Gediminas Castle Hill, Lithuania, update 2019

PROJECT SUMMARY

NAME: Landslide affecting Gediminas Castle Hill, Vilnius, Lithuania
YEAR: 2017-19
CLIENT: National Museum of Lithuania
CONSULTANT: Geosense
INSTRUMENTATION SPECIALIST: GPS Partneris Ltd.

OVERVIEW
Work continues to stabilize landslide damage affecting Gediminas Castle Hill in Lithuania. The castle was built in the 14th Century. Historical sources mention the first catastrophic landslide occurred in 1396. More recently, a catastrophic slide occurred in 2017 following severe rainfall.

The site was closed to the public and work began to stabilize the area. As well as controlling any movement in two retaining walls - a small stone one at the top and a main masonry wall at the bottom - the aim was also to activate an on-site landslide alert.

This is the first wireless, remote control monitoring system to be installed in Lithuania.

The site and the funicular has now reopened to visitors.

The project to stabilize the hill has so far cost the state 9 million euro.

MONITORING
Geotechnical monitoring began approximately two years ago following a series of severe landslides. Geosense sensors continue to provide online real-time monitoring and alarm alert.

So far, 23 wireless tilt meters have been installed, connected to the Wi-SOS 480 Gateway; 50 prisms are powered with four GeoMax Total Stations and five load cells measure the anchors load, powered by a Geologger G8-Plus.

Future plans include increasing the number of prisms, installing piezometers for water level measurement in boreholes and drainage water wells and using inclinometers in a 40m borehole in the center of the hill.

PRODUCTS USED
Wi-SOS 480 wireless Tilt Meters
Monitor existing retaining walls and landslide.

Wi-SOS 480 Gateway
GPRS Gateway, mains connected.

Monitoring Prisms
For measuring deflection.

Anchor Load Cells
Measuring load on anchors.

Geologger G8-Plus
Data logger purpose-designed for geotechnical applications

Vista Data Vision
Software for measuring data conversion and on-line visualization

See following pages for a photographic timeline of progress at Gediminas Castle Hill
Case Studies - Gediminas Castle Hill, Lithuania

Pictorial Timeline

1. NW site 2016.01
2. NW site 2016.02
3. NW site 2016.05
4. NW site 2016.10
5. NW site 2016.10
6. NW site 2016.10
7. NW site 2016.10
8. E site 2017
9. SE site 2017
10. SW site 2017
11. S site 2017
12. S site 2018
13. SE site 2018
14. SW site 2018
15. NW site 2018
16. NW site 2018
17. NW site 2018
18. NW site 2019
19. W site 2018
20. W site 2018

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