

ENGINEERING GEOPHYSICAL SURVEYS FOR HIGHWAYS

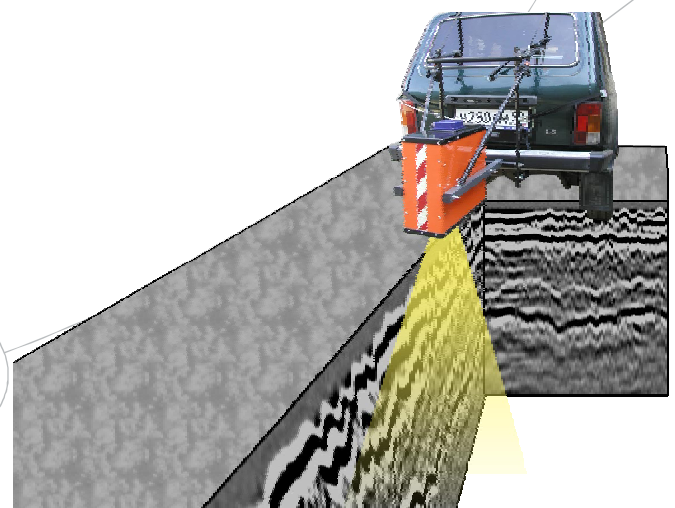


Geophysical surveys are integral part of engineering geophysical surveys for highways. Application of nondestructive methods of roadway control, reasonable territory survey in designing and constructing of highways makes it possible to minimize the risk of operation problems.

GEOTECH has the unique experience of providing engineering geophysical surveys in road control analysis and in designing and construction of new routes. On conducting of surveys it is used domestic manufacture technique which makes it possible to conduct works at a rate up to 80 kilometers per hour.

APPLICATIONS

- Engineering geophysical surveys for highways and overbridges construction
- Determining thickness of road pavement structural layers
- Detection of subsidence
- Detection of nonsolid and watered zones
- Study of engineering geological conditions of the zones liable to deformation:
 - ◆ Determining occurrence level of subsoil waters and upgrade water existence
 - ◆ Mapping of bedrock foundation roof
 - ◆ Locating zones of specific subsoil spread (peat, silt, salt subsoil etc.)
 - ◆ Permafrost top tracing
 - ◆ Detection of heavy icy rocks
 - ◆ Examination of taliks, supercooled water brines with permafrost
 - ◆ Examination of permafrost dynamics (seasonal freezing zones)
- Mapping of underground utility lines
- Study of dangerous engineering geological processes:
 - ◆ landslides
 - ◆ floating earth
 - ◆ karstic phenomena
- Checking highway pavement structure compliance with project documentation



THE FOLLOWING EQUIPMENT IS APPLIED:

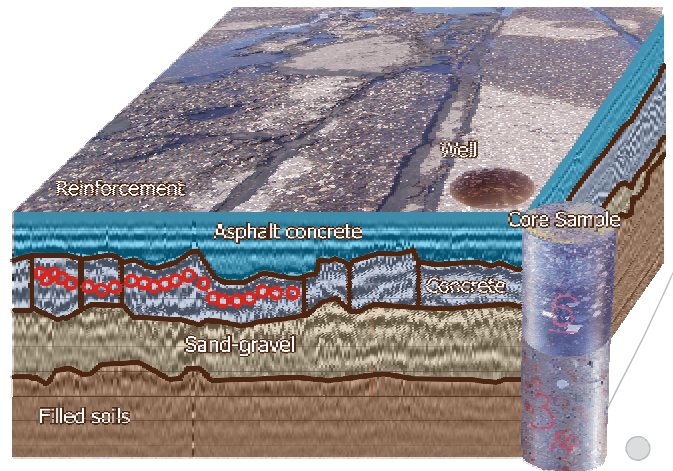
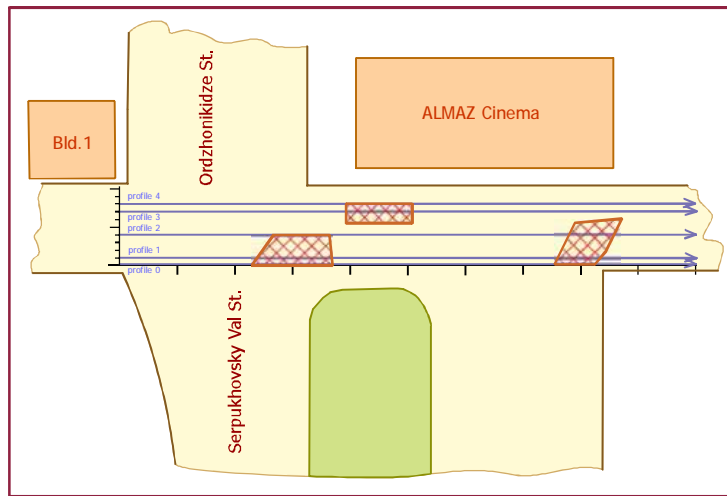
- OKO-2 Ground Penetrating Radar
- LAKKOLIT X-M3 Multichannel Seismic Station
- ERA-MAX Low Frequency Resistivity Instrument
- ERP-1 Electrical Instrument



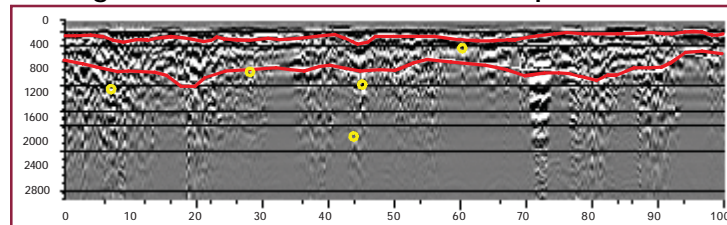
MONITORING OF HIGHWAY PAVEMENT CONDITION

Moscow roads.

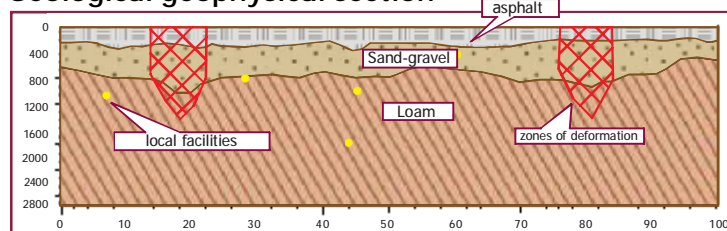
GPR survey of road segments in Central, Southwestern, Northwestern, South and North administrative districts



Radargram with results of initial interpretation



Geological geophysical section



Profile 1 → Profile position of GPR shooting with indication of movement direction

- Asphalt
- Sand-gravel
- Loam

Anormal zones: zones of significant deformations, discontinuity of road pavement layers, softening zones of road pavement layers or soil foundations.

Local facilities

Boundaries of road pavement layers