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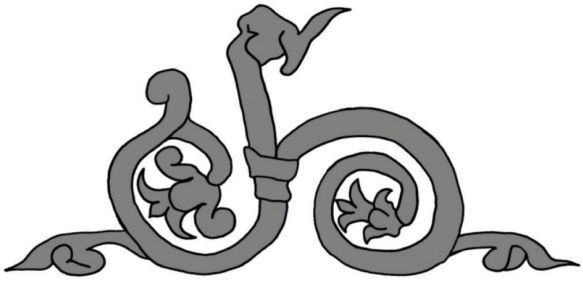

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Editura MEGA
Cluj-Napoca
2019

MUSEUM ARAD

In Romania, the periodical can be obtained through subscription or exchange, sent as post shipment, from Museum Arad, Arad, Piata G. Enescu 1, 310131, Romania.
Tel. 0040–257–281847.

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Layout: Francisc Baja, Florin Mărginean, Victor Sava

ISSN 2392–8786

editura MEGA

Editura Mega | www.edituramega.ro
e-mail: mega@edituramega.ro

Contents

This volume is dedicated to the memory of George Pascu Hurezan (1949–2016)

The Secondary Roads of Potaissa. Case Study II: Trial Trench on the Road Segment from Livadă-Valea Agrișului-Iara (Cluj County)

Paul Chiorean, Horațiu Cociș, Bogdan Bere

Abstract: The current article brings together the results of an archaeologic diagnose done on the surface of one of the secondary roads (*viae vicinales*) located in the western proximity of the Roman centre from *Potaissa* (Turda). It was identified during 2018 for a length of 13.04 km (8.8 Roman miles): the secondary road sector Livadă-Valea Agrișului-Iara (Cluj County) connects a series of rural settlements from Dacia's western border – the field research of this road had led to the identification of four new points with Roman discoveries and to the contextualisation of the ruins of a Roman bridge almost intact. Thus, the second phase of the research conducted in 2018 involved revealing and cutting a section in this secondary road, in the sector between Livadă and ValeaAgrișului – the very good state of conversation of this sector allowed for this.

Keywords: Roman road, *viae vicinales*, *Potaissa*, archaeologic research, photogrammetry.

The field research conducted in 2018 in the western proximity of the Roman centre from *Potaissa* (Turda, Cluj County) led to the identification of several physical elements[1], components of what we theoretically consider to be an outer area from *territorium Potaissae*, the rural territory surrounding the important legionary and civilian centre[2]. The focus fell especially on identifying the course of a road that falls in the typology of secondary roads[3], or in what the Latin authors define as *viaevicinales*, secondary roads connecting different rural settlements (*vici*, *pagi*)[4]; in most cases such roads fall under the jurisdiction and are maintained by the local communities. At the same time, they are branching out from more important roads (*viae publicae*)[5].

The road currently discussed was identified over a length of 13.04 km (8.8 Roman miles): it was mapped, subjected to a topographic survey and to a photogrammetry and thus a clear image of its course, of its state of conservation and the manner in which it was placed and connected with the ancient landscape[6]. The identification of this sector helped to complete the road map west of *Potaissa*, the researched segment being naturally connected with the previously identified sectors: *Potaissa*-Mihai Viteazu-Buru-Iara-Băișoara[7], *Potaissa*-Săndulești-Petrești de Jos-Petrești de Sus-Borzești-MăguraIerii[8]. We mention that on the course of the road segment identified in 2018 are two Roman bridges, belonging to the *single-arch* type[9], with the one relocated between Iara and Cacova Ierii is relatively well-preserved, with the arch being perfectly visible[10]. The identification of the road track was done in parallel with the verification of the ploughed fields from its proximity, thus four new points with Roman discoveries (ceramics) were discovered. The map of discoveries and of rural settlements from the mentioned area (again we mention the discoveries from Iara[11],

1 Translated by: Cosmin Couatu.
See the results of the field survey in Cociș *et al*. 2018, 93–118.
2 See especially Nemeti *et al*. 2003, 69–75; Fodorean 2011, 121–134; Fodorean 2013, 67–70; Chiorean 2016, bachelor degree, unpublished.
3 Fodorean 2004, 66.
4 Ulpianus, *Digestae,* II, 22.
5 Sicculus Flaccus, *De condicionibus agrorum*, 124. See also Laurence 1999, 59.
6 Cociș *et al*. 2018, 94–95.
7 Fodorean 2006, 167–169.
8 Rep. Cj. 73, 310–311; Fodorean 2006, 168.
9 Cociș *et al*. 2018, 97–98.
10 VeziCociș *et al*. 2018, 116, Pl. 15.
11 Winkler, Hopârtean 1978, 19; Rep. Cj., 236–237; Tudor 1968, 202; Fodorean 2006, 168.

Băișoara[12], Surduc[13], Făgetul Ierii[14], Sănduleşti[15], Petreştii de Jos[16], Petreştii de Mijloc[17], Petreştii de Sus[18] and Borzeşti[19]) was also completed. We restate the hypothesis which states that based of the types of discoveries, respectively the traces of limestone and gold mining from the area, we are probably dealing with a series of settlements specialised in these economic activities[20].

Given the situation in the field, we refer here to the asphalting of a section of the identified road (this happened approximately before the identification of the site[21]) as well as its rapid deterioration caused by the heavy agricultural machines, we aimed to make an archaeologic survey in order to reveal the manner in which the road was constructed – the purpose was to observe its structure for a hypothetic conservation and valorisation. The area researched archaeologically is located between the settlements Livada and Valea Agrișului, being one of the areas where the mentioned remains are very well preserved (see Pl. 1).

The research surface consisted of a trench with dimensions of 4.5 × 3 m. The road is oriented in this segment roughly towards the East-West area, is well integrated, being quite visible on the surface. The researched area was extended approximately 50 cm on each side of the road in order to observe all its structural elements (see Pl. 2).

The road has a total length of 3.5 m. Both gutters were identified; they are well-preserved. The northern gutter (Ftr. 1) is composed of a single row of rocks placed lengthwise. The width of this gutter is approximately 35 cm, the row of stones varies in size between 37–23 cm length, respectively 20 – 25 cm width. Of the 12 stoned identified in this gutter, nine are volcanic rocks, the rest are local limestone from the nearby quarry from Sânduleşti. The western end of the gutter is destroyed. The southern gutter (Ftr. 1.A) is much better preserved than the northern one, with no missing rocks in the researched area. It is similar in size to the northern gutter, its length being approximately 32 cm, the stones varying between 20 – 25 cm (see Pl. 3). The composition of the gutter is also different, of the 11 identified stones eight are volcanic rocks while three are limestone from Sănduleşti. The rocks are also positioned lengthwise. Two limestone rocks show clear traces of cutting, practically being parallelepipedal blocks placed lengthwise (see Pl. 4).

The extension of the test trench outside the gutters (*umbones*) was aimed at identifying the presence of the drainage ditches. The archaeologic situation in the case of this secondary road does not indicate the presence of these ditches. Several layers of improvements were identified inside the gutters, as well as in the section of the road. Thus, an upper layer comprising mostly Sănduleşti limestone (Ftr. 2) was identified – this one was also the one most damaged. This layer represents the pavement (*pavimentum*) of the road, being also the one most liable to be destroyed. The archaeologic research revealed this layer only in some places, being composed of about 19 stones, mostly limestones. Unfortunately, this layer is almost completed moved out of place.

A second layer of crushed rock (Ftr. 3), stratigraphically superposed by the *pavimentum*, was identified. This layer is composed of volcanic rock, also limestone, both crushed, and in some places, there are small river stones. The layer is compact – it is our opinion that it represents the resistance structure for the substructure of the road, probably the equivalent of those layers of crushed rock (*rudus*) identified in other, more complex. Roads. A bed of sand (Ftr. 4) was identified under this compact layer of crushed rock – the latter is placed on the former. It is present uniformly across the whole researched area, being more visible on the western side of the cassette, where the stones are completely missing (see Pl. 5).

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12 Téglás 1898, 432; TIR L34, 34; Tudor 1968, 202; Ferenczi 1974, 38; Sîntimbreanu, Wollmann 1974, 259; Fodorean 2006, 168.

13 Téglás 1898, 432; Tudor 1968, 202; Ferenczi 1974, 38.

14 Téglás 1898, 432; Tudor 1968, 202; Ferenczi 1974, 38; TIR L34, 58.

15 Téglás 1889, 289–295; Orbán 1889, 51; Téglás 1898, 121; Christescu 1929, 39–42; Daicoviciu 1945, 135; Macrea 1969, 308; Winkler, Hopârtean 1973, 125, nr. 4–5; 126, nr. 6/1–4; Wollmann 1973, 308; Wollmann 1996, 270; Bărbulescu 1987, 50, 85–86; Bărbulescu 1994, 105–106; Rep. Cj., 338–341; Popa 2002, nr. 552.

16 Orosz 1903, 756; Roska 1942, 154; Tudor 1968, 218; TIR L34, 89; Ferenczi 1972, 397; Rep. Cj. 308; Popa 2002, nr. 474.

17 Ferenczi 1974, 39.

18 TIR L34, 89; Ferenczi 1974, 38; Mitrofan 1974, 45; Lazarovici, Kalmar 1986, 739; Rep. Cj., 311; Popa 2002, nr. 476.

19 Winkler, Hopârtean 1973, 125, nr.3; Rep. Cj., 73.

20 Timoc 2008, 96–106; Cociș *et al*. 2018, 97.

21 RAN code: 58954.0.1

In order to complete the image of the area under research, a section was opened in the road, on the eastern side of the cassette, where all the layers are perfectly visible. The stratigraphy of the road is simple, just like its manner of construction. It was noticed that the sand layer, 5–12 cm thick, is present under the rows of rocks that are the gutters. This indicates that the first action taken when building the road was to place a bed of sand, followed by the placement of the gutter stones, afterwards being covered with a layer of crushed rock, latter on the larger rocks for the pavement were placed. The manner in which the last layer was placed seems to indicate the creation of slopes on both sides of the road, for water drainage; this gives the road a certain bulging aspect in some areas, the largest incidence angle being located on the median axis, thus the cant of the road is achieved on the axis[22] (see Pl. 8).

The "*small finds*" artefacts are not necessarily a common find in archaeologic research focused on the structure of the roads. In the present case however three such artefacts have been found. We are mentioning a ceramic orange fragment coming from a pot, an iron nail tip with dimensions of 2.4 × 3 cm, and a *caligae*tack, 0.9 × 0.4 cm in size. The ceramic fragment was identified stratigraphically in Ftr. 3 (*rudus*), the nail tip in Ftr. 1.A (*umbo*) while the bronze tack in Ftr. 2 (*pavimentum*).

The final stage of the research conducted in this area was to take a series a photographs needed for the 3D model of the dig, the topographic survey and the georeferencingof the 3D model using *Ground Control Points* (see Pl. 7). This was done besides the classic documentation of the dig site.

The construction model of the Livada-Valea Agrișului-Iara road segment involved, as noticed in other areas of the road, a mixt technique in combining the different types of rock. In this point there is noticed a major usage of volcanic rocks for *umbones*and limestone for *pavimentum* but in other segments the situation is reversed, the pavement being made mostly from volcanic rocks, while the *umbones* from wrought, limestone rocks[23] (see Pl. 8) One can observe similar stratigraphy with that of the Roman roads from the area on other secondary tracks and ramification, such as the section *Potaissa-Alburnus Maior*, *Potaissa*-Băișoara or *Potaiss*a-Gligorești[24]; similarities with this road are also present at Ceaunu Mic, a segment from the longer *via militaris Potaissa-Napoca-Porolissum*[25].

This road, like many other secondary roads, does not completely follow the *classic* recipe offered by ancient authors[26]. Still, this road, made in the cutting, faithfully following the landscape and using the local geologic spectrum, can be considered, up to a certain point, a variation of the stone-paved roads, those *viae silicaestratae* mentioned in Ulpianus' tripartite typology[27]. In the current case the paving of the road was not made with polygonal blocks but with larger stones, relatively flat on one side, the upper one and placed closely one to the other. But, as F. Fodorean notes, there are major stratigraphic differences with regards to the composition of the substructure of the roads: there does not necessarily exist a standard, rather local provincial variations[28].

The studied sector is such an example, a secondary provincial road which, due to the relative economic effervescence in the area, achieved a certain local importance in the spectrum of secondary roads located west of Potaissa – this is also indicated by the new discoveries made along its track.

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22 Fodorean 2006, 39.
23 For example Cociș *et al*. 2018, 107, Pl. 6. b, 108, Pl. 7. a-b.
24 Fodorean 2006, 163–169.
25 Fodorean 2006, 120.
26 Vitruvius, *De Architectura*, II. 1; Statius, *Silvae*, VI. 3; Plinius, *Naturalis Historia*, XXXV I.
27 See especially Laurence 1999, 65.
28 Fodorean 2006, 39.

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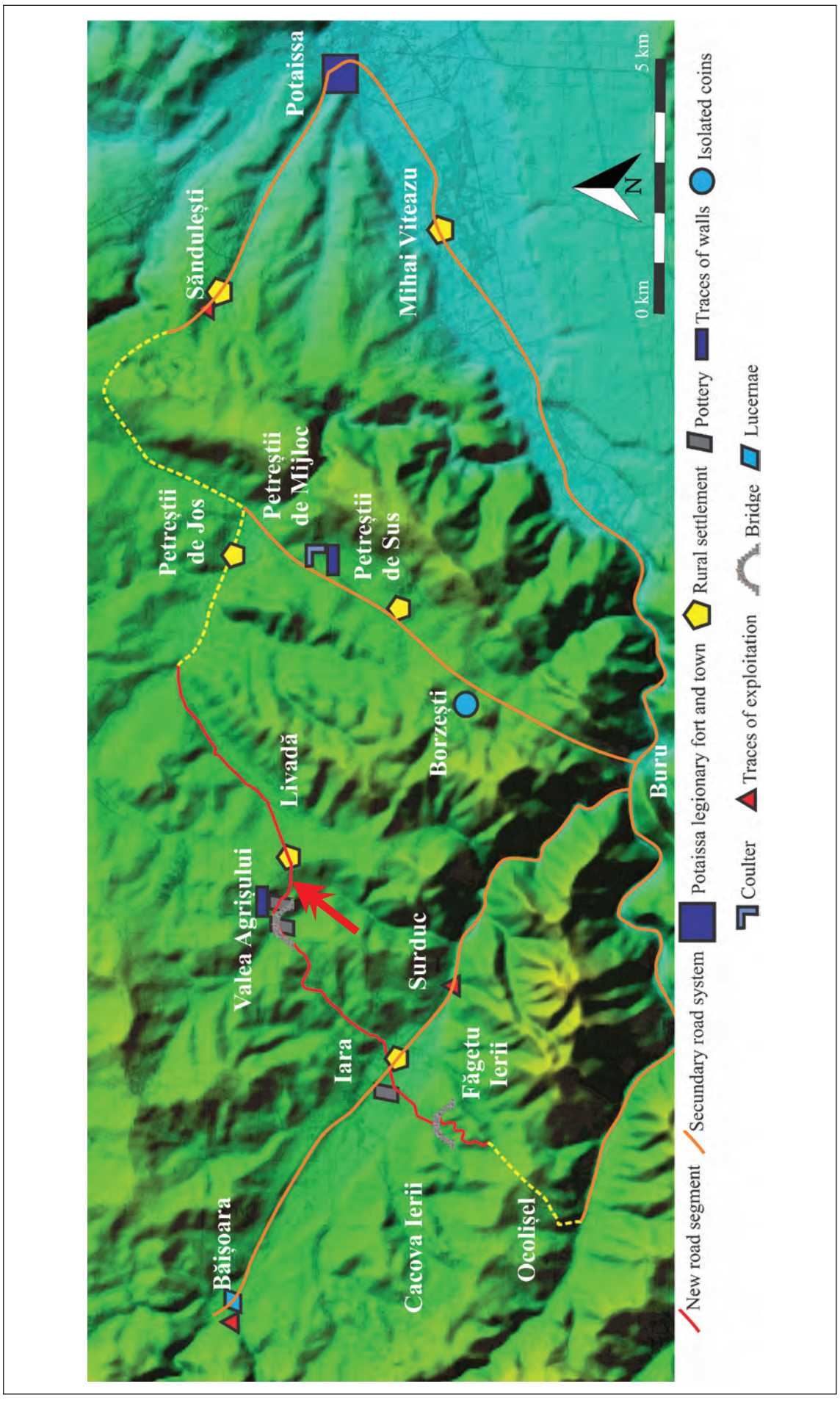
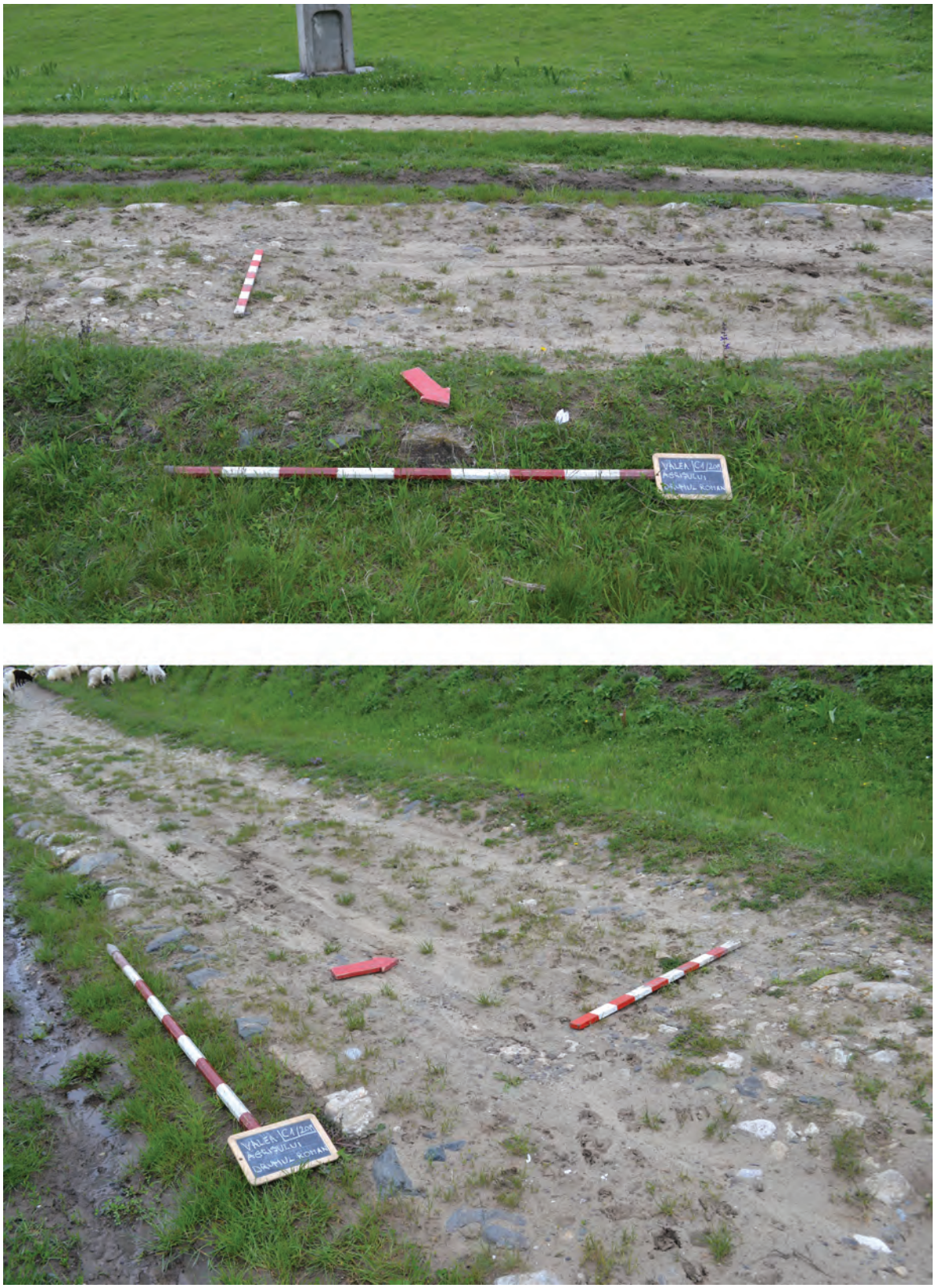


Pl. 1. The secondary roads system west of Potaissa in its archaeological landscape settings.



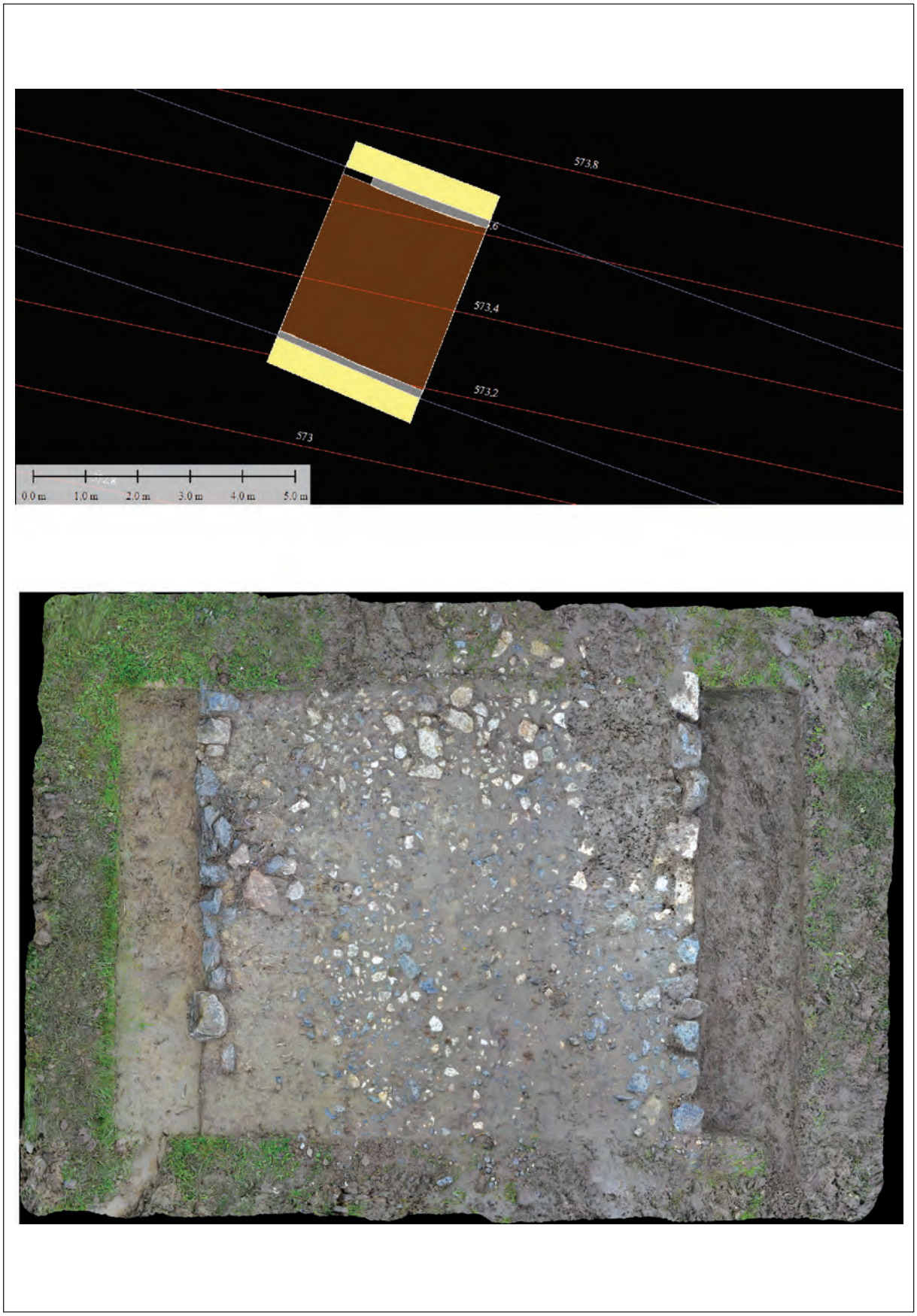
Pl. 2. The surface of the road before the excavation.

Pl. 3. Ftr. 1 and Ftr. 1. A. The norther and the southern umbones of the road.

Pl. 4. Details of Ftr. 1 and Ftr. 1.A.

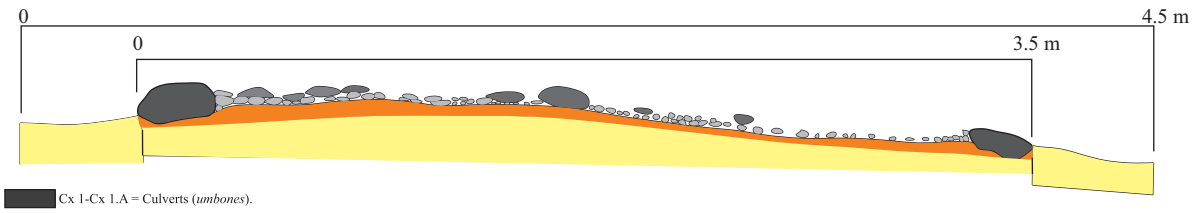
Pl. 5. Ftr. 2-the pavimentum and Ftr. 3-the rudus of the road.

Pl. 6. General view of the excavation.



Pl. 7. Topographic and photogrammetric survey of the excavated surface.

Cx 1-Cx 1.A = Culverts (*umbones*).
Cx 2 = *pavimentum*.
Cx 3 = *rudus*.
Cx 4 = compact sand layer.



Cx 1-Cx 1.A = Culverts (*umbones*).
Cx 2 = *pavimentum*.
Cx 3 = *rudus*.
Cx 4 = compact sand layer.
Geologic soil.

Pl. 8. Ground plan of the excavation based on the 3D model and the archaeological profile of the road.

Abbreviations

AAASH	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapesta.
AAC	Acta Archaeologica Carpathica, Cracovia.
Alba Regia	Alba Regia. Annales Musei Stephani regis, Székesferhérvár.
Angvstia	Angvstia. Sfântu Gheorghe.
Arabona	Győri Xántus János Múzeum, Győr.
ArchÉrt	Archaeologiai Értesitó, Budapesta.
ArchHung	Archaeologia Hungarica, Series Nova, Budapest.
ArhMold	ArheologiaMoldovei. Iași.
Arheologija/Archeologiya	Arheologija/ Archeologiya. Sofia.
Apulum	Acta MuseiApulensis – Apulum. Alba-Iulia.
AMN	Acta Musei Napocensis, Cluj-Napoca.
AMP	Acta Musei Porolissensis, Zalău.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BHAB	(Museum Banaticum Temesiense) Bibliotheca Historica et Archaeologica Banatica.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMA	Bibliotheca Memoriae Antiquitatis, Piatra Neamț.
BMN	Bibliotheca Musei Napocensis.
BudRég	Budapest Régiségei. Budapest.
CCA	Cronica Cercetărilor Arheologice din România, București.
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. București.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
Ethnographia	Ethnographia. A Magyar NéprajziTársaságFolyóirata. Budapest.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumentelor arheologice din Dacia Porolissensis
FolArch	Folia Archaeologica. Budapest.
Hesperia	Hesperia: The Journal of the American School of Classical Studies at Athens. Athens.
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MMA	Monumenta Avarorum Archaeologica, Budapest.
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OM	Orbis Mediaevalis, Arad.
PAT	Patrimonium Archaeologicum Transylvanicum. Cluj Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PeuceS.N	PEUCE. Studii și cercetări de istorie și arheologie. Serie nouă. Tulcea.
RI, SN	Revista Istorică, Serie Nouă. București.
RMM-MIA	Revista Muzeelor și Monumentelor. seria Monumente istorice și de artă. București.
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WMMM	Wosinsky Mór Megyei Múzeum, Szekszárd
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