GEOMELETI

GEOTECHNICAL ENGINEERS & GEOLOGISTS

SLOPE FAILURE / LANDSLIDE PROJECTS

...committed to the Art and Science of Geotechnical Engineering

...aiming for maximum quality through simple and cost-effective solutions

GEOMELETI

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GEOTECHNICAL INVESTIGATION & DESIGN - CONSULTING SERVICES
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GENERAL

GEOMELETI is a Consulting Engineering Company managed and operated by experienced engineers / geologists committed to the art and science of Geotechnical / Infrastructure engineering, always aiming in giving high quality, simple and cost-effective solutions to the projects undertaken.

GEOMELETI, is staffed with experienced Engineers and Engineering Geologists and managed by P. Laskaratos and T. Katsoularis, having extensive experience respectively, among others, in all aspects of Geotechnical / Infrastructure Engineering (Railway Projects, Hydraulic works, Road and Bridge design, Building foundation design, Tunnels, Slope design etc).

The Company owns modern equipment including drilling-rigs, in situ and laboratory testing devices and with the use of specialized software, can give reliable, fast and economical design solutions to all Geotechnical Problems.

OUR CLIENTS - COLLABORATIONS

GEOMELETI provides design, supervision and consulting services to the main organizations, managing infrastructure projects in Greece and abroad, such as:

- Greek Ministry of Public Works and Transportation,
- Greek Railways and Metro Authorities,
- Greek Highway Authorities,
- Infrastructure, Building and Industrial Contractors (Hochtief, AKTOR, GEK, TERNA, J&P, ABENGOA, etc)

Our collaborations also include major international engineering firms, such as, W.S. Atkins (UK), Faber-Maunsell (UK - USA), Hocthief (Germany), 3P (Austria), SSF and ISP (Germany), DBI International (Germany, Qatar), etc.

MANAGEMENT

Petros Laskaratos:
Geotechnical - Civil Engineer M.Sc, having more than 35 years of working experience in Geotechnical Engineering Projects, offered Consulting Services to the owners of the major highway authorities (Attiki Odos, Athens - Thessaloniki Highway, Egnatia Odos) in Greece, the Athens Metro and having an extensive experience in design of all types of infrastructure engineering projects, including building foundations, ground improvement, tunnels, bridges, dams, motorways, etc.

Tassos Katsoularis:
Engineering Geologists, having more than 25 years of working experience in investigations, quality control and geological and geotechnical design for all types of infrastructure engineering projects, including buildings, tunnels, open-cuts, dams, bridges, motorways, railway lines, etc.

OFFERED SERVICES

GEOTECHNICAL INVESTIGATIONS

- Programming of Investigations
- Inspection of Geotechnical Works
- Interpretation of Investigation Results
- Sampling Boreholes: On-shore / off-shore
- Trial Pits
- Special Sampling Works
- In situ permeability Testing
- Standard Penetration Tests (S.P.T.)
- Plate Loading Testing
- Wagon Drillings
- Cone Penetrometer Testing
- Pressuremeter Testing
- Trial Embankments
- Borrow Areas Investigations
- Geophysical Investigations
- Physical Properties Laboratory Testing
- Engineering Properties Laboratory Testing
- Chemical Properties Laboratory Testing

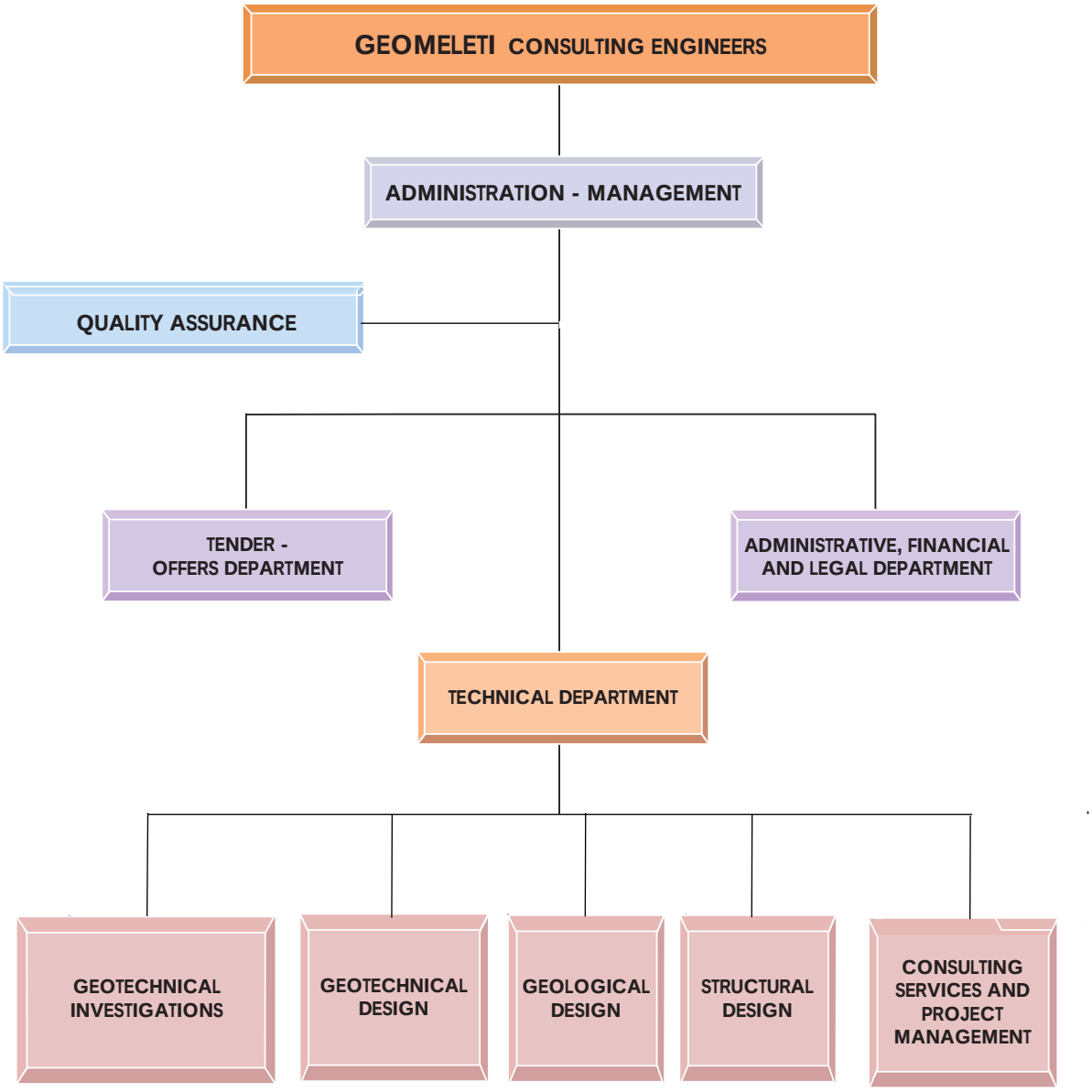
GEOTECHNICAL -STRUCTURAL ENGINEERING DESIGN

- Shallow - Deep Foundations
- Ground Improvement / Treatment
- Underpinning
- Dams - Hydraulic Projects
- Borrow Areas - Damping Sites
- Embankments
- Excavations
- Slopes and Landslides
- Geosynthetics (Design and Application)
- Retaining Structures
- Road / Airfield Pavements
- Tunnels - Underground structures
- Water Filtration and Drainage
- Port Structures / Offshore Geotechnics
- Instrumentation
- Landfills
- Bridges
- Industrial / Residential Buildings
- Ground Water Management

GEOTECHNICAL CONSULTING SERVICES

- Checking of Design
- Expert Evaluations
- Inspection of Geotechnical Works
- Material Quality Control
- Observation / Interpretation of Instruments
- Modification of Design During Construction
- Preparation of Tender Documents
- Evaluation of Contractors' Offers

ORGANIZATION CHART

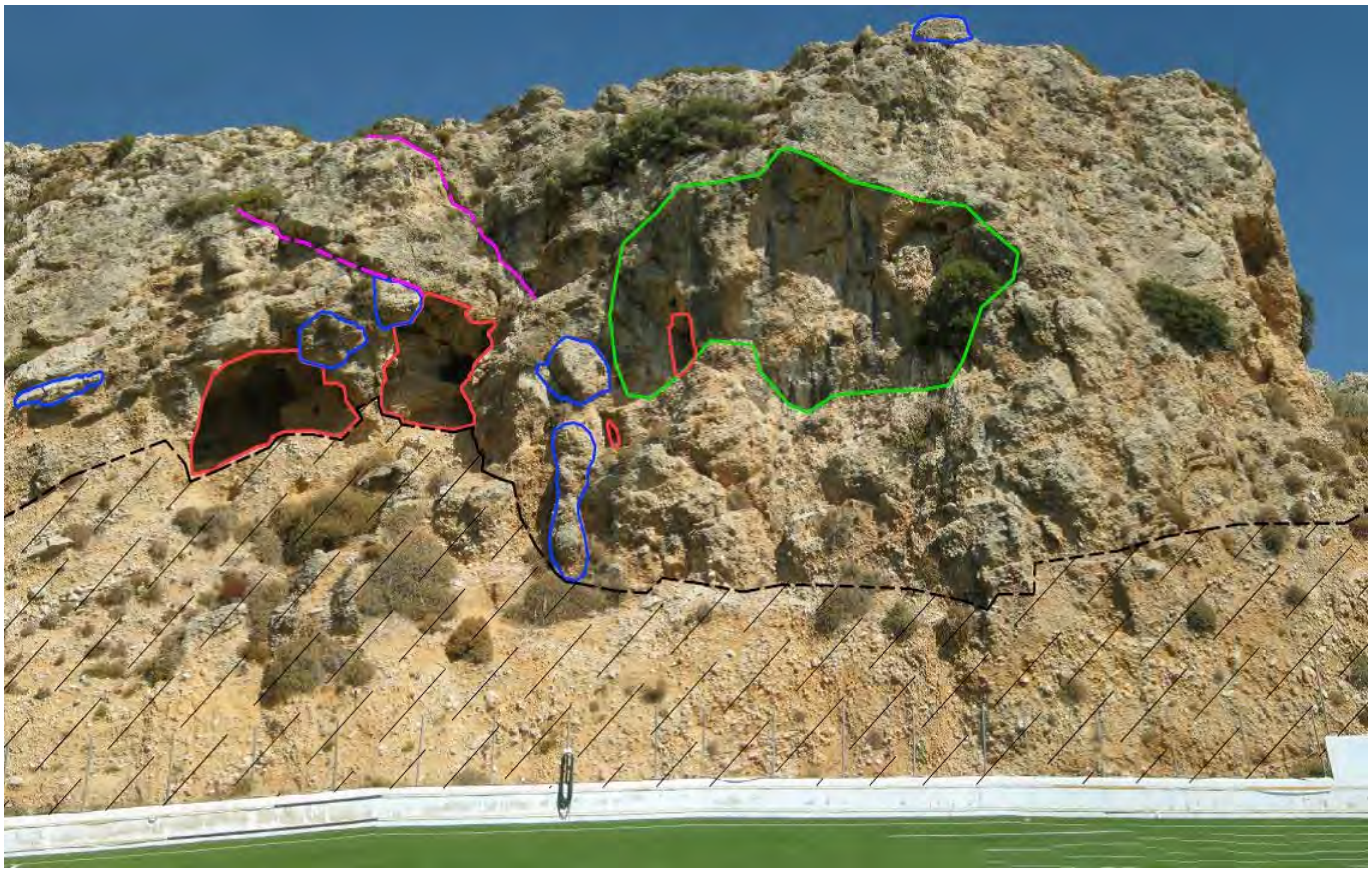


EXPERIENCE IN

LANDSLIDE PROJECTS

GEOMELETI

Treatment of Landslide Phenomena and Failures, Rehabilitation of Landslides, etc



REMEDIAL MEASURES FOR THE PROTECTION OF NORTHERN SLOPES OF THE KARIES STADIUM IN CHIOS, CHIOS ISLAND, GREECE

Client:
MUNICIPALITY OF CHIOS

The under design slope presented with risks of larger failures, thus rendering an adjacent stadium unusable. It is 210m in length and 35m in height slope.

Works included: Geological – Geotechnical mapping of the slope area, Design for the protection and formation of the slopes, including formation of the open-cut in combination with installation of nails and the placement of anchored metal mesh including the works required for the smoothing / reinforcement of the slope.

TREATMENT OF LANDSLIDE PHENOMENA AND FAILURES AT PRIVATE RESIDENCE, PERISTA SETTLEMENT, MUNICIPALITY OF NAFPAKTIA, GREECE

Client:
GEORGIOS CHATZINIKOLAOU

Extensive failure phenomena observed at the under design area following periods of intense rainfall.

Works included: Geological – Geotechnical survey of the area of the failures, Rehabilitation Design including the proposal of construction of retaining wall in combination with deep drainage system.

REHABILITATION OF FAILURE AND CREEPING PHENOMENA AT THE OPEN SLOPE O530, BETWEEN CH. 52+952 AND CH. 53+259 (DERVENI) OF THE EKPPT HIGHWAY, SECTION KORINTHOS – PATRA, GREECE

Client:
APION KLEOS JV / OLYMPIA JV

During construction of the Korinthos – Patra (EKPPT) Highway, failure phenomena appeared at the area of the Open-Cut O530 located between Ch. 52+952 and Ch. 53+259 (Derveni Area).

Works included: Geotechnical Investigations with Coring Boreholes, Design of Rehabilitation Measures opted for the implementation of a retention system that consisted of construction of a double Pile wall, connected with beams.

REMEDIAL MEASURES OF SLOPES UNDER FAILURE AT A COASTAL LAND, "PALAIOVARKA" AREA OF VONITSA, AETOLOAKARNANIA PREFECTURE, GREECE

Client:
MARIA FRAGKOU

The area included slopes 5 - 6m in height, approximately 100m in length at a 60 acre coastal land.

Works included: Geological – Geotechnical Mapping of the area, Execution of Geotechnical Investigation with Coring Boreholes – Data Evaluation, Proposals for the Protection and Rehabilitation including the smoothing of the slopes and their protection by construction of gabions.

TREATMENT OF LANDSLIDE PHENOMENA AT THE TALA SETTLEMENT AREA, IN PAFOS PROVIDENCE, CYPRUS

Client:
GEOINVEST Ltd

A constructed Building Complex at the east of the city of Pafos in Cyprus, presented failures in the form of cracks, cavings or ground elevations as a result of landslide phenomena.

Works included: Geotechnical survey of the area with Investigations and Geotechnical Design of treatment proposals with underpinning of the buildings with piles, demolition and reconstruction where advanced damages had occurred and reinforcement of existing retaining walls with micro-piles.

LANDSLIDE REHABILITATION OF THE SOUTHERN SLOPE AT THE FUTURE WEST CELL (B') OF KARPATHOS ISLAND LANDFILL, GREECE

Client:
ARKTOS ATE

During construction of the Karpahtos Island Landfill, a failure occurred at the excavation slopes, more than 20,000m^3 in volume with cracks up to 3m in width and 4 – 5m in depth.

Works included: Geotechnical survey of the area and elaboration of Geotechnical Design of Landslide Rehabilitation including proposals for the removal of materials, construction of reinforced embankment in combination with of drainage system.

LANDSLIDE REHABILITATION AT THE FERRI-GRAVA AREA, IN MARKOPOULO – OROPOS MUNICIPALITY, ATTICA PREFECTURE, GREECE

Client:
MARKOPOULO – OROPOS MUNICIPALITY

A slope failure occurred at the "Ferri-Grava" area of the Markopoulo – Oropos Municipality, which resulted in the destruction of the existing rural concrete road and serious damages to the nearby buildings.

Works included: Geotechnical Investigation with Coring Boreholes and Landslide Treatment Design of pile-wall construction for the permanent treatment of the phenomenon.

REHABILITATION OF FAILURE AT CH. 0+300 OF THE PROVINCIAL ROAD MITILINI – LARSOS, LESVOS ISLAND, GREECE

Client:
LESVOS PREFECTURE

During the construction phase of the 1st Provincial Road between Mitilini and Larsos at the area between Ch. 0+200 and Ch. 0+300, the left slope of the road presented with failure phenomena, following the Constructor's excavations.

Works included: Geotechnical Investigations with Coring Boreholes, Data Evaluation, Rehabilitation Design of a reinforced embankment in combination with an upstream retaining Pilewall.

LANDSLIDE REHABILITATION AT "PLOMARI - MELINDA" PROVINCIAL ROAD, CH. 3+800 FAILURE AT LOCATION 5, LESVOS ISLAND, GREECE

Client:
LESVOS PREFECTURE

A slope landslide and creeping phenomena that resulted in damages along the provincial road of Plomari - Melinda as well as nearby structures took place.

Works included: Geotechnical Investigations with Coring Boreholes and Geotechnical Design of Treatment Measures, including construction of a Pile Wall as well as installation of wire mesh.

TREATMENT OF LANDSLIDE PHENOMENA AT VARIOUS LOCATIONS IN THE MUNICIPALITY OF ZAGORA, MAGNESIA PREFECTURE, GREECE

Client:
MAGNESIA PREFECTURE

Based on the geological – geotechnical mapping of the area that covered the greater area of Zagora, failure phenomena were recorded at various areas (along the National Road Volos – Zagora, along the provincial roads of the Municipality and along the Zagora - Chorefto road), as well as areas where buildings are founded (houses, churches, municipal facilities, etc), were located.

Works included: Investigations with Coring Boreholes, Geotechnical Design of Rehabilitation Measures (pile walls, reinforced embankments, drainage, gravity retaining walls, ets) for the various failure locations and conditions.

TREATMENT OF SOIL CREEPING PHENOMENA AT THE PROVINCIAL ROAD PELOPI – IPSILOMETOPO, LESVOS PREFECTURE, GREECE

Client:
LESVOS PREFECTURE

At the area close to km 1 of the Provincial Road Pelopi – Ipslilometopo, extended creeping phenomena have appeared at the northern slope of the road.

Works included: Execution of Geotechnical Investigation with Coring Boreholes and Geotechnical Design including the proposal of removal of failed materials, construction of reinforced embankment in combination with drainage system for the slope.

SLOPE FAILURES REHABILITATION ALONG THE PROVINCIAL PLOMARI – MELINDA ROAD, LESVOS ISLAND, GREECE

Client:
LESVOS PREFECTURE

The "Plomari - Melinda" provincial road located at the Southern part of Lesvos Island has presented with slope failures and rockfalls in at least 10 locations along the road.

Works Included: Field Investigations and Preliminary Designs of Rehabilitation / Protection for each location.

LANDSLIDE REHABILITATION AT THE PROVINCIAL ROAD DAFNI – ERITHRES, VIOTIA PREFECTURE, GREECE

Client:
VIOTIA PREFECTURE

At the provincial road "Dafni – Erithres", following a period of intense rainfall, a ground failure of significant size occurred around Ch. 6+900, which resulted in interruption of traffic.
The Geological and Geotechnical works (Investigations and Designs) that were carried out aimed in determining the nature of the phenomenon in order to determine the appropriate rehabilitation measures which included removal of debris, construction of a pilewall together with extended Dewatering Measures and re-construction of the Road Embankment and Pavement.

LANDSLIDE TREATMENT AT THE GAVROVO WINDFARM ACCESS ROADS, CH. 8+100, AETOLOAKARNANIA PREFECTURE, GREECE

Client:
RESTEC S.A.

During the Construction of Access Roads (Ch. 8+100) at the Gavrovo Windfarm, landslide and rockfall phenomena appeared at a high slope.

Works included: Execution of Coring Boreholes, Installation of inclinometers and subsequent measurements and Design of mitigation protection measures.

LANDSLIDE REHABILITATION AT THE AMFISA – LIDORIKI NATIONAL ROAD, FOKIDA PREFECTURE, GREECE

Client:
CENTRAL GREECE REGION

During construction of the road, an extended failure at the south slope, around Ch. 3+800 (Cut and Cover area) occurred, incredibly after

Works Included: Geotechnical Investigations with Coring Boreholes and Design of Remedial Measures.

LANDSLIDE REHABILITATION FOR SLOPE FAILURE AT THE "ARISTOTELIS" AIRPORT, IN KASTORIA, GREECE

Client:
NEOTECHNIKI ATE / NATIONAL GREEK AIRPORT AUTHORITY

During the construction of the Apron Extension of the Aristotelis Airport in Kastoria, a landslide took place at a natural slope.

Works Included: Geotechnical Investigations with Coring Boreholes and Design of Reinforcement Embankment in combination with Drainage System.

REHABILITATION OF LANDSLIDE PHENOMENA AT THE NATIONAL ROAD SPERCHIADA GRAMMENI OXIA, FTHIOTIDA PREFECTURE, GREECE

Client:
CENTRAL GREECE REGION

The design of improvement of the National Road "Sperchiada – Lefkada – Gardiki – Grammeni Oxia" of Fthiotida Prefecture, of total length of approximately 8.5Km, aimed, in between others, in determining the pavement failure areas, the retaining wall failures and the failures of the natural slopes along the road. Geological and Geotechnical Works carried out, included Geological Mapping of the failure areas and execution of Coring Boreholes, in order to demarcate the specific areas where the failures took place, to investigate the nature of the phenomena and to design the appropriate rehabilitation measures.

REHABILITATION OF LANDSLIDE PHENOMENA ALONG THE AGNANTA – KATARAKTIS ROAD IN ARTA PREFECTURE, GREECE

Client:
ARTA PREFECTURE

Large failures occurred at six locations along the Agnanta – Kataraktis National Road in Arta Prefecture and at some locations generalized failures of the pavement and the Open-Cut slopes.

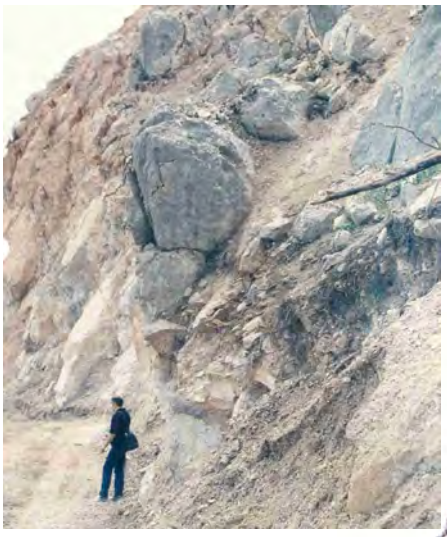
Works Included: Geotechnical Investigation with Coring Boreholes and Preliminary Geotechnical Design with Rehabilitation Proposals for each failure area in order to investigate the nature of the phenomena and to design the appropriate measures.

SLOPES REHABILITATION ALONG THE ROAD EPIDAVROS – DRIOPI, ARGOLIDA PREFECTURE, GREECE

Client:
AN.ANASTILOTIKI ATE / PIRAEUS PREFECTURE

During the construction of the road connecting Palia Epidavros with Driopi and Galata, rock failures of slopes occurred, at various locations.

Works included: Geological / Geotechnical Investigations and Geotechnical Design with proposal of various rehabilitation measures, depending on the area, such as excavation of open slopes with steps, rock traps with protective wall, drainage measures and rock retention fences at the edge of slopes.



REHABILITATION OF DAMAGES CAUSED BY EARTHQUAKES, AT THE NATIONAL ROAD NETWORK OF KEFALONIA ISLAND, GREECE

Client:
GREEK MINISTRY OF PUBLIC WORKS

Geotechnical Investigations and Design for the rehabilitation of Damages caused by earthquakes, at seven locations along the National Road Network of Kefalonia Island

EXPERIENCE IN

GEOTECHNICAL INVESTIGATIONS

GEOMELETI

More than 50,000m of coring boreholes, both on-shore and off-shore with laboratory and in-situ testing, for more than 500 different projects.

GEOTECHNICAL INVESTIGATIONS

Our company has the capability and experience to execute a wide range of field and laboratory testing / investigations.

Our experience includes execution of more than 50,000m of coring boreholes, both on-shore and off-shore, for more than 500 different projects, with corresponding laboratory testing and evaluation of their results. For these projects programming and inspection of the works were included in our scope.

On-Shore Boreholes

Off-Shore Boreholes

Wagon-Drilling

Laboratory Testing

Trial Excavation

Static Plate Load Test Equipment

Dynamic Plate Load Test Equipment

Dynamic Cone Penetrometer Equipment

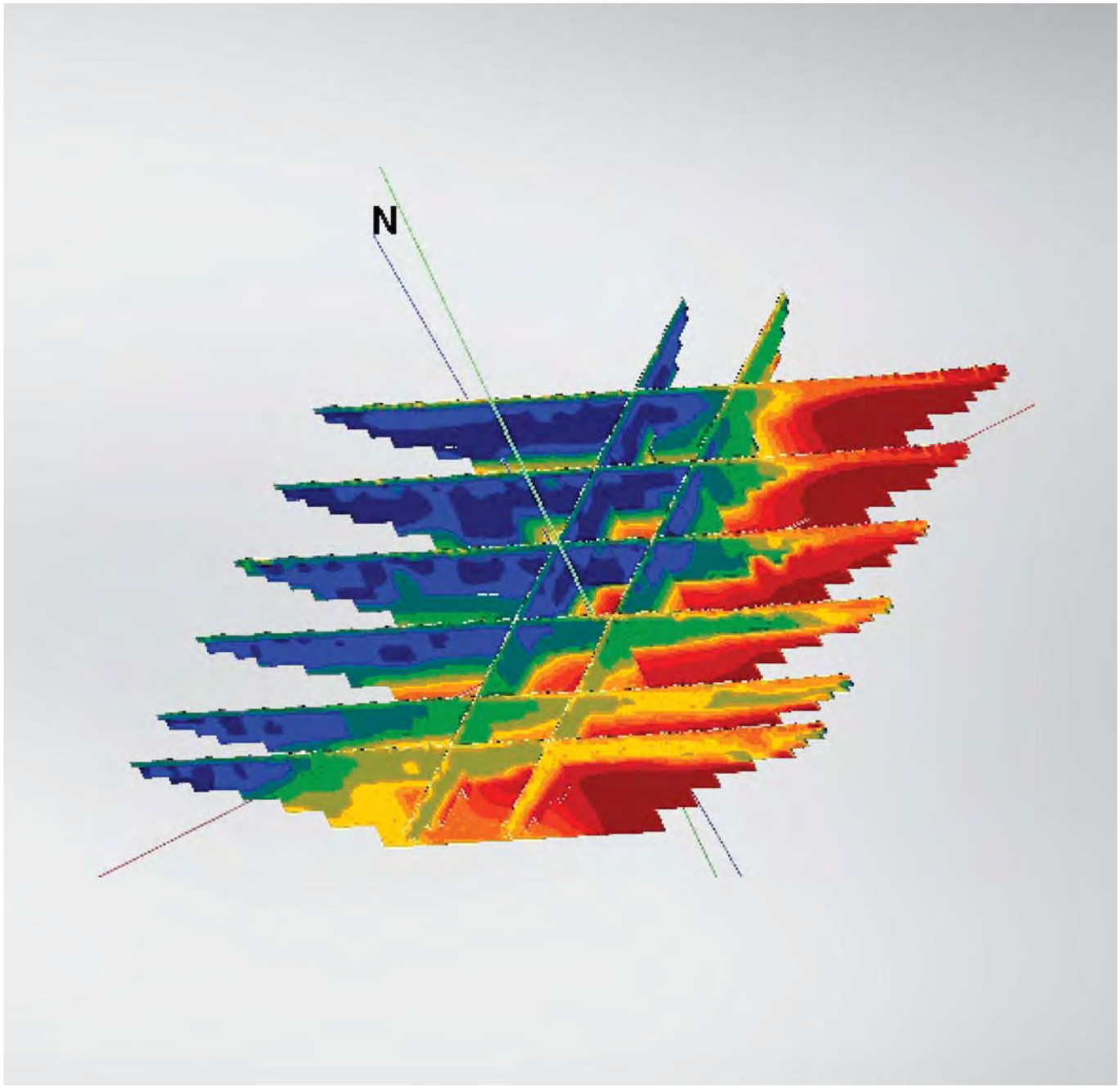
Soil Sampling

EXPERIENCE IN

GEOPHYSICAL INVESTIGATIONS

GEOMELETI

Karsts - Cavities - Sinkholes - Fracture Zones,
Utilities - Buried Structures,
Reinforcement - Voids of Concrete,
Seismic/Dynamic Properties of Subgrade Materials,
Unexploded Ordnances (UXO's), Marine - Hydrographic Services
Environmental Applications, Parameters for Grounding Design



KARSTS - CAVITIES - SINKHOLES - GROUND WATER TABLE - FRACTURE ZONES

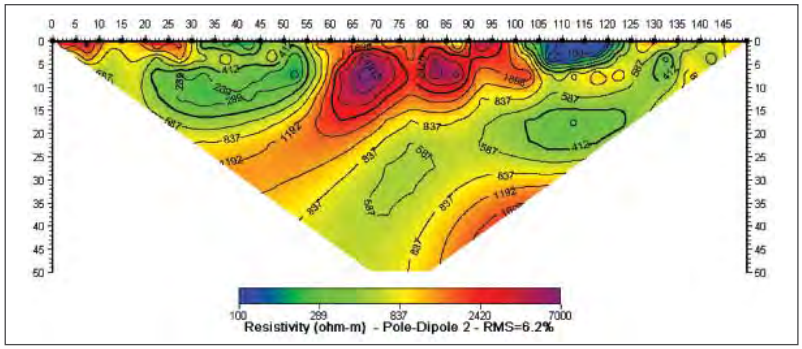
Project:
"KTENIAS", TRIPOLIS GREATER AREA, PELOPONESSE, GREECE

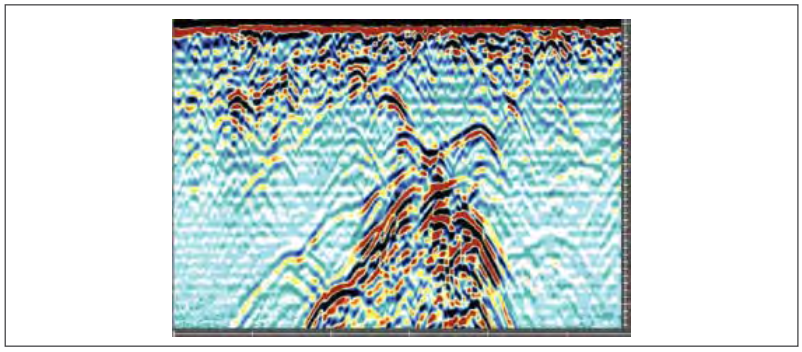
Scope:
- Detection of cavities-karsts, sinkholes and fracture zones with non-destructive geophysical methods

Geophysical Methods:
- Ground Penetrating Radar (GPR)
- Electrical Resistivity Tomography (ERT)

Geophysical Equipment:
- Mala Geoscience GPR (ProEx Control Unit, shielded antennas of 500, 250 MHz and unshielded of 100, 50 & 25 MHz central frequency, XV11 monitor, Trimple RTK GPS)
- Terrameter LS 16 channel resistivity meter, multicore cables, electrodes

Depth Range:
- 0 - 15m (GPR Method)
- 0 - 80m (ERT Method)





THESSALONIKI METRO, GREECE

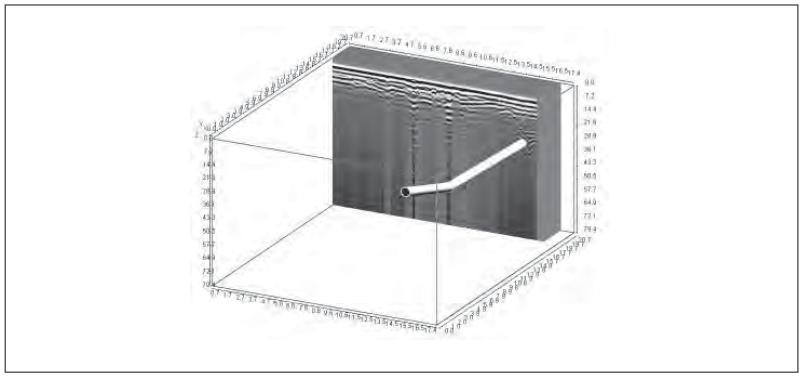
Project:
THESSALONIKI METRO, GREECE

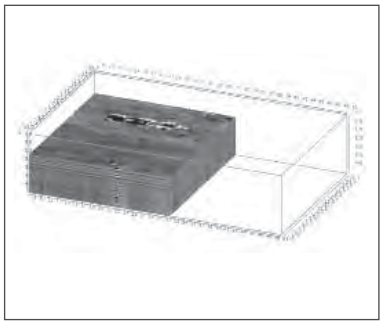
Scope:
- Detection of buried structures (water pipes, cables, sewer pipes, ancient remains, etc.), along the Metro Alignment using non-destructive methods

Geophysical Methods:
- Ground Penetrating Radar (GPR)

Geophysical Equipment:
- Mala Geoscience GPR (ProEx Control Unit, shielded antennas of 500, 250 MHz, 1.6 GHz central frequency, XV11 monitor, Trimple RTK GPS)

Depth Range:
- 0 - 6m





SEISMIC/DYNAMIC PROPERTIES OF SUBGRADE MATERIAL

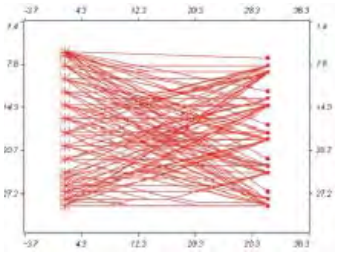
Project:
DESIGN OF "ASOPOS" EARTH DAM, GREECE

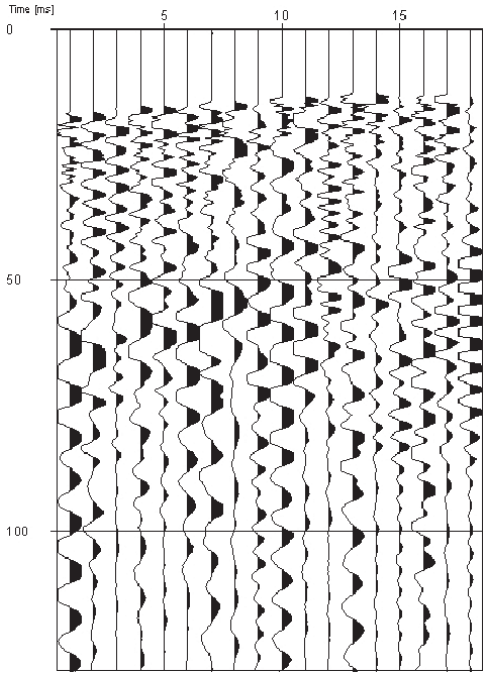
Scope:
- Detection of the dynamic elastic parameters of the subgrade materials in the foundation area for the a-seismic design of the dam (80m high)

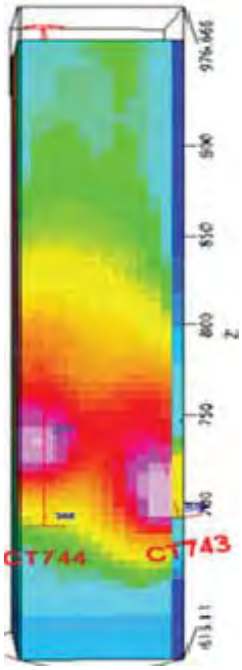
Geophysical Methods:
- Seismic Tomography (CSL Method)

Geophysical Equipment:
- Digital Seismic recorder with 24 channels of GEOMETRICS Company, model SMARTSEIS, with sampling ability of 32 ms.
- Mechanical seismic source, automatic, with applicability within the borehole. Type MH 60 of company VIBROMETRIC OY.
- Wooden beam for the production of S-waves in the multi-offset VSP method.
- Chain of eight (8) tri-axial geophones, with 5 meters spacing between geophones and ability to attach them to the walls of the borehole.
- Control Box for controlling the seismic source. Control Box for controlling the geophones. Laptop to control the data quality and their preliminary processing.

Depth Range:
- 0 - 100m







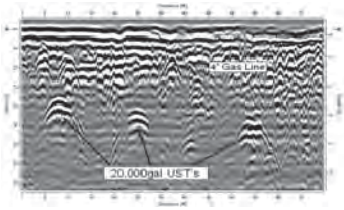
ENVIRONMENTAL APPLICATIONS - GROUNDING DESIGN

Project:
PETROLINA FACILITIES, CYPRUS

Scope:
- Hazardous waste mapping, underground storage tanks (UST), Resistivity definition for Grounding Design

Geophysical Methods:
- GPR
- ERT

Geophysical Equipment:
- Mala Geoscience GPR
- Terrameter LS 16 channel resistivity meter, multicore cables, electrodes



EXPERIENCE IN

CONSULTING SERVICES

GEOMELETI

Checking of Design, Expert Evaluation, Value Engineering, Tender Documents, Risk Assessment, Independent Engineer Services.

GEOMELETI

GEOTECHNICAL INVESTIGATION & DESIGN - CONSULTING SERVICES
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