ADASTRA ENGINEERING
GEOLOGICAL SERVICES

www.adastra.it

FLUVIAL EMBANKMENTS IMAGING

KINEMATIC SURVEYS: NO MORE SINGLE INVESTIGATIONS

Vengono individuati nuclei di **terreno granulare** permeabile, **tane di animali**, **fenomeni di piping** e **ogni altra discontinuità in grado di compromettere la stabilità arginale**.

We search and identify any discontinuity that may cause embankment's failures such as **permeable granular sediments**, **animal dens and piping phenomena**.

Adastra Engineering conducts kinematic surveys that allow the embankment **to be continuously mapped**, for tens or hundreds of kilometers, with productivity that can exceed **20 km per day.**

The adopted technologies ensure the survey of the **entire embankment body** (unlike coring and CPT that are limited to the single investigated point), at **significantly lower costs**.

The company has a **specific experience** in the study of embankments, having to its credit some hundreds of kilometers of banks already investigated on behalf of various Public Administrations.

ADVANTAGES

- Continuous survey of the entire embankment body
- Identification of galleries created by animals
- Cost reduction
- Three-dimensional reconstruction of anomalies

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MODULAR SURVEY TECHNIQUES

A tested survey protocol has been applied on hundreds of kilometers of embankments already detected. It provides three phases of the study using **cutting-edge technologies**.

- The embankments are entirely detected with the **IDS Stream X wheeled georadar** (able to mount up to 40 antennas) which allows a very high three-dimensional resolution of the subsoil. It is particularly effective in identifying tunnels dug by animals.
- It follows the survey on the entire stretch investigated with the Dualem **642s electromagnetic system** which allows identification of textural discontinuities or granular deposit nuclei present in the embankment down to 10 meters deep.
- Finally, the targeted use of three-dimensional geoelectric survey systems in presence of anomalies ensure the identification of the **internal discontinuities of the banks**.
- The use of geodetic GPS and Total Station allows a centimetric geo-referencing of the geophysical surveys and very accurate reconstructions of the embankment's morphologies.

DIAPHRAGM WALL TESTING

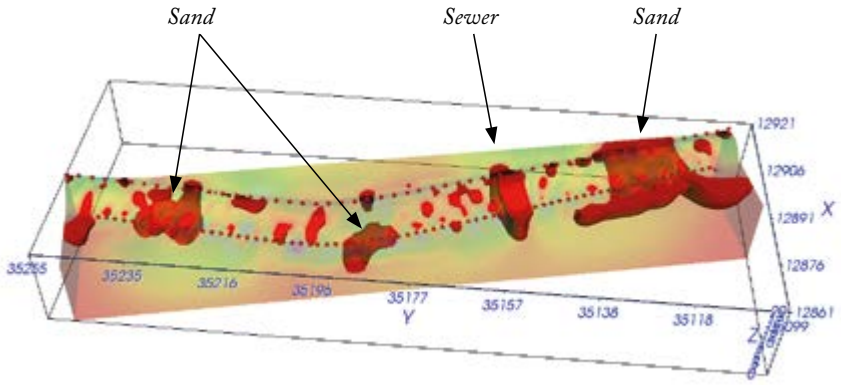
The same systems apply to the **testing of the correct execution of the diaphragm walls**.

ASSISTANCE DURING PLANNING

Our company employs technical personnel and a network of consultants from research institutions and universities with a long and consolidated experience in the field of geophysics and hydraulic engineering.
We are therefore able to effectively assist the Clients **in all stages of testing, the ordinary and the extraordinary maintenance of the embankments**.

MAIN TECHNOLOGIES

- IDS Stream X Multiarray system (up to 40 GPR antennas);
- GPR GSSI SIR series with antennas from 75 Mhz to 900 Mhz;
- dual Trimble R7 GPS receiver in RTK and VRS mode;
- Dualem 642s electromagnetometer
- TS Trimble 5600 DR200 + in robotic version;
- Inspection cameras;
- Workstations with various processing and GIS / CAD software.



3D resistivity model of an embankment. The granular sediment bodies are highlighted.

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