

CADASTRAL AND TOPOGRAPHIC SURVEY FOR CHAPEL REGISTRATION IN THE LAND REGISTRY

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Abstract: *The topo-cadastral survey detailed in this paper was carried out for the purpose of registering the mortuary chapel building within the cemetery of Bucovăţ commune, Timiş County. The property is located near the main road, DJ 595D, which passes through the locality, with access to the cemetery from the south via a gravel road, Salcâmilor Street, DS 10. The property boundary is marked by a wire fence and has two access points. This boundary is already registered in the land registry with established geometry and was not delineated for this project. The northern, northeastern, and western borders adjoin agricultural land. The building covers an area of 84 m² and contains a single-story structure built in 2024. Land registration is the legal act by which a property right or other real rights over a property are entered into the land registry. This provides certainty regarding the rights to the real estate, with the aim of protecting the holders' rights and ensuring their public disclosure. The registration is carried out in accordance with cadastral legislation and is governed by the Law on Cadastre and Real Estate Publicity. Field measurements were conducted using the HTS 420R total station and the Hi-Target V60 dual-frequency GPS receiver, thus determining coordinates and topographic points in the Stereografic 1970 projection system and the Marea Neagră 1975 level system. The station points were determined using RTK (Real-Time Kinematic) satellite measurements, employing real-time corrections from the permanent GNSS station TIM.1 in the National Geodetic Network. This data is available thanks to the Romanian Position Determination System (ROMPOS®), developed and provided by the National Agency for Cadastre and Land Registration of Romania (ANCPI). The results obtained are stored in digital formats (such as .csv, .gsi) and later accessed and printed in digital or analog form using AutoCAD software along with the auxiliary program TopoLT.*

Key words: *Survey, Sporadic Cadastre, Documentation, Mortuary Chapel, Bucovăţ, Timiş*

INTRODUCTION

This scientific paper seeks to highlight the complexity of the sporadic cadastre and its importance. Each cadastral survey requires passion to be able to understand each individual case, patience and dedication in relations with the beneficiaries, and not in the end attention to each detail, no matter how small, it can make a big difference.

Building projects are among the most delicate undertakings, because here you can encounter all kinds of complications, even a small oversight can prevent completion. For this reason, I have provided a comprehensive description of each aspect of such projects. This includes a detailed presentation of the materials and methods used, as well as each stage of the process, from measurements to documentation. I have described every step thoroughly, from the way measurements were taken and the methods applied, to the procedures for obtaining and submitting the required documents, (Moise, 2013; Şmuleac et al., 2017).

Sporadic cadastre consists of a broad range of tasks, including the technical aspect, which involves field measurements, and the legal aspect, which consists of documents confirming property rights over a building, whether or not it includes constructions and their land use category. A common kind of sporadic cadastral operation involves updating the technical information in the Land Registry, as this one aimed to do and succeeded. (Sztranyiczki, 2013; Bos, 2019)

The registration of a building and its subsequent recording in the Land Register represent a critical and definitive step in the process of finalizing any new construction. Ownership rights for new constructions are recorded in the Land Register based on a valid building permit, the completion reception report, or a certificate confirming the construction, all of which are documents issued by local authorities. For updating technical information in the Land Registry, OCPI requires the following essential documents, which are needed for processing: Site and Boundary Plan of the Property (Annex 16), Request for Approval and Registration (Annex 13), Technical Report (Annex 15), (Balacescu, 2010; Şmuleac et al., 2019; Rus, 2012).

MATERIAL AND METHODS

This topo-cadastral survey was conducted for the Bucovăț cemetery, located within the urban area of Bucovăț commune, Timiș county. The parcel studied has the cadastral number and land register number 403789 and is situated west of the main road running through the locality, DJ 595D.

From an urban planning perspective, the property is part of the public domain of Bucovăț commune and does not fall under any protected area or zone, according to the law. To the north, northeast and west, the neighboring lands are active agricultural lands located in the rural area, while to the south and southeast, there is a gravel village road, Strada Salcânilor DS 10, providing access to the premises through two entrances. The property boundaries are marked by a wire fence (Figure 1 and 2).

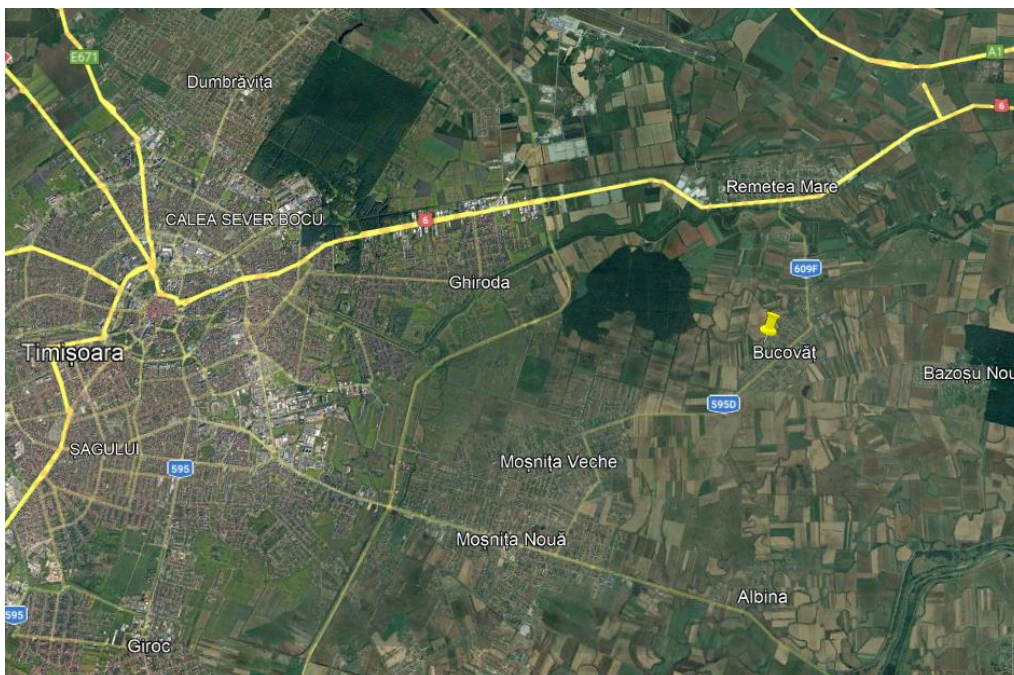


Fig. 1. Bucovăț's location in relation to Timișoara.



Fig. 2. Location of the cemetery within Bucovăț.

The area where the property is located is characterized by a moderately continental climate with Mediterranean influences. From a geomorphological perspective, the site is located in the western part of the country, on a flat, uniform surface in the Timiș Plain. Geologically, the soils are clayey with interspersed layers of sands and silts due to recent quaternary alluvial deposits (Nistor, 1996; Bos, 2015; Leu et al., 2003).

This topographic survey was conducted using the Hi-Target HTS 420R total station and the Hi-Target V60 GPS receiver (Figure 3).



Fig. 3. Hi-Target HTS 420R total station.

The planimetric survey of the terrain was conducted with the HTS 420R total station, a dual-axis reflectorless total station that offers an efficient and precise measuring experience, integrating advanced technological features to enhance performance and productivity. Its EDM (Electronic Distance Measurement) design enables a prism-free measurement range of up to 600 meters.



Fig. 4. Hi-Target V60 GPS receiver and controller.

The station points were determined by the V60 (Figure 4) receiver through Real-Time Kinematic (RTK) measurements utilizing differential corrections transmitted in real-time by the TIM.1 permanent GNSS station, a component of the Class A National Geodetic Network. This process resulted in stereographic coordinates within the 1975 Black Sea Leveling System. (Rus, 2012)

These measurements were facilitated by the ROMPOS® (Romanian Position Determination System), developed and provided by the National Agency for Cadastre and Land Registration of Romania (ANCPI), (Cristea and Puia, 2016; Teresanu and Ionescu, 2014).

The obtained results from both planimetric and coordinate measurements are stored in digital formats (e.g., .csv, .gsi files) and can be subsequently accessed and rendered in both digital and analog formats using AutoCAD processing software, supplemented by the auxiliary TopoLT program, (Tereşneu and Ionescu, 2014).

RESULTS AND DISCUSSION

The cemetery encompasses a total area of 22,958 m² with the chapel occupying 84 m². The building is situated near the western boundary of the parcel, at a distance of approximately two meters. The land is predominantly flat, featuring a slight decline of about half a meter near the aforementioned edge. The building was connected to all existing utilities in the area, such as electricity and water supply (Figure 5).



Fig. 5. Position of the chapel (C1) inside the cemetery.

We conducted the final measurements in August before preparing the cadastral documentation, determining the two station points using the Hi-Target V60 GPS using RTK positioning in the Stereo 70 system. These points were strategically positioned to enable us to observe all edges of the external walls with the Hi-Target HTS 420R total station, which uses EDM (Electronic Distance Measurement) prism-free measuring of all the required building features (Figure 6).

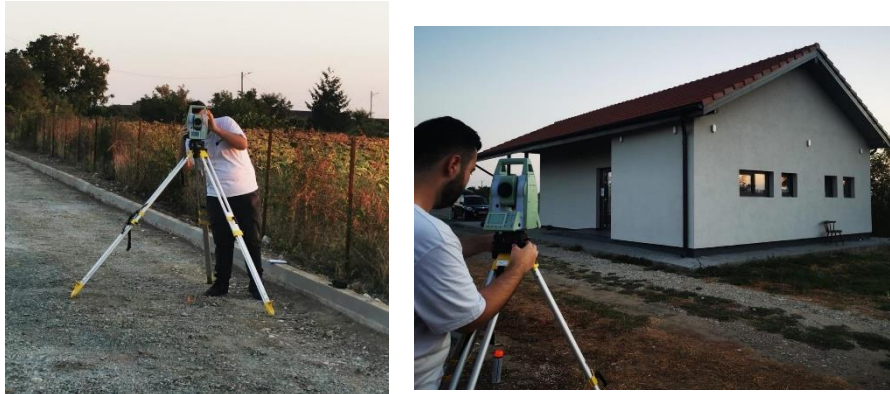


Fig. 6. On the left, I am standing at station point S1, observing the chapel from the south. On the right, I am at station point S2, positioned to the east of the chapel.

Thanks to the proper positioning on those two station points we had a perfect 360° view of the building and its features, such as the roof pieces, support pylons, windows and doors (Figure 7).



Fig. 7. The finished construction of the chapel, viewed from the entrance.

The registration of the mortuary chapel of the Bucovăț cemetery in the Land Registry required a meticulous topo-cadastral survey and documentation. The following outlines the comprehensive sequence of steps required to obtain a building permit, complete the construction, and achieve registration in the land registry while adhering to the rules set out by ANCPPI:

Preparation of Urbanism Certificate, Technical Documentation, Architectural Plans, Structural Engineering, Installation plans:

Leveraging the data from the topo-cadastral survey, comprehensive technical documentation was developed. This included detailed architectural designs, structural engineering plans, and installation schematics (Figure 8). This stage underscored the value of accurate cadastral data in facilitating compliant and feasible construction plans, (Pascalau, 2020; Nistor, 1996).

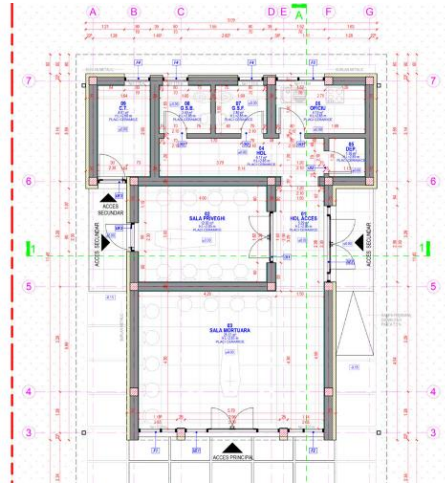


Fig. 8. The architectural plan of the chapel.

Acquisition of the Building Permit and Notification of Commencement of Construction Works:

This step involves obtaining the administrative authorization issued by local governmental authorities, permitting the commencement of construction works, followed by formally notifying the authorities of the planned start date of the construction activities, (Boş and Iacobescu, 2015; Herbei et al., 2013, 2018; Smuleac et al., 2017).

Execution of the Construction in Accordance with the Building Permit:

This stage includes the actual construction process (Figure 9), carried out in strict compliance with the approved plans and specifications outlined in the building permit, adhering to all relevant legal and technical standards, (Puie, 2019; Cartis et al., 2019).



Fig. 9. The building permit issued for the chapel.

Preparation of Documentation Related to the Edification of the construction:

Upon completion of construction, a new set of documentation was prepared to certify the edification of the chapel. Topographic surveys were conducted to confirm that the structure conformed to the approved plans. The findings validated that all construction aspects met the specified criteria, and no deviations were detected (Figure 10). This facilitated the drafting of a proposal for registration in the Land Register and the submission of a formal notification of completion to the authorities, (UTCB, 2001; Popescu et al., 2016).



Fig. 10. Edification of construction certificate.

Cadastral Documentation for Registration and Entry into the Land Register:

The final stage involved compiling the cadastral documentation necessary for the mortuary chapel's registration in the Land Register (Figure 11). For updating technical information in the Land Registry, OCPI requires the following essential documents, which are needed for processing: Site and Boundary Plan of the Property (Annex 16), Request for Approval and Registration (Annex 13), Technical Report (Annex 15). The precise spatial data ensured that the chapel's location, dimensions, and legal status were accurately recorded, (Bălăcescu, 2010; Leu et al., 2003; Mița et al., 2020).

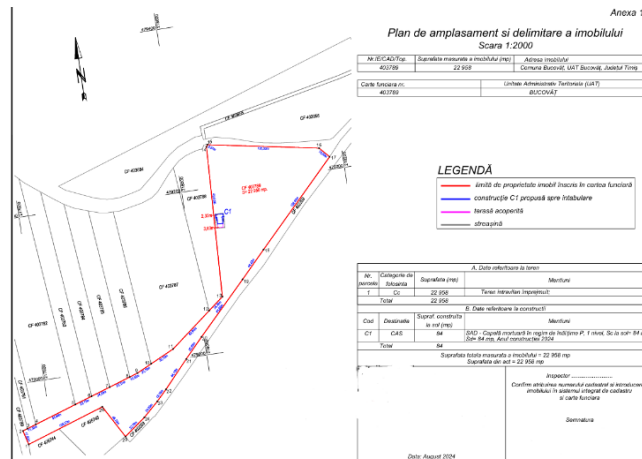


Fig. 11. The Site and Boundary Plan of the Property.

CONCLUSIONS

The topo-cadastral survey conducted for the registration of the mortuary chapel within the Bucovăț commune cemetery represents a vital step in securing the legal and public acknowledgment of property rights. This registration process, adhering strictly to current cadastral legislation and the Law on Cadastre and Real Estate Publicity (Legea nr.7/1996), ensures the transparency and protection of real estate ownership. The precise documentation of the property's features and boundaries, as demonstrated in this survey, underlines the importance of detailed cadastral practices for effective land administration.

The findings of this study emphasize the necessity of continued diligence in cadastral work to maintain accurate and reliable public records, thereby supporting property owners and fostering confidence in land registration systems. The successful entry into the Land Register marked the culmination of the project and its official recognition in property records (Figure 12).



Fig. 12. A before (left) and after (right) of the cemetery and chapel.

The Bucovăț cemetery is a significant spiritual, cultural, and administrative site in the locality, serving as the only active cemetery. The construction of the first mortuary chapel within the cemetery grounds represents an important step in fulfilling the needs of the community and is sure to endure for many generations.

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