

# MOBILE GROUND PENETRATING RADAR

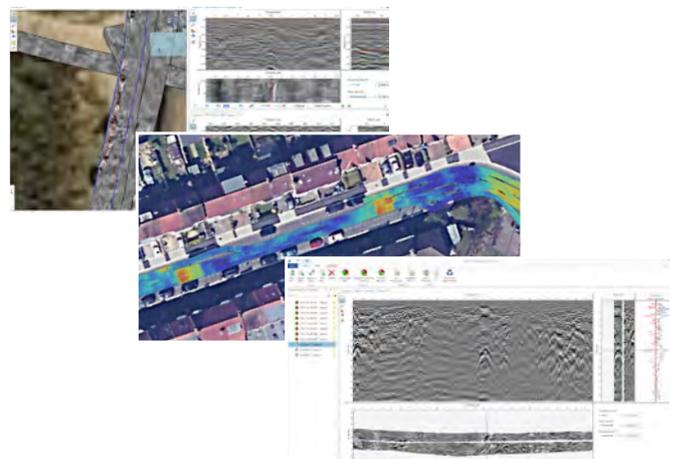
LandScope has developed a selection of Mobile Ground Penetrating Radar (MGPR) systems to allow for rapid, efficient, and ultra-high resolution data acquisition over large areas. In each case, a multi antenna GPR array is deployed to a Chapter 8 compliant highways survey vehicle, covering a large swath in each pass.

Our mobile GPR systems have been developed by our in-house team of geophysicists and highways surveyors in association with original equipment manufacturers Kontur (formerly 3D-Radar) and Utsi Electronics, delivering rapid deployment, flexible configuration, and the highest available data quality.



## BENEFITS

- **Rapid:** data acquisition of up to 50 linear kilometre per day at maximum resolution and depth
- **No Disruption:** reduces, and in some cases eliminates, the use of traffic management and carriageway closures - minimising cost and disruption
- **Boots off the Carriageway:** reduces health and safety risk to survey personnel
- **Optimum Data Quality:** multi-frequency solution to optimise depth resolution and penetration
- **Gap Free Coverage:** augments traditional hand pushed GPR to provide the most comprehensive survey coverage
- **Meets Existing Standards:** PAS128 and BIM compatible outputs
- **Positionally Accurate:** benefiting from GNSS, military grade Inertial Navigation System (INS) and odometry to provide the highest georeferencing accuracy in 2D or 3D



## HIGHWAYS SURVEY VEHICLE (HSV)

Our custom built highways survey vehicle is configured for the deployment of a Kontur DXG-Series ground-coupled antenna array. The system incorporates an antenna spacing of 75mm with an effective swath width of 1.5m, producing the highest resolution of achievable data.

The Kontur system samples over a wideband frequency range (200MHz to 3GHz) allowing for optimum signal penetration depth and vertical resolution. Furthermore, the system contains cross-polarized antenna elements enabling the detection of transverse and longitudinal targets from a single pass.

To facilitate safe and effective highways working, the vehicle is fitted with a cab-controlled actuator system for raising and lowering the antenna. Once the system has been set up, the survey team do not need to leave the vehicle, removing them from potentially dangerous environments. The antenna is seamlessly lowered for acquisition and then raised for transit between survey areas.

## APPLICATIONS

- **Highways Survey:** pavement construction analysis, material condition analysis (voiding, moisture, delamination/debonding)
- **Buried Utility Mapping:** PAS128 survey, route clearance, reconnaissance survey
- **Site Investigation and Archaeology:** underground infrastructure mapping, depth to bedrock assessment
- **Rail Survey:** ballast condition survey, services mapping

## ROUGH TERRAIN

As with our highways survey vehicle, our rough terrain solution is a modular design incorporating either our Kontur or Utsi GPR systems; this allows for a bespoke array configuration to suit site conditions and target requirements.

All data is geo-referenced using real-time kinematic GNSS and inertial navigation systems and provides the surveyor with a live display of survey coverage.

For buried utility mapping the system provides efficiency for high resolution 3D mapping of subsurface features in accordance with the higher level PAS128 specification.

The rough terrain MGPR system can also be augmented with additional geophysical sensors to allow utility mapping and archaeological survey to take place simultaneously.



## DYNAMIC POSITIONING

In order to provide data acquisition positioning accuracy in keeping with the GPR resolution and demanding requirements of PAS128, LandScope integrate our mobile GPR solutions with mobile mapping systems from industry leader Leica. There is no point having GPR resolution in the order of millimetres if it cannot be geo-referenced with the same level of precision.

The integration of mobile GPR to a mobile mapping system facilitates detailed asset survey both above and below ground. The photographic and LiDAR data associated with a mobile mapping system provides an invaluable aid to the interpretation and delivery of GPR data.

LandScope operates sophisticated software solutions from Bentley Systems and Roadscanners to deliver fully geo-referenced data sets (imagery, LiDAR and radar), providing the end user with an intuitive and highly accurate processing and visualisation environment.



## RELATED SERVICES

Further information on our full survey portfolio can be found on our website: [www.land-scope.com](http://www.land-scope.com)



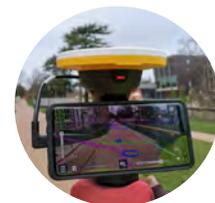
Underground  
Utility Mapping



Pavement Survey



Mobile Mapping



U-GIS

