

## **ASPECTS REGARDING THE TOPO-CADASTRAL OPERATIONS NECESSARY FOR THE INTRODUCTION OF THE BUILDING NETWORKS AND THE MODERNIZATION OF THE STREET FRAMEWORK IN THE LOCALITY OF BĂLCACIU, JIDVEI COMMUNE, ALBA COUNTY**

*Florina VOICU, Assist. Dr. Eng., „1 Decembrie 1918” University of Alba Iulia, Romania,  
florina.voicu@uab.ro*

**Abstract:** *According to INS data, in 2017, a total of 9,978,886 people in Romania had homes connected to sewer systems, representing 50.8% of the resident population. Regarding the treatment of wastewater, the population connected to the sewerage systems that included sewage treatment plants totalled 9,710,077 people, representing 49.4% of the resident population of the country.*

*For the localities over 2000 inhabitants, to obtain financing, rural agglomerations were created artificially (commune and afferent villages). For these, systems have been designed and built, with sewer lengths that include the distances between communes and villages, often tens of kilometres. The number of communes in which the share of households connected to existing sewerage networks is below the 5% threshold, mainly due to connection costs and wastewater charges. Also, the resident population in these localities has decreased in the last ten years by more than 20%. As such, the costs of these projects will not allow the revenues generated by water companies to ensure the sustainability of the newly built infrastructure.*

**Keywords:** *topography, topographic plan, street network, topographic profile, cadastral documentation.*

### **1. Introduction**

The work aims to introduce urban networks and modernize the street networks in Bălcaciu village, Jidvei commune, Alba county to ensure the conditions and to develop activities specific to the area, the project financed by the infrastructure development program in Bălcaciu being one of the priority objectives of the local administration.

For the Bălcaciu locality, the introduction of drinking water is very important, because not all houses have fountains, these being the main source of water. The lack of a drinking water supply system leads to a low standard of living.

Because the locality does not have a sewerage system and a sewage treatment plant, the waste and household waste are dumped in the septic tanks of each household, thus creating a problem for the environment.

Within the project, the investment works are located both inside and outside the locality, on the land belonging to Jidvei commune under the administration of the Local Council. The investment leads to the economic growth of the area, to the improvement of the living conditions and the health of the local inhabitants.



Fig. 1. Bălcaciu - aerial view

## 2. Materials and Methods

In all the topographic works, the measurement network serves as a support, respectively as an infrastructure for all the operations of lifting the plan and tracing the constructions, its quality effectively conditioning these works as precision, and economic efficiency.

The most important phase of the overall realization of the geotopographic support networks is the anticipated preparation of the works as a whole and especially of the measurement campaign, materialized in technical terms through the project of thickening the national geodetic network. Depending on the purpose pursued by the specifications and field conditions, the operator must make important decisions regarding the choice of equipment and working method to ensure the required accuracy and organization of the entire activity until the end of the final stage resulting in the inventory of coordinates, including the calculation of the accuracy of determining the points.

The measurement was made possible by using the Trimble M3 total station, and the Terramodel program was used to download and process them, which is a package of programs with multiple possibilities, designed for design work in the field of civil engineering. It includes modules for downloading and processing measured quantities from different total stations as well as vice versa, generation of digital terrain model and contour lines, communication path design, computer aided design (CAD) and various calculations (COGO). Each module contains command sets, which add specific functionality to the basic possibilities of FDM. Terramodel also contains a macrolanguage (TML), which allows you to create your own commands.

In order to download the data, the total station is connected to the computer, and from Terramodel the type of device to be downloaded is chosen.

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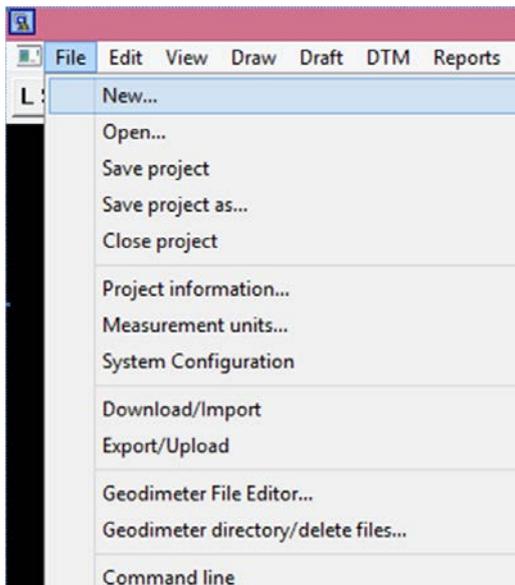


Fig. 2 Create new project

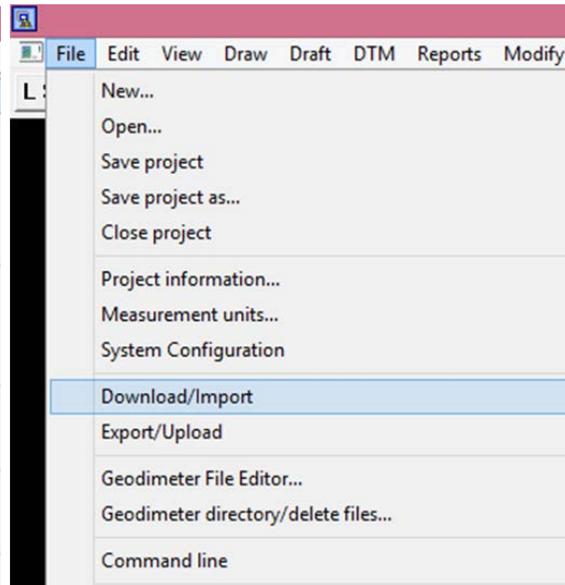


Fig. 3 Download Menu

The download option is chosen from the program menu, resulting in a graphical window with the points downloaded from the total station.

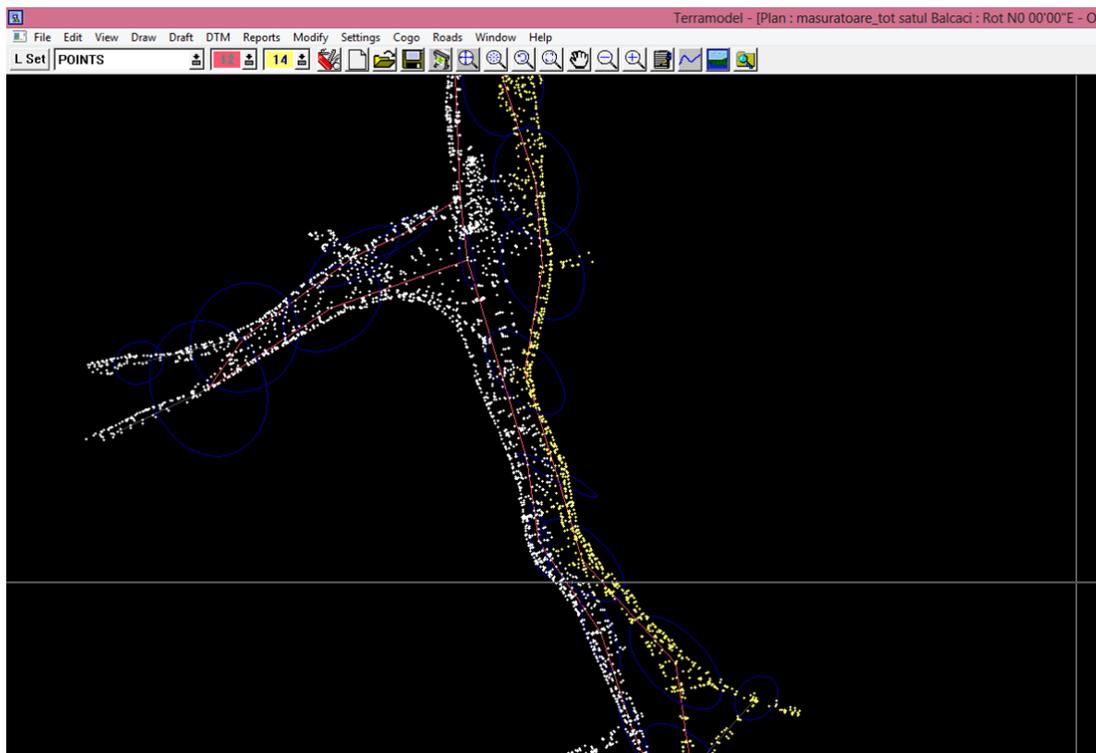


Fig. 4 Raw Data Editor Menu

In order to be able to edit the points, the Raw Data Editor option is chosen from the program menu, from where a document window opens from where the data can be edited.

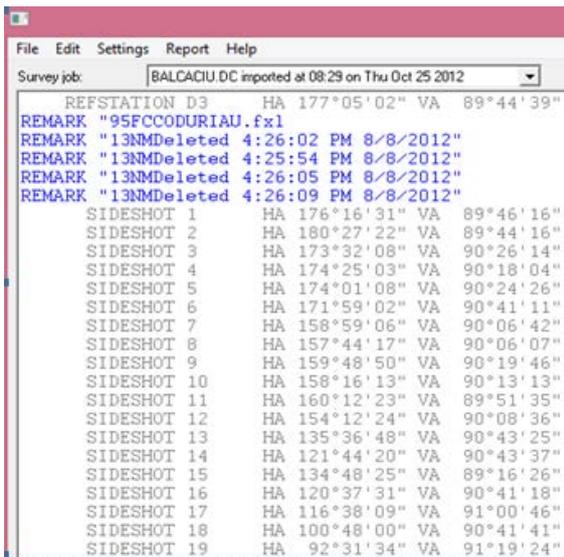


Fig. 5 Raw Data Editor Menu – document window

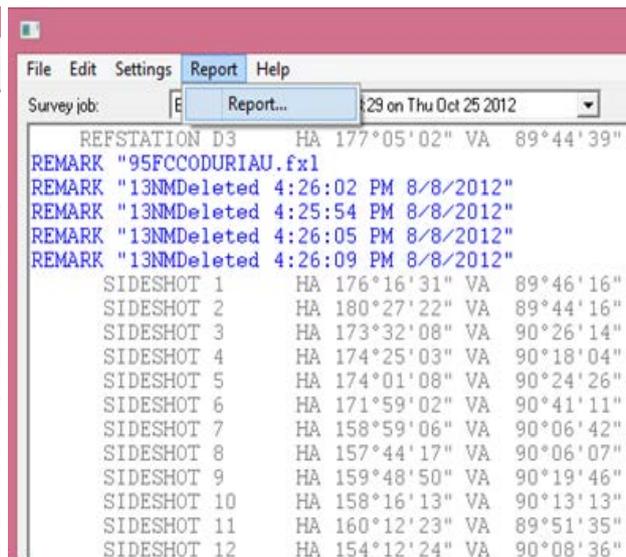


Fig. 6 Report Menu

In order to draw up the topographic plan, it was necessary to import the points into the AutoCAD graphics processing program, via the Topograph application. The plan was then prepared using thematic layers (layers), depending on each element contained.

For the elaboration of the topographic plan, the previously measured points must be opened initially with the help of the AutoCAD graphic processing program. The points will be defined by their size and number, as shown in the image below.



Fig. 7 Topographic plan extract

Regarding the creation of transversal and longitudinal profiles, the TopoGraph application was used, an application addressed to specialists in the fields of topography, geodesy, cadastre, civil engineering (ANCPI / OCPI authorized persons, designers, architects, students specializing in land measurements and cadastre, civil engineering or landscaping technicians).

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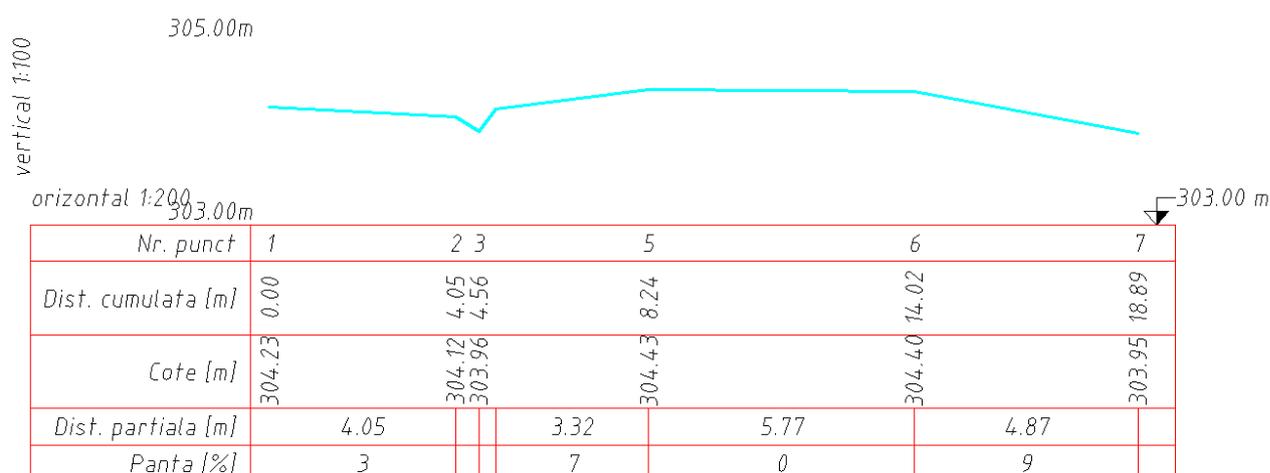


Fig. 8 Transversal profile of the road

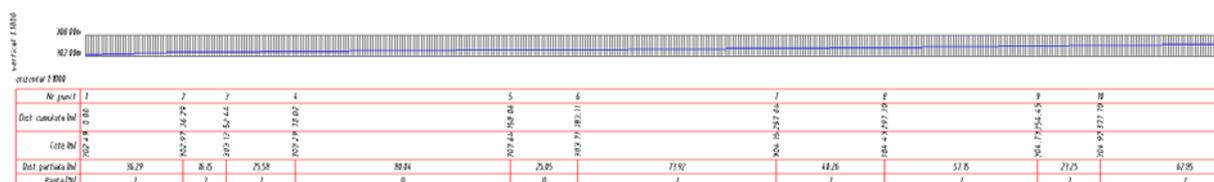


Fig. 9 Longitudinal profile of the road

### 3. Results and Discussion

In order to obtain the approval from the office of cadastre and real estate advertising, it is necessary to prepare a topographic documentation. Its content is a stasis, provided in the norms of the National Agency for Cadastre and Real Estate Advertising according to Order 700/2014 with subsequent completions.

So far, it has been exemplified how to make the graphic part of the project, ie the part that deals with the measurements directly. Along with this, a series of annexes are required, which are included in the written part of the paper and which are exemplified below:

Annex no. 1.29 to the regulation - Borderou, contains information regarding the address of the building, its owner, the authorized natural person in charge of the documentation, the number of pages of the documentation and its registration number. This annex constitutes an agreement between the beneficiary of the work and its executor, being signed by both;

Annex no. 1.30 to the regulation Request for information, includes: data on the authorized person, data on location, information related to tariffs and execution deadlines. As the name suggests, this appendix is intended to request information from the O.C.P.I. in order to obtain the information necessary for the preparation of the paper. In this case, the coordinates of the (known) starting points were requested, together with the existing topographic plans in the area;

Annex no. 1.45 to the regulation, represents the request for receipt of the specialized documentation submitted by the executor of the work;

Documentation cover - in which the title of the documentation, the beneficiary and the executor of the work are mentioned;

Annex 1.33. to the regulation - The technical report containing: the name of the work, the beneficiary and the executor of the work, the objective and the purpose of the work, the location of the building in question, together with its neighborhoods, the topo-cadastral operations performed, data regarding the existing documents on the building.

ANEXA NR. 1.29 la regulament  
Nr. de înregistrare/data...../.....

**BORDEROU**

Adresa imobilului: județul Alba, comuna Jidvei, |

Adresa imobil							Nr. CF/ Nr. cad (IE)
Localitate	Strada (Taifa)	Numar (Parcela)	Bloc	Scara	Etaj	Ap.	

• **Proprietari:**

Nume	Prenume	CNP
Consiliul Local Jidvei	STATUL ROMÂN	

• **Persoană autorizată:**

Nume (denumire PJA)	Prenume	CNP/CUI
Voicu	Florina	

• **Număr pagini documentație:**

• **Numărul de ordine al documentației din registrul de evidență a lucrărilor: 1**

• **Conținutul documentației:**

- borderou;
- dovada achitării tarifului;
- formularele tipizate de cereri și declarații;
- certificatul fiscal;
- copii ale actelor de identitate ale proprietarilor persoane fizice sau copii ale certificatelor de înmatriculare, în cazul persoanelor juridice;
- copie a extrasului de carte funciara, după caz;
- originalul sau copia legalizată a actelor în temeiul cărora se solicită înscrierea;
- memoriu tehnic;
- plan de amplasament și delimitare;
- releveele construcțiilor;
- plan de încadrare în zonă la o scară convenabilă, astfel încât imobilul să poată fi localizat.

ANEXA NR. 1.45 la regulament

**CĂTRE**  
**OFICIUL DE CADASTRU ȘI PUBLICITATE IMOBILIARĂ ALBA**  
**BIROUL DE CADASTRU ȘI PUBLICITATE IMOBILIARĂ BLAJ**

Nr. de înregistrare ...../.....

**CERERE PRIVIND SOLICITAREA AVIZULUI DE ÎNCEPERE / RECEPTIE A LUCRĂRII**

Consiliul Local Jidvei -, județul Alba, prin mandatar **Voicu Florina**, domiciliat(ă) în localitatea ..... str. .... nr. .... legitimat(ă) cu CI/BI seria AX nr. .... CNP ..... tel./fax ..... e-mail: ..... persoana fizică / juridică autorizată, posesoare a certificatului de autorizare categorie C seria RO-AB-F nr. 01/2021 eliberat de OCPI Alba, solicit:

**I. OBIECTUL CERERII:**

- emiterea avizului de începere a lucrării;
- recepția tehnică a lucrării de specialitate:

**II. TIPUL LUCRĂRII:**

Ridicări topo-cadastrale în vederea obținerii avizului de începere a lucrărilor de modernizare stradală, Jidvei - Bălcaci, județul Alba.

**III. EXECUTANT:** Voicu Florina

**IV. BENEFICIAR:** Consiliul Local Jidvei -

ANEXA NR. 1.30 la regulament

**CĂTRE**  
**OFICIUL DE CADASTRU ȘI PUBLICITATE IMOBILIARĂ ALBA**  
**BIROUL DE CADASTRU ȘI PUBLICITATE IMOBILIARĂ BLAJ**

Nr. de înregistrare/data...../.....

**CERERE DE INFORMAȚII**

**OBIECTUL CERERII:**

- furnizare informații necesare pentru:
  - prima înscriere
  - actualizare informații cadastrale
  - documentația de identificare a amplasamentului imobilului situat pe un alt UAT
- documentație de atribuire număr cadastral
- documentație pentru dezlipire/alipire teren
- documentație de primă înregistrare UI
- documentație pentru apartamentare
- documentație pentru dezlipire/alipire UI
- documentație pentru reapaartamentare
- documentație pentru mansardare
- documentație pentru reconstituirea cărții funciare pierdute, distruse sau sustrase
- furnizare informații necesare pentru:
  - aviz și recepție lucrări de specialitate
  - avizare tehnică expertize judiciare
  - exproprieri
  - întocmire plan parcelar
  - plan încadrare în taifa
  - trasarea imobilului
  - situații de lucrări de specialitate

**MEMORIU TEHNIC**

1. **Adresa imobilului:** UAT Jidvei -, județul Alba.
2. **Tipul lucrării:** Recepție Tehnică.
3. **Obiectul lucrării:** OPERAȚIUNI TOPO-CADASTRALE NECESARE INTRODUCERII REȚELOR EDILITARE ȘI MODERNIZAREA TRAMEI STRADALE ÎN LOCALITATEA BALCACI, COMUNA JIDVEI, JUD. ALBA.
4. **Scurtă prezentare a situației din teren:**

Pentru realizarea prezentei documentații, în urma încheierii convenției cu Consiliul Local Jidvei, am trecut la documentarea tehnică și identificarea amplasamentului imobilului.

Scopul final al lucrării este acela de a obține avizul de începere a lucrării în vederea realizării lucrărilor de modernizare stradală din partea OCPI.

Termen de execuție: decembrie 2020; vor respecta toleranțele admisibile, produsele cartografice se vor executa pe format A3 la scara 1:1000;

Lucrarea se va preda conform reglementărilor în domeniu, cu toate elementele necesare, precum și în format analogic și digital.

În prima fază a fost preluat amplasamentul. Lucrările topografice au fost executate în sistem de proiectie STEREO70, plan de referință Marea Neagră.

S-au obținut de la OCPI Alba coordonatele punctelor de triangulație din zonă, s-a trecut la identificarea lor, apoi la realizarea rețelei de sprijin și a planului de situație, cu detaliile planimetrice și de nivelment aferente.

Fig. 10 Extract from cadastral documentation

## 4. Conclusions

Given the growing trend of economic development, both globally, in Europe, but also nationally, there is the problem of creating an environment as conducive to it.

One of the main and vital elements is the infrastructure, including services, transport network, municipal networks (water, sewerage, electricity, natural gas). Each of the elements has a well-established role and an importance in creating an environment conducive to the development of both the local economy and the development of the individual.

In order to create such an infrastructure, it is necessary to carry out a building permit project. Also, in order to approve such a project, a series of precision topographic measurements, performed by a specialist in the field, are required.

This paper aims to create a working model in the case of a work such as obtaining the approval to start work for the introduction of municipal networks and modernization of the street network, which, given the implementation, has been fulfilled.

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