Abstract

Ground penetrating radar (GPR) was collected over a pavement parking lot in Šeduva, Lithuania, to search for a synagogue that was destroyed during the Soviet occupation of Lithuania. The GPR data was collected with a Sensors & Software pulseEKKO GPR system equipped with 500 MHz antennae. The survey was conducted on a grid that was 18m x 32m and a line spaced every 0.25m. The GPR line data was processed within the software packages: GPR Edit and EKNO, Project 5. The results from the survey showed what are interpreted as structural walls and the outline of the previously standing synagogue.

Introduction

Located in the north central region of Lithuania is the small town of Šeduva (Figure 1). Šeduva was a typical Lithuanian shetl (5). A shetl is defined as a small Jewish town or village in eastern Europe (3). Šeduva was first mentioned in documents and literature in the fifteenth century. During this same time the first Jewish families of the area had moved into Šeduva due to the birth of Rabbi Mosheh HaGolah in 1449 (11, 8). By the end of the 18th century most of the kahal shops in Šeduva were owned by Jewish families (7, 8). The power the local Jewish people held within the city industry caused the local Lithuanians to hate them. When the Nazis invaded Lithuania on June 22, 1941, they took Šeduva a few days later on June 25, 1941 as part of the Operation of Barbarossa (7, 8, 11). The non-Jewish people of Šeduva welcomed the Nazis with bouquets of flowers (1). The local Lithuanians created a militia that became the man-power to execute the Jewish people of Šeduva (1, 6, 8, 10). The Jews were executed outside of the city in multiple execution sites (1, 6, 8, 10). The city of Šeduva had four synagogues throughout its history (5). There were two main synagogues side by side in a plaza (5). The third synagogue built appears to be made from stone was situated away from the marketplace with another wooden synagogue (Figure 1). Information known about how this synagogue was destroyed or when it was constructed. In August of 2018 a research team from the University of Wisconsin-Eau Claire was tasked with conducting a ground penetrating radar (GPR) survey in search of this stone synagogue.

Methods

Using the aerial imagery from 1941 paired with the aerial imagery from the present day a GPR grid location was proposed. This was thought to be the footprint of the former stone synagogue. The team used aerial imagery from 1941, old photographs, and GPR to investigate the site in hopes of locating the former stone synagogue. The GPR survey was conducted on sites like this all over the world. GPR has endless applications in geology, archaeology, and static throughout the survey.

Results

The processed GPR grid shows numerous horizontal anomalies and four circular anomalies within the subsurface starting at 0.65m and disappearing at 2.5m in depth. These anomalies have a distinct intensity of reflection compared to its surrounding area, indicating the presence of a buried structure (Figure 3) (4). These horizontal anomalies occur in areas where they form right angle features (Figure 6). These anomalies are likely the remains of the synagogue's outer and supporting walls. The four circular features are evenly spaced and centered in a large square space of minimal reflectance (Figure 6). The four circular anomalies can be interpreted as the columns that emphasize the bimah (5). Areas of interest in different depth slices have corresponding strong hyperbolic reflectors that can be seen within LineView (Figure 7). These results are similar to results seen at the site of the Great Synagogue in Vilna, Lithuania where reflections similar to ones seen here were excavated to walls and supporting structures of the synagogue (9). Similarities in the depth slices of the grids can be seen between the Great Synagogue of Vilna and the data collected in Šeduva (2). Blueprints from the Nazi's inspection of the synagogue in 1943 show characteristic anomalies when compared to the GPR results (Figure 8).

Conclusions

The initial GPR survey looking for the former stone synagogue of Šeduva yielded significant results, but a second survey could be conducted to properly place the footprint of the known reflections and to locate the rest of the potential buried structure. An archaeological excavation could be proposed to verify that the reflections in the GPR profile are the structural walls and the pillars for the bimah. Other sites near the Šeduva synagogue site have been proposed as potential future GPR surveys. These sites include mass burial sites located in three separate spots outside of city in various directions. The Lost Shetl of Šeduva has been also been working on restoring a Jewish cemetery near the city which involves properly placing the gravestones to the respective graves. A GPR survey could be conducted over the cemetery to locate all the burials and properly place the grave stones at each grave. Similar projects can be conducted on sites like this all over the world. GPR has endless applications in geology, archaeology, and historical preservation projects.

Future Work

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References