sampling Date of the Sample	Surface Water (1684/11) – 25.11.2011
Receipt of the Sample Shape	Instant
Deliverer of the Sample	Satılmış DOĞAN (SEGAL Environmental Measurement And Analysis Laboratory personnel)
Name and Number of the Project	1080/11
Date of Sample Acceptance	26.11.2011
Delivery Conditions of the Sample	Cold environment in the plastic container chemically protected and stamped.
Remarks	Surface water analysis to Kayseri Integrated Health Campus Project
Date of the Test	26.11.2011
Number of the Pages of the Report	3 pages

The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.

Prepared by

Emine Aslı AYAN
Chemical Engineer M.Sc.

Confirm by

Fevzi KARAKAYA
Lab Manager

 ÖY-06/203/2010	 SEGAL SEGAL ENVIRONMENTAL MEASUREMENT and ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Test TS EN ISO/IEC 17025 AB-0425-T
First Publish: 03.05.2010		Report No 1788/11
RP.01 / Rev.01		
Rev. Date: 20.01.2011		Report Date 29.11.2011
page2 / 3		

SAMPLE NAME and NUMBER: Surface water – 1684/11

Parameter-Unit		Test Result	Uncertainties	Test Method
pH		8.13	% ± 1.10	TS 3263 ISO 10523:1999
Conductance (µS/cm)		784	% ± 2.66	TS 9748 EN 27888:1996
Saltiness (‰)		0,4	% ± 2.00	TS 9748 EN 27888:1996
Total Soluble Solids (mg/L)		383	% ± 2.68	TS 9748 EN 27888:1996
Suspended Solids(mg/L)		<10	% ± 4.26	TS EN 872:2007
Boron (mg/L)		<0.3	% ± 6.80	SM 4500 B-C:2005
Chlorine (mg/L)		36.5	% ± 4.10	SM 4500 Cl ⁻ B:2005
Sodium (mg/L)		37	% ± 7.68	SM 3111 B:2005
SAR (meq/L)		1.83	% ± 10.20	SM 3111 B:2005
Parameter-Unit		Harm Degree		
		None (I.Class water)	Medium (II.Class water)	Hazardous (III.Class water)
Saltiness				
Conductance (µS/cm)		<700	700-3000	>3000
TSS (mg/L)		<500	500-2000	>2000
Permeability				
SAR _{Tad}	0-3	EC ≥0.7	0.7-0.2	<0.2
	3-6	≥1.2	1.2-0.3	<0.3
	6-12	≥1.9	1.9-0.5	<0.5
	12-20	≥2.9	2.9-1.3	<1.3
	20-40	≥5.0	5.0-2.9	<2.9
Ion Toxicity				
Sodium (mg/L)	Surface Irrigation	<3	3-9	>9
	Trickling Irrigation	<70	>70	-
Chlorine (mg/L)	Surface Irrigation	<140	140-350	>350
	Trickling Irrigation	<100	>100	-
Boron (mg/L)		<0.7	0.7-3.0	>3.0

(This report shall not be reproduced other than in full except with the permission of the laboratory. Testing reports without signature and seal are not valid. **The results belong to the tested sample.**)

 ÖY-06/203/2010	 SEGAL	
First Publish: 03.05.2010 RP.01 / Rev.01 Rev. Date: 20.01.2011 page3 / 3	SEGAL ENVIRONMENTAL MEASUREMENT and ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1788/11 Report Date 29.11.2011

“Samples **TS EN ISO 5667-3:2007** – Water Quality – Sample – Part 3: The samples which are spoiled by the chemically, microbial and physically are exterminated.

Environmental Factors:

<u>Weather</u>	<u>Open</u>	<u>Precipitation</u>	<u>yes</u>	<u>Air Temperature</u> <u>°C</u>	<u>Coordinates</u>	<u>E</u>	709546
	<u>Close</u>		<u>no</u>			<u>N</u>	4293724

Comments

Signature

D) AIR QUALITY ANALYSIS

 T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI ÖY-06/203/2010	 SEGAL SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Test TS EN ISO/IEC 17025 AB-0126-T
İlk Basım: 03.05.2010		Rapor No 1831/11
RP.03 / Rev.01		
Rev. Tarihi: 20.01.2011		Rapor Tarihi 08.12.2011
Sayfa 1 / 5		

Müşterinin adı/ adresi: Customer Name / Address	MGS PROJE MÜŞAVİRLİK MÜH. TİC. LTD. ŞTİ. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad.1351. (Eski 203.) Sok. No:1/7 Çankaya / ANKARA
Numunenin Adı ve Örnekleme Tarihi: Name and Sampling Date of the Sample	PM 10 Ölçümü / 25.11.2011
Proje Adı ve No: Name and Number of the Project	Ortamda Toz Ölçümleri — 1080/11
Numunenin Kabul Tarihi: Date of Sample Acceptance	25.11.2011
Açıklamalar: Remarks	Kayseri ilinde kurulması planlanan “ Kayseri Entegre Sağlık Kampüsü ” proje alanında üç noktada toz ölçümleri yapılmıştır.
Deneyin yapıldığı Tarih: Date of the Test	25.11.2011 - 27.11.2011
Raporun Sayfa Sayısı: Number of the Pages of the Report	5 sayfa

Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve deney/ölçüm metotları takip eden sayfalarda verilmiştir. The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.

Raporu Hazırlayan
Prepared by

Furkan S. ÇELİK
Lab. Müdür Yrd.

Raporu Onaylayan
Confirm by

Fevzi KARAKAYA
Laboratuar Müdürü

 T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI ÖY-06/203/2010	 SEGAL SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 TÜRKAK Test TS EN ISO/IEC 17025 AB-0426-T
İlk Basım: 03.05.2010		Rapor No 1831/11
RP.03 / Rev.01		Rapor Tarihi 08.12.2011
Rev. Tarihi: 20.01.2011		
Sayfa 2 / 5		

A.GİRİŞ

Şeker Mah. Kocasinan/Kayseri ilinde kurulması planlanan “Kayseri Entegre Sağlık Kampüsü” proje alanında üç noktada PM 10 örneklemeleri gerçekleştirilmiştir.

Alınan deney sonucu, sadece ölçüm sırasındaki proses koşullarıyla ilgili olup yapılmış olan ölçümler neticesinde elde edilen sonuçlar 2872 sayılı Çevre Kanunu’nun ilgili hükümleri gereğince 03.07.2009 tarih ve 27277 sayılı Resmi Gazete’de yayımlanarak yürürlüğe giren Sanayi Kaynaklı Hava Kirliliğinin Kontrolü Yönetmeliği (S.K.H.K.K.Y.) ve 30.03.2010 tarih ve 27537 sayılı Resmi Gazete’de yayımlanarak yürürlüğe giren Sanayi Kaynaklı Hava Kirliliğinin Kontrolü Yönetmeliğinde Değişiklik Yapılmasına Dair Yönetmelik çerçevesinde değerlendirilerek sadece sınır değerlerle karşılaştırma yapılmış olup bu rapor hazırlanmıştır.

25.11.2011 tarihinde proje alanında toz ölçümleri yapılmıştır. Toz ölçüm yöntemleri, kullanılan cihazlar, ölçüm sonuçları ve ölçüm sonuçlarının değerlendirilmesi ile ilgili bilgiler takip eden sayfalarda verilmiştir.

 T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI ÖY-06/203/2010	 SEGAL SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Test: TS EN ISO/IEC 17025 AB-0126-T Rapor No 1831/11 Rapor Tarihi 08.12.2011
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B.FAALİYETİN ANLATIMI

Kayseri Sağlık Yerleşkesi; Sağlık Bakanlığına tahsis edilmiş olan Kayseri ili Kocasinan İlçesi Şeker Mahallesi, 3 Pafta, 45 Ada, 25 Parsel nolu 500.000 m2'lik parselden arazi üzerindeki irtifak haklarından sonra kalan 457.468,27 m2 ve 4701 ada 1 Parsel nolu 248.551,93 m2 yüzölçümlü arsalar üzerine kurulacaktır. Zeminin emniyetli taşıma gücü 0,8 kg/cm2, statik yeraltı suyu seviyesi 0,70 – 2,00 metre olarak tespit edilmiştir. Aynı mahallesi 4701 ada, 1 parsel nolu arsada ise statik su seviyesi yaklaşık olarak 1,50 – 2,00 metre olarak tespit edilmiş olup zemin emniyet taşıma gücünün 0,9 - 1,2 kg/cm2 aralığında olduğu bildirilmiştir

C.ÖLÇÜM YAPILAN BÖLÜM, ÖLÇÜM PARAMETRELERİ, ÖLÇÜM YÖNTEMİ VE ÖLÇÜM CİHAZI

Proje alanında yapılan bölümler ve ölçüm parametreleri tablo-1 de verilmiştir.

Tablo – 1: Ölçüm yapılan bölüm ve ölçüm parametresi

No	Ölçüm Yapılan Bölüm	Ölçüm Yapılan Parametre	GPS Koordinatları	Metot
1	1 Nolu Nokta	Toz	E: 709337 N: 4293426	TS EN 12341:2002
2	2 Nolu Nokta	Toz	E: 708794 N: 429377	TS EN 12341:2002
3	3 Nolu Nokta	Toz	E: 709324 N: 4294459	TS EN 12341:2002

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İlk Basım: 03.05.2010		Rapor No 1831/11
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D.ÖLÇÜM SONUÇLARI

Proje alanında yapılan ortamda toz ölçümleri analiz sonuçları aşağıda verilmiştir.

Tablo 2: Toz Ölçüm Sonuçları

Ölçüm Noktası	Toz Ölçüm sonucu mg/Nm ³	Sınır Değerler (mg/m ³)	Ölçüm Sıcaklığı °C	Standart Hacim m ³
1 nolu nokta	0,74	3*	6	1,08
2 nolu nokta	0,56	3*	6,2	1,07
3 nolu nokta	0,65	3*	5,8	1,08

* S.K.H.K.K.Y. Ek 1.b.2.

D.1. ÖLÇÜM SONUÇLARININ DEĞERLENDİRİLMESİ

25.11.2011 tarihinde Kayseri entegre sağlık kampüsü proje alanında MCZ Marka LVS 1 cihazı ile ortamda bulunan toz ölçümleri yapılmıştır. Yapılan ölçüm sonuçları Sanayi Kaynaklı Hava Kirliliği Kontrol Yönetmeliğin ek 1 'e göre değerlendirilmiştir.

Proje alanında üç noktada yapılan, toz ölçümü sonucunda elde edilen değerlerin, 3 mg/m³ sınır değerinin altında kaldığı tespit edilmiştir.

“Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.”

 ÖY-06/203/2010	 	
İlk Basım: 03.05.2010	SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Rapor No
RP.03 / Rev.01		1831/11
Rev. Tarihi: 20.01.2011		Rapor Tarihi
Sayfa 5 / 5		08.12.2011

E.EKLER

EK-1. MCZ MARKA LVS 1 PM 10 ORTAM HAVASI ÖRNEKLEME CİHAZI KALİBRASYON BELGESİ

EK- 2. ÖLÇÜM HESABINDA KULLANILAN FORMÜLLER

EK-3. FOTOĞRAFLAR

EK 4: YETERLİLİK BELGESİ (TÜRKAK VE ÇEVRE ŞEHİRCİLİK BAKANLIĞI YETKİ BELGESİ)

 ÖY-06/203/2010	 SEGAL	
First Publish: 03.05.2010	SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1831/11
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Customer Name / Address	MGS PROJECT CONSULTANCY ENG. TRADE. LTD. CO. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad.1351. (Eski 203.) Sok. No:1/7 Çankaya / ANKARA
Name and Sampling Date of the Sample	PM 10 Measurement / 25.11.2011
Name and Number of the Project	Dust Measurements in the field — 1080/11
Date of Sample Acceptance	25.11.2011
Remarks	Dust is measured in 3 points in the field of Kayseri Integrated Health Campus
Date of the Test	25.11.2011 - 27.11.2011
Number of the Pages of the Report	5 pages

The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.

Prepared by

Furkan S. ÇELİK
Lab. Manager Assistant

Confirm by

Fevzi KARAKAYA
Lab. Manager

 ÖY-06/203/2010	 SEGAL	
First Publish: 03.05.2010	SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1831/11
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A.INTRODUCTION

PM 10 is measured in 3 points in the field of “Kayseri Integrated Health Campus” in the parish of Seker, borough of Kocasinan in Kayseri.

This report is prepared according to Industrial Originated Air Pollution Control Regulation (I.O.A.P.C.R) which published in 03.07.2009 dated and 27277 numbered Official Gazette and only limit values is evaluated.

Dust measurements are done in 25.11.2011 at the Project site. Dust measurement methods, equipment that used, measurement results and evaluation of results are given in the following pages.

 T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI ÖY-06/203/2010	 SEGAL SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 TÜRKAK Test TS EN ISO/IEC 17025 AB-0425-T Report No 1831/11 Report Date 08.12.2011
First Publish: 03.05.2010 RP.03 / Rev.01 Rev. Date: 20.01.2011 page3 / 5		

B.EXPLANATION OF THE ACTIVITY

Kayseri Health Campus will rise on those lands of 457,468.27m² which is left over following the easement rights on a parcel of 500,000 m² on Section no 3, Lot no 45 and Parcel no 25 as well as of 248,551.93m² on lot no 4701 and parcel no 1 in the parish of Seker, borough of Kocasinan in Kayseri. Static ground water level found as 0.70 – 2.00 m and significance of the ground loading power is 0.8 kg/cm².

C.MEASURED THE SECTION, MEASUREMENT PARAMETERS, MEASUREMENT METHODS AND VE MEASUREMENT EQUIPMENTS

Sections and measurement parameters are given in Table-1.

Table – 1: Coordinates and methods of measurements

No	Point	Parameter	GPS Coordinates	Method
1	Point 1	Dust	E: 709337 N: 4293426	TS EN 12341:2002
2	Point 2	Dust	E: 708794 N: 429377	TS EN 12341:2002
3	Point 3	Dust	E: 709324 N: 4294459	TS EN 12341:2002

 ÖY-06/203/2010	 SEGAL	
First Publish: 03.05.2010	SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1831/11
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D.MEASUREMENT RESULTS

Analysis results are given below.

Table-2: Dust Measurement Results

Point	Dust Measurement Results mg/Nm ³	Limit Values (mg/m ³)	Temperature °C	Standard Volume m ³
Point 1	0.74	3*	6	1.08
Point 2	0.56	3*	6.2	1.07
Point 3	0.65	3*	5.8	1.08

* I.O.A.P.C.R Appx1.b.2.

D.1.EVALUATION OF MEASUREMENT RESULTS

25.11.2011 dated, dust measurements are done in the Kayseri Integrated Health Campus Project site with the MCZ branded LVS 1 equipment. Results of the measurements are evaluted according to Industrial Originated Air Pollution Control Regulation Appendix1.

Dust measurements are below the limit value, 3 mg/m³ for the measured 3 points in the field.

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First Publish: 03.05.2010	SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Report No 1831/11
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E.APPENDIX

APPENDIX-1. MCZ BRANDED LVS 1 PM 10 AMBIENT AIR EQUIPMENT CALIBRATION DOCUMENTARY

APPENDIX- 2. FORMULAS

APPENDIX-3. PHOTOGRAPS

APPENDIX 4: QUALIFICATION CERTIFICATE (TURKISH ACCREDITATION AGENCY AND MINISTRY OF ENVIRONMENT AND URBAN PLANNING AUTHORITY DOCUMENT)

ANNEX – 1: MCZ BRANDED LVS 1 PM 10 AMBIENT AIR SAMPLING DEVICE
CALIBRATION DOCUMENTARY

Abnahmeprotokoll / Calibration protocol

Kunde:	Econorm – Türkei	Lieferdatum:	25. 05.2010
Auftrag-Nr:	AU10-05-0071/ PO 0510-22	Garantie bis:	25. 05.2012
Gerät:	MicroPNS LVS 1	Serien-Nr:	1005-039

Bestückung / Grundeinstellungen

Flow-Board	DD-N200	SN:	10.101	Fluss/flow	50 l/min	Orifice Size	5mm
Parameter	CY1	DD-N203f		zero	19	Pgain	14810
		0°C – 1013 mbar		FullScale	3160	Tgain	14489
	x	20°C – 1013 mbar		PG	50	IC	20
IO-Board	TIO-N400	SN:	10.105	T Innen	25°C	Hyst.	2
T-Controller	CY2	TIO-N400a		T Pumpe	5°C	Hyst.	2
Parameter				zero	27	Pgain	14838
				FullScale	6283	TGain	15000
Relais-Board	PNS-REL400	SN:	/.	optional			
	CY3	PNS-REL400					
Main Board	CPU-M102	SN:	10.107	µPNS-SW	PNS-403	JP103	1-2
Heating	Heller FKS 505 / R 2*47 R			230V 500W / 24Vdc 25W			
FAN	Samon 230V / 24V			230Vac	24V dc		
Gebläse	Amatec						
Pumpe	Becker	x		V1 4.4		#29455265	
Frequenzumrichter	G110	x		6SL3211-0KH12-5BA1		XAX023-004142	
PumpenausgangsfILTER	MANN WK 32	x					
Hilfspumpe N86	KNF N86	---					
Netzteil	RS50-24	x		Sicherung/Fuse		6,3A	
VDE 701 Test	Wert						
Schutzleiterwiderstand	0,13			Ohm			
Isolationswiderstand	---			Mohm			
Ersatzableitstrom	---			mA			
Spannungsfreiheit	---			µA			

Bemerkung

Qualitätskontrolle

	Datum	Unterschrift
Überprüfung Mechanik :	25.05.2010	KB
Überprüfung E-Technik :	25.05.2010	KB Umwelttechnik MCZ GmbH
Systemtest :	25.05.2010	KB
Endabnahme :	25.05.2010	KB

CALIBRATION CERTIFICATE

Identifications:

Model number: DD-N126
Serial number: 10101

Report number: MCZ-10101-001
Order reference: AU10-05-0071

Page: 2 of 2

Fluid data:

Measuring Fluid: Air Fluidnr.: 1
Fluid Temperature: 20.0 °C
Fluid Pressure: 1 bar (a)
Normal Density (n): 0.000 kg/m³
Heat Capacity (cal): 0.0 J/kg.K
Thermal Conduct. (cal): 0.000E+00 W/m.K
Viscosity: 0.000E+00 Pa.s

Calibration Fluid: Air
Fluid Temperature: 20.0 °C
Fluid Pressure: 1 bar (a)
Normal Density (n): 0.000 kg/m³
Heat Capacity (cal): 0.0 J/kg.K
Thermal Conduct. (cal): 0.000E+00 W/m.K
Viscosity: 0.000E+00 Pa.s

Calibration standards used:

MassFlow standard (REF)
Instrument type: Gas massflow controller
Model: DSCM-K + D-6251
Serial Number: 1002-10000
Certificate number: OKD-K-20001
Uncertainty: 1 % of Reading

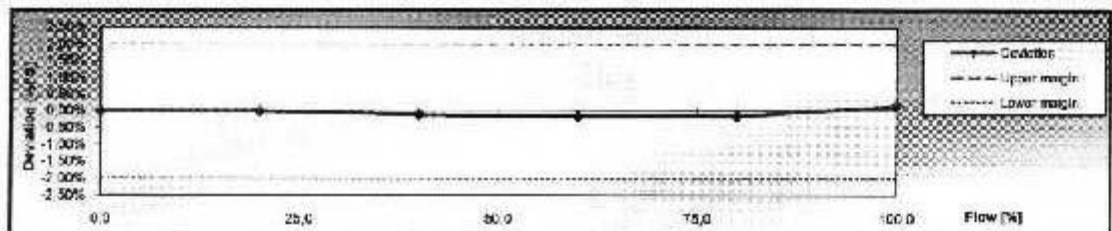
Electrical standard
Instrument type: DIGISTART
Model: 4421
Serial Number: 10B382
Certificate number: S0795
Uncertainty: 0.1 % of Reading

Total uncertainty:

The total uncertainty of measurement does not exceed: 1.005 % of Reading

Calibration results:

Flow No.	Setpoint [V]	Output [V]	REF Flow [l/min]	Calculated Flow [l/min]	DIFF Flow [l/min]	DIFF %	Pass / Fail	Pass / Fail
1	100.0	5.808	50.000	1.000	50.0000	0.16%	Pass	
2	80.0	3.993	40.000	1.000	40.0000	-0.14%	Pass	
3	60.0	2.992	30.000	1.000	30.0000	-0.16%	Pass	
4	40.0	1.995	20.000	1.000	20.0000	-0.10%	Pass	
5	20.0	1.000	10.000	1.000	10.0000	0.00%	Pass	
6	0.0	0.000	0.000	1.000	0.0000	0.00%	Pass	
7								
8								
9								
10								



Polynomial Calculation:

The resulting fit-errors after evaluation of the polynomial function are stated in the calibration results above.

Use the following formulae, in combination with the polynomial-constants from the table, to evaluate flow or output:

$$\text{Flow : } Y = A + B.X + C.X^2 + D.X^3 \quad \text{Setpoint : } Z = E + F.Y + G.Y^2 + H.Y^3$$

in which, for a **Scaled Polynomial**: Y = Flow [l/min], X = Output [V] and Z = Setpoint [V]

or, for an **UnScaled Polynomial**: Y = fractional Flow, X = fractional Output and Z = fractional Setpoint

Coefficients Scaled Polynomial			
A4	2.8656E-08	A0	2.0553E+00
A3	-3.4694E-04		
A2	1.5955E-02		
A1	6.5636E-01		

Coefficients UnScaled Polynomial			
A:	0.0000E+00	E:	
B:	1.0000E+00	F:	
C:	0.0000E+00	G:	
D:	0.0000E+00	H:	

CALIBRATION CERTIFICATE

Applicant:

Name: Umwelttechnik MCZ GmbH
 Address: Hohe Strasse 8
 Postal Code and City: 61231 Bad Nauheim
 Country: D

Report number: MCZ 10101-003 Page: 1 of 2
 Order reference: AD1035-0071

Identifications:

Instrument type: Gas massflow meter
 Manufacturer: MCZ GmbH
 Model number: DD-N120
 Serial number: 10101
 Service number: 000000

Flowrange: 0 - 50 g/h (0.002 kg/h)
 Output range: 0 - 5 V
 Setpoint range: 0 - 100 %
 Specified accuracy: $\pm 2\%$ Full Scale

Test method:

The real massflow has been determined using an analog gas massflow controller connected to the analog input of a digital readout unit. The DUT output signal is measured using the electrical standard identified on page 2-2. The flow conversion factor is a fixed factor specified by customer. The DUT flow unit reference is 100 °C, 1013.25 hPa (a).

Date of test:

Environmental Conditions:

Temperature: 21 °C $\pm$ 2 °C
 Atmospheric Pressure: 993 hPa (a)
 Relative Humidity: 50 % $\pm$ 10 %

Results:

General: The instrument meets its specifications.
 Test data: The detailed test results are stated on page 2 of 2.
 Uncertainty: The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.
 The total uncertainty has been evaluated in accordance with EN ISO/IEC 17025:2000.
 Traceability: The reference standards used for calibration are traceable to primary standards of the Dutch national measuring institute NMI.

Note:

Blende 5,00 mm, Software DD-N203F

Approved signatory:

City, Date: Bad Nauheim, den 25.05.2010
 Calibrator: Umwelttechnik MCZ GmbH
 Hohe Strasse 8
 61231 Bad Nauheim
 Tel. 06032-94047-0 Fax 06032-94027-20
 E-mail: info@mcz.de

Approved by: Umwelttechnik MCZ GmbH
 Function: Hohe Strasse 8
 61231 Bad Nauheim
 Tel. 06032-94047-0 Fax 06032-94027-20
 E-mail: info@mcz.de

Sign:

ANNEX – 2: FORMULAS

During sampling of the ambient air through the data obtained using the following formulas are used and the calculations were made.

$$\text{Weight Difference } (\mu\text{g}) = | \text{Last Weight (g)} - \text{First Weight (g)} \times 10^6 \mu\text{g/mg} |$$

$$\text{Real Volume (m}^3\text{)} = | (\text{Flowing velocity (1/min)} \times \text{Real Time (hour)} \times 60 \text{ min/1 hour}) / 1000 (1/\text{m}^3) |$$

$$\text{Temperature (}^\circ\text{K)} = \text{Temperature (}^\circ\text{C)} + 273.15$$

$$\text{Standard Volume (m}^3\text{)} =$$

$$| \text{Real Volume (m}^3\text{)} \times \text{Real Pressure (mmHg)} / 760\text{mmHg} \times 273 \text{ }^\circ\text{K} / \text{Temperature }^\circ\text{K} |$$

$$\text{Real Concentration } (\mu\text{g/m}^3\text{)} = \text{Weight Difference } (\mu\text{g}) / \text{Real Volume (m}^3\text{)}$$

ANNEX 3: PHOTOGRAPHS

Point 1: 709337 – 4293426 temperature: 6 °C



Point 2: 708794 – 429377 temperature: 6.2°C



Point 3: 709324 – 4294459 temperature: 5.8 °C





TÜRK AKREDİTASYON KURUMU

AKREDİTASYON SERTİFİKASI

Deney Laboratuvarı olarak faaliyet gösteren,

SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LABORATUARI
Mühendislik Müşavirlik Proje Hizm. San. Tic. Ltd. Şti.
Aşağı Öveçler Mah. 1322. Cad. No:12/11-12 Çankaya
06460 ANKARA / TÜRKİYE

TÜRKAK tarafından yapılan denetim sonucunda TS EN ISO/IEC 17025:2005 Standardına göre Ek'te yer alan kapsamlarda akredite edilmiştir.

Akreditasyon No : AB-0425-T

Akreditasyon Tarihi : 09-Mayıs-2011

Bu Sertifika, yukarıda açık adı ve adresi yazılı Kuruluşun TS EN ISO/IEC 17025:2005 Standardına, ilgili Yönetmelik ve Tebliğlere uygunluğunu sürdürmesi halinde 08-Mayıs-2015, tarihine kadar geçerlidir.



H. İrfan AKSOY
H. İrfan AKSOY
Genel Sekreter Vekili



T.C.
ÇEVRE VE ORMAN BAKANLIĞI
Çevre Yönetimi Genel Müdürlüğü



ÇEVRE ÖLÇÜM VE ANALİZLERİ ÖN YETERLİK BELGESİ

Belge No : ÖY-06/203/2010
Kapsam : Su-Atık Su, Denizsu, Mikrobiyolojik Analizler, Atık, Su-Atıksu Numune Alma, İmisyon, Gürültü
Düzenleme Tarihi : 09.08.2010
Laboratuvar Adı : SEGAL Çevre Ölçüm ve Analiz Laboratuvar Ltd.Şti.
Adres : Aşağı Öveçler Mah. 1322. Cad. No. 12/11-12 Çankaya/ANKARA

4856 Sayılı Çevre ve Orman Bakanlığı Kuruluş ve Görevleri Hakkında Kanun gereği yukarıda açık adı ve adresi belirtilen kurum/kuruluş Ek Liste'de belirtilen kapsamda 5 Eylül 2008 tarih ve 26988 sayılı R.G.'de yayımlanan Çevre Ölçüm ve Analiz Laboratuvarları Yeterlik Yönetmeliği'ne göre ölçüm ve/veya analiz yapmaya ve bu çerçevede rapor hazırlamaya yetkilidir.

BELGENİN

BAŞLANGIÇ TARİHİ : 13.08.2010
BİTİŞ TARİHİ : 13.08.2012

EK: PARAMETRE LİSTESİ (6 Sayfa)

Prof. Dr. Lütfi AKÇA
Bakan a.
Genel Müdür

Revizyon Tarihi/No: -
Yenileme Tarihi/No:

E) NOISE ANALYSIS

 ÖY-06/203/2010	 	
İlk Basım: 03.05.2010 RP.02 / Rev.02 Rev. Tarihi: 23.07.2011 Sayfa 1 / 7	SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	Rapor No 1832/11 Rapor Tarihi 08.12.2011

Müşterinin adı/ adresi: Customer Name / Address	MGS PROJE MÜŞAVİRLİK MÜH. TİC. LTD. ŞTİ. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad.1351. (Eski 203.) Sok. No:1/7 Çankaya/ANKARA
Ölçüm Tarihi: Measurement Date	25.11.2011
Proje Adı ve No: Name and Number of the Project	Çevresel Gürültü Ölçümü – 1080/11
Açıklamalar: Remarks	Kayseri ilinde kurulması planlanan “ Kayseri Entegre Sağlık Kampüsü ” etkisinde bulunabilecek noktalarda arka plan gürültü ölçümleri yapılmıştır.
Raporun Sayfa Sayısı: Number of the Pages of the Report	7 Sayfa

Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve deney/ölçüm metotları takip eden sayfalarda verilmiştir. The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report.

Raporu Hazırlayan
Prepared by

Furkan S. ÇELİK
Lab. Müdür Yrd.

Raporu Onaylayan
Confirm by

Fevzi KARAKAYA
Laboratuar Müdürü

 ÖY-06/203/2010	 SEGAL ÇEVRE ÖLÇÜM ve ANALİZ LABORATUARI Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Rapor No 1832/11 Rapor Tarihi 08.12.2011
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A- TESİSE AİT GENEL BİLGİLER

A. TESİS/ İŞLETMENİN GENEL TANITIMINA İLİŞKİN BİLGİLER

A.1- TESİS/ İŞLETMENİN TİCARİ UNVANI

İşletmenin ticari unvanı, Kayseri Entegre Sağlık Kampüsü

A.2- TESİS/ İŞLETMENİN ADRESİ

Şeker Mahallesi, Kocasinan / KAYSERİ

A.3- TESİS/ İŞLETMENİN HİZMET KONUSU - FAALİYET TÜRÜ

İşletme, **sağlık yerleşkesi** olarak hizmet verecektir.

A.4- TESİS/ İŞLETMENİN FAALİYET SÜRESİ

İşletme kurulum aşamasında olup, henüz faaliyet başlanmamıştır.

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İlk Basım: 03.05.2010		
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A.6- TESİS / İŞLETMENİN YAPISAL ÖZELLİKLERİ

Kayseri Sağlık Yerleşkesi; Sağlık Bakanlığına tahsis edilmiş olan Kayseri ili Kocasinan İlçesi Şeker Mahallesi, 3 Pafta, 45 Ada, 25 Parsel nolu 500.000 m²'lik parselden arazi üzerindeki irtifak haklarından sonra kalan 457.468,27 m² ve 4701 ada 1 Parsel nolu 248.551,93 m² yüzölçümlü arsalar üzerine kurulacaktır.

Zeminin emniyetli taşıma gücü 0,8 kg/cm², statik yeraltı suyu seviyesi 0,70 – 2,00 metre olarak tespit edilmiştir. Aynı mahallesi 4701 ada, 1 parsel nolu arsada ise statik su seviyesi yaklaşık olarak 1,50 – 2,00 metre olarak tespit edilmiş olup zemin emniyet taşıma gücünün 0,9 - 1,2 kg/cm² aralığında olduğu bildirilmiştir.

A.7- TESİSTE ÜRETİLEN SESİN İLETİM YOLLARININ TANIMLANMASI

Proje kapsamında planlanan alan boyunca bulunan bulunabilecek yerleşim yerlerine veya yapılara gürültü etkisi olacaktır.

A.8- TESİSİN EN YAKIN YAPI/YAPILARA OLAN MESAFESİ VE YAPI/YAPILARIN KULLANIM DURUMLARI

Sağlık yerleşkesi alanının doğusunda fuar alanı, kuzey tarafında üniversite alanı ve alanın güneyinde şehirlerarası terminal işletmesi bulunmaktadır

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B. ÇEVRESEL GÜRÜLTÜ SEVİYESİ HAKKINDA BİLGİLER

ÖLÇÜM İÇİN BELİRLENEN SÜREÇLERİN AÇIKLANMASI

Ölçümler tesis etkisi altında bulunabilecek yerler göz önüne alınarak gerçekleştirilmiştir.

Tesis Etki Alanında Yapılan Ölçüm Bilgileri

Ölçüm sayısı	Ölçüm Süreleri (Dakika)	Ölçüm Tarihleri
4	8	25.11.2011

C. ÖLÇÜMLER VE ÖLÇÜM CİHAZI HAKKINDA BİLGİLER

Ölçüm yapılan yerler İşletmeye ait yerleşim krokisi Ek-1 de gösterilmiştir.

ÖLÇÜM TARİHİ VE SÜRESİNİN ÖLÇÜM YERLERİ İLE İLİŞKİLENDİRİLEREK TABLO HALİNDE VERİLMESİ

ÖLÇÜM NO	SICAKLIK (°C)	NEM (%)	KOORDİNATLAR	SONUÇ (dBA)
1	6,6	30	709335 - 4293419	45,70
2	6,4	32	708788 – 4293785	45,00
3	6,0	34	709070 – 4293993	42,20
4	6,3	35	709350 - 4294468	45,50

Sıcaklık ve nem ölçme cihazı kalibrasyon belgeleri Ek-7'de sunulmuştur.

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Sayfa 6 / 7		

ÖLÇÜM YÜKSEKLİĞİ

Açık alanda yapılan ölçümler yansıtıcı yüzeylerden en az 3,5 metre uzakta, yerden en az 1,5 metre yükseklikte yapılmıştır.

HER BİR ÖLÇÜM VEYA ÖLÇÜM DİZİSİ ÖNCESİ SONRASI CİHAZ KALİBRATÖRÜ İLE YAPILAN DOĞRULAMA İŞLEMİNİN AÇIKLANMASI

Ölçüm öncesi ve sonrası; ölçüm cihazı, “SV 30A SN: 22502 Akustik kalibratör” ile 94 dBA’ da kontrol edilmiştir ve cihaz fast moduna getirilerek 8 dakika ölçüm yapacak şekilde ayarlanarak ölçüm gerçekleştirilmiştir

ÖLÇÜMLERDE KULLANILAN ÖLÇÜM CİHAZI HAKKINDA BİLGİ

Ölçümler; SVANTEK Marka, SVAN 957 Model SN: 21412 gürültü ölçme cihazı ile yapılmıştır. Aşağıda cihaz ile ilgili teknik özellikler verilmiştir.

Cihaz, yapılan ölçümleri hafızasına otomatik olarak kaydeder. Karanlık ortamlarda aydınlatması kullanılarak ölçüm yapılabilir. Cihaz ile eşdeğer gürültü seviyesi (L_{eq}), ortalama, minimum ve maksimum gürültü seviyeleri hesaplanabilmektedir. Cihazın ölçüm belirsizliği % $\pm 0,51$ tür. Ölçüm cihazının kalibrasyon belgeleri Ek-4’ te sunulmuştur.

KALİBRASYON METODU, KALİBRASYON SEVİYELERİ, ÖLÇÜM CİHAZININ KALİBRASYON SERTİFİKASI

Cihazın ölçüm öncesi kalibrasyonu “SV 30A SN: 22502 Akustik kalibratör” ile 94 dBA’ da yapılmıştır. Kalibrasyona ilişkin bilgiler kalibrasyon sertifikasında Ek-5’ de sunulmuştur.

GÖRÜŞ VE YORUMLAR

Tesis alanı etki alanını kapsayacak şekilde arka plan ölçümleri yapılmıştır.

“Bu rapor çevre mevzuatına ilişkin resmi işlemlerde kullanılamaz.”

 T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI	 	 TÜRKAK
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D. EKLER

- Ek – 1 İşletmeye Ait Yerleşim Yeri Krokisi
- Ek – 3 Oktav Bant Analizleri
- Ek – 4 Ölçüm Fotoğrafları
- Ek – 5 Ölçüm Cihazı Kalibrasyon Belgeleri
- Ek – 6 Ölçüm Cihazı Kalibratörü Kalibrasyon Belgeleri
- Ek – 7 T.C. Çevre ve Şehircilik Bakanlığı, Çevre Ölçüm ve Analizleri Yetki Belgesi
TÜRKAK Akreditasyon Sertifikası
- Ek – 8 Sıcaklık ve Nem Cihazı Kalibrasyon Belgesi
- Ek – 9 Ölçüm Yapan ve Raporu Hazırlayan Kişinin Yetki Belgesi
- Ek – 10 Raporu Onaylayan Kişinin Yetki Belgesi

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Customer Name / Address	MGS PROJECT CONSULTANCY ENG. TRADE. LTD. CO. Şehit Cevdet Özdemir Mah. Öveçler 4. Cad.1351. (Eski 203.) Sok. No:1/7 Çankaya/ANKARA
Measurement Date	25.11.2011
Name and Number of the Project	Environmental Noise Measurement – 1080/11
Remarks	Noise measurement to Kayseri Integrated Health Campus Project
Number of the Pages of the Report	7 Page
The test and /or measurements results, the uncertainties with confidence probability and test methods are given on the following pages which are part of this report. Prepared by Furkan S. ÇELİK Lab. Manager Assistant Confirm by Fevzi KARAKAYA Lab Manager	

 ÖY-06/203/2010	 SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Report No 1832/11 Report Date 08.12.2011
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A- GENERAL INFORMATION ABOUT FACILITY

A. GENERAL INFORMATION ABOUT FACILITY

A.1- COMMERCIAL TITLE

Kayseri Integrated Health Campus

A.2- ADDRESS OF THE FACILITY

Şeker District, Kocasinan / KAYSERİ

A.3- SERVICE SUBJECT

Serve as a health campus.

A.4- OPERATING TIME

Business is at the installation stage, has not started operating yet.

A.1-6- AREA, UNITS/ AREA OF UNITS, CONDITION OF STRUCTURES OF THE PROJECT

Map: Place of Health campus that are planned to be



Settlement Plan is given in Appendix-1.

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A.6- STRUCTURE PROPERTIES OF THE FACILITY

Kayseri Health Campus will rise on those lands of 457,468.27m² which is left over following the easement rights on a parcel of 500,000 m² on Section no 3, Lot no 45 and Parcel no 25 as well as of 248,551.93m² on lot no 4701 and parcel no 1 in the parish of Seker, borough of Kocasinan in Kayseri. Static ground water level found as 0.70 – 2.00 m and significance of the ground loading power is 0.8 kg/cm².

A.7- DETERMINATION OF NOISE TRANSPORTATION

There is a noise impact to the residential areas.

A.8- STATUS OF THE CLOSEST STRUCTURE

There is fairground on the east, university campus on the north and bus terminal on the south of the health campus.

B. INFORMATION ABOUT ENVIRONMENTAL NOISE LEVEL

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EXPLANATION ABOUT MEASUREMENT PERIOD

Measures are done according to the areas which may expose to noise.

Measurement Information About Facility

Measurement Number	Measurement Time (Minutes)	Measurement Dates
4	8	25.11.2011

C. MEASUREMENTS AND INFORMATION ABOUT MEASUREMENT EQUIPMENT

Measurement settlement plan is given in Appendix-1.

MEASUREMENT DATE AND TIME TABLE

MEASUREMENT NUMBER	TEMPERATURE (°C)	HUMIDITY (%)	COORDINATES	RESULTS (dBA)
1	6.6	30	709335 - 4293419	45.70
2	6.4	32	708788 – 4293785	45.00
3	6.0	34	709070 – 4293993	42.20
4	6.3	35	709350 - 4294468	45.50

Calibration documents of temperature and humidity equipments are given in Appendix-7.

MEASUREMENT HEIGHT

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Measurements are done at least 3.5 meter far from the source and 1.5 meter higher from ground.

EXPLANATION OF VERIFICATION PROCESS BEFORE MEASUREMENT WITH THE HELP OF THE EQUIPMENT CALIBRATOR

After and before measurement time; calibration is done and controlled with the measurement device, V 30A SN: 22502 Acoustic Calibrator” and at 94 and equipment is switch on fast mode for 8 minutes and measurement is done.

INFORMATION ABOUT THE MEASUREMENT EQUIPMENT

Measurements are done with SVANTEK Branded, SVAN 957 Model SN: 21412 noise measurement device. Technical properties are given below.

Device s recorded everything on its memory card automatically. Light can be used for darker times. Equivalent noise level (L_{eq}) could be calculated for average, minimum and maximum noise level. Uncertainty of device is % ± 0.51 . Calibration documents of measurement device are given in Appendix-4.

CALIBRATION METHOD, CALIBRATION LEVELS, CERTIFICATE OF MEASUREMENT EQUIPMENT

Before measurement of calibration of device is done with “SV 30A SN: 22502 Acoustic Calibrator” and at 94 dBA. Information about calibration is given in calibration certificate Appendix-5.

COMMENTS

Background measurements are done.

D. APPENDIX

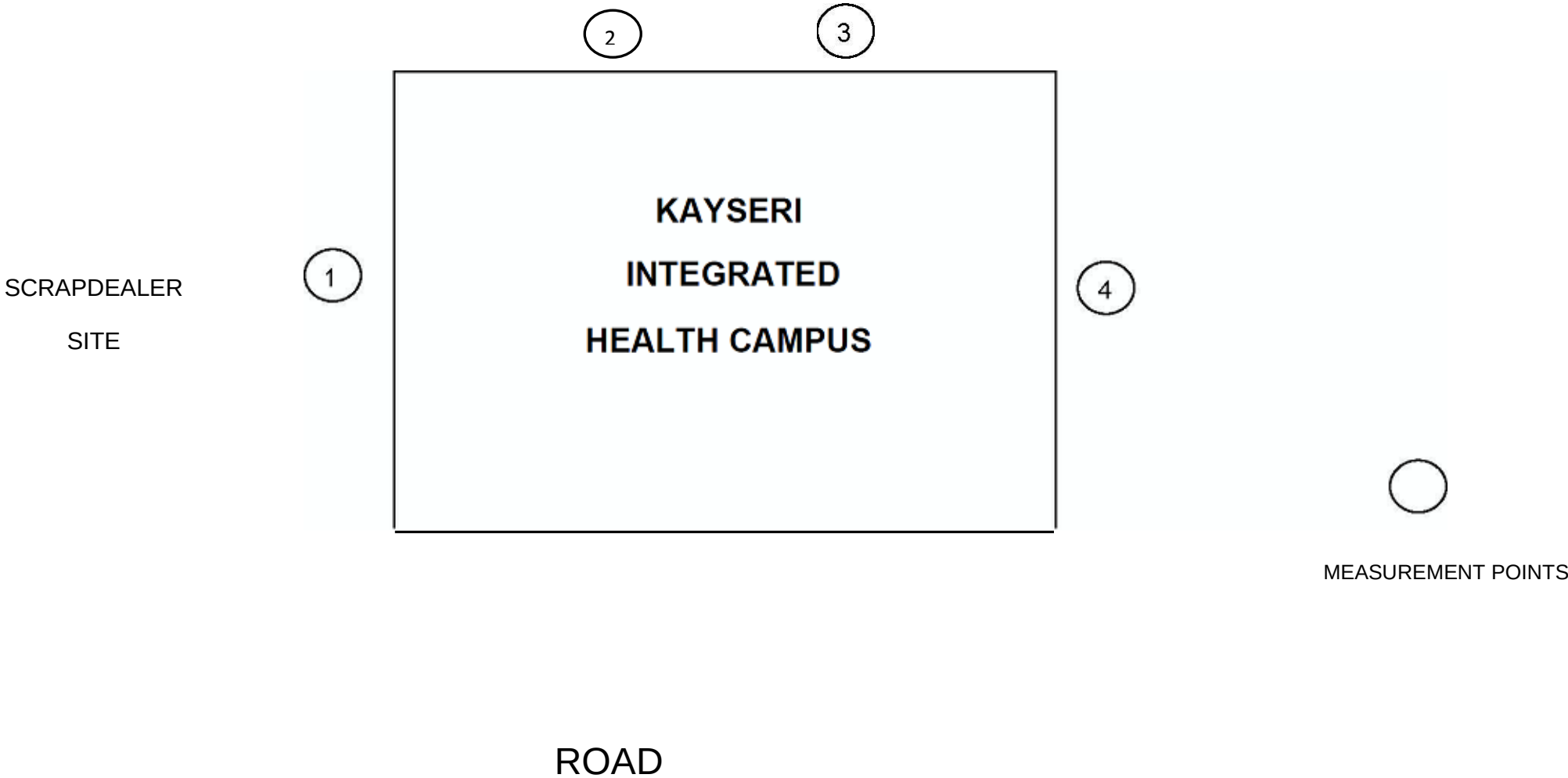
Appendix –1 Settlement Plan of the Project

 ÖY-06/203/2010	 SEGAL ENVIRONMENTAL MEASUREMENT AND ANALYSIS LABORATORY Aşağı Öveçler Mah. 1322.Cad (eski 6.cad) ÇANKAYA-ANKARA Tel: 0 312 481 83 00 Fax: 0 312 481 83 99 mail: segal@segalanaliz.com web: www.segalanaliz.com www.segal.com.tr	 Report No 1832/11 Report Date 08.12.2011
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- Appendix – 3 Octave Tape Analysis
- Appendix– 4 Measurement Pictures
- Appendix– 5 Calibration Documents of Measurement Device
- Appendix – 6 Measurement Device Calibrator Calibration Documents
- Appendix – 7 T.R. Ministry of Environment and Urban Planning, Environment Measurement and Analysis Authority Document
TÜRKAK Accreditation Certificate
- Appendix – 8 Temperature and Humidity Device Calibration Document
- Appendix – 9 Authority Document of The Person Who Did The Measurement and Prepared The Report
- Appendix– 10 Authority Document of The Person Who Confirmed The Report

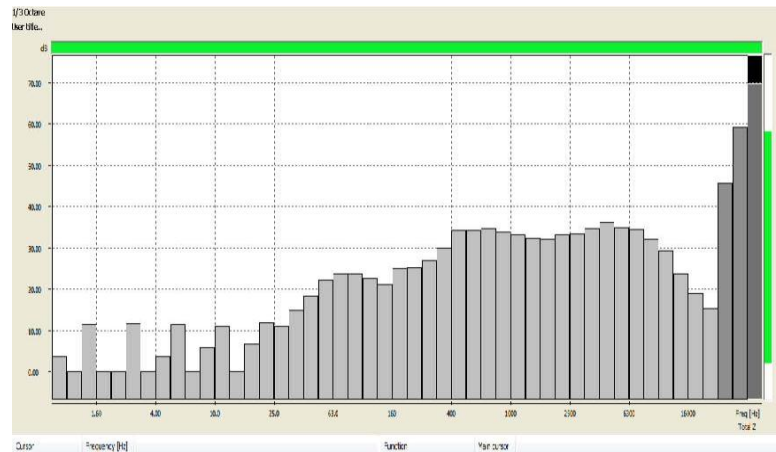
KAYSERI INTEGRATED HEALTH CAMPUS PLAN

ANNEX – 1 Kayseri Integrated Health
Campus Plan and Measurement Points

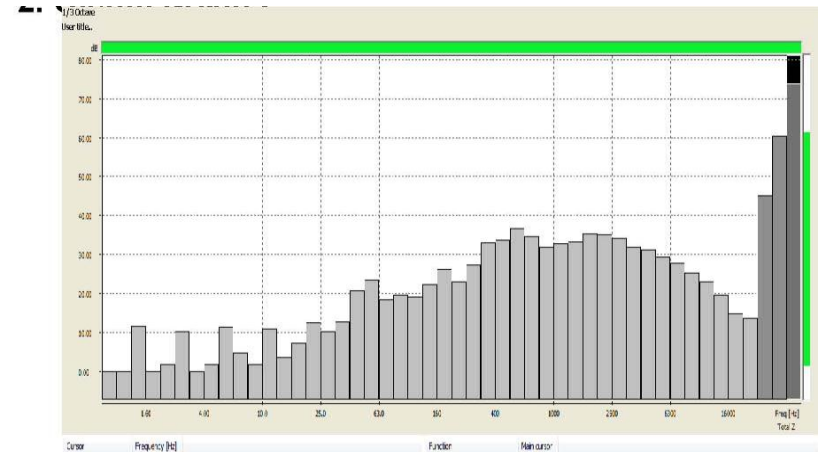


ANNEX – 2: OKTAVE TAPE ANALYSIS

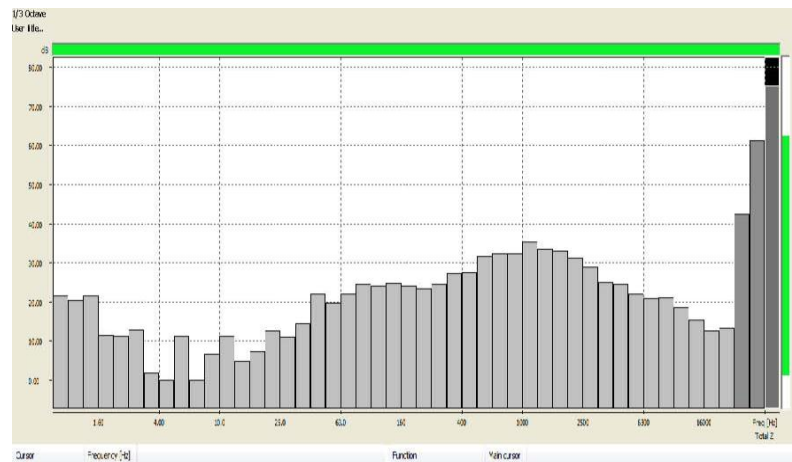
POINT 1



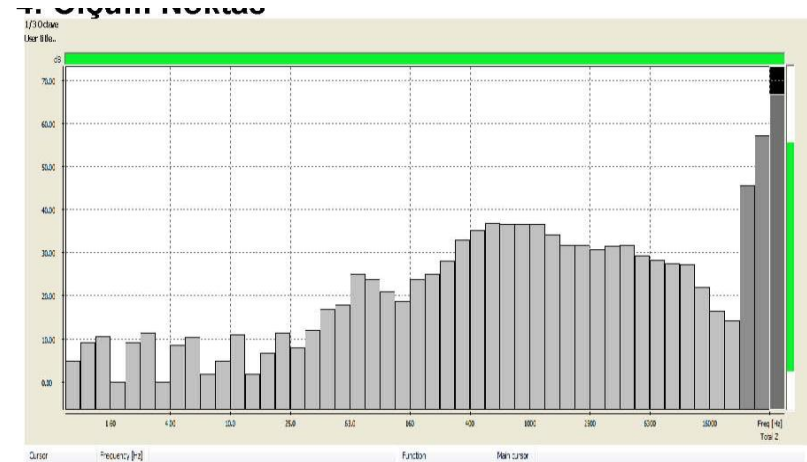
POINT 2



POINT 3



POINT 4



ANNEX – 3: PHOTOGRAPHS

POINT 1:



POINT 2:



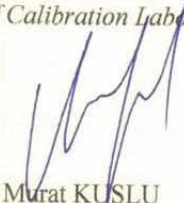
POINT 3:



POINT 4:



ANNEX 4: NOISE EQUIPMENT CALIBRATION CERTIFICATE

TÜRKAK TÜRK AKREDİTASYON KURUMU TURKISH ACCREDITATION AGENCY <i>tarafından akredite edilmiş</i> KALİBRASYON ÖLÇÜM EĞİTİM VE DANIŞMANLIK HİZMETLERİ TİCARET LTD. ŞTİ. KALİBRASYON LABORATUVARI		 Kalibrasyon TS EN ISO/IEC 17025 AB-0078-K
		AB-0078-K 204/2011 06-11
Mehmet Akif Mh, Tavukçuyolu Cd. No: 150/1 Ümraniye İSTANBUL Telefon: 0216 415 4949 (Pbx), Faks: 0216 415 4950 e-posta: info@protos.com.tr, internet: www.protos.com.tr		
Kalibrasyon Sertifikası Calibration Certificate		
Cihazın Sahibi/ adresi <i>Customer / address</i>	: SEGAL Çevre Ölçüm Ve Analiz Lab. Müh. Müş. Proj. Hiz. San. Tic. Ltd. Şti. Aşağı Öveçler Mah. 1322. Cad. (eski 6. Cad.) No:12/11-12 Çankaya / ANKARA	
Talep Numarası <i>Order Number</i>	: 150/2011	
Makine/Cihaz <i>Instrument/Device</i>	: Ses Seviyesi Ölçer	
İmalatçı <i>Manufacturer</i>	: SVANTEK	
Tip <i>Type</i>	: SVAN 957	
Seri Numarası <i>Serial Number</i>	: 21412	
Kalibrasyon Tarihi <i>Date of Calibration</i>	: 08.06.2011	
Sertifikanın Sayfa Sayısı <i>Number of pages of the Certificate</i>	: 5	
Bu kalibrasyon sertifikası, Uluslararası Birimler Sisteminde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği belgeler. <i>This calibration certificate documents the traceability to national standards, which realize the unit of measurement according to the International System of Units (SI).</i>		
Türk Akreditasyon Kurumu (TÜRKAK) kalibrasyon sertifikalarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanınma antlaşmasını imzalamıştır. <i>The Turkish Accreditation Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation(EA) and of the International Laboratory Accreditation(ILAC) for the Mutual recognition of calibration certificates.</i>		
Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir. <i>The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.</i>		
Mühür <i>Seal</i>	Tarih <i>Date</i>	Kalibrasyonu Yapan <i>Calibrated by</i>
	09.06.2011	Erdem YILDIZ
		Laboratuvar Müdürü V. <i>Head of Calibration Laboratory</i>
		 Murat KUŞLU
Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. <i>This certificate shall not be reproduced other than in full except with the permission of the laboratory.</i>		Sayfa 1/5 FR510.02
Calibration certificates without signature and seal are not valid.		



1. Test Edilen Cihaz

Adı	Üretici	Model / Tip	Seri No	Ölçme aralığı veya Tanımlama
Ses Düzeyi Ölçer (Aşağıdaki Mikrofon ve Ön Yükselteç ile)	SVANTEK	SVAN 957	21412	Sınıf : 1 Frekans Ağırlığı : A, C, Lin Zaman Ağırlığı : F:Hızlı, S:Yavaş
Ön Yükselteç	SVANTEK	SV 12L	22344	
Mikrofon	SVANTEK	ACO	7052H	

2. Kalibrasyonun Yapıldığı Yer : Protos Kalibrasyon Laboratuvarı

3. Cihazın Laboratuvara Kabul Tarihi : 06.06.2011

4. Kalibrasyonda Kullanılan Referans Cihazlar :

Adı	Üretici	Model / Tip	Seri No	İzlenebilirlik
Çok Fonksiyonlu Akustik Kalibratör	B&K	4226	2692346	TÜBİTAK UME, G2AK0303-30.11.2010

5. Kalibrasyon Prosedürü : PR504.08 SLM Kalibrasyon Prosedürü
Ses düzeyi ölçerin (SLM) A-Ağırlıklı, C-Ağırlıklı ve Lin filtrelerinin 31,5 Hz-16 kHz frekans aralığında tepkileri, doğrusallığı, F:Fast ve S:Slow zaman ağırlıklarının tepkileri, Crest Faktörü CF=3 ve bir saatlik çalışmada kararlılığı kontrol edildi.

Kalibrasyon sırasında referans cihaz tarafından üretilen ses basınç düzeyi değerleri ortam şartlarına göre düzeltilerek dikkate alınmıştır.

6. Çevre Şartları

Sıcaklık: (23 ± 1) °C

Bağıl Nem:%(51±5,0)

Basınç: (997±1,0)mbar



Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

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Sayfa 2/5

FR510.02



7. Kalibrasyon Sonuçları

Tablo 1. SLM A-ağırlıklı filtrenin frekans tepkileri sonuçları

Frekans (Hz)	Nominal SPL (dB)	A-ağırlıklı filtrenin karakteristiği (dB)	Hesaplanan SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)
31.5	94,0	-39,4	54,6	55,0	0,4	± 2,0
63	94,0	-26,2	67,8	68,1	0,3	± 1,5
125	94,0	-16,1	77,9	78,1	0,2	± 1,5
250	93,9	-8,6	85,3	85,5	0,2	± 1,4
500	93,9	-3,2	90,7	90,9	0,2	± 1,4
1000	94,0	0,0	94,0	94,0	0,0	± 1,1
2000	94,0	1,2	95,2	95,3	0,1	± 1,6
4000	93,9	1,0	94,9	95,1	0,2	± 1,6
8000	93,9	-1,1	92,8	92,4	-0,4	+2,0;-3,1
12500	94,1	-4,3	89,8	85,9	-3,9	+3,0;-6,0
16000	94,1	-6,6	87,5	82,4	-5,1	+3,5;-17,0

Tablodaki değerler SLM A-ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

Tablo 2. SLM C-ağırlıklı filtrenin frekans tepkileri sonuçları

Frekans (Hz)	Nominal SPL (dB)	C-ağırlıklı filtrenin karakteristiği (dB)	Hesaplanan SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)
31.5	94,0	-3,0	91,0	91,4	0,4	± 2,0
63	94,0	-0,8	93,2	93,4	0,2	± 1,5
125	94,0	-0,2	93,8	94,0	0,2	± 1,5
250	93,9	0,0	93,9	94,1	0,2	± 1,4
500	93,9	0,0	93,9	94,1	0,2	± 1,4
1000	94,0	0,0	94,0	94,0	0,0	± 1,1
2000	94,0	-0,2	93,8	94,0	0,2	± 1,6
4000	93,9	-0,8	93,1	93,3	0,2	± 1,6
8000	93,9	-3,0	90,9	90,5	-0,4	+2,0;-3,1
12500	94,1	-6,2	87,9	84,0	-3,9	+3,0;-6,0
16000	94,1	-8,5	85,6	80,4	-5,2	+3,5;-17,0

Tablodaki değerler SLM C-ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.
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Sayfa 3/5

FR510.02



Tablo 3. SLM Lin filtresinin frekans tepkileri sonuçları

Frekans (Hz)	Nominal SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)
31.5	94,0	94,4	0,4	± 2,0
63	94,0	94,3	0,3	± 1,5
125	94,0	94,2	0,2	± 1,5
250	93,9	94,1	0,2	± 1,4
500	93,9	94,1	0,2	± 1,4
1000	94,0	94,0	0,0	± 1,1
2000	94,0	94,1	0,1	± 1,6
4000	93,9	94,0	0,1	± 1,6
8000	93,9	93,3	-0,6	+2,0;-3,1
12500	94,1	90,4	-3,7	+3,0;-6,0
16000	94,1	89,2	-4,9	+3,5;-17,0

Tablodaki değerler SLM Lin -ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

Tablo 4. SLM 1 kHz'deki doğrusallık kontrolü sonuçları

Frekans (Hz)	Uygulanan		Ölçülen		Tepki Farkı (dB)	Tolerans (dB)
	SPL (dB)	Seviye Artışı (dB)	SPL (dB)	Seviye Artışı (dB)		
1000	94,0	0,0	94,0	0,0	0,0	±0,8
	104,0	10,0	104,1	10,1	0,1	
	114,0	20,0	114,1	20,1	0,1	

Tablodaki değerler SLM A-ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

Tablo 5. SLM Zaman Ağırlıklı filtrelerinin Hızlı (Fast) ve Yavaş (Slow) Kontrolü Sonuçları

Frekans (Hz)	Hızlı				Yavaş			
	Nominal SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)	Nominal SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)
1000	105,0	105,0	0,0	±0,8	101,9	102,0	0,1	±0,8
2000	105,0	105,0	0,0		101,9	102,0	0,1	
4000	105,0	105,0	0,0		101,9	102,0	0,1	

Tablodaki değerler SLM A-ağırlıklı filtre modunda iken elde edilmiştir.

Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.
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Tablo 6. SLM “Crest Factor CF=3” Kontrolü Sonuçları

Frekans (Hz)	Nominal SPL (dB)	Ölçülen SPL (dB)	Tepki Farkı (dB)	Tolerans (dB)
2000	94,0	94,2	0,2	±0,5
	104,0	104,2	0,2	

Tablodaki değerler SLM A-ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

Tablo 7. SLM Bir saatlik çalışmasında okunan değerdeki en büyük sapma sonuçları

Nominal SPL (dB)	Ölçülen SPL (dB)	En büyük sapma * (dB)	Tolerans (dB)
94,0	94,0	0,0	± 0,5

*En büyük sapma, ölçülen değerdeki bir saatlik okuma süresi boyunca ki değişimdir.

Tablodaki değerler SLM A-ağırlıklı filtre ve Fast modunda iken elde edilmiştir.

8. Ölçüm Belirsizliği

Ses düzeyi ölçerin kalibrasyonundaki belirsizlik 0,2 dB'dir.

Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve %95 oranında güvenilirlik sağlamaktadır.

9. Görüşler, Açıklamalar ve Uygunluk Beyanı

Ölçüm sonuçları IEC 61672-1 standartında 1.Sınıf Ses Düzeyi Ölçerler için verilen toleranslarla karşılaştırılmıştır. Cihazın ölçülen özelliklerinin IEC 61672-1 standartında 1.Sınıf Ses Düzeyi Ölçerler için belirtilen şartlara uygun olduğu tespit edilmiştir.

Kalibrasyon sonuçları sadece kalibrasyonu yapılan ses düzeyi ölçer cihazına aittir. Cihazın performansı için gerekli çevre şartlarında kullanımından ve uygun aralıklarla kalibrasyonunun sağlanmasından kullanıcı sorumludur.



ANNEX 5: NOISE CALIBRATOR CERTIFICATE

TÜRKAK TÜRK AKREDİTASYON KURUMU TURKISH ACCREDITATION AGENCY <i>tarafından akredite edilmiş</i> KALİBRASYON ÖLÇÜM EĞİTİM VE DANIŞMANLIK HİZMETLERİ TİCARET LTD. ŞTİ. KALİBRASYON LABORATUVARI Mehmet Akif Mh. Tavukçuyolu Cd. No: 150/1 Ümraniye İSTANBUL Telefon: 0216 415 4949 (Pbx), Faks: 0216 415 4950 e-posta: info@protos.com.tr, internet: www.protos.com.tr		 Kalibrasyon TS EN ISO/IEC 17025 AB-0078-K
PROTOS		AB-0078-K 205/2011 06-11
Kalibrasyon Sertifikası Calibration Certificate		
Cihazın Sahibi/ adresi <i>Customer / address</i>	: SEGAL Çevre Ölçüm Ve Analiz Lab. Müh. Müş. Proj. Hiz. San. Tic. Ltd. Şti. Aşağı Öveçler Mah. 1322. Cad. (eski 6. Cad.) No:12/11-12 Çankaya / ANKARA	
Talep Numarası <i>Order Number</i>	: 150/2011	
Makine/Cihaz <i>Instrument/Device</i>	: Ses Kalibratörü	
İmalatçı <i>Manufacturer</i>	: SVANTEK	
Tip <i>Type</i>	: SV 30A	
Seri Numarası <i>Serial Number</i>	: 22502	
Kalibrasyon Tarihi <i>Date of Calibration</i>	: 08.06.2011	
Sertifikanın Sayfa Sayısı <i>Number of pages of the Certificate</i>	: 3	
Bu kalibrasyon sertifikası, Uluslararası Birimler Sisteminde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği belgeler. <i>This calibration certificate documents the traceability to national standards, which realize the unit of measurement according to the International System of Units (SI).</i>		
Türk Akreditasyon Kurumu (TÜRKAK) kalibrasyon sertifikalarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanınma antlaşmasını imzalamıştır. <i>The Turkish Accreditation Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation(EA) and of the International Laboratory Accreditation(ILAC) for the Mutual recognition of calibration certificates.</i>		
Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir. <i>The measurements, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.</i>		
Mühür <i>Seal</i>	Tarih <i>Date</i>	Kalibrasyonu Yapan <i>Calibrated by</i>
	09.06.2011	 Erdem YILDIZ
		Laboratuvar Müdürü V. <i>Head of Calibration Laboratory</i>  Murat KUŞLU
Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz sertifikalar geçersizdir. <i>This certificate shall not be reproduced other than in full except with the permission of the laboratory.</i> <i>Calibration certificates without signature and seal are not valid.</i>		
		Sayfa 1/3 FR510.02



1. Test Edilen Cihaz

Adı	Üretici	Model / Tip	Seri No	Ölçme aralığı veya Tanımlama
Ses Kalibratörü	SVANTEK	SV 30A	22502	Sınıf : 1 Frekans: 1000 Hz Seviye : 94dB, 114 dB

2. Kalibrasyonun Yapıldığı Yer

: Protos Kalibrasyon Laboratuvarı

3. Cihazın Laboratuvara Kabul Tarihi

: 06.06.2011

4. Kalibrasyonda Kullanılan Referans Cihazlar :

Adı	Üretici	Model / Tip	Seri No	İzlenebilirlik
Kapasitif Mikrofon	B&K	4192	2686160	TÜBİTAK UME G2AK-0257, 07.10.2010

5. Kalibrasyon Prosedürü

: PR504.09 SLK Kalibrasyon Prosedürü

Ses kalibratörünün (SLK) kalibrasyonu referans mikrofon kullanılarak karşılaştırma yöntemi ile yapılmıştır. Ses Kalibratörün ürettiği ses basınç düzeyleri ve frekansı ile seviye ve frekans kararlılığı kontrol edildi.

Kalibrasyon sırasında referans cihaz tarafından üretilen ses basınç düzeyi değerleri ortam şartlarına göre düzeltilerek dikkate alınmıştır.

6. Çevre Şartları

Sıcaklık: (23±1,0) °C

Bağıl Nem: (49±5,0)

Basınç: (997±1,0)mbar

7. Kalibrasyon Sonuçları

Tablo 1. SLK Seviye Kontrolü Sonuçları

Nominal Değer (dB)	Ölçülen Değer (dB)	Tolerans (dB)	Seviye Kararlılığı (dB)		Tolerans (dB)
			UL-ML	LL-ML	
94,00	94,21	± 0,4	0,006	0,008	± 0,1
114,00	114,11		0,005	0,008	

UL-ML : 20 saniye süresince kalibratörün en yüksek seviyesi ile ortalama seviyesi arasındaki fark

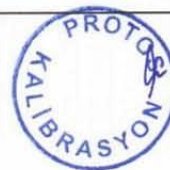
LL-ML : 20 saniye süresince kalibratörün en küçük seviyesi ile ortalama seviyesi arasındaki fark

Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.

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FR510.02



Tablo 2. SLK Frekans Kontrolü Sonuçları

Nominal Değer (Hz)	Ölçülen Değer (Hz)	Tolerans (%)	Seviye (dB)	Frekans Kararlılığı (%)	
				UF-MF	LF-MF
1000,00	999,99	± 1,0	94,0	0,010	0,008
	999,98		114,0	0,010	0,003

UL-ML : 20 saniye süresince kalibratörün en yüksek frekansı ile ortalama frekansı arasındaki fark

LL-ML : 20 saniye süresince kalibratörün en küçük frekansı ile ortalama frekansı arasındaki fark

8. Ölçüm Belirsizliği

Ses kalibratörün seviye belirlenmesindeki belirsizlik 0,13 dB'dir.

Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin k=2 olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunan değerdir ve %95 oranında güvenilirlik sağlamaktadır.

9. Görüşler, Açıklamalar ve Uygunluk Beyanı

Ölçüm sonuçları IEC 60942 standartında 1.Sınıf Ses Kalibratörleri için verilen toleranslarla karşılaştırılmıştır. Cihazın ölçülen özelliklerin IEC 60942 standartında 1.Sınıf Ses Kalibratörleri için belirtilen şartlara uygun olduğu tespit edilmiştir.



ANNEX – 6: COMPLIANCE CERTIFICATE

	T.C. ÇEVRE VE ORMAN BAKANLIĞI Çevre Yönetimi Genel Müdürlüğü	
ÇEVRE ÖLÇÜM VE ANALİZLERİ ÖN YETERLİK BELGESİ		
Belge No	:	ÖY-06/203/2010
Kapsam	:	Su-Atık Su, Denizsuyu, Mikrobiyolojik Analizler, Atık, Su-Atıksu Numune Alma, İmisyon, Gürültü
Düzenleme Tarihi	:	09.08.2010
Laboratuvar Adı	:	SEGAL Çevre Ölçüm ve Analiz Laboratuvar Ltd.Şti.
Adres	:	Aşağı Öveçler Mah. 1322. Cad. No. 12/11-12 Çankaya/ANKARA
4856 Sayılı Çevre ve Orman Bakanlığı Kuruluş ve Görevleri Hakkında Kanun gereği yukarıda açık adı ve adresi belirtilen kurum/kuruluş Ek Liste'de belirtilen kapsamda 5 Eylül 2008 tarih ve 26988 sayılı R.G.'de yayımlanan Çevre Ölçüm ve Analiz Laboratuvarları Yeterlik Yönetmeliği'ne göre ölçüm ve/veya analiz yapmaya ve bu çerçevede rapor hazırlamaya yetkilidir.		
BELGENİN		
BAŞLANGIÇ TARİHİ	:	13.08.2010
BİTİŞ TARİHİ	:	13.08.2012
EK: PARAMETRE LİSTESİ (6 Sayfa)		Revizyon Tarihi/No: - Yenileme Tarihi/No:
		 Prof. Dr. Lütfi AKÇA Bakan a. Genel Müdür

ANNEX – 7 DIGITAL THERMOMETER AND MOISTURE MEASUREMENT DEVICE

TÜRKAK
TÜRK AKREDİTASYON KURUMU
TURKISH ACCREDITATION AGENCY
tarafından akredite edilmiştir.

UMS **UZMANLAR METROLOJİ SERVİSİ**
ANKARA KALİBRASYON LABORATUVARI
Cevat Dündar Cad. No: 19 METEM - Gölüm - ANKARA

KALİBRASYON SERTİFİKASI
Calibration Certificate




AB-0012-K
M11S26944
02.11

Cihazın Sahibi Customer	SEGAL ÇEVRE ÖLÇÜM VE ANALİZ LAB.MÜH.MÜŞ. PROJ.HİZ.SAN.VE LTD.ŞTİ. Aşağı Öveçler Mah.1322 Cad.No:12/11-12 Öveçler-Çankaya / ANKARA
İstek Numarası Order No	TA 11/0374-L01
Makine/Cihaz Instrument/Device	TERMO - HYGROMETRE
İmalatçı Manufacturer	TFA
Tip Type	- / Dijital
Seri Numarası Serial Number	S.47
Kalibrasyon Tarihi Date Of Calibration	18.02.2011
Sertifikanın Sayfa Sayısı Number of pages of the Certificate	3

Bu kalibrasyon sertifikası, Uluslararası Birimler Sisteminde (SI) tanımlanmış birimleri realize eden ulusal ölçüm standartlarına izlenebilirliği belgeler.
This calibration certificate documents the metrology to national standards, which realize the unit of measurement according to the International System of Units (SI).

Türk Akreditasyon Kurumu (TÜRKAK) kalibrasyon sertifikalarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşmasını imzalamıştır.
The Turkish Accreditation Agency (TÜRKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of calibration certificates.

Ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ve kalibrasyon metodları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The measurement results, the uncertainties with confidence probability and calibration methods are given on the following pages which are part of this certificate.

Mühür
Seal



Tarih
Date

Kalibrasyonu Yapan
Calibrated by



Gamze YILDIRIM

Laboratuvar Müdürü
Head of the Calibration Laboratory



Hikmet TERZİ

Bu sertifika, laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.
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faks: +90 312 385 50 93 tel: +90 312 385 50 78 web sitesi: www.ums.com.tr e-posta: umsankara@ums.com.tr

FORM 02-04 Reviz:02 **Nº 025204** Sayfa: 01

1. Cihaza ait bilgiler

Information about the object
Bölüntü değeri:
Resolution / Scale division

%1RH

0,1°C

2. Cihazın laboratuara kabul tarihi

Date of receipt of device
18.02.2011

3. Prosedür

Procedure

Cihaz, karşılaştırma metodu ile ITS90 sıcaklık skalasına göre kalibre edilmiştir. UMS SOP 03-36 kalibrasyon prosedürü kullanılmıştır.

Object is calibrated by comparison method according to ITS90 temperature scale. UMS SOP 03-36 calibration procedure is used.

Nem kabini içerisinde oluşturulan ortamın gerçek nem değerleri, referans cihaz ile ölçülerek test cihazından okunan değerler ile karşılaştırılmıştır. UMS SOP 03-41 kalibrasyon prosedürü kullanılmıştır.

The true humidity values of the ambient conditions realized in the humidity chamber are measured once with the reference equipment and compared with the test object readings. UMS SOP 03-41 calibration procedure is used.

4. Kalibrasyonda kullanılan referans cihazlar

Reference equipment used during calibration

Cihaz Object	İmalatçısı Manufacturer	Model Model	Seri/Kod No Serial/Code Number	Sertifika No Certificate No	Ölç.Belirsizliği uncertainty	İzlenebilirlik Traceability
Sıcaklık-nem ölçer	TESTO	625/Dijital	-/USR19-A	M10S23745	±2,0 RH ±0,8 °C	TESTO DKD-K-11201

5. Çevre şartları

Environmental conditions

Sıcaklık: (22±3)°C
Temperature

Nem: (50±20)%RH
Humidity

6. Ölçüm sonuçları

Measurement results

İ takip eden sayılarda verimştir.
Given in the following pages

7. Ölçüm belirsizliği

Measurement uncertainty

Beyan edilen genişletilmiş ölçüm belirsizliği, standart belirsizliğin $k=2$ olarak alınan genişletme katsayısı ile çarpımı sonucunda bulunanı değerdir ve %95 oranında güvenilirlik sağlamaktadır. Bu sertifikada beyan edilen sonuçlar cihazın kalibrasyon tarihindeki durumunu kapsar ve uzun dönem stabilitesi hakkında bir yorum içermez.

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$ which for a normal distribution corresponds to a coverage probability of approximately 95 %. The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



Ölçüm sonuçları
Measurement results

Referans Cihaz Reference Equipment °C	Test Cihazı Test Object °C	Sapma Deviation °C	Belirsizlik Uncertainty ± °C
20,5	20,6	0,1	0,8
22,0	21,8	-0,2	0,8
23,4	23,2	-0,2	0,8

Referans Cihaz Reference Equipment % RH	Test Cihazı Test Object % RH	Sapma Deviation % RH	Belirsizlik Uncertainty ± % RH
36,9	40	3,1	3,3
45,0	47	2,0	3,3
51,0	53	2,0	3,3
55,6	58	2,4	3,3
60,9	60	-0,9	3,3

Gerektiğinde yorum, açıklama:
Comment if necessary:

Ayar yapıldı ise ayardan önceki değerler:
Values before adjustment, if done

Referans Cihaz	Test Cihazı	Sapma
°C	°C	°C
%RH	%RH	%RH



ANNEX – 8: AUTHORITY DOCUMENT



TMMOB FİZİK MÜHENDİSLERİ ODASI BAŞARI BELGESİ

Sayın Satılmış DOĞAN

TMMOB Fizik Mühendisleri Odası ile Çevre ve Orman Bakanlığı işbirliği ile 16-19 Eylül 2010 tarihleri arasında Fizik Mühendisleri Odası tarafından gerçekleştirilen

“A-2 Tipi Mühendislik Akustigi”

Sertifika Programına katılarak “BAŞARILT” olmuştur .


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Kimyager ünvanı almaya hak kazanmıştır.

İsmail Girgin
Prof. Dr. İsmail Girgin
Dekan v.

Prof. Dr. Hamide Uygul
Prof. Dr. Hamide Uygul
Rektör v.



TMMOB FİZİK MÜHENDİSLERİ ODASI BAŞARI BELGESİ

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Cemal Taluğ

Prof. Dr. Cemal TALUĞ
Rektor

ANNEX – 10: AUTHORITY DOCUMENT



TMMOB
FİZİK MÜHENDİSLERİ ODASI
BAŞARI BELGESİ



Sayın Fevzi KARAKAYA

TMMOB Fizik Mühendisleri Odası ile Çevre ve Orman Bakanlığı işbirliği ile 31 Mart – 03 Nisan tarihleri arasında Fizik Mühendisleri Odası tarafından gerçekleştirilen

“A-2 Tipi Mühendislik Akustiği”

Sertifika Programına katılarak “BAŞARILI” olmuştur .

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Belge Kodu: FMO2 Belge No:226 Veriliş Tarihi: 03 NİSAN 2011

APPENDIX-4
ENVIRONMENTAL AND SOCIAL ACTION PLAN



**ATM HEALTH KAYSERİ
INVESTMENT AND OPERATION COMPANY**

**KAYSERİ
INTEGRATED HEALTH CAMPUS PROJECT**

**ENVIRONMENTAL AND
SOCIAL
ACTION PLAN**



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE LIMITED COMPANY**

MARCH/2012

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3. Environmental and Social Action Plan	5
4. Environmental and Social Action Plan	8

Abbreviations

ATM	ATM Kayseri Health Investment and Operation Company
ESAP	Environmental and Social Action Plan
IFC	International Finance Corporation
PS	Performance Standards

1. Introduction

The aim of Environmental and Social Action Plan prepared for Kayseri Integrated Health Campus is establish general action plan in order to fulfill the requirements of International Finance Corporation.

ESAP is presenting application plan of actions for the potential positive and negative impacts of the project. In order to do this, all project cycle like construction and operation needed to be evaluated under the IFC requirements.

Besides IFC requirements, Turkish and European Legislation is also considered during ESAP establishment. For this reason, ESAP will also consist of precautions that are mentioned in Environmental and Social Impact Assessment Report of Kayseri Integrated Health Campus.

ESAP designates action plans in order to prevent and/or control environmental and social impacts of Kayseri Integrated Health Campus Project. Moreover, ESAP evaluates legal framework, responsibilities and scheduling of preventing and controlling actions for successful implementations. Detailed implementation plans and procedures of ESAP are evaluated in Appx-5, which is done in the Environmental Management Plan.



2. Pre-investment Phase Environmental and Social Action Plan

ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
1. Environmental and Social Assessment and Management Systems				
1.1	Establishing Environmental and Social Management Systems	IFC PS 1	- Implementation of ISO 14001 and ISO 18001 management systems of ATM	- ATM
1.2	Preparing training program and Environmental and Social Management Plans	IFC PS 1	- Implementation of Environmental and Social Management Plans (construction and operation) - Implementations monitoring	- ATM
1.3	Getting Legal Permits (Environmental Permit, etc.)	Regulation about Environmental Permit and Licenses that have to be Obtained as per the <i>Environment Law</i> IFC PS 1	- Completion of legal permits - Monitoring	- ATM and authority
2. Labor and Working Conditions				
2.1	Establishing human resources policy appropriate to required labor force (hiring, selection of personnel, compensations, working hours, etc.)	Labor Law IFC PS 2	- Preparation and implementation of human resources policy	- ATM and authority
2.2	Preparing Occupational Health and Safety Plans (risk analysis, personal protective equipment, hazard communication, etc.)	Temporary or Certain Time Limited Occupational Health and Safety Regulation IFC PS 2	- Implementation of ATM's 18001 management system plan and procedures - Field monitoring	- ATM and authority
2.3	Preparing Accident/Event Investigation procedures (root cause analyses, near miss reporting, etc.)	IFC PS 2	- Implementation of ATM's 18001 management system plan and procedures - Field monitoring	- ATM
2.4	Preparing Sub-contractor selection procedures	Labor Law IFC PS 2	- Sub-contractor consistency monitoring	- ATM



ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
3. Pollution Prevention and Abatement				
3.1	Preparing Waste management plans and implementations (hazardous waste management plan, non-hazardous and inert waste management plan, medical wastes, etc.)	General Principles about Waste Management Regulation Solid waste control regulation Packaging Waste Control Regulation Waste Oil Control Regulation Waste Batteries and Accumulators Control Regulation Hazardous Waste Control Regulation Medical Waste Control Regulation IFC PS 3 EU Directive 75/442/EEC EU Directive 1991/689/EEC EU Directive 94/62/EC	- Construction monitoring reports - Waste delivery protocols - Waste transport forms - Legal applications and legal notices	- ATM
3.2	Preparing Soil quality and excavation soil management plans and implementations (transport, storage, landscape, etc.)	Excavation Soil, Construction and Demolition Wastes Control Regulation IFC PS 3	- Construction monitoring reports - Soil analyses	- ATM
3.3	Preparing Water and wastewater management plans and implementations (domestic wastewater, surface water and ground water quality, wastewater of concrete plant, etc.)	Water Pollution Control Regulation IFC PS 3 EU Directive 2000/60/EC	- Construction monitoring reports - Sewer connection permit - Legal applications - Surface water and ground water analyses	- ATM and authority
4. Community Health, Safety and Security				
4.1	Developing and implementing procedures to protect health and safety of local people Developing field security plans	IFC PS 4	- Construction monitoring reports - Request and grievance mechanism	- ATM
4.2	Establishing of general rules for employee camp area	IFC PS 4	- Implementation and improving of rules by use of monthly monitoring reports	- ATM



ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
5. Land Acquisition and Involuntary Resettlement				
5.1	Project area has been alienated to Ministry of Health and on 10 August 2011, Ministry of Health and ATM signed the contract for estate assignment.			
6. Biodiversity Conservation and Sustainable Natural Resource Management				
6.1	Preparing Landscape management plan (protection existing trees and new plantation works, etc.)	IFC PS 6 EU Directive 92/43/EEC	- Construction monitoring reports	- ATM
7. Indigenous Peoples				
7.1	There are no residents in the vicinity of project area.			
8. Cultural Heritage				
8.1	Preparing Archeological Chance Find Procedure	Protection of Cultural and Natural Properties Law and Related Regulations IFC PS 8	- Construction monitoring reports	- ATM



3. Construction Phase Environmental and Social Action Plan

ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
1. Environmental and Social Assessment and Management Systems				
1.1	Implementing Environmental and Social Management Systems	IFC PS 1	- Implementation of ISO 14001 and ISO 18001 management systems of ATM	- ATM
1.2	Assigning full-time certified Occupational Health and Safety expert during the Construction Phase	Occupational Health and Safety Services Regulation, IFC PS 2	- Appointment of certified Occupational Health and Safety expert	- ATM
1.3	Providing independent environmental consultation from consultancy company certified by Environment and Urbanization Ministry	Regulation About Environmental Officer and Environmental Consultancy Companies IFC PS 3	- Appointment of authorized Environmental Consultancy company	- ATM
1.4	Implementing Environmental and Social Management Plans	IFC PS 1	- Implementation of Environmental and Social Management Plans (construction and operation) - Implementations monitoring	- ATM and authority
1.5	Implementing Legal Permits (Environmental Permit, etc.)	Regulation about Environmental Permit and Licenses that have to be Obtained as per the <i>Environment Law</i> IFC PS 1	- Completion of legal permits - Monitoring	- ATM and authority
2. Labor and Working Conditions				
2.1	Implementing human resources policy appropriate to required labor force (hiring, selection of personnel, compensations, working hours, etc.)	Labor Law IFC PS 2	- Preparation and implementation of human resources policy	- ATM and authority
2.2	Implementing Occupational Health and Safety Plans (risk analysis, personal protective equipment, hazard communication, etc.)	Temporary or Certain Time Limited Occupational Health and Safety Regulation IFC PS 2	- Implementation of ATM's 18001 management system plan and procedures - Field monitoring	- ATM



ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
2.3	Implementing Accident/Event Investigation procedures (root cause analyses, near miss reporting, etc.)	IFC PS 2	- Implementation of ATM's 18001 management system plan and procedures - Field monitoring	- ATM
2.4	Implementing sub-contractor selection procedures	Labor Law IFC PS 2	- Sub-contractor consistency monitoring	- ATM
3. Pollution Prevention and Abatement				
3.1	Implementing air quality control (dust, exhaust gas of construction vehicles, etc.)	Industrial Source Air Pollution Control Regulation Exhaust Gas Emission Control Regulation IFC PS 3 EU Directive 96/62/EC	- Construction monitoring reports - Dust measurements	- ATM and authority
3.2	Implementing noise control (construction vehicles and equipment, etc.)	Environmental Noise Assessment And Management Regulation IFC PS 3 EU Directive 2002/49/EC	- Construction monitoring reports - Noise measurements	- ATM
3.3	Implementing waste management plans and implementations (hazardous waste management plan, non-hazardous and inert waste management plan, medical wastes, etc.)	General Principles about Waste Management Regulation Solid waste control regulation Packaging Waste Control Regulation Waste Oil Control Regulation Waste Batteries and Accumulators Control Regulation Hazardous Waste Control Regulation Medical Waste Control Regulation IFC PS 3 EU Directive 75/442/EEC EU Directive 1991/689/EEC EU Directive 94/62/EC	- Construction monitoring reports - Waste delivery protocols - Waste transport forms - Legal applications and legal notices	- ATM and authority



ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
3.4	Implementing soil quality and excavation soil management plans and implementations (transport, storage, landscape, etc.)	Excavation Soil, Construction and Demolition Wastes Control Regulation IFC PS 3	- Construction monitoring reports - Soil analyses	- ATM
3.5	Implementing water and wastewater management plans and implementations (domestic wastewater, surface water and ground water quality, wastewater of concrete plant, etc.)	Water Pollution Control Regulation IFC PS 3 EU Directive 2000/60/EC	- Construction monitoring reports - Sewer connection permit - Legal applications - Surface water and ground water analyses	- ATM and authority
4. Community Health, Safety and Security				
4.1	Developing and implementing procedures to protect health and safety of local people Developing field security plans	IFC PS 4	- Construction monitoring reports - Request and grievance mechanism	-
4.2	Implementing of general rules for employee camp area	IFC PS 4	- Implementation and improving of rules by use of monthly monitoring reports	- ATM
5. Biodiversity Conservation and Sustainable Natural Resource Management				
5.1	Implementing landscape management plan (protection existing trees and new plantation works, etc.)	IFC PS 6 EU Directive 92/43/EEC	- Construction monitoring reports	- ATM
6. Cultural Heritage				
6.1	Implementing Archeological Chance Find Procedure development	Protection of Cultural and Natural Properties Law and Related Regulations IFC PS 8	- Construction monitoring reports	- ATM



4. Operation Phase Environmental and Social Action Plan

ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
1. Environmental and Social Assessment and Management Systems				
1.1	Providing independent environmental consultation from consultancy company certified by Environment and Urbanization Ministry	Regulation About Environmental Officer and Environmental Consultancy Companies IFC PS 3	- Appointment of authorized Environmental Consultancy company	- ATM
1.2	Establishing Environmental and Social Management Plans	IFC PS 1	- Implementation of Environmental and Social Management Plans (construction and operation) - Implementations monitoring	- ATM
1.3	Implementing Legal Permits (Environmental Permit, etc.)	Regulation about Environmental Permit and Licenses that have to be Obtained as per the <i>Environment Law</i> IFC PS 1	- Completion of legal permits - Monitoring	- ATM and authority
2. Labor and Working Conditions				
2.1	Establishing human resources policy appropriate to required labor force (hiring, selection of personnel, compensations, working hours, etc.)	Labor Law IFC PS 2	- Preparation and implementation of human resources policy	- ATM



ENVIRONMENTAL AND SOCIAL ACTION PLAN				
	Issue/Action	Legal Framework IFC Performance Standards	Measure of Success Evaluation	Responsibilities
3. Pollution Prevention and Abatement				
3.1	Implementing waste management plans and implementations (hazardous waste management plan, non-hazardous and inert waste management plan, medical wastes, etc.)	General Principles about Waste Management Regulation Solid waste control regulation Packaging Waste Control Regulation Waste Oil Control Regulation Waste Batteries and Accumulators Control Regulation Hazardous Waste Control Regulation Medical Waste Control Regulation IFC PS 3 EU Directive 75/442/EEC EU Directive 1991/689/EEC EU Directive 94/62/EC	- Construction monitoring reports - Waste delivery protocols - Waste transport forms - Legal applications and legal notices	- ATM
3.2	Implementing water and wastewater management plans and implementations (domestic wastewater, surface water and ground water quality, wastewater of concrete plant, etc.)	Water Pollution Control Regulation IFC PS 3 EU Directive 2000/60/EC	- Construction monitoring reports - Sewer connection permit - Legal applications - Surface water and ground water analyses	- ATM and authority
4. Community Health, Safety and Security				
4.1	Developing and implementing procedures to protect health and safety of local people Developing field security plans	IFC PS 4	- Construction monitoring reports - Request and grievance mechanism	- ATM
5. "Biodiversity Conservation and Sustainable Natural Resource Management				
5.1	Implementing landscape management plan (protection existing trees and new plantation works, etc.)	IFC PS 6 EU Directive 92/43/EEC	- Construction monitoring reports	- ATM

APPENDIX-5

**ENVIRONMENTAL MANAGEMENT PLAN AND
ENVIRONMENTAL MONITORING PLAN**



ATM HEALTH KAYSERI INVESTMENT AND OPERATION COMPANY

KAYSERI INTEGRATED HEALTH CAMPUS PROJECT

ENVIRONMENTAL MANAGEMENT PLAN



**MGS PROJECT CONSULTANCY
ENGINEERING TRADE COMPANY**

MARCH/2012

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ABBREVIATION LIST

ABBREVIATIONS	
AQAMR	Air Quality Assessment and Management Regulation
ATM	ATM Health Kayseri Investment and Operation Company
EDCP	Emission and Dust Control Plan
EEP	Environmental Education Plan
EMP	Environmental Management Plan
ENAMR	Environmental Noise Assessment Management and Regulation
EU	European Union
FMP	Fire Management Plan
HWCP	Hazardous Waste Control Regulation
IFC	International Finance Corporation
INSO	INSO System Per Le Infrastrutture Sociali S.P.A
NCP	Noise Control Plan
OHSP	Occupational Health and Safety Plan
OG	Official Gazette
TMP	Traffic Management Plan
WMP	Waste Management Plan
WPCR	Water Pollution Control Regulation
WWMP	Water and Wastewater Management Plan
YDA	YDA Construction Trade Company

1 INTRODUCTION

The Kayseri Integrated Health Campus Project which consists of Training Research Hospital, Physical Therapy and Rehabilitation Hospital, Psychiatry Hospital and High Security Forensic Psychiatry Hospital is planning to be established in the city of Kayseri

The project includes, a total capacity of 1548 beds composed of Training Research Hospital with 1048 beds, and Physical Therapy and Rehabilitation Hospital with 200 beds, and Psychiatry Hospital with 200 beds, and High Security Forensic Psychiatry Hospital with 100 beds.

The contract which belongs to Kayseri Integrated Health Campus Construction Works and Product and Service Procurement Work; is signed in 10 August 2011 between The Ministry of Health Public Private Participation (PPP) and **ATM Health Kayseri Investment and Operation Company** which established by YDA Construction Trade Company & INSO System Per Le Infrastrutture Sociali S.P.A joint venture.

Project partners have the certificates of ISO 14001 Environmental Management System and ISO 18001 Occupational Health and Safety Management System. YDA and INSO companies which are experienced in execution of similar projects, implement the necessities of ISO14001 and ISO 18001 Management systems in construction and operation steps of Kayseri Integrated Health Campus Project as usual.

The investment and operation period is planned as 3 years and 25 years respectively for Kayseri Integrated Health Campus Project.

2 THE AIM AND SCOPE OF THE ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP), is done in order to decrease the environmental effects of

- 1-** Before-construction (planning and designing of the project) and construction (whole construction activities) periods
- 2-** Operation period

of the Kayseri Integrated Health Campus Project and application of EMP is created for the accordance with the necessary monitoring and responsibility of the institutions.

EMP is involving

- Worksite
- Construction site
- Executive and social units

about the construction step of Kayseri Integrated Health Campus Project.

EMP is a kind of overall plan that, it is guideline documentation for the institutions which are responsible for the construction part of Kayseri Integrated Health Campus Project to do their own procedures about the issue.

Kayseri Integrated Health Campus Project consists of various steps and component which includes different activities. In order to successfully achieve the comprehensive standards and reliable environment performance for the project, all contractor/contractors must have the obligation of implementation about their own scope of contracts.

EMP is reconsidered and reorganized in below situations.

- a.** There is a change in the Environmental politics which the issues of project included,
- b.** The change in the project from the implementation unit,
- c.** The changes when the targeted environmental criteria does not satisfied,
- d.** Needed changes as a result of periodic examination.

3 LEGISLATION

3.1 National Legislation

Mentioned enterprise must comply with the judgements of 2872 numbered Environmental Law and all related legislation about this Law. While making the all steps of Kayseri Integrated Health Campus Project, overall stringent national legislation is given below.

- “Water Pollution Control Regulation” 31.12.2004 dated and 25687 numbered Official Gazette (O.G.),
- “Hazardous Materials Which Causes Pollution to Water and Its Around, Control Regulation” published in 26.11.2005 26005 sayılı numbered Official Gazette (O.G.),
- “Solid Waste Control Regulation” published in 14.03.1991 dated and 20814 numbered Official Gazette (O.G.),
- “Packaging Waste Control Regulation” published in 24.08.2011 dated and 28035 numbered Official Gazette (O.G.),
- “Industrial Source Air Pollution Control Regulation” published in 03.07.2009 dated and 27277 numbered Official Gazette (O.G.), (Revised: 30.03.2010 dated and 27537 numbered Official Gazette),
- “Air Quality Assessment and Management Regulation” published in 06.06.2008 dated and 26898 numbered Official Gazette (O.G.),
- “Old Tires Control Regulation” published in 25.11.2006 dated and 26357 numbered Official Gazette (O.G.), (Revised: 30.03.2010 dated and 27537 numbered Official Gazette (O.G.)),
- “Hazardous Wastes Control Regulation” published in 14.03.2005 dated and 25755 numbered Official Gazette (O.G.) (Revised: 30.03.2010 dated and 27537 numbered Official Gazette (O.G.)),
- “Waste Oil Control Regulation” published in 30.07.2008 dated and 26952 numbered Official Gazette (O.G.) (Revised: 30.03.2010 dated and 27537 numbered Official Gazette (O.G.)),
- “Excavation Soil, Construction and Demolition Wastes Control Regulation” published in 18.03.2004 dated and 25406 numbered Official Gazette (O.G.),
- “Soil Pollution Control Regulation and Regulation Regarding Areas Polluted by Point Source” published in 08.06.2010 dated and 27605 numbered Official Gazette (O.G.),
- “Medical Waste Control Regulation” published in 22.07.2005 dated and 25883 numbered Official Gazette (O.G.),

- “Regulation for Regular Storage for Wastes” published in 26.03.2010 dated and 27533 numbered Official Gazette (O.G.),
- “Protection of Wetland Regulation” published in 17.05.2005 dated and 25818 numbered Official Gazette (O.G.), (Revised: 26.08.2010 dated and 27684 numbered Official Gazette (O.G.),
- “Environmental Impact Assessment (EIA) Regulation” published in 7.07.2008 dated and 26939 numbered Official Gazette (O.G.),
- “Environmental Noise Assessment and Management Regulation” published in 04.06.2010 dated and 27601 numbered Official Gazette (O.G.),
- “Waste Batteries and Accumulator Control Regulation” published in 31.08.2004 dated and 25569 numbered Official Gazette (O.G.), (Revised: 30.03.2010 dated and 27537 numbered Official Gazette (O.G.),
- “Permissions and Licences have to be taken in regard to Environmental Law” published in 29.04.2009 dated and 27214 numbered Official Gazette (O.G.),
- 2863 numbered Protection of Cultural and Natural Properties Law and Related Regulations (3386 and 5226 numbered revision)
- 4857 numbered Labor Law and Related Regulations,
- “General Principles about Waste Management Regulation” published in 05.07.2008 dated and 26927 numbered Official Gazette (O.G.),
- “Exhaust Gas Emission Control Regulation” published in 04.04.2009 dated and 27190 numbered Official Gazette (O.G.),
- “Electric Heavy Current Facilities Regulation” published in 30.10.2000 dated and 24246 numbered Official Gazette (O.G.),
- “Occupational Health and Safety Services Regulation” published in 27.11.2010 dated and 27768 numbered Official Gazette (O.G.),
- “Temporary or Certain Time Limited Occupational Health and Safety Services Regulation” 22.05.2003 dated and 4857 numbered Official Gazette (O.G.).

3.2 International Legislation

For The Kayseri Integrated Health Campus Project, the criterias will be fitted according to International Finance Corporation (IFC) and World Bank criterias especially EU Directives. Overall stringent directives and information of standards are given below.

- IFC Performance Standards,
- EU EIA Directives, 85/337 EEC ve 97/11/EC Directive revision,
- “Air Quality Framework Directive”, 96/62/EC,
- “Water Framework Directive”, 2000/60/EC),
- “Directive on Environmental Noise”, 2002/49/EC,

- “Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora”, 92/43/EEC,
- “Directive on the Conservation of Wild Birds”, 79/409/EEC,
- “Commission Decision Concerning a Site Information Format for Proposed Natura 2000 Sites”, 97/266/EC,
- CITES Convention (EEC/362/82, EEC/3418/83 and EC/338/97),
- Hazardous Waste EU Directives, 1991/689/EEC,
- Waste Incineration EU Directives, 2000/76/EC,
- Packaging Waste EU Directives (94/62/EC),
- Regular Storage EU Directives (99/31/EC),
- Waste Framework Directives (75/442/EEC (revised: 2006/12/EC)),
- World Bank Environmental Management Plan (OP 4.01 Environmental Assessment Annex-C),
- “World Bank Pollution Prevention and Abatement Handbook, 1998”

4 DUTIES AND RESPONSIBILITIES

4.1 Before-Construction and Construction Stages

Kayseri Integrated Health Campus Project consists of various steps and components which includes different activities. In the stages of before-construction and construction, various institutions as well as ATM which undertakes the construction, are all responsible in related issues.

For the before-construction and construction period of the project, the information about responsible institutions on EMP is given below.

Table1: The information about responsible institutions on EMP in the period of before-construction and construction

Institution / Organization	Project Duty	Responsibility in EMP
ATM	Owner of the project	• Making precautions to reduce the effects • Making a coordination with the other institutions • Monitoring
Ministry of Environment and Urban Planning, Kayseri Environment and Urban Planning Provincial Directorate	Monitoring/controlling the environmental pollution, Protection of natural and wildlifes' habitat	• Making a coordination with the other institutions • Monitoring /controlling suitability of the T.R. Environmental Legislation
Ministry of Culture and Tourism	Responsible institution for protection of cultural and historical property	• Monitoring
Ministry of Health	Responsible institution for public health	• Monitoring
Ministry of Labor and Social Security	Responsible institution for Labor and Social Security	• Monitoring /controlling

4.2 Operation Stage

For operation period of the project, the information about responsible institutions on EMP is given below.

Table2: The information about responsible institutions on EMP in the period of operation

Institution / Organization	Project Duty	Responsibility in EMP
ATM	Business Manager	• Making precautions to reduce the effects • Making a coordination with the other institutions • Monitoring
Ministry of Environment and Urban Planning, Kayseri Environment and Urban Planning Provincial Directorate	Monitoring/controlling the environmental pollution, Protection of natural and wildlifes' habitat	• Making a coordination with the other institutions • Monitoring /controlling suitability of the T.R. Environmental Legislation
Ministry of Health	Responsible institution for public health	• Monitoring
Ministry of Labor and Social Security	Responsible institution for Labor and Social Security	• Monitoring /controlling

5 COMPONENTS

The components of EMP which belongs to Kayseri Integrated Health Campus Project are given below.

- 1- Emission and Dust Control Plan
- 2- Noise Control Plan
- 3- Water and Wastewater Management Plan
- 4- Waste Management Plan
- 5- Environmental Education Plan
- 6- Traffic Management Plan
- 7- Fire Management Plan
- 8- Occupational Health and Safety Plan

5.1 EMISSION AND DUST CONTROL PLAN (EDCP)

The aims of the Emission and Dust Control Plan (EDCP) are;

- Controlling the emissions like fume, smoke, dust, gas, steam and aerosols which are originated from all sources and activities related with the project,
- Protecting of the air quality of living organisms and their habitats from pollution that may arise,
- Overcoming or minimizing the important negative effects of the project caused from the air pollution,
- Controlling the dust and emissions; in accordance with the Turkish Republic Legislation, IFC standards, World Bank-EU environmental legislation.

Topics of dust and emissions in the EDCP are given below.

- Particulate Matter
- Dust Sediment
- Exhaust Emissions
- Emissions due to heating up actions
- Emissions like fume, smoke, dust, gas, steam and aerosols etc.

Fundamental scopes of Emissions and Dust Control Politics can be listed as,

- Prevention of occurrence of emission and dust,
- Minimizing of emission and dust which are occurred.

5.1.1 Identification of Emission and Dust Sources

The information about dust and emission sources and positions which can have negative effects on air quality in the stage of construction for Kayseri Integrated Health Campus Project is given in subtitles below.

1. Exhaust and Heating Up Originated Emissions
2. Construction Work Originated Dust

5.1.1.1 Exhaust and Heating up Originated Emissions

The purposes of fuel usage in the construction and operation stages are;

- Construction machinery, transportation vehicles,

- Heating up purposes in executive and social units.

Construction machinery and transportation vehicles cause exhaust emissions, also in order to heat up the technical, executive and social units, there is going to be exhaust emissions.

5.1.1.2 Construction Work Originated Dust

Kayseri Integrated Health Campus Project includes;

1. Digging-filling and road cotruction works
2. Campus building construction works
3. Other construction works

The activities that can cause dust formation because of the construction work in the Kayseri Integrated Health Campus Project are given below.

- Digging and filling
- Loading, carrying and offloading works

5.1.2 Genel Principles and Precautions

The general principles of EDCP are given below.

- Emissions like fume, smoke, dust, gas, steam and aeresols which are originated from all sources and activities related with the project are controlled.
- Determination and controlling of emission and dust formation is carried out by the control of the national and international legislation with the help of the scientific, technologic and feasible methods.
- In order to protect the public health for all steps of the project and not to occur negative effects for both short and long-term period, the air quality limit values are controlled according to AQAMR and all precautions will taken.
- The decisions of all relevant institutions and organizations are carried out for the area and region where project is taken.
- If the limit values for the air qulity of the region where the facility is established are exceeded according to AQAMR, all kind of action plan and necessary studies which are prepared by the government are done.
- Dust and emissions which are occurred in a result of the activity, with the control of the pollution sources and its positions are taken into account in Emission and Dust Control Procedure.
- In the extent of this project, usage of banned fuels and hazardous materials that can cause damage to environmenl and public health are out of the question under no circumstances.

5.1.3 Emission and Dust Control Procedure (EDCPr)

Emission and Dust Control Procedure has two main subtitles;

1. Control of Emission Sources
2. Control of Dust Sources

5.1.3.1 Emission Sources Control Procedure:

In the project, the control methods for each emission source specified below.

- a. Construction machinery, transportation vehicles, power motors
- b. Heating up in executive and social units

5.1.3.1.a Construction Machinery, Transportation Vehicles and Power Motors Emission Control Procedure

- Exhaust emissions of the vehicles will be measured and recorded properly.
- The methods like doing repair and maintenance of construction machines and the other equipments in order to given directions of the producer and the cleaning of the fuel injector of diesel engine, the emission will be reduced to minimum level.
- In the selection of machinery and equipments that will be used in the scope of operation, new systems and equipments which have a property of complete combustion will be preferred.
- Machinery and equipments which scatters exhaust emission will not be left distemperately in operating state.
- Exhaust gas which will be caused from the construction field will be put on the sufficient height in order to disperse commensurably.
- The capacity of the construction machinery will not be overburdened.
- In the construction field and transport roads according to types of vehicles and construction machinery, speed limitation will be put and obeying to this limit will be supplied.

5.1.3.1.b Emission Control Procedure for Heating Up Purposes

Various heating systems will be used in the technical, executive and social units for the project. According to this;

- Clean fuel will be used for the fuel used in the heating systems.
- Maintenance and cleanness of the systems will be done before the season of heating come.
- In these systems, natural gas will preferred because of its property of less pollution to environment.
- Any type of Wastes and residuals will not be burned in the mentioned incineration systems.
- Stacks of the heating up systems will have the sufficient height and be built according to its standards.

5.1.3.2 Dust Source Control Procedure:

In the project, control methods for the dust sources are given in listed topics below.

- a. Digging and filling
- b. Loading, carrying and offloading works
- c. Storage

5.1.3.2.a Diging and Filling Works Dust Control Procedure

- The positions of digging and filling fields and the distance to the closest allocation unit will be determined.
- Wind direction and wind speed of the area will be determined and in order to find the parameters, measurements will be done in the field if it will be needed.

- All places where digging and filling works will be carried on, sufficient amount of watering works will be done in order to prevent the formation of dust during the before work and working times.
- Sufficient numbered and capacited watering vehicles will be provided for the works on fields.
- Despite watering, dust formation is not prevented sufficiently; the wind breaker panels will be placed and wind direction will be taken into account.
- The positions of vehicles to each other which will be provided for the digging and filling works will be taken into consideration and vehicles will not be worked together.
- Machine operator will be informed about the carefully movement for the minimum dust formation.

5.1.3.2.b Loading, Carrying and Offloading Works Procedure

- Loading and offloading will be done without tossing.
- Top of transportation trucks will be covered in order to prevent the dust formation.
- Roads in the Transportation route will be covered with the materials which prevent dust spreading and watered regularly.

5.1.3.2.c Storage Dust Control Procedure

- Upper layers must contain %10 moisture.
- Materials in the storage will be covered with the nylon canvas or with the materials which has a particle size greater than 10 mm.

5.2 NOISE CONTROL PLAN

Noise Control Plan (NCP), for The Kayseri Integrated Health Campus Project includes;

1. Digging and filling and Superstructure Working Fields
2. Construction Areas
3. Transportation Roads
 - Stable Noise
 - Unstable Noise
 - ✓ Wavy Noise
 - ✓ Dashed Noise
 - ✓ Impulse Noise

assessed as a whole in the report. NCP includes;

- Determination of noise sources,
- Controlling the noise pollution from the negative physiological and psychological effects on humans and living organisms,
- Adapting Measured Noise Level and Standard Noise Level,
- Controlling the noise with the help of the valid and applicable methods.

Main components of the Noise Control Plotics are listed as;

- Control and try to reduce the noise at the source,
- Control the noise in the area between the reseptor and source,
- Control the noise in the receptor that is exposed to noise.

5.2.1 Description of the Source of Noise and Vibration

The information about source of noise and vibration are given in subtitles below.

1. Construction Machinery
2. Pneumatics, Electrical and Electroless Hand Tools
3. Transformer and Power Generators

5.2.1.1 Construction Machinery:

It consists of all the machinery and equipments used in the construction of the project includes campus building constructions, digging filling works, superstructure works, foundation works etc.

5.2.1.2 Pneumatic, Electrical and Electroless Hand Tools

It consists of all construction pneumatics, electrical and electroless hand tools machine and equipments components of construction stage of the Kayseri Integrated Health Campus Project.

5.2.1.3 Transformer and Power Generators

Energy need of the construction worksite will be provided by the city electric system with the help of the transformers.

On the other hand, power generators are kind of equipments that will help the worksite in construction stage if there is power cut in the system in order to ensure the continuity of the work.

Because of the usage of transformers and power generators, motor and exhaust noise will be occurred.

5.2.2 Genel Principles and Precautions

The general principles of NCP are given below.

- All noise and vibration sources cause from the project activities will be determined.
- All residentials that located near the project area and noise sensitive areas will be determined; working hours and complaints because of the noise pollution will be informed to owner of the project.
- Due to noise and vibration sources sensitive areas located near the project area will be determined and recorded located.
- In the before construction period, background noise measurements for the noise will be done in accordance with the institutions which has the measurement sufficiency.
- Background Plan Noise Measurement results will be recorded and will be kept.
- In the construction site; the information about date of the starting and the finishing times, working periods and permissions taken from the related municipalities will be showed in the signboard that seen easily from everybody.
- The activities will not be carried out in the evenings and nights.
- In order to find the suitability of the noise measurements and compatibility of limit values to the Table5 which is taken part in the ENAMR that causes from the construction activity, all noise measurement studies will be done.

Table3: Environmental Noise Limit Values for the construction site

Type of Activity (construction, destruction and reparation)	Lday (dBA)
Building	70
Road	75
Other Sources	70

(Reference: ENAMR, Annex-VIII, Table-5)

- Necessary precautions will be taken in order to prevent the exceeding of limit values according to Annex-VIII, Table7 which is taken part in the ENAMR in heavy construction machinery and other applications that cause vibration to the close of the project.

Table4: Permitted top values of the vibration of the foundation to places where the closest area to the sensitive places caused from pile diving and similar operations that cause vibration and construction machinery in construction stage

	Permitted top values Vibration Speed (Peak Value-mm/s)	
	Continuous Vibration	Dashed Vibration
In the residential regions	5	10
In industrial and commercial regions	15	30

(Frequency band between 1 Hz- 80 Hz)

(Reference: ENAMR, Annex-VII, Table-6)

5.2.3 Noise Control Management Procedure (NCMP)

Procedures for noise control; the noise control is prepared in accordance with the national and international legislation all subjects including starting of the noise source to the effect zone, in construction and operation stages of the Kayseri Integrated Health Campus Project. It is prepared for that the sources of the noise will be controlled and in order to prevent the negative effects. Procedure is constituted following three main topics:

1. Controlling at the source
2. Controlling in the area between source and receptor
3. Controlling at the receptor

The three main topics are analyzed below.

5.2.3.1 Controlling at the Source

The aim of this procedure is to decrease the effects of noise at the source (construction machinery, pneumatic electrical and electroless hand tools, transformers and power generators) with the help of the various methods.

Sensitive and highly sensitive areas which are close to project site will be affected because of the impulse originated noise. Therefore the vibration control studies will be concentrated on especially controlling of impulse noise.

The general principles of controlling at the source:

- Noise control by planning and servicing,
- Change in the operation conditions,
- Selecting more quiet processes,
- Changing the place of the source,
- Using of sound absorber,

- Covering the noise source,
- Choosing of proper machinery and equipment.

The general principles of controlling vibration at the source:

- Rearranging the position of the sources,
- Rearranging the working time of the sources,
- Rearranging the number of the sources which will work at the same time,
- Rearranging the route of the motile sources

5.2.3.1.a Construction Machinery Noise and Vibration Control Procedure

- The construction machinery which causes the highest amount of noise will be determined according to properties of the noise level.
- Immobile and mobile construction machinery will be determined.
- The position of the immobile construction machinery and routes or roads of the mobile construction machinery will be determined.
- In the selection of the construction machinery; quieter systems will be chosen according to its properties of production year, acoustic design of motor, sound level in the maximum working period etc. in the construction operation.
- The most efficient method in the prevention of the noise is the sound absorber in the exhausts. Therefore, sound absorber especially diesel will be put on exhausts.
- Maintenance and repair of the vehicles will be done periodically by the certified services.
- According to type of the machinery, operation capacities will be determined and precautions will be taken not to work on exceeding of capacity.
- In the construction site and its vicinity, for some machinery sound limitations will be done and usage of machinery in high speed and period will be prevented.

5.2.3.1.b Pneumatic, Electrical and Electroless Hand Tools Noise Control Procedure

- The selection of all the pneumatic, electrical and electroless hand tools that used in the project; production date, corrosion status and to have less contact boundary will be considered.
- Maintenance and repair of all the pneumatic, electrical and electroless hand tools will be done regularly.

5.2.3.1.c Transformers and Power Generators Noise Control Procedure

- The selection of transformers and power generators will be preferred according to its less sound level.
- Power generators will be used in necessary conditions in a specific limited time in the project.
- The places of systems will not be located near places of the other materials that can be a noise source.
- Maintenance and repair of the transformers and power generators will be done regularly by the certified services.

5.2.3.2 Controlling in the Area between Source and Receptor

The target of the method is to control the noise in the area between source and receptor. The fundamental principles of the controlling of the noise in the diffusion area are;

- If the region is available, the distance of machinery one to another will be arranged. (As going away from the source, the level of noise is expeditiously decreasing so that if the area is available, equipment which is the noise source will be placed as far away as possible from the workers.)
- Immobile equipments will be worked in the enclosed places if possible and sound absorbing material will be put on the wall, floor and ceiling.
- Equipment which is known to spread the noise extremely in one direction will be located away from the sensitive areas.
- In every possible situation, site material (soil or waste etc,) have to be placed where it will not cause any trouble and be able to supply additional conceal. In the normal daily working hours, in the site or out of the site, the transportation of the material along the highway will be done by using a route which is distant from especially the sensitive receptors.

5.2.3.3 Controlling at the Receptor

If sound is not reduced or decreased in the source or its surrounding, the people who exposed to noise will be taken precautions. However the applicability and effect of method is highly low. The fundamental principles of the controlling of the noise at the receptor are;

- Necessary precautions will be taken like decreasing of the exposure time of noise.
- Ear protecting equipment will be given to the all workers in order to protect their ears in the area which has the sound level higher than 85 dB.
- In order to decrease the noise and vibration caused from equipments which work in idle running, it will be shut down.

5.3 WATER AND WASTEWATER MANAGEMENT PLAN

Water and Wastewater Management Plan (WWMP); the aims of the Kayseri Integrated Health Campus Project are;

- The usage of the water which is our most important natural resource, will be at the maximum efficiency,
- Disposal of wastewater will be done according to Turkish Republic Legislation, IFC environmental standards, standards of World Bank and EU legislation.

Main topics of the WWMP are given below;

1. Procurement and usage methods of needed Water which will be used by the workers for construction and operation stages,
2. Disposal or reuse methods of consisted wastewater: Disposal of consisted wastewater is examined in two main titles;
 - Management of domestic wastewater
 - Management of non-domestic wastewater

Basic constituents of Water and Wastewater Management politics are;

- In order to protect water resources, application of sustainable water and wastewater management activity,
- Decreasing the negative effects of consisted wastewater to minimum on receiving body,
- Reuse of consisted wastewater.

5.3.1 Water Supply, Usage Area and Wastewater Occurrence

It is planning to use water from the groundwater resources for water usage in the construction period of the project. Necessary permissions will be taken in order to get and use the water from the groundwater. On the other hand, for operation period; needed water will be taken from the Kayseri Greater Municipality network system.

In the construction stage of Kayseri Integrated Health Campus Project, water will be used in;

- Potable and service water for the personnel in the project (workers who worked in the construction site, person who use the executive and social etc.)
- Water for construction in the project,
 - Water used in concrete batch plant
- Other usage areas (water usage in preventing dust formation caused from construction activities, fire-protection water, water for cleaning purposes in various construction activities etc.)

In project originated wastewater;

- Potable and service water for the personnel in the project (workers who worked in the construction site, person who use the executive and social etc.)

5.3.2 Genel Principles and Precautions

General principles of Water and Wastewater Management Plan (WWMP) are given below.

- All necessary permissions about the usage water resource will be taken in order to get the potable and service water for the project.
- Without looking the type of the water resource, the analyzes will be done according to national legislation and suitability will be tested.
- All precautions will be taken for potable water resources in order to prevent the public health risk. Equipment and gadgets which will be contacted to service water will not be hazardous to public health.
- Redundant usage of potable and service water will be prevented.
- Consisted domestic wastewater will be disposed according to WPCR.
- Quality of ground and surface water will be protected.

5.3.3 Water and Wastewater Management Procedure (WWMPr)

Water and Wastewater Management Procedure is constituted following two main topics;

1. Water Management
2. Wastewater Management

Procedures belongs to main topics are given below.

5.3.3.1 Water Management Procedure

Water Management Procedure includes needed water usage by the personel and construction activity for Kayseri Integrated Health Campus. Steps of the WMP are;

- a- Water supply from the source and its movement to the areas
- b- Water storage

c- Preventing the redundant consumption of water

Procedures belongs to steps are given below.

5.3.3.1.a Water supply from the source and its movement to the areas

- Protection area will be formed and necessary precautions will be taken near the water sources in order to prevent pollution caused from animals, flood and other kind of water.
- Water which will be consumed for the drinking purposes will be carried to storage room by the help of the impermeable materials.
- Samples will be taken from the water sources, quality of water will be controlled and controls will be recorded.
- After defining the distance between where the water is obtained from and where it will reach, the transmission line which will be installed in order to store the water in the depot will be made by a material that does not damage the physical and chemical properties of the water.
- The water which is used for drinking and using purposes will be transferred from catchment to the depot by using the elevation differences and taking required sanitary and technical precautions. When it is not possible because of the topographic reasons, transmission will be done by using a pump which does not damage water's properties

5.3.3.1.b Water Storage

- Inner surface of the storage room will be covered with percolain or kind of material that does not spoil the quality of water. Inlet and outlet water of storage room will be checked and analyzes will be done.
- Ventillation stack for storage room will be provided in order to aerate the unit.

5.3.3.1.c Preventing the redundant consumption of water

- Education will be provided for the prevention of unconscious consumption of potable and service water and signboard will be put on suitable places.
- Regular maintenance and repair will be done in order to prevent the leakage in water works.
- Loss of water will be prevented if there will be a leakage in the system.

5.3.3.2 Wastewater Management Procedure (WMP_r)

Wastewater Management Procedure includes reuse or disposal some portion of wastewater which is the the water that will be used by personnel in the project and used by the construction activities. Reuse or disposal methods of consisted wastewater are examined in two subtitles;

- a-** Domestic wastewater management
- b-** Non-domestic wastewater management

5.3.3.2.a Domestic Wastewater Management

- After the necessary precautions will be taken, domestic wastewater will be planned to be disposed to the Kayseri Wastewater Treatment Plant so there will be no need to have a treatment plant for the project.

5.3.3.2.b Non-domestic Wastewater Management

- Non-domestic wastewater will be caused from construction site and different units in construction activity.
- In concrete batch plant, sedimentation tanks will be done in order to reuse the wastewater which will be consisted from cleaning of mixers. Water which will be waited in the sedimentation tanks will be reused for the washing purposes. Sediments in the sedimentation tanks will be cleaned periodically and disposed according to Solid Waste Management Plan.

5.4 WASTE MANAGEMENT PLAN

The aims of the Waste Management Plan (WMP) for Kayseri Integrated Health Campus are;

- Efficient usage of the natural resources like raw material, limited energy in order to get efficiency,
- Supporting the production of less waste,
- Recycle- reuse of wastes according to Turkish Republic Legislation, IFC environmental politics, World Bank-AB environmental legislation, additionally preventing the negative effects on air, water, soil quality and disposal of them without harming on living organism.

Topics of WMP are given below.

- Domestic Waste
- Excavation Waste
- Construction Waste
- Packaging Waste
- Medical Waste
- Accumulator Waste
- Battery Waste
- Old-tyres Waste
- Hazardous Waste or infected with hazardous waste
- Oil Waste

Main components of the WMP listed as;

- Waste Minimization,
- Reducing the production of Waste,
- Recycle of Waste,
- Disposal of Waste

5.4.1 Source of Waste and Waste Information

The information about wastes which will be occurred in the construction stage of the Kayseri Integrated Health Campus Project is given below.

Table5: The information about wastes in the construction stage

WASTES	SOURCES	TYPE	MANAGEMENT OPTION
Aerosol tin	Empty tins caused from personel deodorants and used chemicals	Hazardous	Recycling
Accumulators	Empty accumulators caused from machinery and vehicles	Hazardous	Recycling
Waste batteries	Depleted batteries from portable stuffs like personel radio or torch	Hazardous	Recycling
Construction waste	Construction activities	Nonhazardous	Sanitary Landfilling
Contaminated Containers	Plastic drums and empty tins	Hazardous	Recycling
Electric/Elektronic components	Electric/electronic equipments	Nonhazardous	Recycling / Sanitary Landfilling
Glass	Domestic empty glasses	Nonhazardous	Recycling
Fluorescent lamps	Used fluorescent lamps	Hazardous	Sanitary Landfilling
Medical waste	Sharp materials, needle and cotton sticks	Hazardous	Sanitary Landfilling /Incineration
Packaging materials	Plastic, paper, cardboard etc.	Nonhazardous	Recycling
Paper and cardboard	Office and domestic originated waste	Nonhazardous	Recycling
Plastic bottles	Some of them industrial, mostly water bottles and other domestic materials	Nonhazardous	Recycling
Personel protecticng materials and clothes	Dumped personel protecticng clothes, siren suits, boots etc.	Hazardous	Recycling / Incineration
Other municipal waste	Other domestic wastes	Nonhazardous	Sanitary Landfilling
Excavation waste	Residual excavation soils and excavation materials	Nonhazardous	Using as a mortar/ Storing in the excavation area
Scrap metals	Residual metals materials from construction activities	Nonhazardous	Reusing/ Recycling
Old tyres	Corroded tyres	Nonhazardous	Recycling
Wood	Wooden cases, tickings, traverses and similar support materials	Nonhazardous	Recycling
Vegetable oil waste	Used vegetable oils	Nonhazardous	Recycling

Domestic Waste:

Domestic waste which has not the composition of hazardous and insanitary properties will be caused from the personnel's who worked for the construction activities and in the executive, social and security units.

Excavation Waste:

Excavation waste will be produced through the service units included within the scope of this project, the administrative and social units, field arrangements of similar units and during the excavation activities at the construction stage.

Construction Wastes:

Those are wastes such as paint, fluorescence, acid, stone, pebble, wire, cable, tree, iron, pipe, brick, etc. and they will be produced as a result of construction activities of the units included in this project such as service units, administrative-social units, etc.

Package Wastes:

Package wastes are having economic value and will be produced as a result of consumption of certain materials (construction materials, foods, clothing) to be used in this project such as sales, external and transportation package wastes

Medical Wastes:

Medical wastes will be produced as a result of the usage of infectious, pathological and sharp-stab medical equipment used in the health units and medical rooms, etc. Disposal of the wastes included in Annex-2, F group of Medical Wastes Control Regulation will be realized according to the hazardous waste control regulation.

Accumulator Wastes:

Accumulator wastes will be produced due to expired accumulators of machines and equipment.

Battery Wastes:

Battery wastes will be produced due to the expired batteries used within the scope of this project. Batteries including hazardous materials will be regarded as hazardous wastes according to the Waste Battery and Accumulators Control Regulation and will be disposed of in accordance with the related regulation.

Tire Wastes:

Tire wastes will be produced due to the expired original or covered tires of passenger and load transfer vehicles which will not be re-used.

Waste Oil:

Petroleum Derivative Waste Oil: these are the petroleum derivative waste oil to be resulted from the operation-maintenance and repair of the devices, equipment and machines to be used during the construction and operation stages. Maintenance and repair of the vehicles and equipment to be used within the scope of this project will be

completed in the licensed stations located near the project site. Therefore, there will be no expected petroleum derivative waste oil in the project site. However, in the event of petroleum derivative waste oil at the stage of construction stage, the provisions of Waste Oil Control Regulation enacted by being published in Official Journal dated 07.30.2008 no. 26952 will be binding.

Herbal Waste Oil: these are the expired herbal oils used especially for frying in the dining hall during the construction and operation stages. Waste herbal oils will be sent to licensed facilities in order for the recovery or disposal.

Personal Protective Clothing and Equipment Wastes:

These are the personal protective equipment such as gloves and jumpers contaminated with hazardous materials resulted from the personnel usage at the construction and operation stages, rags contaminated with wet oil-based paints or inflammable solutions or discharge/cleaning materials.

Package including the Remains of Hazardous Materials or Contaminated with Hazardous Materials

These are the packages of the products including hazardous materials to be used at the construction and operation stages or the packages contaminated with the hazardous materials (metal-plastic vessel, containers, IBC, etc.).

5.4.2 General Principles and Precautions:

General principles of Waste Management Procedure are presented below:

- Production of any kind of waste will be prevented or they will be minimized.
- If possible, the recovery of the wastes, and the storage of the recovered wastes in its source constitute a basis.
- Wastes will never be disposed on-site where they are produced (firing, storage, etc.).
- Waste will never be discharged to the project site or out of the site, ground or surface waters or to the places negatively affecting the environment.
- Wastes will be classified according to their types (domestic, medical, accumulator, tire, package, excavation, construction wastes).
- Wastes can be transferred to the third parties in order to be used or disposed. Wastes will only be transferred to the authorized/licensed facilities with the capacity of secure and safe operation, recovery and recycling without harming the environment.
- All necessary information including the Material Safety Data Sheet will be provided from the manufacturer in terms of environment, health and safety risk, petroleum, chemicals, safe and secure operation, storage, transfer, usage and removal of the hazardous and dangerous materials.
- Wastes to be temporarily stored will separately be stored in appropriate and impermeable containers which are compliant with the international standard approved according to the code number and preventing the chemical reactions.
- Appropriate containers and transportation means will be determined according to the characteristics of wastes for the solid and liquid wastes and all necessary information about the type, source, amount and storage date of the waste will be typed on the containers.

- Hazardous wastes will be recorded and packaging and labeling activities will be conducted in accordance with the approved international standards required by the licensed recovery or recycling facility where the waste to be sent.
- Annual waste declaration forms will be prepared according to the effective regulations and will be submitted to the related authorities. Additionally, waste management plans required to be prepared according to the regulations will be submitted to the related authorities once every three years.
- Hazardous wastes can be transferred to the third parties for the usage and removal. Hazardous wastes will only be transferred to the authorized/licensed third parties (the closest licensed facility) with the capacity of secure and safe operation, recovery and recycling without harming the environment.
- Wastes will be transferred, stored and removed according to the management procedures stated in **Chapter 5.4.3.**
- Chemical Waste Management Procedure will be prepared.
- Use of hazardous, chemical, electromagnetic and radioactive materials will be decreased as possible and selection of it will be on environmentally-friendly materials. Optimization methods will be applied in material consumption. During the period of operation of these implementation of methods will be coordinated and follow-up by hospital management.
- If possible recyclable chemical materials will be used.

5.4.3 Waste Management Procedure (WMP)

Waste Management Procedure is classified as;

- 1- Domestic Wastes
- 2- Excavation Wastes
- 3- Hazardous Wastes

Procedures for Domestic Wastes:

Procedures for domestic wastes are established according to the International Legislations and include the period from the production to the removal. These procedures include the below-mentioned stages:

- a. Separate Collection at Source
- b. Recycling
- c. Temporary Storage
- d. Disposal and Recycling

Procedures for every stage are stated below:

5.4.3.1.a Separate Collection at Source

Waste collection point will be established for the units included in this project. Waste collection points will separately be constructed for every unit and the size of the units will be determined according to the capacities of the units. There will be separate containers for

- Recyclable Materials (package, plastic, glass, metals, etc.)
- Domestic Wastes.

Wastes stored in waste collection points will periodically be transferred to temporary storage areas.

5.4.3.1.b Temporary Storage Area:

These areas where the wastes will centrally and temporarily stored before the transfer to the third parties for the recycling or the final disposal.

The size, place and features of the temporary storage areas should meet the requirements of the construction and operation stage.

Temporary waste storage areas will have the sufficient storage capacity for the storage of below-mentioned wastes to be produced during the project activities.

- Domestic Solid Waste
- Battery and Accumulator Waste
- Medical Waste
- Package Waste
- Expired Tire Waste
- Hazardous Waste
- Herbal Waste Oil

Waste sent to the temporary storage areas will be transferred to the third parties for the recycling, recovery and disposal. Temporary storage areas should be in accordance with the below-mentioned provisions:

- They will be constructed in a safe and secure place which is located in or near the project site.
- All necessary roads leading to the collection site will be constructed.
- The size of the collection size will be convenient for the maneuver of the vehicle.
- Containers will be placed in the site in order to taxonomically store the waste and those containers will carry the waste information labels.
- The bottom of the temporary storage areas will be designed depending on the type of the wastes in order to prevent any kind of leakage or spillage.
- Wastes transferred to the temporary storage areas will be classified according to their types.
- Temporary storage areas should be designed according to the temporary storage area criteria stated in the related regulations depending on the type of wastes (e.g. a storage chamber should be designed for the medical wastes and the bottom of the chamber should be covered with impermeable, anti-microorganism and dirt, easy-to-clean materials, sufficient lightning and passive ventilation system should be included, door should be painted in orange and there should be the sign of “International Biohazard” or “Caution! Medical Waste” on the doors, outward-opening or sliding doors should be used, cleaning and disinfection should be dry-clean, and their size should be available to store the temporary waste at least one week)
- Below-mentioned parts and equipment will also be included in the storage areas.
 - ✓ Containers- barrel-bin drop off/storage area;
 - ✓ Plastic/paper wrapper;
 - ✓ Bulb and can chopper;
 - ✓ office and variable facilities;
 - ✓ personal protective equipment storage;
 - ✓ Social facilities;

- ✓ Emergency action equipment;
- ✓ Drainage system

5.4.3.1.c Disposal and Recycling

The final disposal and recycling procedures of the wastes stored according to their types in the temporary storage areas are given below:

Domestic Wastes

Domestic wastes in or near the project site will be transferred to and disposed in the solid waste regular storage areas arranged and operated in accordance with the provisions of Solid Waste Control Regulation

The transfer of the domestic wastes to the regular storage areas will be realized through the closed containers preventing the scattering and in frequent period in order to prevent the over accumulation.

Package Wastes

Temporarily stored and separately collected package wastes will be collected by the related municipality or the contracting and licensed/permitted collection/extraction facility operators. Collection of the package wastes by any other operator except the licensed operators is strictly forbidden.

Waste Batteries and Accumulators

Temporarily stored accumulators and waste batteries: they will be disposed in the facilities licensed by Ministry of Environment and Urbanization in accordance with the provisions of Waste Batteries and Accumulators Control Regulation. Equipment used at the construction stage and accumulators to be used at the operation stage will be stored on an impermeable ground in the temporary storage area until its delivery to the manufacturer following its becoming waste.

Waste accumulators will be transferred to the temporary storage areas or removal facilities through motorways. The transfer will be realized by appropriate vehicles chosen according to the waste type and by natural and legal persons holding the transportation license/permit.

Waste Tires

Temporarily stored waste tires: they will be disposed in the facilities approved by Ministry of Environment and Urbanization in accordance with the provisions of Expired Tire Control Regulation.

Waste tires will be transferred to the temporary storage areas or removal facilities through motorways. The transfer will be realized by appropriate vehicles chosen according to the waste type and by natural and legal persons holding the transportation license/permit from the Governorate.

Medical Wastes

The amount of the medical wastes produced will regularly be recorded. Medical waste records will be submitted to the Provincial Directorate of Environment and Urbanization in Kayseri at the end of every year.

Medical wastes to be produced in the healthcare units will separately be collected at the source by physicians, nurses, midwives, veterinarians, dentists, laboratory technicians at the stage of waste formation. Collection tool will be suitable for waste type and be located at the closest place to the source. Medical waste, by no means, be mixed with the domestic wastes, package wastes and hazardous wastes.

Medical wastes disposal activities will be realized by Kayseri Medical Waste Processing Sterilization Centre which is located in Molu district and authorized by Kayseri Metropolitan Municipality.

5.4.3.2 Excavation Waste Procedures:

Excavation soil will not be mixed with construction/wreckage wastes and be recycled and they will later be used especially as infrastructure material.

All necessary precautions will be taken in order to prevent noise and visual pollution and dust emissions during the excavation activities and surroundings of the activity field will be surrounded. Planning will be designed in such a way that the soil amount produced during the excavations and volume of sand fills will be equalized and excavation soil will primarily be used in the activity field.

Natural drainage systems will be protected and all necessary precautions against a possible erosion will be taken.

Vegetable soil will be separately collected during the excavations. They will be accumulated depending on their depth and structure in order to re-use. It is important that the place where the vegetable soil will be stored should not be sloping more than 5%. Any possible loss during the storage period will be prevented and the quality of the soil will be preserved. In the event that vegetable soil will be left outdoors for a long time, surface should be covered with fast-growing plants. Separately collected vegetable soil will be evaluated in parks, gardens, green fields or agricultural lands. Vegetable soil will, by no means be sent to the storage areas.

Excavation soil apart from the vegetable soil will be used for filling, recreation , etc. and in the event that re-usage is not possible, they will be stored and removed.

Excavation soil and construction/wreckage wastes storage area: excavation soil will be stored in certain licensed/permitted areas stated in the project and in accordance with the administrative and technical provisions of Excavation Soil, Construction and Wreckage Waste Control Regulation. All necessary permits will be provided.

Procedures to be implemented in the project site are stated below:

- Excavation soil and construction/wreckage soil will not be mixed and stored separately in different areas.
- Stored material will daily be compressed by compactor.
- The most appropriate mass and piling sizing will be completed for the prevention of ground and body movements possible to occur in the storage area such as ground subsidence.

- People and other animals will not be allowed to approach to the surface of storage areas and bottom of the slopes and all necessary warning signboards will be placed at these areas.
- Depending on the topographic structure of the surface area, in the event of a dangerous land movement in the slopes, size of the pieces to be rolled down from the slopes will be limited.
- Uncontrolled water accumulation on, in and between the cast masses and necessary precautions will be taken without affecting the natural water traffic in annual regime. The current situation will clearly be shown in dumping grounds.
- In the event of the preparation of the site to be used as storage area, vegetable soil will be peeled off for the reevaluation. This soil and vegetable soil sent to the temporary storage area will not be scattered because of water and air flows or any other reason, will not be mixed with foreign matters and will be stored in an appropriate area so that its quality will be maintained and all necessary protective measures will be taken.
- Access to the storage area and transfer to the intra-storage roads will be available regardless of the weather conditions.
- Access to the storage area and dust emission in the intra-area roads will be prevented. Roads will be covered with pebble, if necessary, or irrigation system will be applied.

5.4.3.3 Hazardous Waste Procedure:

Hazardous waste procedures include the below mentioned stages in accordance with the International Legislations and IFC standards including the period from the waste formation to the disposal.

- a- Definition/Classification of Hazardous Waste,
- b- Total and Temporary Storage,
- c- Recycling/Final Disposal

All related procedures for every stage are stated below:

5.4.3.3.a Definition/Classification of Hazardous Waste

Material Safety Data Sheet for hazardous wastes will be provided from the manufacturer in terms of the environment, health and security risks, proper use, storage, shipment, transportation and disposal information.

Classification of hazardous wastes will be realized according to the Hazardous Wastes Control Regulation. All studies conducted and amount of wastes will be recorded.

5.4.3.3.b Collection and Temporary Storage

Wastes will be temporarily stored to reach the sufficient capacity before the transfer to the disposal/recycling facility for the final disposal or recycling activities. Provisions on the collection and temporary storage are presented below:

- Solid and liquid wastes will be collected through the containers which are convenient for the waste and facility features.
- Oil wastes will not be mixed with dissolvents, water, antifreeze, detergent, paint, toxic and other hazardous materials.
- Waste oil filters will be stored in puncture and tear resistant, non-damaged secure plastic packages.

- Labels showing the content, amount, storage date of the waste will be placed on the containers. Warning signboards and data labels will be prepared according to the labeling system set by the effective Hazardous Waste Control Regulation.

5.4.3.3.c Recycling / Final Disposal

Temporarily stored hazardous wastes will be sent to the third parties licensed by Ministry of Environment and Urbanization in accordance with the provisions of Hazardous Waste Control Regulation. Transfer of the wastes to the third parties will be certificated with “National Waste Data Sheet” in accordance with Hazardous Waste Control Regulation.

Recyclable hazardous wastes will be sent to recycling facilities, non-recyclable hazardous waste will be sent to the licensed third parties for the final disposal.

Waste oils will be sent to the licensed third parties for the recycling/final disposal according to their categories and the provisions of Waste Oil Control Regulation.

Transfer of the hazardous wastes to be transferred from the temporary storage areas to the licensed third parties for recycling/disposal will be realized through the licensed vehicles which are appropriate for the category of the wastes.

5.5 ENVIRONMENTAL TRAINING PLAN

The main objectives of Environmental Training Plan (ETP) for Kayseri Integrated Healthcare Campus are stated below:

- Informing and raising the awareness of wall personnel about the environmental issues.
- Effective implementation of EMP/EMP components.
- Increasing the environmental performance of the project.

Key elements of Environmental Training Plan Policy;

- Providing information for the personnel on the general environmental issues within the scope of this project,
- Provide information for the personnel about the possible negative effects arising from any activity to be conducted within the scope of this project and necessary precautions to be taken against these negative effects,
- Maintaining the sustainability of EMP.

5.5.1 Training Subjects

Subjects included in Environmental Training Plan are stated below:

- General information on the working place of the personnel.
- Possible environmental effects due to the project and all necessary precautions required to be taken.
- Activities aiming at the protection of the environment and prevention of the environmental pollution.
- General information on sub-EMP stated below:
 - Health and Security
 - Emission and Dust Control
 - Noise Control
 - Waste Management

- Traffic Management
- Fire Protection
- Policies of Health and Safety at Work

5.5.2 General Principles and Precautions

Environmental Training Plan Procedure includes any and all kind of training to be provided for the personnel within the scope of this project.

- Personnel will be provided with initial work training. Initial training includes the information on environmental policy and sub-EMP. It is obligatory to provide the personnel with necessary trainings.
- Considering the job definition and working place of the personnel within the scope of this project, additional trainings related to the required sub-EMPs will be provided for the personnel.
- Refreshing training will be provided for the sustainable development about the environmental consciousness.
- Personnel working within the scope of this project will be provided with all necessary information on the amendments in sub-EMPs.
- Posters and signboards to be hanged on the walls of working places will provide a sustainable and efficient training.
- All trainings provided will be recorded.

5.6 TRAFFIC MANAGEMENT PLAN

Traffic Management Plan in Kayseri Integrated Health Campus (TMP) hereby aims

- To determine road routes for enabling safe and sustainable transportation,
- To determine traffic movements and vehicle speeds in main and secondary roads to be used within the scope of the project
- To prevent traffic accidents likely to occur in main and secondary roads to be used within the scope of the project,
- To minimize adverse environmental impacts (dust and gas emission, noise etc.) arising from traffic.

Main elements of Traffic Management Policy may be listed as

- Enabling safe transportation in main and secondary roads within the scope of the project,
- Minimizing adverse environmental impacts arising from traffic.

5.6.1 Traffic Management Plan Training

All personnel to be assigned in construction and operation phases of the project shall be enabled to be informed about all related components of TMP and required trainings shall be provided in order for them to fulfill their duties and functions in traffic management. Provided trainings shall be recorded in personnel records.

Traffic Management Training to be provided to Driver and Operators

- Importance of complying with signpost of signaler and communication with signalers
- Importance of complying with traffic warning signs and location signs

- Importance of complying with working and resting hours
- Importance of complying with speed limits stipulated for traffic rules and working area
- Danger of reverse maneuver movement of construction machine without help of a second person,
- Importance of adjusting the best visibility of mirrors of all vehicles and construction machines
- Load volumes of vehicles or construction machines that are capable of bearing
- Importance of complying with the rules of “Label, Lock, Secure and Attempt” while working on vehicles and construction machines,
- The things to be done in cases where drivers and operators are not seen due to blind spots or when construction machines make reverse movement.

Traffic Management Training to be provided to Signalers

- Importance of communication with Driver, Operators and all other personnel,
- Importance of recognizing blind spots by drivers and operators,
- Recognizing maneuver capabilities of all vehicles and construction machines,
- Understanding dangerous incidents and the things to be done.

Traffic Management Training to be provided to Other Pedestrian Personnel

- Blind spot in the vicinity of vehicles and construction machines
- Access to blind spot and stopping thereabouts,
- Importance of making eye contact with drivers and operators prior to approaching to vehicles and construction machines and not approaching to construction machines if not required,
- Safe working rules in case of presence of vehicles and construction machines in the vicinity of work site,
- Approaching distance of pedestrian personnel to vehicles while trucks or forklifts perform loading-unloading procedures,
- Importance of warning work mates in case of danger,
- Importance of paying attention of traffic sign posts and signalers.

5.6.2 General Principles

The principles relating to existing/planned transportation roads causing traffic within the scope of the TMP have been provided below;

- A map showing transportation roads available for the project or whose construction shall be fulfilled shall be prepared and shall be distributed to all drivers. Drivers shall be assigned to use only transportation roads designated.
- Transportations and site roads shall be maintained in clean and good condition at all times.
- Top section of vehicles that navigate in public highways and carrying material having risk of fall/spillage or carrying materials likely to cause dust shall be entirely covered with tent.
- The shortest route shall be selected by considering fuel consumption while choosing traffic routes for transportation activities.
- Speed limits determined shall be complied with during all transportation routes.
- Over loading shall not be made to the vehicles to be used in transportation.
- Measures required to be taken for reducing accident risk likely to arise throughout the project have been provided below.

- Personnel assigned on construction site shall be kept away from the places where construction machines are frequently employed.
- Sufficient distance shall be left in the vicinity for rotating vehicles.
- Construction machines shall be allowed to access work/construction sites by making reverse maneuver without the help of second person.
- Sufficient traffic warning signs shall be placed on construction site.
- There shall be signalers that shall warn other pedestrian personnel and shall direct vehicles and construction machines on construction site.
- Continuous maintenance of vehicles and construction machines shall be performed.
- Speed limit shall be brought forth for vehicles and construction machines and speed limits shall not be exceeded.
- Drivers, operators and all personnel employed shall be provided with traffic training.
- Drivers and operators shall not be over worked more than their normal working hours.

5.6.3 General Measures

The measures relating to existing/planned transportation roads causing traffic within the scope of the TMP have been provided below in 2 separate titles as Construction site and non-construction area.

5.6.3.1 The Measures required to be taken for Construction Site/Sites

- Traffic rules within construction site (speed limits, traffic safety, traffic movements, route plans etc.) shall be determined.
- Sign posts required for transportation roads where construction traffic is utilized shall be placed. This case shall avoid vehicles to deviate from designated roads and especially shall be effective in regards protection speed limit complying in the vicinity of accommodation areas.
- Personnel assigned as pedestrian shall not be employed on the areas where construction machines frequently move. In case of working on such areas, work sites shall be designated by using some sort of physical separations such as barrier and signaler shall be available for directing vehicle movements and pedestrian personnel.
- Car park areas in sufficient dimension and number having rough ground that is easily cleaned within construction/building site shall be established for vehicles parking and going in/out of construction site.
- Cross-sections and slopes of service roads shall be performed in dimensions in which vehicles and equipment to be employed in the project shall easily make maneuver.
- Officials that shall arrange open signs, signals and transitions to required places shall be placed. If required, temporary traffic signs shall be negotiated by authorities about their details and locations. Signs shall be placed safely and securely in order for them not to be dismantled or changed and shall be understandable and visible nature by everyone.
- There shall be a tag specifying properties of material carried over trucks to be used in transportation and signalers shall direct such trucks to related sites via these tags.
- Vehicles shall be prohibited to access to construction and work sites by making reverse maneuver without help of second person. In addition to this, all heavy

goods vehicles shall be provided to be equipped with sound alarm that shall activate during reversing movement.

- Wheel washing system shall be established, if required, in exit points for preventing contamination of road networks apart from construction/work sites.

5.6.3.2 Measures to be taken On Non-Construction Site

- Times relating to navigation on traffic shall be adjusted in a way that shall be avoided from the periods when traffic is intense on main roads.
- In cases where roads are required to be blocked, different routes shall be planned and authorities and respective locals shall be notified in advance (including emergency and mass transportation service) and appropriate signs and plates shall be placed.
- Drivers using state roads are liable for complying with Turkish Traffic Legislation.

5.7 FIRE MANAGEMENT PLAN

Fire Management Plan (FMP) within the scope of Kayseri Integrated Health Campus hereby aims to

- To determine the factors boosting fire risk and to take required measures
- To determine the studies required to be implemented for taking under control with minimum hazard to environment within the shortest time in any fire likely to arise.

Fire causes within the scope of the project are;

- Failing to taking sufficient protection measures may be listed as
- Ignorance
- Negligence
- Accidents
- Sabotages
- Natural disasters.

Main elements of Fire Management Policy may be listed as

- Determining Operation and Areas with Fire Risk
- Taking Measures For Reducing Fire Risk
- Performing Accurate Response During Fire

5.7.1 General Principles and Measures:

General principles and general measures required to be taken into account within the scope of the FMP have been provided below;

- All measures required in order for operations realized within the scope of the project not to cause fire shall be taken.
- Fire exit roads in permanent and/or temporary gates to be constructed shall be prevented from all kinds of obstacles and shall be kept clear at all times.
- Setting uncontrolled fire within and outside of construction site shall not be permitted.
- Smoking shall never be allowed on areas with fire risk. When you are not certain of putting off the cigarette on non-prohibited areas, you shall not put it into dustbin.

- Specifically sub-requirements of fire that is one of the fundamental requirements of directive of structural materials shall be taken into consideration during construction of structures to be built permanently.
- All electrical appliances shall be kept in good working order. No personnel shall make any change in any electrical installation and all electrical appliances shall be unplugged at the end of work and tools such as electrical grills and ovens shall not be used. Electrical devices not used shall be shut off and their power switch shall be lowered.
- Project implementation area shall be equipped with fire detectors and alarm system in required cases and with appropriate fire extinguishing equipment. Specifically, it shall be enabled to keep available firefighting equipment in sufficient and appropriate number and characteristics at all times in storage areas, workshops, site production facilities and accommodation areas.
- All kinds of fire extinguishing systems shall be designed in compliance with relevant regulations and standards.
- Emergency teams (fire, first aid, communication and rescue) shall be formed by the person that is in charge with ensuring taking urgent and appropriate measures in fire cases. Emergency teams shall ensure implementation of procedures laid down within the scope of the FMP in any potential fire.
- Firefighting equipment shall be signed in compliance with the provisions of Safety and Health Signs Regulation published in the Official Gazette no. 25325 and date 23/12/2003. These signs shall be placed on appropriate locations and shall be permanent.

5.7.2 Fire Management Procedure (FMP)

Fire Management Procedure covers the phases required to be implemented during any potential fire on project operation area.

- The persons encountering any abnormal case such as fire, burning smell, flame etc. out of fire indication shall keep its composure and shall warn the personnel around without any panic and shall activate alarm system.
- Emergency teams shall be urgently notified and fire brigade (Telephone:110) shall be informed.
- Address of fire location shall be provided clearly and accurately in notification made to fire brigade. Type and location of fire, number of floor of building, location and structural style of building shall be specified in this notification. (wooden, masonry etc.)
- Emergency teams shall respond promptly and shall make first response according to fire type with existing fire extinguishing equipment.
- Dangerous substances (LPG tube, thinner, fuel etc.) on fire area shall be kept away and no person shall access the scene apart from the officials.
- First aid team shall be available and shall make first response to the injured.
- Extinguishing material shall be aimed to cover fire in first responses required to be performed until local fire brigade shall arrive the scene. Fire shall be responded as starting to extinguish from bottom section in a way of taking wind backward position. (See Figure 1).



Figure 1. Use of Fire Extinguishing Materials

- When local fire brigade arrive the scene, post shall be transferred to Fire Brigade. Information that Fire Chief Requests there of shall be provided clearly and chief shall be assisted.

5.8 WORK HEALTH AND SAFETY MANAGEMENT PLAN

Work Health and Safety Management Plan (WHSMP) within the scope of Kayseri Integrated Health Project hereby aims;

- To take under control potential dangers and effects of risk,
- To reduce and prevent accident possibility,
- To ensure more sensitive, healthier and safer work environment in the vicinity.

WHSMP has been created in a general plan form in a way that shall describe implementations such as organization, plan, method, instruction, monitoring and measuring systems, training and informing activities to be realized by being subject to laws, bylaws and regulations in force regarding work safety and health.

Main elements of WHSMP policy may be listed as

- Complying with laws and regulations in relation to work safety and health and environment,
- Adopting continuous rehabilitation and developments in all operations as fundamental principle,

- Preventing occurrence of dangerous environment likely to cause accidents and eliminating existing dangerous environments.
- Being well prepared in case of emergencies.

A detailed WHSMP shall be created for project construction. WHSMP shall be created according to cycle of plan-implement-control-take measure.

5.8.1 Definition of Scope of Work Health and Safety Management Plan:

Scope of WHSMP has been provided below under titles:

- Determination of criteria required in selecting the personnel to be assigned in the project and recruitment procedures,
- Creating respective units for WHSMP (WHS unit, health unit, fire unit, emergency unit etc.)
- Arranging training to be provided in relation to Work Health and Safety,
- Creating the studies in regard to Accidents,
- Creating the studies in regard to Emergencies,
- Creating the studies in regard to First Aid,
- Creating the studies in regard to Fire,
- Creating the studies in regard to Natural Disasters,
- Determining arrangements to be performed in regard to study areas,
- Determining the studies required to be performed in relation to machines and equipment to be used,
- Determining measures required to be taken in line with Various Construction phases (measures required to be taken during excavation works, measures required to be taken in fighting with dust, measures required to be taken in use of electrical appliances etc.)
- Conducting the studies of risk assessment in regard to the project,
- Determining personal protective materials required,
- Conducting non-compliance, corrective and preventive operation studies.

5.8.2 General Principles and Measures:

- All kinds of measures required shall be taken including preventing occupational risks of work safety and health and providing training and informing sessions, organization shall be held, tools and equipment needed shall be provided.
- Prevention of potential risks shall be endeavored.
- Risks that are not possible to be prevented shall be assessed.
- Risks shall be fought for in its source.
- Due consideration shall be given in selecting construction machines and working forms of specifically workplaces for optimizing the work for the persons and monotonous working and pre-determined production tempo shall be diminished and their adverse effect to health shall be minimized.
- Technical development shall be complied.
- Dangerous work methods shall be replaced with non-dangerous or less dangerous ones to the extent possible.

5.8.3 Work Health and Safety Management Procedure (WHSMPr)

- Work health and safety shall be planned in conformity with the project and shall be transferred to all personnel during construction operations and prior to commencement of construction operations.

- Health facilities within the scope of the project shall be designed in a way that shall meet the needs of fundamental health care of personnel.
- Appropriate health and safety signs and plates such as “Danger”, “Entrance Forbidden” in compliance with relevant standards shall be placed to required locations.
- Work safety and work safety rules shall be placed to various sections of the workplaces to workplace notice board or panel.
- All measures adopted shall be complied in the issue of work health and safety in the workplace.
- Personnel are only responsible for performing the work assigned to itself and shall not work on other posts of other units.
- Locations of warning (alarm) places shall not be modified without obtaining consent and information of relevant persons and persons in charge with.
- Personal protective equipment provided to the personnel under the work shall be used appropriately. (Safety helmet, safety belt, rubber wellington shoes, goggles etc). The officials shall be promptly informed in case of wear, tear and lose of such materials and shall be replaced. It shall not be commenced to the work without wearing personal protective equipment for life safety and under the work.
- Safety belt shall be at all times used while working on high sections more than three meters and having falling, sliding danger.
- Personal protective equipment shall be used and maintained in good and clean condition.

5.9 FLORA AND FAUNA MANAGEMENT PLAN

Impacts of the project during construction and operation phase may be summarized as habitat loss in general terms and vegetation loss depending on habitat loss and migration of fauna elements.

Preparatory studies shall be conducted on the project site prior to construction studies. Vegetable soil within the project site shall be scraped off during preparatory studies. Thus, there shall both habitat and vegetation loss. Determined flora taxa have large dispersion in our country and there are abundant agricultural and ruderal areas. Loss in vegetation caused by flora taxa is not in nature that shall jeopardize generations of lost species.

Habitat and vegetation loss shall also affect fauna elements such as flora taxa. Live fauna elements shall be kept away from the site with dismissal/repelling technique on the project site prior to preparatory study. When encountered with any juvenile (baby) individual, it shall be moved outside of the site without giving any harm. In this way, loss of live fauna elements shall be avoided.

There may be species which is on the project site that is under protection according to Annex-2 and Annex-3 of Bern Convention among fauna species as to the literature studies. In relation to this species, the 6th and 7th Article provisions in this convention and protection measures of Bern Convention shall be complied.

1- In relation to fauna species protected for certain;

- All kinds of willful capturing and retaining, deliberate killing forms,
- Damaging reproduction and resting locations or devastating the same,
- Deliberately disturbing wild fauna in specifically reproduction, development and hibernation periods that shall be in contradiction with the objective of this convention,

- Collecting eggs from wild environment or willfully devastating the same and retaining such eggs even they may be empty,
- Retaining living or non-living fauna species and internal trade are forbidden.

2- In relation to protected fauna species;

- Other guidelines regulating closed hunting seasons and/or operation will be abided by,
- To temporary or local prohibition in appropriate cases for keeping up wild fauna to sufficient population levels,
- To comply with the issues of regulating in nature of selling living and non-living wild fauna, retaining for selling purposes and transferring or putting into sale the same.

During construction and operation phase of the project, the provisions of: “Bern Convention, Land Hunting Law and Regulations numbered 4915 and the provisions of the following will be abided by: other national and international contracts , and Republic of Turkey the Ministry of Environment and Hydraulic Works, Nature Preservation and National Parks General Directorate, Hunting and Wild Life Department and the decision of 2011-2012 Hunting Period Central Hunting Commission effected by being published in the Official Gazette dated 18 June 2011 and numbered 27968.

6. ENVIRONMENTAL MANAGEMENT SYSTEM

It is developing management system that systematically, reduces the harmful effects of managements from to the environment or eliminates if it is possible, is called the Environmental Management System. ISO 14000 Environmental Management System, which base is established on risk analysis, reduces the excessive use of natural resources; soil, water, air; minimize the losses. Additionally, OHSAS 18000 Occupational Health and Safety is a management system that all people affected by the activities, it performs an organization (employees, temporary workers, sub-contractor employees, visitors, customers and any person at work) that affect the health and safety management model in order to eliminate the negative effects.

ISO 14001 Management System and OHSAS 18001 Occupational Health and Safety Management System certificate are taken by the project partners; YDA Construction Industry Trade Inc. is certificated by "Universal Certification" and INSO Sistemi Per Le Infrastrutture Sociali S.P.A is certificated by "Lloyd's Register Quality Assurance" respectively and system will be applied on the construction phases of the project.

The waste, which will be caused from the construction and operation phases of Kayseri Integrated Health Campus, will be recorded to waste inventory form as an obligation of the Environmental Management System. Sample form is given in Figure2.

One of the important procedure included by the Management Systems, is "Corrective / Preventive Action Procedure". The purpose of this procedure, is to apply the each phase of Kayseri Integrated Health Campus to detect non-conformities identified as relating to the activities, the reasons for the non-conformity; to make planning, and implementation of activities to avoid duplication, to make activities for the prevention and remediation to be made on the realization of the applicable procedures beforehand and to specify the rules. The non-compliance or potential non-compliance actions will be recorded to the corrective / preventive action form. Sample of the corrective / preventive action form is given in Figure3.

Management system will be applied so the roles and responsibilities will be identified, shared and an organizational chart will be created during the construction phase. Sample of organization chart is given in Figure4. Similarly, the spill response plan, top soil management plan and vehicle use and maintenance plan will be applied and implemented in accordance with the requirements of ISO 14001 Management System.

In the operational phase of Kayseri Integrated Health Campus, best available techniques will be considered to get ISO 14001 and/or ISO 18001 certification in environmental management and occupational health and safety management.

No:

[illegible][illegible]

Controlled by
(Name Surname, Position, Signature)

.....

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CORRECTIVE/PREVENTIVE ACTION FORM	
Date:	No:
☐ Corrective	☐ Preventive
1. SOURCE OF NONCONFORMITY:	
2. DESCRIPTION OF NONCONFORMITY:	
3. WHO FOUND THE NONCONFORMITY: (Name Surname, Position, Signature)	
4. HAVE NONCONFORMITY BEEN SEEN BEFORE? ☐ No ☐ Yes	
5. PLAN/SUGGESTION OF ACTION TO BE ELIMINATE THE ROOT CAUSES OF NON-COMPLIANCE:	
6. PROJECTED DATE OF CORRECTION :	
7. MONITORING OF IMPLEMENTATION:	
8. RESPONSIBLE PERSON: (Name Surname, Position, Signature)	

Figure 3. Corrective/Preventive Action Form

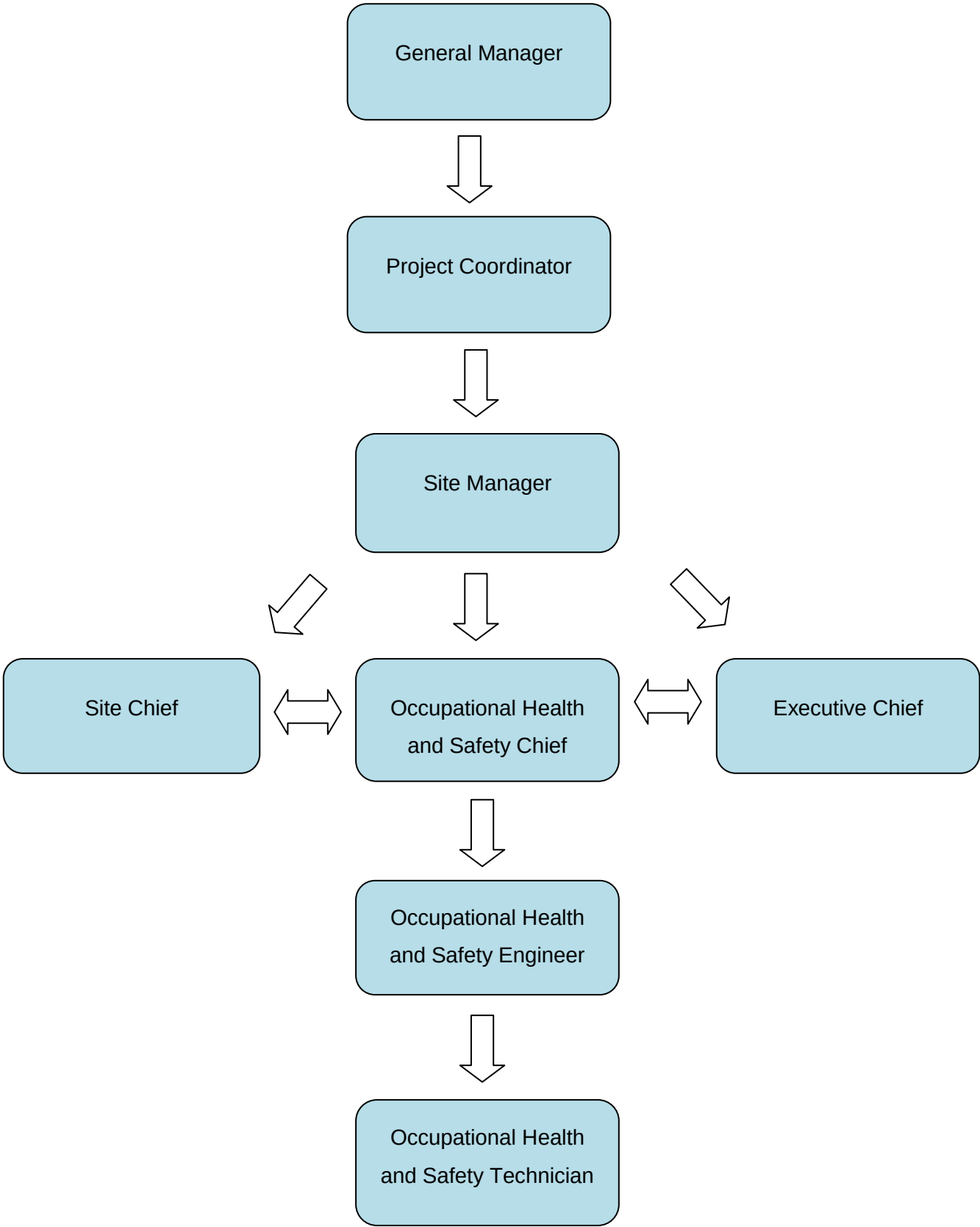


Figure 4. Organization Chart

7. ENVIRONMENTAL MONITORING PROGRAM

Impacts arising from operation and monitoring control program recommended against these impacts during construction and operation periods of the project activity have been provided below.

7.1 Construction Phase Monitoring Program

Impacts arising from operation and monitoring control program recommended against these impacts during construction periods of the project activity have been provided below.

Table 6: Environmental Monitoring Program

IMPACT	MONITORING PLACE	MONITORING STUDY	MONITORING PERIOD
Dust-Particle Matter	Excavation areas Storage areas	PM10 and dust measurements in designated points	Once in 3 months during construction
Surface and Groundwater quality	Flood protection channel From ground wells near the project site	Measurements such as pH, Suspend Solids, turbidity, COD, oil-grease etc. in flood protection channel are in regard to determination of groundwater quality	Once in a month
Noise	The nearest settlement place	Environmental Noise Measurements in settlement places the nearest to the construction site	Once in a month
Soil Quality	Construction site	Soil quality analyses in designated points	Once in a month

Table7: Administrative Monitoring Program

REGULATION	RELEVANT ARTICLE	RESPONSIBILITY
Regulation on Permits and Licenses Required to be Obtained by the Law of Environment	ANNEX-2 2.14 Facilities generating concrete, mortar or road material by using cement, having production capacity 10 m ³ /hour or over,	Environmental Permit shall be obligatory for concrete plant to be established during construction phase.
Regulation on Environmental Official and Environmental Counseling Firm	The facilities set out in Annex-2 list of Regulation on Permits and Licenses Required to be Obtained by the Law of Environment are obligated to employ minimum one environmental official or to obtain service of environmental management from authorized environmental counseling firms or to establish environmental management unit.	Environmental official shall be employed for pursuing implementations of relevant environmental legislation together with the facility along with commissioning of concrete plant or service of environmental management shall be taken from authorized environmental counseling firms.

7.2 Operation Phase Monitoring Program

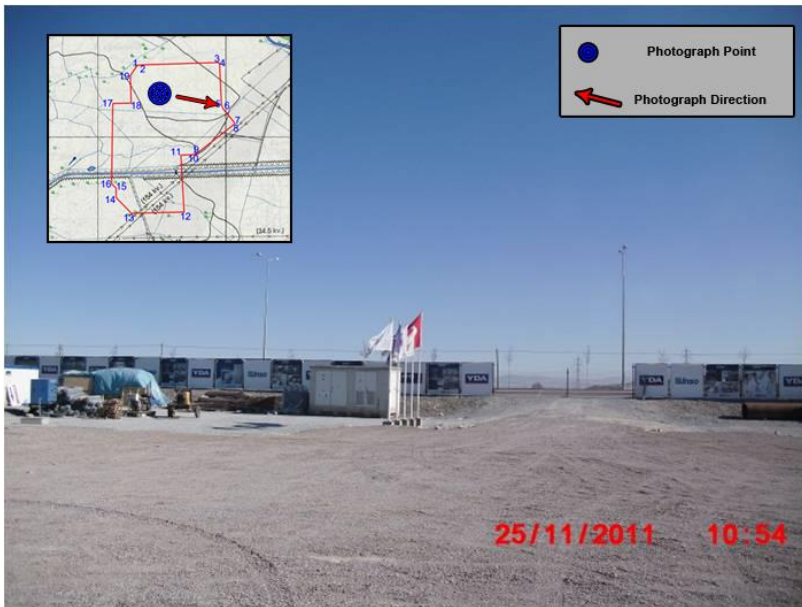
Impacts arising from operation and monitoring control program recommended against these impacts during operation periods of the project activity have been provided below.

Table 8: Administrative Monitoring Plan

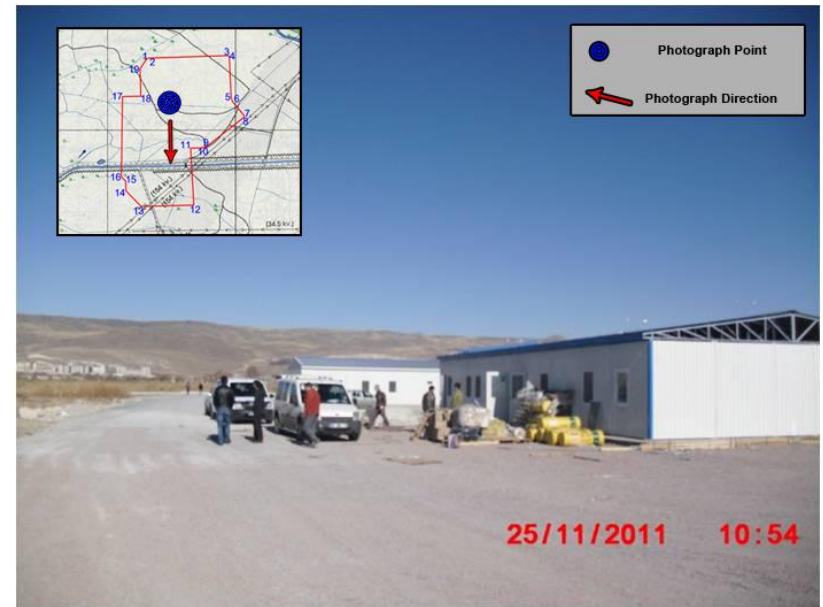
REGULATION	RELEVANT ARTICLE	RESPONSIBILITY
Regulation on Permits and Licenses Required to be Obtained by the Law of Environment	ANNEX-2 10.14 health care firms with bed capacity 20 and over	The studies within the scope of Environmental Permit and License in operation period of Kayseri Integrated Health Campus shall be executed.
Regulation on Environmental Official and Environmental Counseling Firm	The facilities set out in Annex-2 list of Regulation on Permits and Licenses Required to be Obtained by the Law of Environment are obligated to employ minimum one environmental official or to obtain service of environmental management from authorized environmental counseling firms or to establish environmental management unit.	Environmental official shall be employed for pursuing implementations of relevant environmental legislation together with the facility along with commissioning of hospital or service of environmental management shall be taken from authorized environmental counseling firms.

APPENDIX-6

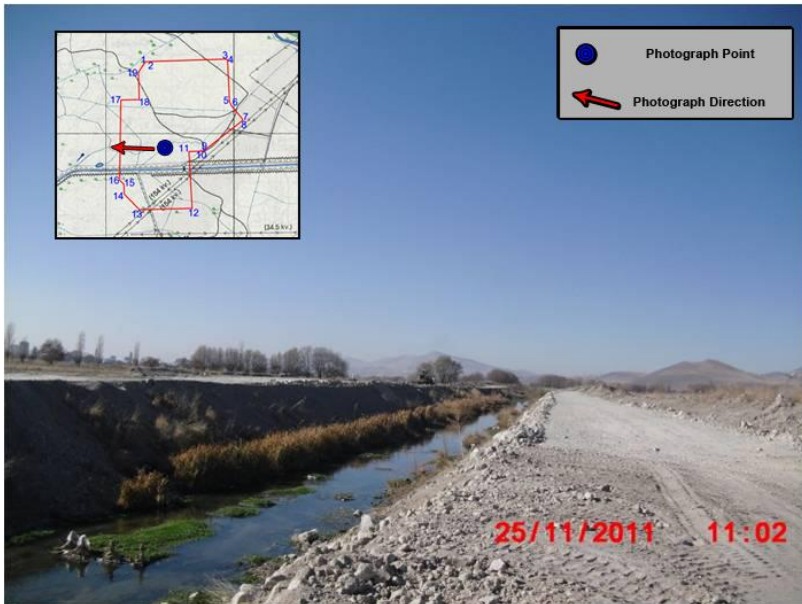
PICTURES



Picture 1. Entrance of the Construction Site



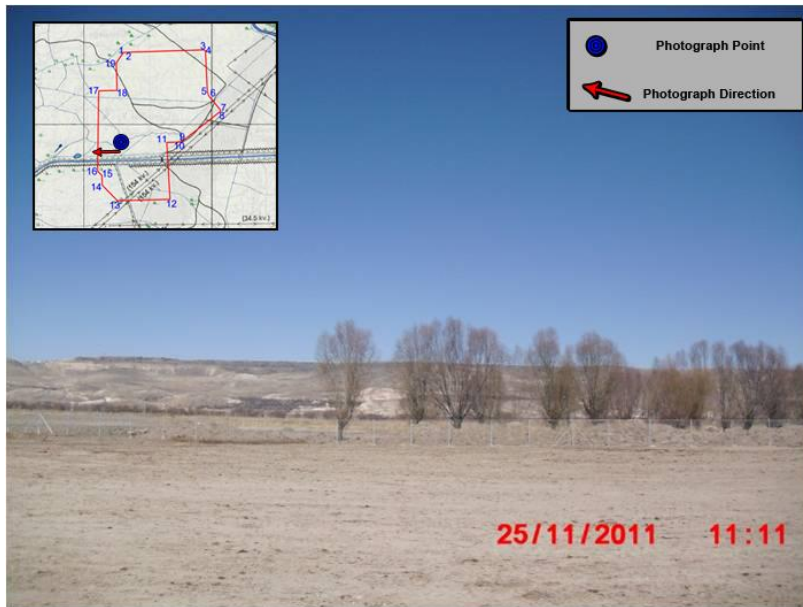
Picture 2. Administrative Office Buildings



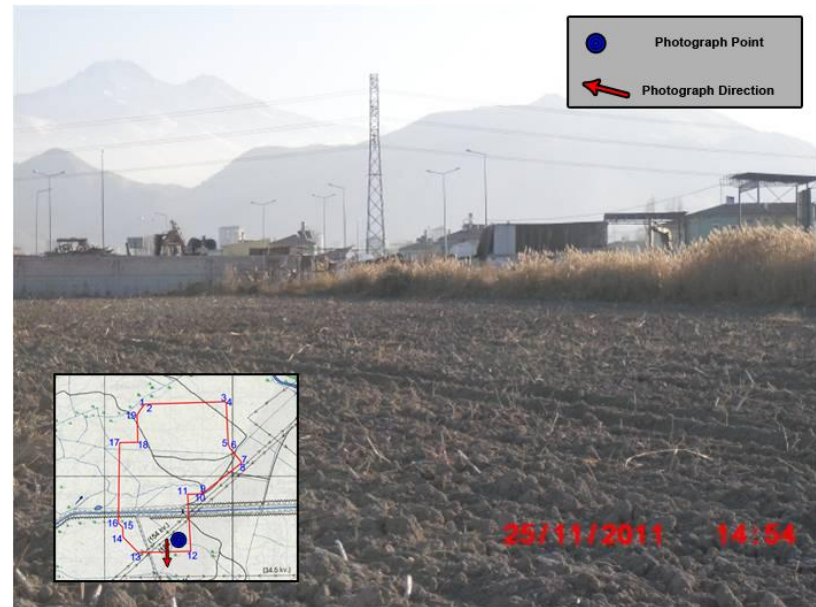
Picture 3. Water Channel



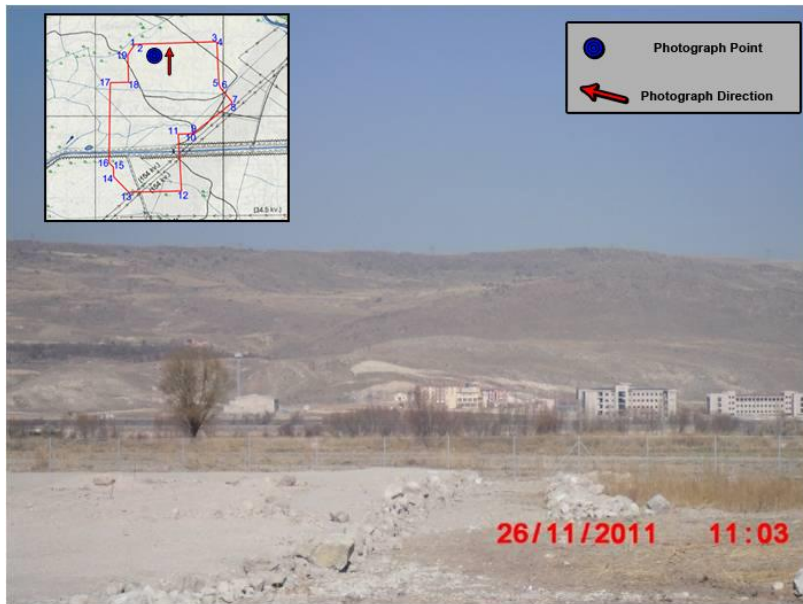
Picture 4. South Eastern of the Project Area



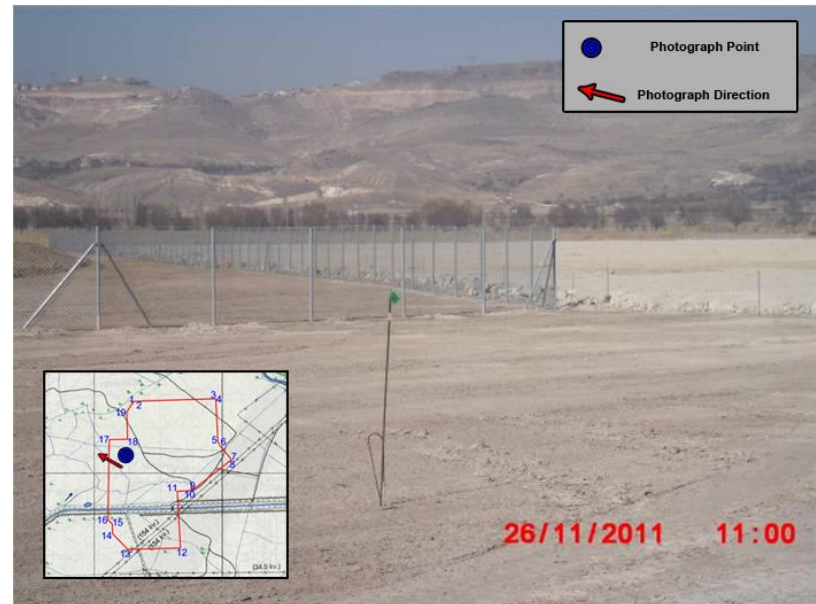
Picture 5. West of the Project Area



Picture 6. South of the Project Area (Site of Scrap Dealers)



Picture 7. North of the Project Area



Picture 8. Construction Site

APPENDIX-7
SURVEY FORMS

KAYSERİ INTEGRATED HEALTH CAMPUS PROJECT HOUSEHOLD STUDY DATA COLLECTION FORM

THE SCOPE OF THE DATA COLLECTION: Scope of this form is to determine the socio-economic status of the region of Kayseri Integrated Health Campus Project and introduce the Project and take households opinion about the Project.

Name of interviewer:

Date:

Start Time:

End Time:

1 GENERAL PROPERTIES OF HOUSEHOLD

Name of the patriarch of household:	
Name of the participator in survey:	
The address of the household:	
How long has the household lived in Kayseri? : < 1 year 1-10 year > 10 year	
If living time is less than a year, where was the earlier settlement? :	

2 PROPERTIES OF HOUSEHOLD

No.	Name Surname	Gender	Age	Relation of patriarch of household	Marital Status	Education Level	Occupation	Working Condition	Workplace Status	Social Assurance
01										
02										
03										
04										
05										
06										
07										
08										
09										
10										

3 ASSETS

3.1 Info about where you sit

Size:	
Number of Rooms:	
Property Condition:	
Satisfaction Status:	

4 SOURCE OF INCOME AND EXPENDITURE

4.1 Household Income

Source of Income		Amount / Assets*
Agriculture and livestock	Sale of livestock	
	Sale of vegetables-fruits	
	Sale of animal products	
	Other (Please specify)	
Employment (Excluding agriculture)	Self-employment: (barber, dyer etc.),	
	Household members income, salary etc.	
	Other (Please specify)	
Payments such as pension, salary, insurance etc.		
Tenure of home and/or land		
Other (Please specify)		
Estimated Monthly Income		
*If person does not want to specify the amount of assets, marking weight can be done.		

4.2 Household expenses

What are the expenditures of your household recently?

Category	Very Strong Effect	Strong Effect	Low Effect	No Impact
Nourishment				
Education				
Health				
Transportation				
Clothing				
Workmanship				
Other (Please specify)				
Credit Repayments				

5. HEALTH

1. Is there any persistent/chronic illness/health problem in your household?

2. Is there any household member passes away because of the health problems in recent days?

3. Is there any member of the household has experienced a health problem that requires treatment in the past 12 months?

4. Is there any member of the household has caught the infectious disease in the past 12 months?

5.	Do you have regular health control?
6.	When you have a health problem, which hospitals do you prefer?
7.	Where is the nearest health unit, in which distance?
8.	Are you satisfied with the health facilities in the region? Did you experience any problems? If you lived in, please explain.
9.	Is private or public hospital that you prefer important for you? If it is important, which do you prefer?

10. Is there adequate health unit available in your area? If it is not, Is there any health unit you prefer?

11. What kind of social safeguards you and your household members have?

6. THE QUESTIONS ABOUT KAYSERI INTEGRATED HEALTH CAMPUS

1. Do you have an idea about the health campuses? Please explain.

2. Do you know anything about the planned establishment of the health campus in Kayseri? If yes, where did you learn?

3. Do you have any idea about benefits of the health campus, which will be established in Kayseri?

7. OTHER ISSUES

APPENDIX-8
METEOROLOGY BULLETIN



T.R.

FORESTY AND WATER AFFAIRS MINISTRY

GENERAL DIRECTORATE OF METEOROLOGY

Latitude

38

Longitude

35

Elevation

1093

17196-KAYSERİ

1970 - 2010

Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Average Pressure (Hpa)	41	893.7	891.9	891.0	890.4	891.5	891.2	890.1	890.8	893.3	895.3	895.4	894.4
Maximum Pressure(Hpa)	41	913.2	906.3	906.6	903.5	901.7	899.9	897.8	898.8	902.8	906.1	907.6	909.8
Minimum Pressure (Hpa)	41	868.3	870.3	869.6	874.3	878.2	880.7	882.1	883.2	881.8	884.1	878.6	866.2
Avg. Temperature at 7am (°C)	41	-5.3	-3.9	0.2	6.3	11.1	15.0	17.3	15.6	10.2	5.1	-0.1	-3.1
Avg. Temperature at 2pm (°C)	41	2.6	4.7	10.3	16.1	20.7	25.1	29.1	29.2	25.4	19.2	11.3	4.7
Avg. Temperature at 9pm (°C)	41	-2.8	-0.5	4.8	10.1	14.0	18.1	21.9	21.3	16.4	10.9	4.0	-0.9
Average Temperature (°C)	41	-2.1	0.0	5.0	10.7	14.9	19.1	22.5	21.9	17.1	11.5	4.8	-0.1
Average Temperature > 5,0 C (day) (°C)	41	2.7	5.5	16.0	27.7	30.9	30.0	31.0	31.0	30.0	29.0	15.8	5.2
Average Temperature > 10,0 C (day) (°C)	41	0.2	0.6	4.7	16.5	28.6	30.0	31.0	31.0	29.3	20.7	3.6	0.5
Average High Temperature (°C)	41	3.8	6.0	11.8	17.6	22.2	26.6	30.6	30.5	26.6	20.3	12.4	5.8
Average Low Temperature (°C)	41	-7.2	-5.3	-1.4	3.4	6.6	9.7	12.1	11.4	7.3	3.6	-1.3	-5.0
Maximum Temperature Day (°C)	41	9	14	28	23	23	5	30	8	2	1	1	1
Maximum Temperature Year (°C)	41	1971	2010	2001	2008	1995	2006	2000	1987	2003	1999	1979	1990
Maximum Temperature (°C)	41	17.8	20.1	26.6	31.2	33.4	36.0	40.7	40.0	36.0	32.6	24.8	21.0
The highest Temperature > 30,0 C (day)	41				0.2	1.1	6.7	17.9	18.2	6.4	0.5		



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Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
The highest Temperature > 25,0 C (day)	41			0.1	2.6	9.8	20.3	29.2	29.4	20.7	6.8		
The highest Temperature > 20,0 C (day)	41		0.0	2.2	10.5	21.8	28.3	30.9	31.0	27.9	17.5	1.8	0.0
The highest Temperature > -1,0 C (day)	41	7.8	5.0	0.8	0.0							0.6	4.6



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Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Maximum Daily Temperature Difference (°C)	41	29.6	28.8	26.8	27.4	29.2	27.0	31.7	29.1	31.0	30.2	26.8	25.8
Minimum Temperature Day (°C)	41	18	3	4	1	7	6	31	31	26	30	25	27
Minimum Temperature Year (°C)	41	1972	1974	1985	1981	1978	1978	1979	1970	1983	1973	1973	2002
Minimum Temperature (°C)	41	-31.4	-31.2	-28.1	-11.6	-5.5	-0.4	3.7	1.4	-2.5	-12.2	-17.3	-25.5
Average Days With -0.1 and Lower Minimum Temperature	41	27.2	22.5	18.3	5.7	0.9	0.0			0.6	6.0	18.2	24.8
Average Days With -3 and Lower Minimum Temperature	41	21.6	16.9	10.8	1.6	0.1					2.0	10.4	18.4
Average Days With -5 and Lower Minimum Temperature	41	17.5	12.8	6.5	0.5	0.0					0.9	6.2	13.6
Average Days With -10 and Lower Minimum Temperature	41	9.4	5.8	1.5	0.0						0.1	1.8	6.3
Average Days With -15 and Lower Minimum Temperature	41	4.5	2.3	0.4								0.2	2.1
Average Days With -20 and Lower Minimum Temperature	41	1.8	1.0	0.2									0.6
Average Days With 20 and Higer Minimum Temperature	41					0.0	0.0	0.1					
Average Days With 15 and Lower Minimum Temperature	41			0.0	0.1	0.2	1.2	5.7	4.8	0.5	0.1		
Average Days With 10 and Lower Minimum Temperature	41	0.0		0.3	1.7	5.1	14.5	23.1	20.9	7.4	2.0	0.1	0.0
Average Days With 5 and Lower Minimum Temperature	41	0.2	0.5	2.6	10.0	21.8	28.0	30.7	30.1	22.0	12.6	3.4	0.8
Average Minimum Temperature on Soil (°C)	41	-8.9	-7.0	-3.4	1.2	4.5	7.4	9.6	8.7	4.7	1.2	-3.4	-6.7
Average Minimum Temperature on Soil (°C)	41	-32.5	-32.0	-30.0	-38.5	-7.0	-2.4	2.0	0.0	-4.9	-15.0	-24.1	-32.8
Average Days with -0.1 and Lower Temperature on Soil	41	28.9	24.6	22.8	11.1	3.1	0.1			2.6	11.7	22.4	27.1
Average Days with -3 and Lower Temperature on Soil	41	24.6	19.6	16.6	4.8	0.6				0.3	5.5	16.5	22.1



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Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Average Days with -5 and Lower Temperature on Soil	41	20.9	15.9	11.2	1.9	0.1					2.3	11.2	17.9
Average Days with -10 and Lower Temperature on Soil	41	11.8	7.8	2.7	0.1						0.1	3.1	8.4
Average Pressure hPa)	41	4.3	4.6	5.7	7.6	9.9	11.7	13.1	12.6	10.1	8.3	6.2	4.9
07 Average Relative Humidity (%)	41	86.1	85.7	85.5	82.3	78.6	73.5	71.2	74.5	80.8	87.1	88.5	86.5
14 Average Relative Humidity (%)	41	62.4	57.0	47.8	43.0	40.3	36.2	32.7	32.1	33.1	40.6	50.9	61.9
21 Average Relative Humidity (%)	41	80.4	76.8	67.4	63.5	64.4	57.7	48.0	47.1	51.7	64.9	75.5	81.6
Relative Humidity (%)	41	76.3	73.1	66.9	62.9	61.1	55.8	50.6	51.2	55.2	64.2	71.7	76.7
Minimum Humidity (%)	41	13	8	2	3	4	4	6	4	4	5	13	4
07 Average Cloud Cover	41	6.5	6.1	5.6	5.3	4.0	2.4	1.2	1.1	1.8	3.6	5.0	6.4
14 Average Cloud Cover	41	6.0	6.0	6.1	6.4	5.7	4.3	2.6	2.3	2.8	4.4	5.2	6.0
21 Average Cloud Cover	41	4.9	4.7	4.4	4.5	3.6	2.5	1.5	1.2	1.6	3.0	3.8	4.9
Average Cloud Cover	41	5.8	5.6	5.4	5.4	4.4	3.0	1.8	1.5	2.0	3.7	4.6	5.8
Average Open Days	41	4.2	4.6	5.5	4.1	6.0	11.8	19.7	21.1	17.4	11.1	8.3	5.1
Average Cloudy Days	41	17.7	16.5	18.5	20.1	22.1	17.1	11.0	9.7	12.1	16.6	15.8	16.5
Average Closed Cover Days	41	9.1	7.1	7.0	5.8	2.9	1.0	0.2	0.1	0.4	3.3	5.9	9.4
07 Total precipitation Average (mm)	41	13.3	14.2	16.8	20.7	14.1	5.7	1.9	0.7	3.9	10.9	12.9	15.7
14 Total precipitation Average (mm)	41	8.6	7.3	9.6	10.4	12.3	6.6	1.8	0.7	1.6	6.8	9.8	9.9
Total precipitation Average (mm)	41	10.3	10.4	15.4	27.1	27.5	24.1	8.0	4.9	6.6	15.6	13.2	12.8



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Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Total precipitation Average (mm)	41	32.0	32.3	41.8	57.3	53.7	37.8	11.9	6.2	11.7	33.3	35.7	38.4
Maximum precipitation (mm)	41	36.7	25.5	29.6	47.2	51.8	51.2	39.6	35.6	19.4	38.3	36.5	26.0
Precipitation over 0.10 mm (avg.day)	41	12.1	11.7	12.6	13.9	13.4	8.7	2.5	2.0	3.8	8.0	9.0	12.1
Precipitation over 10.0 mm (avg.day)	41	0.8	0.6	1.0	1.6	1.4	1.0	0.4	0.2	0.3	1.0	1.1	1.0
Precipitation over 50.0 mm (avg.day)	41					0.0	0.0						
Number of snowy days	41	8.7	7.8	5.7	1.3	0.1					0.2	2.8	6.9
Number of Snow Covered Days	41	16.6	11.2	4.3	0.4	0.0					0.0	2.8	10.8
Maximum Thickness OF Snow (cm)	41	48	51	37	17	1					10	42	36
Number of Foggy Days	41	5.5	2.6	1.3	0.3	0.1	0.1			0.0	0.6	3.6	6.1
Number of Hailing Days	41	0.1		0.3	0.7	0.9	0.4	0.1		0.0	0.1		0.0
Average. number of Hoarfrost Days	41	7.9	7.2	10.2	3.1	0.4				1.0	7.5	14.3	9.9
Average number of Thunder stormy Days	41	0.1	0.1	0.7	3.0	6.0	4.9	1.8	1.5	1.9	1.1	0.3	0.1
Avg. wind speed at 7am (m/s)	41	1.3	1.5	1.4	1.2	0.9	0.8	0.8	0.5	0.5	0.9	1.1	1.4
Avg. wind speed at 2pm (m/s)	41	2.0	2.5	3.3	3.6	3.2	2.9	2.7	2.7	2.6	2.3	1.8	1.9
Avg. wind speed at 9pm (m/s)	41	1.6	1.8	2.1	2.2	1.8	1.7	1.7	1.7	1.6	1.5	1.4	1.5
Avg. wind speed (m/s)	41	1.6	1.9	2.2	2.4	2.0	1.8	1.7	1.6	1.6	1.5	1.5	1.6
Maximum wind speed (m/s)	41	41.5 SE	39.0 SSE	39.9 S	32.2 SSE	29.8 SSE	26.0SS W	24.4 E	20.3 S	22.4 SW	33.7 SW	34.0 ESE	36.0 SE



T.R.

FORESTY AND WATER AFFAIRS MINISTRY

GENERAL DIRECTORATE OF METEOROLOGY

Latitude 38

Longitude 35

Elevation 1093

17196-KAYSERİ

1970 - 2010

Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Stormy Days Average	41	2.7	2.8	3.5	3.9	2.0	0.9	0.4	0.2	0.7	1.0	1.8	2.4
Strong Winds Days Average	41	2.0	3.1	6.3	9.2	9.3	6.8	3.9	3.0	2.9	3.5	2.9	2.7
Total no. of N wind blowing	41	1503	1180	1186	1208	1347	1693	2026	1964	1593	1447	1149	997
Avg. N wind speed	41	1.2	1.4	1.5	1.6	1.6	1.7	1.8	1.7	1.5	1.3	1.2	1.2
Total no. of NNE wind blowing	41	1465	1456	1246	1205	1517	1650	2166	2026	1474	1283	1003	993
Avg. NNE wind speed	41	1.3	1.5	1.6	1.7	1.6	1.6	1.8	1.7	1.5	1.4	1.2	1.3
Total no. of NE wind blowing	41	1255	1162	1166	923	1060	1070	1185	1236	965	993	784	1171
Avg. NE wind speed	41	1.4	1.6	1.7	1.6	1.5	1.7	1.8	1.7	1.4	1.3	1.3	1.3
Total no. of ENE wind blowing	41	1267	1178	1178	838	931	961	1220	1016	746	925	719	1006
Avg. ENE wind speed	41	1.5	1.6	1.8	1.8	1.5	1.6	1.6	1.5	1.4	1.3	1.3	1.5
Total no. of E wind blowing	41	1384	1057	916	765	792	783	981	771	692	691	723	1020
Avg. E wind speed	41	1.5	1.7	1.8	1.8	1.5	1.3	1.5	1.3	1.3	1.2	1.3	1.4
Total no. of ESE wind blowing	41	1382	1238	1124	1107	1340	1258	1288	1145	1076	1039	1205	1392
Avg. ESE wind speed	41	2.1	2.1	2.2	2.2	1.7	1.4	1.4	1.3	1.2	1.5	1.7	1.9
Total no. of SE wind blowing	41	2000	1622	1579	1897	1869	1972	1870	2149	2307	2351	2131	2526
Avg. SE wind speed	41	1.8	1.9	2.1	2.2	1.6	1.3	1.3	1.2	1.2	1.3	1.5	1.6
Total no. of SSE wind blowing	41	2689	2512	2906	3127	2869	2484	2289	2439	2774	3503	3470	3684
Avg. SSE wind speed	41	1.6	1.9	2.4	2.4	1.8	1.5	1.3	1.3	1.3	1.4	1.5	1.6



T.R.

FORESTY AND WATER AFFAIRS MINISTRY

GENERAL DIRECTORATE OF METEOROLOGY

Latitude

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17196-KAYSERİ

1970 - 2010

Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Total no. of S wind blowing	41	4092	3320	3495	3250	3382	2802	2649	2989	3709	4069	4682	4197
Avg. S wind speed	41	1.3	1.5	1.6	1.7	1.5	1.3	1.2	1.2	1.2	1.2	1.2	1.3
Total no. of SSW wind blowing	41	3082	2749	2951	2576	2480	2090	1694	1838	2377	2742	3091	3234
Avg. SSW wind speed	41	1.3	1.5	1.9	2.1	1.7	1.5	1.4	1.3	1.4	1.4	1.3	1.3
Total no. of SW wind blowing	41	2084	1944	2098	1583	1324	1075	991	960	1139	1572	1780	2168
Avg. SW wind speed	41	1.4	1.5	1.8	2.0	1.9	1.7	1.6	1.5	1.5	1.4	1.4	1.4
Total no. of WSW wind blowing	41	2815	2835	3252	2624	2344	1887	1445	1060	1393	2002	2232	2559
Avg. WSW wind speed	41	1.6	1.9	2.2	2.4	2.2	2.2	2.0	2.0	1.9	1.7	1.5	1.6
Total no. of W wind blowing	41	1729	1718	1919	2052	1794	1475	1241	1257	1315	1763	1697	1564
Avg. W wind speed	41	1.6	1.9	2.1	2.4	2.3	2.2	2.2	2.0	2.0	1.7	1.5	1.6
Total no. of WNW wind blowing	41	1491	1806	2462	3066	3217	3190	3439	3205	2780	2496	1890	1778
Avg. WNW wind speed	41	1.6	1.8	2.2	2.4	2.4	2.3	2.4	2.2	2.0	1.7	1.5	1.6
Total no. of NW wind blowing	41	962	881	1286	1570	1563	2020	2020	2335	2026	1486	1316	1004
Avg. NW wind speed	41	1.3	1.6	1.8	2.0	2.1	2.1	2.1	2.0	1.8	1.4	1.4	1.3
Total no. of NNW wind blowing	41	973	1004	1480	1686	2241	3046	3791	3941	3035	2024	1367	998
Avg. NNW wind speed	41	1.3	1.5	1.7	1.9	1.8	1.9	2.0	1.9	1.7	1.4	1.3	1.2
Average 5 cm Soil Temperature (°C)	41	-0.2	1.3	6.8	13.6	19.3	24.8	29.1	28.5	22.5	13.6	5.5	1.1
Minimum 5 cm Soil Temperature (°C)	41	-12.0	-13.4	-15.6	-2.8	1.4	9.3	11.6	10.3	2.0	-3.0	-6.7	-11.0
Average 10 cm Soil Temperature (°C)	41	0.1	1.1	6.0	12.7	18.3	23.5	27.5	27.1	21.9	13.9	6.2	1.6
Minimum 10 cm Soil Temperature (°C)	41	-7.3	-8.6	-11.0	1.8	1.3	11.0	13.0	14.6	6.2	0.4	-1.7	-8.2



T.R.

FORESTY AND WATER AFFAIRS MINISTRY

GENERAL DIRECTORATE OF METEOROLOGY

Latitude 38

Longitude 35

Elevation 1093

17196-KAYSERİ

1970 - 2010

Parameter	Observing Period. (Year)	January	February	March	April	May	June	July	August	September	October	November	December
Average 20 cm Soil Temperature (°C)	41	0.6	1.3	5.6	12.0	17.5	22.6	26.6	26.4	21.7	14.2	6.8	2.4
Minimum 20 cm Soil Temperature (°C)	41	-5.4	-7.2	-7.0	3.0	7.5	10.9	14.8	17.3	10.3	4.0	-1.1	-5.0
Average 50 cm Soil Temperature (°C)	41	3.0	2.7	5.5	10.8	15.6	20.3	24.3	25.0	21.8	16.3	9.9	5.3
Minimum 50 cm Soil Temperature (°C)	41	0.0	-0.7	-0.3	5.3	10.1	14.5	19.2	21.2	15.4	9.7	3.4	-2.2
Average 100 cm Soil Temperature (°C)	41	6.4	5.2	6.2	9.6	13.3	17.3	20.9	22.7	21.5	18.1	13.4	9.1
Minimum 100cm Soil Temperature (°C)	41	4.2	3.0	2.9	4.5	9.2	13.5	16.9	19.9	17.7	13.4	8.2	5.9
Average Open Surface Evaporation (mm)	41			0.5	59.2	130.8	176.1	221.0	202.2	139.7	69.3	2.3	
Maximum Open Surface Evaporation (mm)	41			3.8	16.2	13.2	17.5	18.2	13.3	14.5	13.3	4.6	
Average Daily Sun Duration (hr-min)	41	2.53	3.56	4.56	6.06	8.13	10.17	11.44	11.18	9.58	6.33	4.37	2.40
Average Global Sun Intensity (cal+cm²)	32	168.10	240.70	323.00	397.80	475.30	538.30	560.80	509.90	418.60	286.90	192.60	145.50
Maximum Daily Total Sun Intensity (cal+cm²)	32	1.14	1.46	1.77	1.75	1.80	1.80	1.65	1.66	1.50	1.33	1.25	1.05

APPENDIX-9

TABLE OF PERSONNEL WHO PREPARED THE REPORT

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Project Owner : ATM Health Kayseri Investment and Operation Company
Project Location : Kayseri city, Kocasinan district, Şeker parish
Project Name : Kayseri Integrated Health Campus Project
Report Prepared by : MGS Project Consultancy Engineering Trade Limited Co

Name-Surname	Occupation	Signature
Özgür ÖZKAN	Environmental Engineer	
Leyla Büyüktanır ÖZDEMİR	Environmental Engineer	
M. Yüksel DİZDAR	Agricultural Engineer MSc.	
Burcu KUZ	Mining Engineer	
İrfan YAYLA	Meteorology Engineer	
Mehmet YALÇIN	Environmental Engineer	
Çetin ÇAKIR	Environmental Engineer	
Soner YILMAZELİ	Landscape architect	
Emre DÖLEK	Environmental Engineer MSc.	
Prof. Dr. Suavi AYDIN	Sociologist	
Mehmet GÜL	Biologist	
Tuba TANGÜREK	Geology Engineer	
Gülçin DALGIÇ	City Planner	
Dilan YEŞİLYURT	Environmental Engineer	