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THE USE OF GPR TECHNIQUE TO IDENTIFY OBJECTS OF ANTHROPOGENIC ORIGIN

Results of use of GPR (Geo-Penetrating Radar) method to identify objects of anthropogenic origin are presented. GPR measurements were conducted in areas containing the remains of middle ages buildings.The goal of these measurements was to determine their location and examine the degree of usefulness of GPR method in this type of search.

Key words: GPR method; GPR soundings and profilling.

GPR method belongs to the fastest-developed geophysical techniques used to analyze the near-surface structures. This method is widely used in many applications. Measurements are carried out quickly, but the analysis of results is complex and requires highly specialized operator. Obtained GPR scans allow the precise location of requested objects if the process of data interpretation is conducted properly.

GPR measurements were performed by apparatus Zond 12E dual channel with shielded antenna 500 MHz, where sampling step was 0.03 m, the number of assembly 4, the wave propagation speed 0.15 m/ns and the distance between profiles 1 m. Location of analysed area: the Park Island in Labiszyn near Bydgoszcz with the remains of the castle, the ward of german guard in Jasiniec Stary and the parking 'Pod Blankami' in Bydgoszcz with the remnants of the gothic building. Obtained time scans (see Figure 1) allow the location of the underground corridors of the castle (detail 1) and the location of towers (detail 2).The time scan profile (see Fig.2) of the ward of german guard building show the remnants of buildings (detail 1), towers (detail 2) and defensive walls (detail 3). The remnants of gothic buildings located in the parking "Pod Blankami" in Bydgoszcz are shown in the Fig.3.

On the ground of shown examples, GPR profiling is a good tool to identify anthropogenic objects. Analysis of time scans can identify the requested objects and precisely determine their location. Unfortunately, the proper interpretation of time scans requires considerable operator experience and knowledge of procedures of interpretation. For the best results, if it is possible, link this technique with other geophisical method, for instance with electrical tomography method.

Fig.1. The mosaic of time scans in The Istalnd Park in Łabiszyn

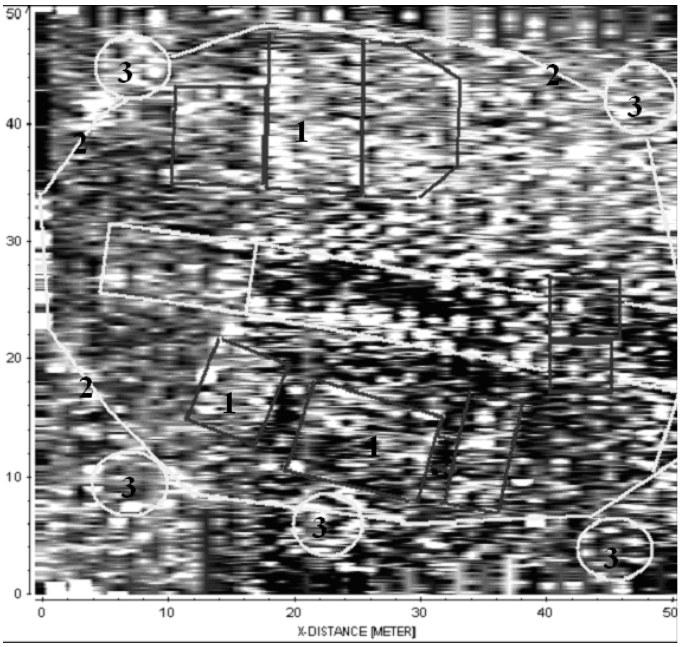

Fig. 2. The remnants of the ward in Jasiniec Stary

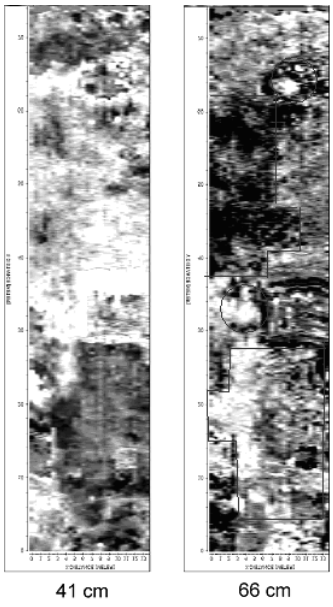

Fig. 3. The remnants of gothic buildings in Bydgoszcz

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ВИКОРИСТАННЯ ГЕОРАДАРА ДЛЯ ІДЕНТИФІКАЦІЇ ОБ'ЄКТІВ АНТРОПОГЕННОГО ПОХОДЖЕННЯ

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Представлено результати застосування георадарного (GPR) методу для ідентифікації об'єктів антропогенного походження. Виміри проводились на територіях, що містять залишки середньовічних будинків. Метою вимірів було визначення розташування цих залишків та оцінка корисності методу для такого типу пошуків.

Ключові слова: георадарний метод; георадарні зондування та профілювання.

ИСПОЛЬЗОВАНИЕ ГЕОРАДАРА ДЛЯ ИДЕНТИФИКАЦИИ ОБЪЕКТОВ АНТРОПОГЕННОГО ПРОИСХОЖДЕНИЯ

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Представлено результаты применения георадарного (GPR) метода для идентификации объектов антропогенного происхождения. Измерения проводились на территориях с остатками средневековых строений. Целью измерений было определения местонахождения этих остатков и оценка полезности метода для такого типа поисков.

Ключевые слова: георадарный метод; георадарные зондирование и профилирование.

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