





**Frontiers of the Roman Empire –  
RIPA PANNONICA IN HUNGARY (RPH)**

**NOMINATION STATEMENT**

**Vol. 1.**

**Published by the National Office of Cultural Heritage**

**Budapest 2011**

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Layout: ON-R Communication Kft.  
Cover design: ON-R Communication Kft.  
Printed by HTSART Kiadó és Nyomda, Budapest

## Preface

The era of the Roman Empire was a crucial period in the history of the Danube Basin region for centuries. This was the first economic and political system that integrated the Danube region from its source to its mouth into a unified state structure. The development and maintenance of the river border, the *Ripa*, as the frontier of this vast empire became a task of vital importance in the defense of the Empire as a whole. Due to its unique geographical position, Pannonia was a key point in this river defense system, and the archeological sites from more than four centuries of Roman history have preserved their material remains – with some losses – to the present day. Studying the remains of this system of fortresses, watch towers, ports and military (*limes*) roads that was reorganized and improved many times, even today an observant viewer can re-experience the characteristic features of the mentality and functioning of this ancient world power's frontier region. This province, which provided Rome with several emperors, is worthy of its nomination for the honorable title of UNESCO World Heritage due to the specific and unique character it presents as a result of its location on the frontier and as an element of common heritage important to the understanding of world history.

You, the reader hold in your hands the result of three years of international collaboration. Within the framework of the “Danube Limes World Heritage” project supported by the European Union's Central Europe Program, 121 Hungarian sites have been included in the nomination documentation following careful and thorough scholarly preparation and agreements established with the communities. The sites are lined up one after another as the physically extant links in a virtual chain that is primarily, but not exclusively, on the right bank of the Danube. Found within this are examples of essentially every architectural type and period from the ancient system of defense. Therefore it is deservedly being joined into the chain of individual sites stretching across borders that together make up the single serial World Heritage site carrying the name “Frontiers of the Roman Empire”, which presently only includes two individual sections in Great Britain and one in Germany that are on the World Heritage List in this context. Also within the framework of this same program – and at essentially the same time as the Hungarian proposal – Slovakia and Austria are preparing nominations for the sections of the “Frontiers of the Roman Empire” lying within the territory of their countries. Finally, through the realization of this grand plan, a serial site that crosses an entire continent and constitutes the common heritage of Humankind can be created. We are proud that as a part of this Hungary is amongst the first to initiate the inscription of a Roman river border, a *Ripa*, onto the World Heritage, following the land borders that have already been inscribed on the List.

Dr. Prof. Miklós Réthelyi, minister  
*president of the Hungarian World Heritage Committee*



## Introduction

Hungary and the area of the Carpathian Basin has always been a crossroads of peoples, and this was true in Roman times as well. The western half of this territory that was inhabited by Celts, Illyrians, Dacians and later Germans and Sarmatians was settled by a new power, the Roman Empire, during the time of the emperor Augustus. This area stretching to the Danube that was conquered between B.C. 11-8 became one of the most important buffer zones of an enormous ancient state that stretched over three continents. Because of this, the province of Pannonia and its army played an ever increasing role in the life of the empire starting from the last quarter of the 1<sup>st</sup> century A.D. Its significance and influence can be shown by the fact that Vespasian (69-79) and Septimus Severus (193-211) were able to become emperors through support from here, and from the middle of the third century the Balkan region regularly took a leading political role in the empire. The border of the province was the Danube, which was also important in terms of transportation, and its army of about forty thousand – 4 legions and numerous auxiliary troops – constructed its posts on the right bank of the river. The early palisade forts were replaced by stone fortresses in time, watch posts and towers were constructed along the *limes* road that connected these forts and in the 4<sup>th</sup> century more and more military fortifications of varying sizes were built on the left bank of the river as well. In the 5<sup>th</sup> century, Pannonia, which had been divided into two sections under Trajan and then into four under Diocletian, was gradually taken over by the invading Germanic, Sarmatian and Hunnic peoples. A portion of the province can be found within the territory of Hungary, and so the entire, about 415 km Hungarian section of the Danube was once a border of the Roman Empire.

The border of Pannonia, the *limes* of the empire, was designated as a *ripa* due to the fact it was a river border, and it attracted inhabitants in the later centuries. This was not by chance, because the Roman fortresses and cities were established in accordance with the geographic conditions for settlement and near the fords along the river. The Roman military road, the *limes* road running along the Danube, represented a particular source of attraction, and its sturdy foundations and stone/gravel surface provided an outstanding option for transportation even in the Middle Ages. A series of Hungarian towns were established atop the old ruins, sometimes even utilizing their remains, but there are also some rarer cases where these fields of ruins have remained unoccupied to the present day. Travelers in the old days collected many finds and inscribed stones from these sites and they were often depicted in old maps as well. The origins of archeological research stretch back to the 18<sup>th</sup> century, but systematic archeological activities only began in the second half of the 19<sup>th</sup> century. During the century and a half that has passed since then, hundreds of sites have been identified and in many places excavations and thorough research have been performed. As a result of the diligent work of generations of archeologists we have become increasingly well informed about the Pannonian *limes*, and on the basis of the remains discovered, it is possible to depict an ever more precise archeological picture and history of this important province of the Roman Empire.

However, only a portion of the finds can be placed in collections, and the architectural remains must be protected and preserved in place. It can be noted with pride that the first historic preservation work was in 1780 at Aquincum. During the course of this, the freshly excavated section of the Aquincum legionary fort's great baths was provided with a protective structure. In time the remains of the *Ripa Pannonica* that were conserved as ruins grew, and these were given archeological or historic preservation protection as valued memorials to the past. Many of these became local or regional centers for learning and education as archeological parks. Following the birth of the World Heritage Convention, the idea to present the abundant monuments of Roman Pannonia in this manner grew. Finally, through the strength of a Hungarian initiative from 1999, the multinational World Heritage site entitled the Frontiers of the Roman Empire was born in 2005. This provides an opportunity for the individual countries to propose the section of the Roman borderline running through their territory for inscription on the World Heritage List. The plentiful research results and prior measures for heritage preservation provided Hungary with the ability to prepare a World Heritage proposal of proper quality and with the required thoroughness. The fact that this could be completed through the work of many contributors is thanks to the three year international *limes* grant from the Central Europe Program between 2008 and 2011.

Zsolt Visy





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# 1. Identification of the Property

## Frontiers of the Roman Empire – Ripa Pannonica in Hungary (Frontiers of Pannonia in Hungary)

(The further extension of the Frontiers of the Roman Empire World Heritage Site including Hadrian's Wall in the Kingdom of Great Britain and Northern Ireland, inscribed on the World Heritage List in 1987, the Upper German – Raetian *Limes* in Germany, inscribed on the list in 2005, and the Antonine Wall in the United Kingdom of Great Britain and Northern Ireland inscribed in 2008) –

Acronym: **RPH**



## Brief Summary

The linear border defense system for the province of Pannonia in the Roman Empire stretches along the Danube starting from contemporary Klosterneuburg in Austria all the way to the southernmost settlement along the Danube in Pannonia, Zemun in Serbia (in Hungarian: *Zimony*, in German: *Semlin* and in ancient times: *Taurunum*). This entire section of the *limes* ran along the riverside (in Latin: *ripa*), and from this it gets its name, the *Ripa Pannonica*. The Hungarian section of this stretches from Rajka to the southern border of the country at Udvar.

The border defenses developed on the *Ripa* consisted of legionary fortresses (*castra legionis*) and forts constructed for the auxiliary troops (*auxiliarian castella*), while in the sections between these forts stood watch towers or signal towers. The forts and the two legionary fortresses were linked by the *limes* road running along the right bank of the Danube. The fortified river ports erected in late Roman times on both sides of the Danube – usually in pairs – were also a part of border defense as well as foreign commerce. The nominated site contains the surviving remains from the entire 417 km long border defense system in Hungary, including both the excavated and unexcavated structures.

## Summary of Universal Value

*The Ripa Pannonica in Hungary (RPH) is a portion of the Frontiers of the Roman Empire (FRE) World Heritage serial nomination*

*It is the 417 km long continuous remains of the characteristic river border defense system developed in Pannonia. The RPH bears witness to the development of Roman defensive architecture and its strategic doctrine over several centuries*

*The RPH reflects the development of the system of relationships between the Romans and Barbaricum*

*The RPH is important testimony to the mutual exchange of human values across the border*

*The RPH contributes to the better understanding of the intellectual and technical preparedness of the Empire*

*The RPH bears testimony to the interactive ability to react to changes in human values and relationships*

*The RPH displays a less well-known, characteristic and mundane aspect of Roman civilian and military architecture*

*The RPH bears witness to how the Roman frontier policies resulted in the exchange of peoples within the Empire – and due to this contributed to the sudden spread of Greco-Roman civilization as well as Christianity*

*The RPH bears witness to how military policies in Pannonia significantly shaped the history of the entire Roman Empire*

*The RPH bears testimony to the flow of people, nations, goods and ideas*

*The RPH is a testimonial to the success over several centuries of Roman technical civilization based on standardization throughout the Empire*

*The RPH has to this day influenced the structuring of the nations, cultures, religions, civilizations, technology and in part the politics of the region*

**Latitude and Longitude, or UTM Coordinates:**

Coordinates Encompassing the RPH

		EOV Y	EOV X	WGS84 N	WGS84 E
N	Bezenye	511231	291236	47.94990	17.18958
W	Bezenye	509829	289902	47.93761	17.17125
E	Göd	659017	260053	47.68424	19.16754
S	Sátorhely	619906	64319	45.92289	18.65958

**1.a Country**

Hungary

**1.b State, Province or Region**

HUNGARY, Baranya, Bács-Kiskun, Fejér, Győr-Moson-Sopron, Komárom-Esztergom, Pest and Tolna Counties and Budapest

**1.c Name of Property**

Frontiers of the Roman Empire – *Ripa Pannonica* in Hungary (Frontiers of Pannonia in Hungary) (Acronym: RPH).

The nomination comprises 121 individual sites. The identification of the individual sites is with the letters RPH followed by a number.

Name of the elements of the nominated property

RPH Nr.	original name / name in VISY 2003a	type of the site	Contemporary settlement(s)	Geographical name
1.	Altinum – 1	watch tower	Sátorhely	Török-domb
2.	<i>Altinum</i>	fort and <i>vicus</i>	Kölked	Hajlokpart
3.	Lugio – 5	watch tower	Dunaszekcső	
4.	<i>Lugio / Florentia</i>	fort and <i>vicus</i>	Dunaszekcső	Várhegy
5.	<i>Contra Florentiam?</i>	fortified river port	Dunafalva	
6.	Ad Statuas – 2–3	watch towers and <i>limes</i> road	Báta	
7.		way station	Bátaszék	Lajvér
8.		<i>limes</i> road	Alsónyék, Várdomb	
9.	Alisca – 3	watch tower	Őcsény	Soványtelek
10.	<i>Alisca</i>	fort and <i>vicus</i>	Őcsény	Gábor-tanya
11.		<i>limes</i> road (A)	Őcsény	Ördögvetetés
12.		<i>limes</i> road (B)	Őcsény	Ördögvetetés
13.		<i>limes</i> road (C–D)	Őcsény, Szekszárd	Ördögvetetés

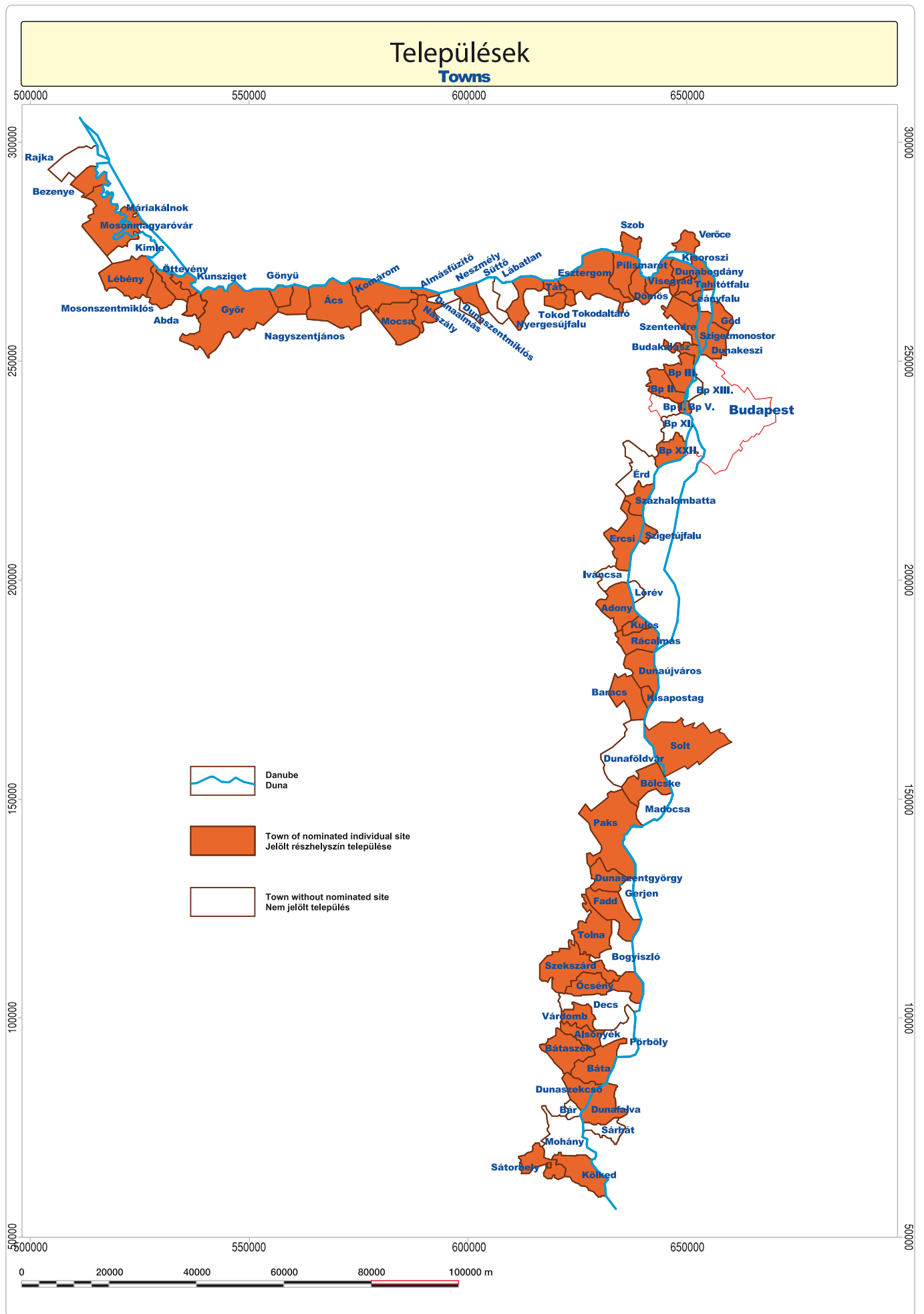
RPH Nr.	original name / name in VISY 2003a	type of the site	Contemporary settlement(s)	Geographical name
14.	Alta Ripa – 2	watch tower	Szekszárd, Tolna	Mözsi-dűlő
15.	Alta Ripa – 1	watch tower	Tolna	Mözs–Török csárda (Janicsárdomb)
16.	Lussonium – 10	watch tower and <i>limes</i> road	Fadd	Cseri-dűlő, Haris
17.	Lussonium – 9	watch tower and <i>limes</i> road	Fadd	Bodzás-dűlő, Bolha út
18.	Lussonium – 6	watch tower	Dunaszentgyörgy	Déllő
19.	Lussonium – 12	watch tower	Dunaszentgyörgy	
20.	Lussonium – 3	watch tower	Paks	Püspök-domb
21.		<i>limes</i> road	Paks	Csámpa
22.	<i>Lussonium</i>	fort and <i>vicus</i>	Paks	Dunakömlőd–Sánc-hegy
23.	Annamatia – 9	watch tower and <i>limes</i> road	Paks	
24.	Annamatia – 8	watch tower and <i>limes</i> road	Bölcske	Gabonás
25.	Annamatia – 7	watch tower and <i>limes</i> road	Bölcske	Leányvár
26.	Annamatia – 12	fortified river port	Bölcske, Solt	Duna-meder
27.	<i>Annamatia</i>	fort and <i>vicus</i>	Baracs	
28.	Intercisa – 5–6, 10	watch towers and <i>limes</i> road	Baracs, Kisapostag, Dunaújváros	
29.	Intercisa – 2	watch tower	Dunaújváros	Béke tér
30.	<i>Intercisa</i>	fort and <i>vicus</i>	Dunaújváros	Öreg-hegy
31.	Vetus Salina – 8	watch tower and <i>limes</i> road	Rácalmás	
32.		<i>limes</i> road	Adony, Kulcs	
33.	Vetus Salina – 11	watch tower and <i>limes</i> road	Adony	
34.		<i>limes</i> road	Adony	
35.		<i>limes</i> road	Ercsi	
36.	Matrica – 13	fortified river port?	Szigetújfalu	Ercsi rév
37.	<i>Matrica</i>	fort and <i>vicus</i>	Százhalombatta	Dunafüred
38.	<i>Campona</i>	fort and <i>vicus</i>	Budapest 22 <sup>nd</sup> district	Nagytétény
39.	<i>Contra Aquincum / Contra Teutanum?</i>	fort	Budapest 5 <sup>th</sup> district	Március 15. tér
40.	Aquincum – III	camp and <i>vicus</i>	Budapest 1 <sup>st</sup> and 2 <sup>nd</sup> districts	Víziváros
41.	<i>Aquincum</i>	fortress and canabae	Budapest 2 <sup>nd</sup> and 3 <sup>rd</sup> districts	Óbuda
42.	<i>Aquincum</i>	municipium	Budapest 3 <sup>rd</sup> district	
	Ulcisia –16	watch tower		Nánási út 3.
43.	Ulcisia – 5	watch tower	Budapest 3 <sup>rd</sup> district	Kossuth Lajos üdülőpart 59.
44.		<i>limes</i> road	Budakalász	Dunai-Kisföldek
45.	Ulcisia – 2	watch tower	Budakalász	Luppa csárda
46.		<i>limes</i> road	Szentendre	Közép-dűlő

RPH Nr.	original name / name in VISY 2003a	type of the site	Contemporary settlement(s)	Geographical name
47.	<i>Ulcisia</i>	fort	Szentendre	
48.	Ulcisia – 8	fortified river ports	Szigetmonostor	Horány
	Ulcisia – 9		Dunakeszi	Rév
49.	–	fort	Göd	Bócsaújtelep (Ilkamajor)
50.	Cirpi – 2	watch tower	Leányfalu	
51.	<i>Cirpi</i>	fort	Dunabogdány	Várad
52.	Solva – 38	fortified river port	Verőce	Dunamező-dűlő
53.	Solva – 28	watch tower	Visegrád	Szentgyörgy-puszta 1.
54.	<i>Pone Navata?</i>	fort	Visegrád	Sibrik-domb
55.	Solva – 24	watch tower	Visegrád	Kőbánya
56.	Solva – 35	watch tower	Visegrád	Lepence 2.
57.	<i>Quadriburgium?</i>	fortlet	Visegrád	Gizella-major
58.	Solva – 22	watch tower	Dömös	Hajóállomás
59.		brick firing kilns	Dömös	Bartók Béla utca
60.	Solva – 21	watch tower	Dömös	Köves-patak
61.	Solva – 20	watch tower / way station?	Dömös	Tófenék
62.	<i>Ad Herculem</i>	fort	Pilismarót	Kis-hegy
63.	Solva – 19	fortlet	Pilismarót	Malom-patak
64.	Solva – 18	watch tower	Pilismarót	Hajóállomás
65.	Solva – 11, 13–14	watch towers	Pilismarót	Basaharc 3-5.
66.	Solva – 34	fortified river port	Szob	Hideg-rét
67.	–	fort	Esztergom, Pilismarót	Hideglelős-kereszt
		<i>limes</i> road	Esztergom	
			Pilismarót	Hosszú-hegy oldala I.
	Solva – 9	way station	Pilismarót	Basaharc 1.
	Solva – 10	watch tower	Pilismarót	Basaharc 2.
68.	Solva – 8	watch tower	Esztergom	Búbánat-völgy
69.	Solva – 1	watch tower	Esztergom	Szentgyörgy-mező 1.
70.	<i>Solva</i>	fort	Esztergom	Várhegy
71.	Crumerum – 2	watch tower	Esztergom	Zsidódi-dűlő
72.		<i>limes</i> road	Esztergom, Tát	Újtelep
73.		<i>limes</i> road	Tát, Tokod	Híd-alja
74.	<i>Gardellaca / Cardabiaca?</i>	fort and <i>vicus</i>	Tokod, Tokodaltáró	Vár-berek, Erzsébet-akna
75.		<i>limes</i> road	Tát	Malom-dűlő
76.		<i>limes</i> road	Tát, Mogyorósbánya, Nyergesújfalu	Kertváros, Téglagyári agyagbánya II.
77.	<i>Crumerum</i>	fort	Nyergesújfalu	Sánc-hegy
78.	Odiavum – 5	watch tower	Neszmély	
79.	Odiavum – 4	watch tower	Neszmély	Kalin-hegy

RPH Nr.	original name / name in VISY 2003a	type of the site	Contemporary settlement(s)	Geographical name
80.	<i>Azaum / Odiavum</i>	<i>vicus</i>	Almásfüzitő	Foktorok
81.	Brigetio – 1	watch tower	Almásfüzitő	Kurucdomb
	<i>Brigetio</i>	fortress and <i>canabae</i>	Komárom	Szőny
82.	<i>Brigetio</i>	<i>municipium</i>	Komárom	Szőny–Vásártér
83.	Brigetio – II–III	camps	Komárom	
84.	Brigetio – IV	camp	Komárom	
85.	Brigetio – V	camp	Komárom	
86.	Brigetio – VIII–XI, XXXII	camps	Komárom	
87.	Brigetio – XXX–XXXI	camps	Komárom	
88.	Brigetio – XIX–XXI	camps	Mocsa, Komárom	
89.	Brigetio – VI–VII	camps	Mocsa	
90.	Brigetio – XVII	camp	Mocsa	
91.	Brigetio – XVIII	camp	Mocsa	
92.	Brigetio – XXII–XXIII	camps	Mocsa	
93.	Brigetio – XXIV	camp	Mocsa	
94.	Brigetio – XXV–XXVI	camps	Mocsa	
95.	Brigetio – XXVII	camp	Mocsa	
96.	Brigetio – XXVIII–XXIX	camps	Mocsa	
97.	Brigetio – XII, XXXIII	camps	Naszály	
98.	Brigetio – XIII–XV, XXXIV	camps	Naszály	
99.	<i>Ad Mures</i>	fort and <i>vicus</i>	Ács	Bumbukút
100.	<i>Ad Statuas</i>	fort	Ács	Vaspuszta
	Arrabona – 10	watch tower	Nagyszentjános	
101.	Arrabona – 7	watch tower	Nagyszentjános	Proletár-dűlő
102.		<i>limes</i> road (A)	Gönyű	
103.		<i>limes</i> road (B)	Gönyű	
104.	Arrabona – 11	way station	Gönyű	Nagy-Sáros-dűlő I.
		<i>limes</i> road (C)	Gönyű	
105.	Arrabona – 4	watch tower	Győr	Gyórszentiván–Károlyháza (Véneki csárda)
106.	Arrabona – 2	watch tower	Győr	Gyórszentiván–Esztergető
107.	Arrabona – I	camp	Győr	
108.	<i>Arrabona</i>	fort and <i>vicus</i>	Győr	Káptalandomb
109.		<i>limes</i> road	Abda	
110.	Quadrata – 3	watch tower and <i>limes</i> road	Abda	
111.		<i>limes</i> road	Öttevény	
112.	Quadrata – 5	watch tower	Öttevény	Csiszló-dűlő
113.	Quadrata – I	camp?	Öttevény	Sándorháza-puszta
114.	Quadrata – 2	fortified river port?	Kunsziget	Toronyvári-dűlő



RPH Nr.	original name / name in VISY 2003a	type of the site	Contemporary settlement(s)	Geographical name
115.	<i>Quadrata</i>	fort and <i>vicus</i>	Lébény, Mosonszentmiklós	Barátföld-pusztá
116.		<i>limes</i> road (A)	Mosonmagyaróvár	István-pusztá
117.	<i>Ad Flexum</i>	<i>vicus</i>	Mosonmagyaróvár	
118.		<i>limes</i> road (B–C)	Mosonmagyaróvár	
119.		<i>limes</i> road (D)	Mosonmagyaróvár	
120.	Ad Flexum – 4	fortified river port?	Máriakálnok	Országúti-dűlő
121.	Gerulata – 4	watch tower	Bezenye	Büdöskúti-szántók



## 1.d Geographical Coordinates

The individual sites of the RPH are organized according their geographical order from Rome (they are listed and numbered going upstream along the Danube).

EOV = Uniform National Orthographic System (the use of this system is required in Hungary); WGS84 = the World Geodetic System adopted in 1984 and revised in 2004

### Individual Sites in Geographical Order

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
1.	Altinum – 1 watch tower	619951	64863	45.92779	18.66012	619935	64584	45.92528	18.65994
2.	<i>Altinum</i> fort and <i>vicus</i>	621730	67942	45.95556	18.68287	621506	67753	45.95385	18.67999
3.	Lugio – 5 watch tower	626010	79977	46.06399	18.73745	625984	80083	46.06494	18.73711
4.	<i>Lugio / Florentia</i> fort and <i>vicus</i>	627887	82863	46.09001	18.76157	627764	82866	46.09004	18.75998
5.	<i>Contra Florentiam?</i> fortified river port	628457	82628	46.08792	18.76895	628433	82653	46.08814	18.76864
6.	limes road	626664	86497	46.12266	18.74558	626551	86849	46.12582	18.74410
	Ad Statuas – 2 watch tower	626172	87150	46.12852	18.73918				
	Ad Statuas – 3 watch tower	626930	86124	46.11931	18.74904				
7.	way station	622959	96244	46.21020	18.69708	622904	96244	46.21020	18.69637
8.	limes road	622810	98053	46.22647	18.69504	623087	97970	46.22573	18.69864
9.	Alisca – 3 watch tower	622598	106605	46.30339	18.69179	622915	106611	46.30346	18.69590
10.	<i>Alisca</i> fort	628473	109085	46.32592	18.76793	628270	108915	46.32438	18.76530
	<i>Alisca vicus</i>	628405	108849	46.32379	18.76706				
11.	limes road (A)	627877	109068	46.32575	18.76019	627730	109058	46.32565	18.75828
12.	limes road (B)	627119	109232	46.32720	18.75034	626926	109232	46.32719	18.74784
13.	limes road (C)	626099	109715	46.33150	18.73707	626239	109778	46.33208	18.73889
	limes road (D)	625489	110194	46.33579	18.72912				
14.	Alta Ripa – 2 watch tower	624000	116473	46.39222	18.70943	623789	116473	46.39221	18.70669
15.	Alta Ripa – 1 watch tower	626524	118318	46.40891	18.74215	626427	118318	46.40891	18.74089
16.	limes road	631089	124676	46.46625	18.80126	630773	124580	46.46538	18.79715
	Lussonium – 10 watch tower	631080	124477	46.46446	18.80115				

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
17.	limes road	630563	127573	46.49230	18.79429	630242	127408	46.49080	18.79012
	Lussonium – 9 watch tower	630512	127408	46.49081	18.79363				
18.	Lussonium – 6 watch tower	630457	129211	46.50732	18.79284	630526	129243	46.50732	18.79374
19.	Lussonium – 12 watch tower	632151	133411	46.54486	18.81475	632131	133404	46.54480	18.81449
20.	Lussonium – 3 watch tower	632558	134513	46.55479	18.82001	632547	134452	46.55424	18.81987
21.	limes road	633146	135556	46.56418	18.82764	633148	135511	46.56378	18.82767
22.	<i>Lussonium</i> fort and vicus	637320	145730	46.65580	18.88180	637372	145714	46.65566	18.88248
23.	Annamatia – 9 watch tower	637436	148929	46.68458	18.88322	637284	149258	46.68754	18.88123
	limes road	637523	149033	46.68552	18.88436				
24.	Annamatia – 8 watch tower	637522	153045	46.72161	18.88424	637417	152622	46.71780	18.88287
	limes road	637712	152243	46.71440	18.88674				
25.	Annamatia – 7 watch tower	637305	154806	46.73745	18.88135	637252	155052	46.73966	18.88065
	limes road	637437	155147	46.74052	18.88307				
26.	Annamatia – 12 fortified river port	645166	155251	46.74156	18.98420	645078	155410	46.74299	18.98305
27.	<i>Annamatia</i> fort	640405	169353	46.86836	18.92160	639945	169685	46.87134	18.91556
	<i>Annamatia</i> vicus	640214	169631	46.87086	18.91909				
28.	limes road	640804	174183	46.91182	18.92674	640240	173160	46.90261	18.91936
	Intercisa – 5 watch tower	640851	174607	46.91563	18.92735				
	Intercisa – 6 watch tower	640457	172725	46.89870	18.92221				
	Intercisa – 10 watch tower	640474	173160	46.90261	18.92243				
29.	Intercisa – 2 watch tower	641473	179319	46.95803	18.93542	641520	179311	46.95796	18.93604
30.	Intercisa fort	641582	181261	46.97550	18.93682	641720	181381	46.97658	18.93863
	<i>Intercisa</i> vicus (semi-detached house)	641406	181032	46.97344	18.93451				
	<i>Intercisa</i> vicus (building with an apse)	641391	181246	46.97536	18.93431				

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
31.	Vetus Salina – 8 watch tower and <i>limes</i> road	640692	185966	47.01781	18.92502	640714	185837	47.01665	18.92531
32.	<i>limes</i> road	638597	190299	47.05676	18.89736	There is no buffer zone			
33.	<i>limes</i> road	636847	194161	47.09147	18.87421	636709	193374	47.08439	18.87241
	Vetus Salina – 11 watch tower	636957	193481	47.08535	18.87568				
34.	<i>limes</i> road	636452	196056	47.10851	18.86895	636353	196119	47.10907	18.86764
35.	<i>limes</i> road	637584	209285	47.22753	18.88349	638200	211926	47.25130	18.89156
36.	Matrica – 13 fortified river port?	640064	211689	47.24920	18.91619	640053	211781	47.25002	18.91604
37.	Matrica fort	640214	217314	47.29980	18.91805	640107	217378	47.30037	18.91663
	Matrica vicus	640382	217570	47.30210	18.92026				
38.	Campona fort and vicus	645314	227438	47.39092	18.98538	645504	227494	47.39143	18.98789
39.	Contra Aquincum / Contra Teutanum? fort	650347	238697	47.49221	19.05205	650202	238812	47.49325	19.05013
40.	Aquincum – III camp and vicus	649330	240429	47.50779	19.03855	649176	240817	47.51128	19.03651
41.	Aquincum fortress	649560	244233	47.54201	19.04160	648925	244051	47.54037	19.03317
	Aquincum canabae (Hercules Villa)	649403	244967	47.54861	19.03951				
	Aquincum canabae (amphitheatrum)	649360	243216	47.53286	19.03895				
42.	Aquincum municipium	640214	217314	47.29980	18.91805	649397	246986	47.56677	19.03943
	Ulcisia – 16 watch tower	651227	246986	47.56677	19.06375				
43.	Ulcisia – 5 watch tower	651496	249075	47.58556	19.06733	651411	249083	47.58563	19.06620
44.	<i>limes</i> road	651987	253014	47.62099	19.07388	651836	253039	47.62121	19.07187
45.	Ulcisia – 2 watch tower	652829	253167	47.62236	19.08508	652787	253225	47.62288	19.08452
46.	<i>limes</i> road	652263	254579	47.63506	19.07756	652093	254451	47.63391	19.07529
47.	Ulcisia fort	651973	257864	47.66461	19.07371	652140	257768	47.66374	19.07594
48.	Ulcisia – 9 fortified river port	655434	257166	47.65831	19.11979	654986	256738	47.65447	19.11382
	Ulcisia – 8 fortified river port	654884	257184	47.65848	19.11246				
49.	fort	658695	259918	47.68303	19.16325	658474	259845	47.68238	19.16031

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
50.	Cirpi – 2 watch tower	653082	263706	47.71715	19.08852	653024	263734	47.71740	19.08775
51.	<i>Cirpi</i> fort	652074	269651	47.77062	19.07511	651708	269610	47.77025	19.07023
52.	Solva – 38 fortified river port	650299	274977	47.81853	19.05143	650199	274869	47.81756	19.05010
53.	Solva – 28 watch tower	646305	273403	47.80436	18.99811	646186	273395	47.80429	18.99652
54.	<i>Pone Navata?</i> fort	644970	272716	47.79817	18.98030	645077	272709	47.79811	18.98173
55.	Solva – 24 watch tower	643890	270214	47.77566	18.96592	643917	270211	47.77563	18.96628
56.	Solva – 35 watch tower	643008	269174	47.76630	18.95417	642949	269213	47.76665	18.95338
57.	<i>Quadriburgium?</i> fortlet	641272	268521	47.76040	18.93102	641200	268440	47.75967	18.93006
58.	Solva – 22 watch tower	640157	269050	47.76514	18.91614	640161	269074	47.76536	18.91619
59.	brick firing kilns	639839	268839	47.76324	18.91190	639868	268835	47.76321	18.91229
60.	Solva – 21 watch tower	639270	270398	47.77725	18.90427	639248	270354	47.77686	18.90398
61.	Solva – 20 way station / watch tower?	639237	270773	47.78063	18.90382	639066	270682	47.77981	18.90154
62.	<i>Ad Herculem</i> fort	637309	270891	47.78165	18.87809	637501	270890	47.78165	18.88065
63.	Solva – 19 fortlet	639065	271887	47.79064	18.90150	639233	271869	47.79048	18.90374
64.	Solva – 18 watch tower	638684	273004	47.80068	18.89638	638648	273073	47.80130	18.89590
65.	Solva – 11 watch tower	635355	274097	47.81045	18.85191	636222	274093	47.81043	18.86348
	Solva – 13 watch tower	636015	274055	47.81008	18.86072				
	Solva – 14 watch tower	636662	274014	47.80973	18.86936				
66.	Solva – 34 fortified river port	635453	274887	47.81782	18.85432	635560	274873	47.81743	18.85462
67.	fort	633060	274369	47.81284	18.82126	633268	274179	47.81113	18.82404
	limes road	632768	274313	47.81233	18.81736				
	Solva – 9 way station	633864	274284	47.81209	18.83200				
	Solva – 10 watch tower	634129	274216	47.81149	18.83554				
68.	Solva – 8 watch tower	632359	274456	47.81360	18.81189	632357	274477	47.81379	18.81187
69.	Solva – 1 watch tower	627129	274100	47.81024	18.74208	627161	274127	47.81048	18.74251

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
70.	<i>Solva</i> fort	626722	272857	47.79904	18.73671	626616	272833	47.79882	18.73530
71.	Crumerum – 2 watch tower	622771	267391	47.74973	18.68431	622821	267395	47.74977	18.68498
72.	limes road	622280	266995	47.74614	18.67779	621949	266814	47.74450	18.67339
73.	limes road	620881	265626	47.73377	18.65923	621018	265692	47.73437	18.66105
74.	<i>Gardellaca / Cardabiaca?</i> fort and vicus	622130	264945	47.72770	18.67592	622495	264906	47.72737	18.68079
75.	limes road	620301	265767	47.73501	18.65148	620346	265739	47.73476	18.65209
76.	limes road	619131	265813	47.73537	18.63588	617973	266670	47.74302	18.62038
77.	Crumerum fort	611689	268537	47.75948	18.53643	611772	268417	47.75840	18.53754
78.	Odiavum – 5 watch tower	602116	266942	47.74450	18.40892	602003	266942	47.74449	18.40741
79.	Odiavum – 4 watch tower	601004	266413	47.73966	18.39415	601139	266413	47.73967	18.39595
80.	<i>Azaum / Odiavum vicus</i>	591720	265207	47.72804	18.27053	592225	265054	47.72671	18.27728
81.	Brigetio – 1 watch tower	587205	266518	47.73942	18.21015	586251	266257	47.73698	18.19747
	<i>Brigetio</i> fortress and <i>canabae</i>	585940	265647	47.73146	18.19342				
82.	<i>Brigetio municipium</i>	583446	266098	47.73526	18.16010	583138	265992	47.73428	18.15601
83.	Brigetio – II camp	578571	264257	47.71819	18.09541	578157	263756	47.71364	18.08997
	Brigetio – III camp	578413	263756	47.71367	18.09339				
84.	Brigetio – IV camp	579764	263752	47.71378	18.11139	579854	263752	47.71379	18.11259
85.	Brigetio – V camp	583724	264516	47.72106	18.16405	583592	264516	47.72105	18.16229
86.	Brigetio – VIII–XI camps	588048	264420	47.72063	18.22169	588401	264420	47.72066	18.22639
	Brigetio – XXXII camp	588031	264710	47.72323	18.22142				
87.	Brigetio – XXX–XXXI camps	578416	265535	47.72967	18.09314	578048	265383	47.72826	18.08825
88.	Brigetio – XIX camp	582938	263160	47.70879	18.15378	581715	263160	47.70866	18.13748
	Brigetio – XX camp	582543	263489	47.71171	18.14846				
	Brigetio – XXI camp	581544	263032	47.70749	18.13522				
89.	Brigetio – VI camp	584669	262961	47.70718	18.17687	585003	262961	47.70721	18.18132
	Brigetio – VII camp	584750	263137	47.70877	18.17792				
90.	Brigetio – XVII camp	584559	261554	47.69451	18.17561	584397	261554	47.69449	18.17346

RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
91.	Brigetio – XVIII camp	583690	259494	47.67590	18.16435	583896	259494	47.67592	18.16709
92.	Brigetio – XXII–XXIII camps	583925	262646	47.70427	18.16701	584089	262646	47.70428	18.16919
93.	Brigetio – XXIV camp	583043	262130	47.69954	18.15533	582788	262130	47.69951	18.15194
94.	Brigetio – XXV camp	580872	261998	47.69812	18.12643	580998	261998	47.69814	18.12811
	Brigetio – XXVI camp	580666	261816	47.69646	18.12371				
95.	Brigetio – XXVII camp	580581	261262	47.69147	18.12267	580763	261262	47.69149	18.12509
96.	Brigetio – XXVIII camp	583059	260990	47.68929	18.15572	583360	260990	47.68932	18.15973
	Brigetio – XXIX camp	582932	260615	47.68590	18.15408				
97.	Brigetio – XII, XXXIII camps	589035	263675	47.71402	18.23495	588640	263675	47.71398	18.22968
98.	Brigetio – XIII–XIV camps	589744	264214	47.71893	18.24432	589889	264403	47.72065	18.24623
	Brigetio – XV camp	589735	264823	47.72441	18.24412				
	Brigetio – XXXIV camp	590638	264403	47.72072	18.25621				
99.	<i>Ad Mures</i> fort and vicus	570433	267067	47.74252	17.98645	570772	267067	47.74256	17.99097
100.	<i>Ad Statuas</i> fort	564538	266801	47.73938	17.90790	563172	266272	47.73444	17.88980
	Arrabona – 10 watch tower	563527	266250	47.73429	17.89453				
101.	Arrabona – 7 watch tower	560506	266347	47.73476	17.85424	560753	266248	47.73390	17.85755
102.	limes road (A)	559293	266160	47.73291	17.83811	559461	266152	47.73286	17.84035
103.	limes road (B)	558635	266302	47.73409	17.82931	558477	266302	47.73407	17.82720
104.	Arrabona – 11 way station	556945	266334	47.73414	17.80677	556067	266519	47.73568	17.79503
	limes road (C)	556512	266263	47.73344	17.80102				
105.	Arrabona – 4 watch tower	553562	266363	47.73391	17.76167	553558	266225	47.73267	17.76165
106.	Arrabona – 2 watch tower	548378	265163	47.72233	17.69285	548590	265163	47.72236	17.69567
107.	Arrabona – I camp	549193	261205	47.68686	17.70461	549008	261205	47.68683	17.70215
108.	<i>Arrabona</i> fort and vicus	543878	261514	47.68880	17.63375	543873	261716	47.69061	17.63364
109.	limes road	538446	262425	47.69608	17.56118	538349	262341	47.69531	17.55991
110.	Quadrata – 3 watch tower	537407	263191	47.70279	17.54714	537557	263103	47.70203	17.54916
	limes road	537647	262969	47.70084	17.55040				



RPH Nr.	Name	element of nominated property				buffer zone			
		EOV Y	EOV X	WGS84 N	WGS84 E	EOV Y	EOV X	WGS84 N	WGS84 E
111.	limes road	535243	264722	47.71618	17.51792	534942	264722	47.71613	17.51391
112.	Quadrata – 5 watch tower	533145	267590	47.74160	17.48920	533078	267590	47.74159	17.48831
113.	Quadrata – 1 camp?	530801	268942	47.75333	17.45758	530621	268850	47.75247	17.45521
114.	Quadrata – 2 fortified river port?	534388	269249	47.75674	17.50533	534353	269260	47.75683	17.50486
115.	<i>Quadrata</i> fort	527762	271710	47.77766	17.41629	527613	271568	47.77635	17.41434
	<i>Quadrata vicus</i>	527825	271433	47.77518	17.41721				
116.	limes road (A)	521933	277179	47.82571	17.33693	521595	277242	47.82621	17.33240
117.	<i>Ad Flexum vicus</i>	517569	282335	47.87120	17.27711	517849	282275	47.87072	17.28087
118.	limes road (B)	516380	285123	47.89602	17.26037	516262	285123	47.89600	17.25879
	limes road (C)	516516	284905	47.89409	17.26225				
119.	limes road (D)	515544	286325	47.90666	17.24882	515238	286325	47.90659	17.24473
120.	Ad Flexum – 4 fortified river port?	518366	281866	47.86714	17.28790	518393	281793	47.86649	17.28828
121.	Gerulata – 4 watch tower	511250	289969	47.93852	17.19024	510929	290334	47.94173	17.18583

### 1.e Maps and Plans, Showing the Boundaries of the Nominated Property and the Buffer Zone

Due to their great volume, ortophoto maps, on-site photographs, archaeological surveys and the archaeological descriptions related to the delimitation of the element of the nominated property and buffer zones of the 121 individual sites, along with the related bibliographical information as well as all of the base data for the individual sites have been placed in the separate section 1.e II. The geographical maps (national map and section maps) comprise a separate appendix.

### 1.f Area of Nominated Property (ha.) and Proposed Buffer Zone (ha.)

Total area: 5525.64 ha  
total nominated property: 903.64 ha  
total buffer zone: 4622.00 ha

## Areas of the individual sites:

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
1.	Altinum – 1 watch tower	0.62	4.22	<b>4.84</b>
2.	<i>Altinum</i> fort and <i>vicus</i>	17.12	45.00	<b>62.12</b>
3.	Lugio – 5 watch tower	1.07	12.78	<b>13.85</b>
4.	<i>Lugio / Florentia</i> fort and <i>vicus</i>	6.31	4.72	<b>11.03</b>
5.	<i>Contra Florentiam?</i> fortified river port	0.42	19.12	<b>19.54</b>
6.	limes road	14.69	35.31	<b>50.61</b>
	Ad Statuas – 2 watch tower	0.36		
	Ad Statuas – 3 watch tower	0.25		
7.	way station	0.28	1.23	<b>1.51</b>
8.	limes road	20.33	133.79	<b>154.12</b>
9.	Alisca – 3 watch tower	0.81	8.08	<b>8.89</b>
10.	<i>Alisca</i> fort	5.00	15.02	<b>33.02</b>
	<i>Alisca vicus</i>	13.00		
11.	limes road (A)	2.11	9.17	<b>11.28</b>
12.	limes road (B)	2.83	12.03	<b>14.86</b>
13.	limes road (C)	2.03	30.25	<b>36.53</b>
	limes road (D)	4.25		
14.	Alta Ripa – 2 watch tower	0.88	103.77	<b>104.65</b>
15.	Alta Ripa – 1 watch tower	1.33	10.49	<b>11.82</b>
16.	limes road	9.35	101.24	<b>110.98</b>
	Lussonium – 10 watch tower	0.39		
17.	limes road	10.23	121.49	<b>132.44</b>
	Lussonium – 9 watch tower	0.72		
18.	Lussonium – 6 watch tower	1.03	2.36	<b>3.39</b>
19.	Lussonium – 12 watch tower	0.70	1.69	<b>2.39</b>
20.	Lussonium – 3 watch tower	0.42	0.82	<b>1.24</b>
21.	limes road	0.20	0.34	<b>0.54</b>
22.	<i>Lussonium</i> fort and <i>vicus</i>	2.61	5.44	<b>8.05</b>
23.	Annamatia – 9 watch tower	0.78	30.81	<b>33.72</b>
	limes road	2.13		
24.	Annamatia – 8 watch tower	0.75	57.02	<b>62.41</b>
	limes road	4.64		
25.	Annamatia – 7 watch tower	0.74	14.71	<b>18.98</b>
	limes road	3.53		

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
26.	Annamatia – 12 fortified river port	2.58	73.93	<b>76.51</b>
27.	<i>Annamatia</i> fort	0.98	16.61	<b>43.81</b>
	<i>Annamatia vicus</i>	26.22		
28.	limes road	15.10	42.56	<b>59.45</b>
	Intercisa – 5 watch tower	0.45		
	Intercisa – 6 watch tower	0.58		
	Intercisa – 10 watch tower	0.76		
29.	Intercisa – 2 watch tower	0.30	0.97	<b>1.27</b>
30.	Intercisa fort	10.75	7.87	<b>18.79</b>
	<i>Intercisa vicus</i> (semi-detached house)	0.15		
	<i>Intercisa vicus</i> (building with an apse)	0.02		
31.	Vetus Salina – 8 watch tower and <i>limes</i> road	3.16	5.37	<b>8.53</b>
32.	limes road	5.77	There is no buffer zone	<b>5.77</b>
33.	limes road	11.70	232.90	<b>245.32</b>
	Vetus Salina – 11 watch tower	0.72		
34.	limes road	3.12	22.31	<b>25.43</b>
35.	limes road	14.13	154.34	<b>168.47</b>
36.	Matrica – 13 fortified river port?	1.33	17.09	<b>18.42</b>
37.	<i>Matrica</i> fort	2.89	11.35	<b>14.27</b>
	<i>Matrica vicus</i>	0.03		
38.	<i>Campona</i> fort and <i>vicus</i>	10.74	7.65	<b>18.39</b>
39.	<i>Contra Aquincum</i> / <i>Contra Teutanum?</i> fort	4.09	1.58	<b>5.67</b>
40.	Aquincum – III camp and <i>vicus</i>	11.74	28.78	<b>40.52</b>
41.	<i>Aquincum</i> fortress	94.25	218.57	<b>315.15</b>
	<i>Aquincum canabae</i> (Hercules Villa)	1.02		
	<i>Aquincum canabae</i> ( <i>amphitheatrum</i> )	1.31		
42.	<i>Aquincum municipium</i>	69.33	57.52	<b>126.89</b>
	Ulcisia – 16 watch tower	0.04		
43.	Ulcisia – 5 watch tower	0.03	1.46	<b>1.49</b>
44.	limes road	0.74	14.51	<b>15.25</b>
45.	Ulcisia – 2 watch tower	0.22	7.62	<b>7.84</b>
46.	limes road	0.54	28.40	<b>28.94</b>
47.	<i>Ulcisia</i> fort	5.67	1.68	<b>7.35</b>
48.	Ulcisia – 9 fortified river port	0.22	49.02	<b>49.47</b>
	Ulcisia – 8 fortified river port	0.23		

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
49.	fort	12.08	2.50	<b>14.58</b>
50.	Cirpi – 2 watch tower	0.13	3.22	<b>3.35</b>
51.	<i>Cirpi</i> fort	3.49	42.85	<b>46.34</b>
52.	Solva – 38 fortified river port	0.24	37.38	<b>37.62</b>
53.	Solva – 28 watch tower	0.07	2.76	<b>2.83</b>
54.	<i>Pone Navata?</i> fort	1.89	1.36	<b>3.25</b>
55.	Solva – 24 watch tower	0.04	0.41	<b>0.45</b>
56.	Solva – 35 watch tower	0.96	1.32	<b>2.28</b>
57.	<i>Quadriburgium?</i> fortlet	3.22	0.96	<b>4.18</b>
58.	Solva – 22 watch tower	0.16	0.21	<b>0.37</b>
59.	brick firing kilns	0.10	0.43	<b>0.53</b>
60.	Solva – 21 watch tower	0.35	1.86	<b>2.21</b>
61.	Solva – 20 way station / watch tower?	0.34	12.02	<b>12.36</b>
62.	<i>Ad Herculem</i> fort	3.86	5.80	<b>9.66</b>
63.	Solva – 19 fortlet	0.69	15.10	<b>15.79</b>
64.	Solva – 18 watch tower	0.12	2.15	<b>2.27</b>
65.	Solva – 11 watch tower	0.03	99.89	<b>100.01</b>
	Solva – 13 watch tower	0.04		
	Solva – 14 watch tower	0.05		
66.	Solva – 34 fortified river port	0.73	3.23	<b>3.96</b>
67.	fort	0.58	217.81	<b>220.16</b>
	limes road	1.75		
	Solva – 9 way station	0.01		
	Solva – 10 watch tower	0.01		
68.	Solva – 8 watch tower	0.02	0.22	<b>0.24</b>
69.	Solva – 1 watch tower	0.37	0.30	<b>0.67</b>
70.	<i>Solva</i> fort	4.73	4.40	<b>9.13</b>
71.	Crumerum – 2 watch tower	0.17	1.20	<b>1.37</b>
72.	limes road	1.82	20.28	<b>22.10</b>
73.	limes road	4.49	19.97	<b>24.46</b>
74.	<i>Gardellaca / Cardabiaca?</i> fort and <i>vicus</i>	17.55	18.01	<b>35.56</b>
75.	limes road	0.72	2.57	<b>3.29</b>
76.	limes road	25.99	252.79	<b>278.78</b>
77.	<i>Crumerum</i> fort	1.54	15.08	<b>16.62</b>
78.	Odiavum – 5 watch tower	0.43	18.78	<b>19.21</b>

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
79.	Odiavum – 4 watch tower	0.45	6.17	<b>6.62</b>
80.	<i>Azaum / Odiavum vicus</i>	20.23	46.29	<b>66.52</b>
81.	Brigetio – 1 watch tower	2.00	248.67	<b>335.53</b>
	<i>Brigetio fortress and canabae</i>	84.86		
82.	<i>Brigetio municipium</i>	34.40	6.75	<b>41.15</b>
83.	Brigetio – II camp	2.66	49.20	<b>53.37</b>
	Brigetio – III camp	1.51		
84.	Brigetio – IV camp	2.34	4.35	<b>6.69</b>
85.	Brigetio – V camp	3.12	13.52	<b>16.64</b>
86.	Brigetio – VIII–XI camps	15.76	21.97	<b>40.78</b>
	Brigetio – XXXII camp	3.05		
87.	Brigetio – XXX–XXXI camps	13.71	30.01	<b>43.72</b>
88.	Brigetio – XIX camp	3.75	93.86	<b>111.46</b>
	Brigetio – XX camp	7.17		
	Brigetio – XXI camp	6.68		
89.	Brigetio – VI camp	2.39	74.40	<b>83.23</b>
	Brigetio – VII camp	6.44		
90.	Brigetio – XVII camp	3.73	13.70	<b>17.43</b>
91.	Brigetio – XVIII camp	4.35	19.14	<b>23.49</b>
92.	Brigetio – XXII–XXIII camps	3.18	33.97	<b>37.15</b>
93.	Brigetio – XXIV camp	7.46	12.58	<b>20.04</b>
94.	Brigetio – XXV camp	5.70	20.19	<b>32.41</b>
	Brigetio – XXVI camp	6.52		
95.	Brigetio – XXVII camp	5.17	9.87	<b>15.04</b>
96.	Brigetio – XXVIII camp	1.06	91.68	<b>96.06</b>
	Brigetio – XXIX camp	3.32		
97.	Brigetio – XII, XXXIII camps	6.27	43.94	<b>50.21</b>
98.	Brigetio – XIII–XIV camps	8.79	96.53	<b>111.76</b>
	Brigetio – XV camp	2.71		
	Brigetio – XXXIV camp	3.73		
99.	<i>Ad Mures fort and vicus</i>	4.57	50.64	<b>55.21</b>
100.	<i>Ad Statuas fort</i>	3.81	156.14	<b>161.18</b>
	Arrabona – 10 watch tower	1.23		
101.	Arrabona – 7 watch tower	0.88	27.74	<b>28.62</b>
102.	limes road (A)	1.68	2.99	<b>4.67</b>

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
103.	limes road (B)	2.48	4.26	<b>6.74</b>
104.	Arrabona – 11 way station	0.55	131.89	<b>133.42</b>
	limes road (C)	0.98		
105.	Arrabona – 4 watch tower	1.10	5.38	<b>6.48</b>
106.	Arrabona – 2 watch tower	0.58	16.64	<b>17.22</b>
107.	Arrabona – 1 camp	2.13	18.47	<b>20.60</b>
108.	<i>Arrabona</i> fort and <i>vicus</i>	24.31	3.71	<b>28.02</b>
109.	limes road	2.86	20.41	<b>23.27</b>
110.	Quadrata – 3 watch tower	0.61	4.00	<b>8.11</b>
	limes road	3.50		
111.	limes road	7.89	129.35	<b>137.24</b>
112.	Quadrata – 5 watch tower	0.24	6.39	<b>6.63</b>
113.	Quadrata – 1 camp?	2.12	13.70	<b>15.82</b>
114.	Quadrata – 2 fortified river port?	0.06	0.86	<b>0.92</b>
115.	<i>Quadrata</i> fort	4.67	34.56	<b>46.14</b>
	<i>Quadrata vicus</i>	6.91		
116.	limes road (A)	8.94	94.58	<b>103.52</b>
117.	<i>Ad Flexum vicus</i>	7.59	8.33	<b>15.92</b>
118.	limes road (B)	0.48	53.73	<b>55.03</b>
	limes road (C)	0.82		
119.	limes road (D)	17.61	147.49	<b>165.10</b>
120.	Ad Flexum – 4 fortified river port?	0.01	5.27	<b>5.28</b>
121.	Gerulata – 4 watch tower	0.93	160.83	<b>161.76</b>
$\Sigma$		<b>903.64</b>	<b>4622.00</b>	<b>5525.64</b>

## 2. Description

### 2.a Description of Property

#### 2.a.1 The Danube Valley in Hungary – An Introduction to the Site

The Roman-era *limes* border defense system in Hungary relied on the Danube River. The Hungarian section of the 2,850 km long Danube is 417 km, 142 km of which comprise the border between Hungary and Slovakia. The river flows through the territory of Győr-Moson-Sopron, Komárom-Esztergom, Pest, Fejér, Tolna, Baranya and Bács-Kiskun counties and Budapest.

Today the Danube crosses the border of the Alps and the Carpathians at the Devín Gate (“Porta Hungarica”) and arrives in the Little Hungarian Plain below Bratislava, where it flows in a southeastern direction across the alluvial fan it has deposited and continues to shape. Together with its Moson Danube branch it encircles the Szigetköz region on its right bank and on its left bank in Slovakia, it flanks the Žitný Ostrov region along with the Váh River. Not far after the city of Győr the Danube turns and flows on in an easterly direction. Then, from Esztergom it cuts an S curve to the east through the narrow valley between the Visegrád and Börzsöny mountains and turns to the south. Leaving the town of Vác the river enters into the Great Hungarian Plain and traverses the most extensive flatlands of the Carpathian Basin in a north-south direction.

The depositional and erosional activities of the Danube in its Hungarian portion changes in sections. In the northwest on the Little Hungarian Plain, depositional activity and sedimentation is characteristic of the section between the national border and Gönyű, where the river drops the most. In the stretch between Gönyű and Esztergom sedimentation is also characteristic for the most part, although there are also sections here where erosion is slightly greater than deposition. “In the Visegrád Strait the erosional activity, the washing away of sediment, is generally greater than the deposition that can be noticed intermittently. So here the characteristic of the section, even if it is weak, is to tend to cut into the bends. Between Vác, Budapest and Rácalmás, not including the characteristics of numerous transitional stretches in short sections, the sedimentation of the channel is stronger in the branches silting up into meanders than alongside parts of the main channel that cut into the bends in areas. From Rácalmás to the area of Kalocsa the river winds and there are some short sections where erosion and some where sedimentation comes to the forefront to a certain degree, but the two equal each other.” “Below Kalocsa, in the Sárköz and Mohács sections of the Danube the sedimentation of the channel and particularly the present flood plain is increasingly distinct...” (Dr. Pécsi Márton: *A magyarországi Duna-völgy kialakulása és felszínalaktana. Akadémiai Kiadó, Budapest 1959.*)

To the south of Budapest, the southerly flowing Danube is shifting to the west (the Coriolis effect). However, the Roman remains, the *limes* road and the forts help us in understanding the precise location of the shoreline of the Danube in Roman times.

“The floodplain of the Danube in the Little Hungarian Plain is of enormous extent, and it is barely possible to lay down its precise boundary. We cannot even speak of the ‘Danube Valley’ between Bratislava and Komárom, this section can be called the Little Hungarian Plain alluvial fan lowlands. From Dunaalmás, however, the large valley of the flood plain narrows considerably, but soon widens again and stretches out all the way to Esztergom in a flat spindle shape. In the straits of the Visegrád Valley it is just a narrow strip that only broadens in a few places. The flood plain beginning from Vác and onto Budapest is similar to that between Dunaalmás and Esztergom, slightly broad but even here the Danube has a well defined valley.” (Dr. Pécsi Márton: *A magyarországi Duna-völgy kialakulása és felszínalaktana. Akadémiai Kiadó, Budapest 1959.*)

Starting from Dunaharaszti, the flood plain again broadens on the left bank, bounding the river with some areas that are 20-30 km wide. In this section the left bank of the Danube Valley is flat, while on the right side a high, steep bank of loess soil that is undercut and crumbling accompanies the river channel. Between the towns of Visegrád and Kalocsa the Danube forms islands – e.g. Szentendrei-sziget, Népsziget, Óbudai-sziget, Margit-sziget and Csepel-sziget – and sandbanks.

The most significant tributaries on the right bank of the Danube in Hungary are the Lajta, Rábca and Rába that flow into the winding Moson Danube, as well as the Sió that was regulated in the first half of the 19<sup>th</sup> century and drains the excess water from Lake Balaton. There are also the Váh, Hron and Ipoly rivers with their mouths on the left bank.

The Danube flows into Hungary already as an enormous river. Its water output and flow is determined for the most part by the precipitation falling in the Alps and their foothills, as well as melt from their snow and glaciers. In the average annual water flow “...significant fluctuations, increases or decreases lasting for varying periods of time and high or low water levels related to this can be observed. The average and maximum differences between the highest and lowest water levels change from section to section, but in general show a tendency to increase starting from Oroszvár to Mohács...” (Dr. Pécsi Márton: *A magyarországi Duna-völgy kialakulása és felszínalaktana. Akadémiai Kiadó, Budapest 1959.*)

Human activity that shaped nature has also played a significant and determining role in the formation of the present-day appearance of the Danube Valley. The river channel regulation projects begun in the 18<sup>th</sup> century were primarily to avert the floods that developed as a result of ice dams as well as the spring floods in May and June that caused great damage to agricultural production. In addition they were performed to ensure uninterrupted river navigation made necessary by the Danube’s increasing role in international commerce in grain and livestock. The cartographic surveying of the river was completed between 1823 and 1838. The financial basis for the river channel regulation and flood prevention projects that began in 1871 and extended into the 20<sup>th</sup> century in several phases was ensured by law.

The structural backbone of the network of villages and cities that developed on both sides of the Danube Valley in Hungary is the wide river, as well as the nationally significant highways between the towns that run along both sides of the river at varying distances. The crossroads within this structure are comprised of the communities that have developed in the areas around the mouths of tributaries and river crossings. 18 bridges provide transportation connections between the two sides of the Danube.

The area studied contains four regions, seven counties – Győr-Moson-Sopron, Komárom-Esztergom, Pest, Fejér, Tolna, Baranya and Bács-Kiskun – and Budapest and 20 micro-regions. The 20 micro-regions are comprised of a total of 316 towns, 45 of which have the rank of city.

“According to the classification of the National Regional Development Concept (2005) nine of the micro-regions have an ‘urban’ character (Győr, Tata, Esztergom, Szentendre, Vác, Dunakeszi, Budaörs, Ráckeve and Dunaújváros – for the most part located in the northern areas and around the capital), five are ‘rural’ but have an urban center (Mosonmagyaróvár, Komárom, Paks, Szekszárd and Baja) and five have a purely ‘rural’ character (Ercsi, Adony, Mohács, Kunszentmárton and Kalocsa). On the basis of the Governmental Decree 64/2004 (IV.15) containing the list of areas given preferential treatment for regional development, the Baja, Kalocsa and Mohács micro-regions are underdeveloped from a socio-economic standpoint and at the same time classify as rural development areas, while the Szob micro-region is only considered underdeveloped from a socio-economic standpoint.

Győr, with its nearly 130,000 inhabitants, is both a county seat and a regional center, and classifies as a “development pole” according to the National Regional Development Concept. Szekszárd is also a county seat (but only has a population of 34,000) and Érd (population of 61,000) is a city with a county rank. Szekszárd and Dunaújváros with a county rank, too, are so-called ‘developmental sub-centers’ on the basis of the National Regional Development Concept.

Every micro-regional center is a city, with Adony (3,829 inhabitants) having the lowest population of these.



The majority of the towns that rank as cities are near Budapest and are within its metropolitan area or in the five micro-regions bordering it (17 cities). The Dunakeszi micro-region contains three cities. 261 of the 316 communities are villages. 89 of these are small villages of less than 1,000 inhabitants, and 38 do not have a population of 500 (tiny villages). The majority of the small communities are found in the Mohács and Szekszárd micro-regions.” (*A Dunamenti turizmus hazai és nemzetközi dimenziói. Konceptió. Magyar Regionális Fejlesztési és Urbanisztikai Közhasznú Társaság, Területi Tervezési és Értékelési Iroda, Térségi Tervezési és Területrendezési Osztály – MTA RKK Nyugat-Magyarországi Tudományos Intézet. 2008. június.*) 1,303,000 people live in the 20 micro-regions along the Danube.

## 2.a.2 Description of Property

The subject of this nomination is comprised of 121 individual sites. The site-by-site description, base data, delimitation of nominated property and buffer zones, photographs of the site, archaeological survey illustrations and bibliography for the individual sites are contained in the separate section II that comprises point 1.e. of the nomination.

### Comprehensive Description of the RPH

A significant portion of the Roman Empire’s Pannonian *limes* border section, referred to as the *Ripa Pannonica*, can be found in the territory of Hungary. The entire border of over 450 km runs along the line of the Danube, which determined its character, form and range of structures. The two legionary fortresses and the numerous fortifications for auxiliary troops were connected by the *limes* road. Minor fortifications, watch towers and signal towers were set along the road, or in certain sections on the bank of the Danube.

The first major round of its deterioration can be attributed to the forces of nature. After roofs were damaged and then fell in, the deterioration, the collapse of the buildings and the decline in their condition due to the effects of wind, water and frost accelerated. Contributing to this was the fundamental characteristic of the *Ripa Pannonica*, the fact that the Danube itself formed the border. The great river with its constant movement and floods, as well as its changes in course due to these forces, washed away and destroyed some fortifications and towers along its banks. The destructive force was aggravated by two additional factors. One is that the Danube flows along the eastern edge of the Transdanubian loess plateau and a portion of the forts constructed on the exposed loess riverbank became the victims of landslides. The second is that from Visegrád the Danube flows from north to south, and as a result of this due to the Coriolis effect it undermines its western bank to a greater extent than the eastern.

The condition of the *Ripa Pannonica* has gone through vast changes during the millennium and a half that has passed between the abandonment of the province at the beginning of the 5<sup>th</sup> century and the present day. According to the evidence from excavations, Iranian and Germanic peoples arriving from the Great Hungarian Plain and elsewhere settled in these empty structures nearly everywhere, and they utilized the deteriorating buildings for several generations until finally they left them to their fate. Even the Avars who lived here in the 7<sup>th</sup>-8<sup>th</sup> century gladly settled near the Roman towns and *limes* structures, although they did not utilize them. Their differing, nomadic lifestyle kept them from doing so. This is also true of the conquering Hungarians, but as can be read in the Hungarian chronicles they were regularly drawn to the ruined Roman structures. The fortress of Aquincum and its military amphitheater were repeatedly utilized. We do not know what condition the Roman towns and the structures of the military fortifications were in at that time, but since no peoples who built using stone lived in this area of Pannonia in the 5-600 years that had passed, the ruined buildings had only been affected by natural deterioration. Due to the fact that in several places in the 18<sup>th</sup> century the walls of

Roman buildings still stood 1-2 stories high, it can be inferred that in the Age of the Árpád Dynasty (1000-1301 AD) and throughout the Middle Ages identifiable Roman towns, cities and forts remained in many places. Large scale destruction resulted from the gradual spread of stone construction, and the fact that the Roman *limes* fortifications stood for the most part in areas poor in stone, where the Romans had to transport the building materials from distant quarries, contributed to this as well. The destruction quickly accelerated starting from the 18<sup>th</sup> century. It was at this time that stone construction began to spread amongst the serfs as well, and the Swabian settlers coming to the Danube Valley during this same period brought with them traditions of building in stone that provided an even greater impetus to demolish the Roman structures to re-use their stone material. In the 19<sup>th</sup> century, and in particular its second half, trade in antiquities began, and hundreds and thousands of shrewd people plundered Roman graves and building ruins for the sought after treasures, which they then sold for little money on to Hungarian and international antiquities traders.

At the same time the situation began to undergo a change, in part directly as a result of the looters. Numerous museums were founded and hundreds of enthusiastic amateurs throughout the country acted in the interests of the archaeological sites, for the rescue of the archaeological finds. At the turn of the 20<sup>th</sup> century major archaeological research into the Roman *limes* sites in Hungary began, and have continued without stop since then. The excavation of the civilian town of Aquincum and its development into an archaeological park formed the modern Hungarian attitude towards archaeological monuments. Large scale excavations were started at the same time in Dunapentele, today Dunaújváros, too. Founded upon the legal basis of the historic monuments law of 1881 and later laws and decrees, today there is a well-considered framework, which although it can and should be further perfected ensures the preservation of historic monuments. The walls of Roman military structures only rarely survived rising above the surface, but in very many cases excavations have made these remains visible. Despite this, the remains have also been supplemented to differing degrees in part due to weathering and the danger of frost damage and in part for educational or aesthetic reasons.

To this day, numerous positive results have come about from efforts and work in scholarship and heritage preservation, which can for the most part be divided into three regional units. In the northern section major excavations have been performed on relatively few archaeological sites. There are only a few remains that can be visited or that have undergone a historic rehabilitation. These are beginning to appear in the area around Esztergom, and when they have they are quite striking, such as conserving the entire protective wall of the late Roman fort in Tokod. The central section is comprised of the group of remains at the Danube Bend that have been excavated and exhibited or conserved to a greater extent. The area of Budapest also stands out here, where the surviving and conserved architectural remains of the civilian town, legionary fortress and military town of Aquincum as well as other military structures can be seen in the greatest numbers. Dunaújváros and Dunakömlőd can also be included in this central section, where the remains of forts and a few other military structures have been successfully exhibited for visitors. The third section stretches south from Paks to the international border, where unfortunately even excavations have been rare.

The remains of the *Ripa Pannonica*, including the *limes* road, have been identified in great numbers through aerial archaeology and field walks, so they can be identified without excavation. Surface traces suggest their existence. These include earthwork ditches that present changes in ground level of several meters, but for the most part are only fragmentary remains appearing on the surface, with the archaeological finds that can be collected there indicating the former Roman military structures.

## 2.b History and Development

### 2.b.1 Historical Summary

The Roman Empire was an empire that extended over the area around the Mediterranean Sea. It comprised of the strip of land along the Mediterranean coast, only penetrating deeper inland in the form of permanent conquest where the Atlantic Ocean or the Black Sea made this possible, or where large rivers, primarily flowing across Europe, provided the opportunity to develop routes for communication, trade, the military and other uses. It encompassed essentially the entire central European area, and on a relief map it might be easily seen how the mountain ranges and rivers surrounding the Mediterranean Sea influenced the manner in which it spread. Besides the sea, the Rhine and Danube in Europe and the Euphrates in the east were rivers that formed long borders in distant provinces.

The Roman Empire took form and expanded throughout many centuries, and the reforms in the organization of the state and the establishment of the Principate by Augustus, as well as the extensive conquests of quite significant areas, proved to be of key importance in this process. The territory of the Empire in the imperial period did not change significantly in size in the centuries after Augustus, only a small portion of the conquests that were newly established from time to time proved to be lasting. These included Britannia, conquered in the time of Claudius, Dacia and Arabia, incorporated by Trajan, as well as the transformation of the eastern client states into provinces.

Rome wisely allowed local traditions and certain elements of local rule to continue in the conquered territories for the most part, and were only adamant in keeping control over the most important, essential points. These points were the unconditional acceptance of political subjugation and tax obligations. With the incorporation of new areas, more and more peoples and nations were placed under Roman authority, so it is not the incorporation of territory, but instead the conquering of nations that should be discussed. The Roman efforts towards pacification did not in general target the conquered peoples and tribes, but their leaders, who were utilized towards the goal of Romanization by providing them with various advantages and allowing them to keep their leadership roles in the community.

What do we call the borders from antiquity and Roman times? The terms *terminus*, *finis*, *limes*, *ora* and *ripa* apply here. The first two represent the end, edge or boundary of something, the *limes* is a land border, although it originally meant the military road leading to the border. An *ora* served as an ocean border, while a *ripa* as a river border. However, in the usage of the 4<sup>th</sup> century, *limes* already in reality related to any border held through military strength. The few artificial border constructions and walls were built only in militarily and strategically endangered sectors, where natural barriers seemed to be insufficient. The border only rarely represented a well defined line that was obvious to all, though, and instead was more like a strip of land with the actual borderline only defined by natural or man-made objects. Clear examples of this are the African and Middle Eastern borders, where the desert provided the actual protection. These strips of land also developed along land and river borders as well, since there is quite a bit of evidence that militarily Rome considered a strip of land of varying widths past these borders to be their own.

On the eastern front, a state of equilibrium developed with the strong, well-organized Parthian Empire of Persia, while in the European area relatively poorly organized but populous tribes of mostly Iranian and Germanic origin lived for centuries moving constantly from north to south or east to west. These tribes only occasionally formed alliances stretching over larger areas, but their push towards the Mediterranean

Sea did not subside, instead as time passed they advanced further forward in greater strength. The Romans very deliberately utilized the political network of treaties with the neighboring peoples to ensure their relative subservience, dependence and peacefulness. In actuality these peoples usually only invaded Roman provinces when trying to force admittance as new tribes and peoples arrived and threatened them from behind.

Up until the Flavian Dynasty the military forces were stationed in the interior areas of the border provinces, the Roman army also serving a role as police to that point in the freshly conquered territories. At this time (about 70 AD) the conversion to a linear border defense system began, that is to say the provincial military force was aligned along the border. An actual, constructed borderline that can be called a *limes* was only built in relatively few places. The constructed boundaries were Hadrian's Wall and the Antonine Wall in Britannia, the system ensuring the link between the Rhine and the Danube in Germany (Upper German-Raetian *Limes*) and the approximately 250 km long *Fossatum Africae*. In addition to these, in a few other provinces, for example in Dacia, there were earthworks or defensive works of varying lengths along certain sections of the border. The rest were either river borders, *ripa*, such as the Danube, the Rhine or the Euphrates, or just a military road and nothing else, with fortifications nearby but not necessarily along its line. The fact that through the centuries the military structures continued to be found at the same places shows that the choice of location was very deliberate and was without flaw from a strategic standpoint.

The Roman conquests at the beginning of the imperial period extended its authority over European areas across the Alps. At this time, Augustus extended Roman authority to the line of the Danube during battles fought between 12-9 BC. In scarcely twenty years the province of Illyricum, whose territory was expanded in this manner, was split into two with the part further from the Adriatic Sea becoming an independent province, Pannonia, under Tiberius or Claudius.

In the first decades the provincial army was stationed in the interior section of the province, with 2-3 legions and a contingent of auxiliary troops attached to them whose size is not precisely known. During the reigns of Claudius and Nero (41-68 AD) new sites of fortifications were constructed along the Danube at the endpoints of the more important diagonal roads and at the crossings. These included the auxiliary forts of Arrabona, Brigetio, Solva, Aquincum – III and Lussonium. The strategic goal of the Claudius era military occupation of Pannonia, during which the auxiliary troops were sent both to the interior and to the areas near the border, was the control of the major roads, the intersections of roads and the Danube crossings of major significance.

Pannonia's neighbors to the north were the Germanic Marcomanni and Quadi, and to the east the Sarmatian Iazyges who settled the Great Hungarian Plain in the time of Tiberius. In addition to these tribes, several Dacian tribes also lived here, who entered into a treaty with Rome.

The systematic military occupation of the *Ripa Pannonica* occurred during the Flavian dynasty (69-96 AD), when during the reigns of both Vespasian and later Domitian more and more auxiliary troops moved from their garrisons in the interior of Pannonia to the line of the Danube. This was the period that the linear border defense system emerged and was developed.

The development of the *Ripa Pannonica* military system concluded during the time of Trajan (98-117 AD). In 106 Pannonia was split in two, with Pannonia Superior to the west and Pannonia Inferior to the east. Carnuntum (Deutsch-Altenburg) became the capital of the former and Aquincum of the latter. Pannonia Superior, with its three legions, was ruled by someone who had already filled the post of consul,

while Pannonia Inferior, with one legion, was ruled by a senator who had not yet received this post. In conjunction with the development of the forts, the route of the *limes* road was marked out and it was gradually constructed. With the exception of the legionary fortresses, all of the forts were constructed of earth and timber (palisade forts), which in the 140s they began to reconstruct in stone, but this was not completed for the majority of the auxiliary forts until after the Marcomannic/Sarmatian Wars (167-180 AD) ended. The first period of the *Ripa Pannonica* was closed out by the wars.

The construction of the forts in stone was accomplished, but they still did not count on a genuine danger from assault. This is indicated by the fact that towers of the gate, sides and corners ran along the interior plane of the wall without exception. The program of constructing watch towers initiated in the time of Commodus (180-192 AD) was only implemented sporadically in Pannonia Inferior and was not completed during that period. Furthermore, during the Severan dynasty (193-235 AD), this along with other minor construction programs – such as the increasing road repairs, the construction of corner towers on the forts and the occasional reinforcing and remodeling of gate towers – presumably was pushed into the background by the significant reconstruction and remodeling of the fort interiors. This, as well as the military's peacetime reduction and the stronger overall conversion to a defensive policy, was the reason why the border defenses of the Roman Empire, including those of Pannonia, collapsed under the pressure of the succession of severe barbarian invasions in the middle of the 3<sup>rd</sup> century.

The main cause of the Marcomannic Wars was the appearance of new throngs of people arriving from the north. At this time the Gothic tribes moved from their northern homes to the shores of the Black Sea. At the end of the 2<sup>nd</sup> century, under increasing Gothic pressure, a major portion of the Vandals settled in the Carpathian Basin. A borderline developed between the Vandals and the Sarmatians, which stood for a long time along the line of the later Sarmatian ditches. However, the Roman leadership and the affected provinces only reacted in a defensive manner to this movement of peoples in *Barbaricum*. In the middle of the 3<sup>rd</sup> century the intensifying migrations and attacks lead to a huge war, as a result of which the provinces along the Danube suffered enormous losses in the 250s and 260s, and Dacia had to be abandoned.

The destroyed and demolished structures of the *Ripa Pannonica* only slowly regained their earlier form. The earliest historical and archaeological data about the construction of forts and roads and the erection of watch towers comes from the reign of Diocletian (284-305 AD). As a result of Diocletian's governmental reforms the two Pannonian provinces were further divided making four provinces, Pannonia Prima and Pannonia Savia in the west and Pannonia Valeria and Pannonia Secunda in the east. In the 4<sup>th</sup> century, the altered relationships of power and ethnicities in the foreground of the *Ripa* compelled Constantine to separate from one another the Sarmatian and Germanic groups, who were dealing with both internal and external stresses, with a system of earthworks surrounding a large section of the Great Hungarian Plain. It is most likely that this large Sarmatian system of earthworks was constructed in the years after 324. In the second half of the reign of Constantine and under Constantius II the military fortifications were remodeled in expectation of severe assaults, or in other words they were given large, protruding towers, the number of gates were reduced and the ditches were dug stretching further from the walls of the forts, as well as being wider and deeper than previously. Valentinian continued the strengthening of the border in Pannonia. In addition to his construction of forts, the establishment of numerous watch towers is also connected with his rule. During this period the horseshoe-shaped towers were replaced with round ones, but only on the fortresses of the interior of the province. Since no known forts along the *Ripa Pannonica* were built with these towers, or rather there was one fort with round towers that was begun but never finished, these were probably only constructed after his death.

The state of equilibrium that existed until the last quarter of the 4<sup>th</sup> century was disrupted by the appearance of the Huns and the influx into the Empire of the Germans who were fleeing before them, which led in time to the abandonment of territories and provinces.

The final remodeling of the fortifications of the *Ripa Pannonica* was the elimination of forts and the construction of small scale tower-like fortifications, usually in one of the corners of an abandoned fort. This became necessary due to the drastic decrease in the numbers of *limitaneus* units following the death of Theodosius (379-395 AD). This process, also referred to as the contraction of forts, was not a characteristic exclusive to Pannonia, it also occurred elsewhere in provinces along the Danube. These smaller fortlets – along with the watch towers that were in part erected earlier – comprised the final defensive system of the province along the *Ripa Pannonica* in the first decades of the 5<sup>th</sup> century.

The decline and fall of Roman rule and presence took place gradually and in phases in the Pannonian provinces. Even before this, barbarian groups of significant size were allowed into the Empire, including into Pannonia. Added to these was the aggressive immigration of barbarian groups following the decisive defeat at Adrianople (378 AD). After the mercenary soldiers were no longer paid, the local residents and groups let in through treaties took over the border defense.

The handover of Pannonia Valeria to the Huns according to a alleged treaty in 433 was not accompanied by any kind of significant changes in ethnic composition. The justifications for why the fortifications of the *Ripa Pannonica* had been constructed then disappeared. However, the gradually depopulated and deteriorating structures of the watch towers and forts, and even more so the well constructed road paved in gravel twisting along the valley of the Danube, strongly attracted fresh settlers again and again.

### 2.b.2 The Subsequent Survival of the *Ripa Pannonica*

The earliest mention of the Roman remains in Hungary has survived from the 12<sup>th</sup> century.

The relics of Pannonia and Dacia remained known for the most part in Hungary throughout the Middle Ages. However, it can also be stated that precise knowledge of the long gone era was quite lacking, and it is not surprising therefore that the actual extent of the former settlements and their names remained a mystery. Similar to other European countries, a significant change can also be noticed in Hungary during the time of the Renaissance. The humanists of the 15<sup>th</sup> and 16<sup>th</sup> centuries provided information about numerous archaeological remains.

The Hungarian research into the *limes* owes quite a bit to the accounts of 16<sup>th</sup>-18<sup>th</sup> century German and English travelers in Hungary. The *limes* road – or at least its route through Hungary – retained its significance in the Middle Ages and later as the most important artery for land transportation between Europe and Asia Minor. At this time the Roman remains could be observed much more clearly on the surface than today or even at the beginning of the 20<sup>th</sup> century. At that time various protruding walls and distinct systems of ditches were visible, which unfortunately later fell prey to the utilization of their stones and intensive agricultural cultivation.

One of the most commonly cited authors was the Count Luigi Marsigli, who as a military engineer recorded and described numerous Roman settlements, fortifications and earthworks at the turn of the 18<sup>th</sup> century. Even the earliest, surprisingly accurate and detailed map by Lazarus Secretarius from 1528 points out a few relics from the Roman period, such as Trajan's Bridge at the Iron Gates in Romania. Sámuel Mikoviny noted quite a few current archaeological sites in the first half of the 18<sup>th</sup> century. The ruins of the *aquaeductus* of Brigetio for example were still visible in the 18<sup>th</sup> century, which is known from the works of Marsigli, Sámuel Mikoviny and Matthias Bél.

On the pages of the so-called Map of Joseph II (first military mapping of the Hungarian Kingdom) numerous archaeological remains can be found, including many visible or presumable traces along the Roman *limes*. Of nearly the same importance from the standpoint of the *limes* structures was the second Hungarian military survey, which was made between 1806 and 1869. Quite a few Roman forts and watch towers can be found on these pages. All of these Roman remains – even though the traces of some of them can hardly be seen on the surface – were able to be located and verified without exception by more recent research.

The first Hungarian archaeological studies appeared at the end of the 18<sup>th</sup> century. István Schönwiesner, the learned professor from the university that moved from Nagyszombat (now Trnava in Slovakia) to Buda in 1777, had already by the next year, in 1778, presented in a scholarly publication the freshly excavated remains of the baths from the legionary fortress at Aquincum. One portion of the baths was provided with a protective structure, preserving the site and making it open to visitors as Hungary's first historic monument. Therefore, Hungarian historic preservation also began with the restoration of these baths. István Schönwiesner also depicted the route of the former *limes* road in his *Commentarius geographicus*. After 1867 scientific excavations began at Aquincum. The developing Hungarian *limes* research was closely linked with the Austrian efforts in this direction as well. The methods of German *limes* research, the *Reichlimeskommission* also had a great influence on similar Hungarian research. Bálint Kuzsinszky established the independent Aquincum collection, and placed it in the museum of the Roman civilian town that was constructed in 1894-96. Very important findings were made by the archaeologists of the Hungarian National Museum Ede Mahler and Antal Hekler during their excavations at Dunapentele (Dunaújváros - Intercisa) between 1906 and 1913.

The First World War and its aftermath had a crippling affect on Hungarian *limes* research, which were also hindered by the extraordinarily bad economic situation in the twenties. On the other hand, excavations on Brigetio, Március 15. tér in Budapest and other sites were evidence of a new upswing.

In 1936, the first and up to the present day the best compendium of Pannonian sites was brought to light from the pen of András Graf, in which he naturally described the *limes* road and *limes* fortifications succinctly and well, in accordance with the information available in the thirties.

After World War II, archaeological research began or was renewed at several new sites, in part related to construction projects and in part in the context of scientific programs. The most significant sites were Intercisa, where rescue excavations proceeded for decades at first due to road construction and then due to the construction and gradual expansion of the city of Dunaújváros, and Aquincum, where the demolition of the old town of Óbuda and the construction of the new district made thorough research necessary starting in the middle of the seventies. The research that has picked up in recent years (Arrabona, Ad Statuas, Brigetio, Tokod, Ulcisia, Campona, Matrica, Lussonium and elsewhere) provides hope, and is contributing to resolving many issues in archaeology, history and the cataloguing of sites.

### 2.b.3 The Description and Development of the *Ripa Pannonica*

The linear border defense system for the province of Pannonia in the Roman Empire stretches along the Danube starting from contemporary Klosterneuburg in Austria all the way to the southernmost settlement along the Danube in Pannonia, Zemun in Serbia (in Hungarian: *Zimony*, in German: *Semlin* and in ancient times: *Taurunum*). This entire section of the *limes* runs along the riverside (in latin: *ripa*), and from this it gets its name, the *Ripa Pannonica*. The Hungarian section of this stretches from Rajka to the southern border of the country.

The border defenses of the Ripa were gradually built up, and consisted of legionary fortresses (*castra legionis*), between which forts (*auxiliarian castella*) were constructed for the auxiliary troops, and the sections between these forts were made up of watch towers or signal towers. The forts and legionary fortresses were linked by the *limes* road running along the right bank of the Danube. The fortified river ports erected in the late Roman period on both sides of the Danube – usually in pairs – were also a part of border defense and foreign commerce.

### *Forts and fortresses*

Two legionary fortresses and numerous auxiliary forts from Pannonia fall within the territory of Hungary. Not all of these *castella* are fully known without doubt, particularly those short-lived forts that were only built and used during military operations. In addition to the more than 20 auxiliary forts built from stone, there was also a stone fortress in Aquincum built to hold a garrison of 6000 soldiers, but there must have been more auxiliary forts enclosed by earthworks and other smaller forts that are not known. There have not been excavations on a few known forts' sites, and on others the results have not been conclusive, so we do not know for sure in every case which of these were continuously in use, which were established later and which were abandoned.

The system of fortifications developed in the 1<sup>st</sup> and 2<sup>nd</sup> centuries along the *Ripa* resulted in a largely balanced linear military presence. The encampments of both the legions and the auxiliary troops that were developed into fortifications over time are close by the Danube, on the border of the province and at the same time of the Roman Empire. The *Ripa Pannonica* displays an identical structure to the neighboring provinces along the Danube, primarily the border defenses of Noricum and the two Moesian provinces, while in the case of Raetia more fortifications are located further from the actual borderline. In the case of Dacia both legions and auxiliary troops were stationed inside the province, one cannot speak in a literal sense of a system of fortifications built only along the line of the *limes* in the area of Transylvania.

The linear border defense system in the general sense that was true for the entire Empire therefore showed differences to varying degrees depending on the local conditions and strategic requirements. A river border represented a stronger impetus for an actual presence at this border. This is characteristic of the defensive system for Pannonia, as well as for the later two and then three Pannonian border provinces.

The early forts were established at the more important river crossings. The first legionary fortress at Carnuntum was built during the time of Claudius (41-54 AD), and the earliest auxiliary forts of Arrabona (Győr), Brigetio (Komárom), Aquincum – III (Budapest–Víziváros), Lussonium (Paks) and Lugio (Dunaszekcső) can be placed in this same period. The largest proportion of auxiliary troops was sent to the banks of the Danube during the times of Vespasian (69-79 AD) and Domitian (81-96 AD). This was when the earliest legionary fortress was built at Aquincum. Troops were detached to Solva (Esztergom), Cirpi (Dunabogdány), Aquincum and probably Intercisa (Dunaújváros) on the Hungarian section of the border during the rule of Vespasian. The predecessor to the fort at Campona may possibly have been established during the time of Domitian. It was also during the rule of Domitian that in the year 89 the legionary fortress of Aquincum was established.

The full occupation of the border, which henceforth became permanent, occurred during the rule of Trajan (98-117 AD). This was when the legionary fortress of Brigetio was established at around the year 100. It was during the reign of Hadrian (117-138 AD) at the latest that the border defense system of the two Pannonian provinces took shape and lasted without significant changes for about two centuries.



The early military forts, with a few exceptions, were palisade forts, but already by the end of the 1<sup>st</sup> century the legionary fortresses were being built from stone. However, for the auxiliary forts it was only in the case of Arrabona that the earlier palisade fort was reconstructed in stone by the end of the reign of Trajan or the beginning of the reign of Hadrian. The reconstruction of the palisade forts in stone proceeded continuously. This process that began during the time of Hadrian came to a standstill during the Marcomannic Wars (167-180 AD), and in many cases only occurred or was completed during the time of Commodus (180-192 AD).

The middle imperial period system of fortifications that developed in this manner was maintained for about 200 years. The auxiliary forts were spread out uniformly and were sufficient for the defense of the river border of the two Pannonian provinces. The average distance between them was in general about 10 miles (1 *milia passuum* = 1481.5 m), and about 15 miles where the Danube splits into several branches or is surrounded by swampy areas. The longest distance, 32 miles, was due to a mountainous area. The smaller distances primarily occurred in the area of legionary fortresses.

The late Roman system of fortifications is inseparable from the late Roman military reforms. As a result of genuine threats, the linear defensive system was switched to one that defended the interior, and due to this the fortified settlements and fortifications along the radial roads leading to the *limes* gained a more important role. In conjunction with this, the fortifications on the borderline were continuously altered in accordance with contemporary demands under Diocletian (284-305 AD) and Constantius II (337-361 AD).

Military construction in Pannonia from the early period of the Tetrarchy (293-306 AD) must also be taken into account. The new type of fortification architecture developed gradually. This essential change was demanded by defensive considerations becoming critically important. During the offensive period of the Roman military, in addition to occasional defense, the forts' character as barracks was evident. The crucial turn of events from this standpoint was brought about by late Roman military architecture, which definitively broke from this approach towards soldiers' accommodations and placed the entire onus on defense.

This new type of defense included the reinforcing of the protective walls, but even more so the construction of sharply protruding corner and side towers, which generally included the filling in of the earlier ditch running along the base of the walls and the digging of a new one beyond the towers. The fan-shaped corner towers erected through the continuation of the fort walls are earlier than those with an arched ground plan, and the latest had a teardrop shape, although it must be also taken into account whether the given fort was newly constructed or was an earlier fort with rounded corners and existing earlier corner towers. Also worthy of attention in this respect is the complete lack of horseshoe and fan shaped towers at the legionary fortresses in Brigetio and Aquincum, which were abandoned during the time of Constantine. Instead new fortresses were constructed on their side toward the Danube.

The fortresses that previously functioned as barracks were remodeled according to the needs of the smaller garrison and the more significant group of civilians joining them. The most noticeable aspect of this was that they removed the *agger* from the interior side of the defensive walls so that they could construct a continuous row of structures in its place. These were perhaps primarily used to accommodate and attend to the generally larger number of horses present from this point forward. It is generally accepted in the research that these renovations of the fortifications took place over a long period of time, during the time of Constantine (307-337 AD) and Constantius II (337-361 AD).

During the course of the large scale military construction phase that arose in the years following the death of Valentinian (364-375 AD) the horseshoe and fan-shaped towers on the forts in the interior

of Pannonia were replaced with enormous round towers. However, except for a fortification begun in *Barbaricum* this never occurred on the fortifications along the border, which indicates a perilous decrease in the attention paid to the *limitaneus* units.

Evidence of late Roman construction or alterations is lacking in the two legionary fortresses. The final construction project of the fortress at Aquincum was the remodeling of the *porta praetoria*, which can be placed during the period of the Tetrarchy. However, this fortress was abandoned soon after, and in place of it a new fortress was built to the east of its walls during the time of Constantine.

In contrast to the legionary fortresses, we know of late Roman construction at essentially every earlier auxiliary fort (*castrum*) where there have been excavations. The new fortifications in the late Roman period broke from the earlier principles in their ground plans, which adapted considerably to the terrain (e.g. Visegrád–Sibrik-domb fort).

The final construction period of the *Ripa Pannonica* occurred at the turn of the 5<sup>th</sup> century, when tower-like forts with dimensions of 10-30 m were erected, sometimes on their own and sometimes within the area of the existing forts. This fact clearly indicates that when they were built the numbers of soldiers at the forts were no longer large enough to ensure the proper protection of the several hundred meters of walls of the old forts. In the case of Lussonium, a few meters inside of the southern gate of the late Roman fort, a portion of a 10 × 9 m fortlet with 2.3 m thick walls was successfully excavated.

The soldiers of the *Ripa* may have been forced to construct these fortlets in the years after the death of Theodosius (379-395 AD). The construction of the towers can at the latest be linked to the re-organizational activities related to the person of Generidus *dux* in the first decade of the 5<sup>th</sup> century. Their maintenance, or rather their use by military forces organized by Rome, lasted for about the next two decades until a new situation developed as a result of the Huns appearing on the Great Hungarian Plain (433 AD), when a significant portion of Pannonia, including the section of the border in the territory of Hungary was relinquished.

#### *Watch towers and signal towers*

The watch towers and signal towers<sup>1</sup>, which only rarely can be differentiated, were quite small structures, and when they were built from wood they have left hardly any trace on the surface.

It was natural that from the time of Tiberius and Claudius, with the beginning of the permanent military presence on the *Ripa*, there was a need for a more assertive control over the borderline, even though a good relationship had been created with the peoples on the other side through treaties. This manifested itself primarily with the construction of auxiliary forts, and not of watch towers. The guarding of the river border at this time was instead presumably performed through regular patrols. However, by the end of the 1<sup>st</sup> century at the latest – according to evidence on Trajan’s Column – a series of watch towers along the border had become customary.

<sup>1</sup> **Watch tower** (in latin: *burgus*) – Multilevel military building along the limes and the limes road. Its lateral length rarely exceeds 10 m.

**Signal tower** (in latin: *burgus*) – Member of a series of observation posts along the limes road suitably settled to transmit military signs within eyeshot and earshot. In some cases, where the *limes* road swings away from the river-bank, – in addition to the signal tower-chain – extra watch towers were built on the bank. (The two kinds of towers do not typologically differ from one another apart from their localization.)

**Fortified river port** (in latin: *burgus*, “bridge head fort” by the deep-rooted expression of the Hungarian literature) – Fortlet with two wing-walls protruding into the river, built in pairs on the opposite banks of the Danube.

In the first half of the 2<sup>nd</sup> century the towers were still made from timber for the most part, and so their discovery depends on luck to a great extent. For the most part an intense black spot in the middle of an area surrounded by a ditch indicates a wooden tower in the aerial photographs.

More thorough analysis is only possible on the late Roman towers, particularly from the time of Constantius II (337-361 AD) and Valentinian (364-375 AD). In the area of the Danube Bend they were built without exception from stone, while in the southern section of the border, in the areas of Intercisa (Dunaújváros) and Annamatiá (Baracs), they were wooden. The majority of the towers, which were generally 10 m in diameter, were surrounded by square ditches, while in some places, such as near Intercisa, they had a double row of square ditches, and in exceptional cases round ditches can also be found.

One only finds an exterior encircling wall in the case of watch towers from the time of Valentinian. These were built for the most part on the interior side of the ditch, but there are some on the exterior side as well. Depending on the size of the tower, the floor of the upper storey was supported by columns or pillars. In small fortlets a single pillar was erected, while in the significantly larger watchtowers there were four columns.

The conformity in size of the watch towers from the time of Valentinian deserves attention. This could only have occurred if the military was working from centralized plans. The conformity also relates to the most important details of the ditches and encircling walls. The length of the ditches measured at their axes is often 25-26 m, or double that, about 52 m. Presumably, this corresponds to 100 or 200 feet (1 foot is not quite 30 cm), with the approximately 27 cm units that were generally used here. The situation is similar in the case of wall thickness, the common 1.05 m thickness allows us to conclude a value of 4 feet, and the 1.35-1.4 m thick walls (such as Solva – 19) a value of 5 feet.

The scale proportions can be extended to the towers surrounded by a double row of ditches as well. The interior ditches of these have a length of 100 feet, or 28-30 m.

The towers can be placed in various categories according to their enclosing walls and ditches, including their shape and number. Rhomboid ditches, which probably date from the period of the Tetrarchy, constitute an independent group according to this. Similarly, the towers surrounded by double rows of ditches between Intercisa and Lussonium are related and most likely are from the time of Valentinian. This type does not appear at all between Aquincum and Solva. In all likelihood these two areas must have been in different military districts of Valeria.

In many cases, where the *limes* road runs right along the bank of the Danube, such as for a long stretch in the area of the Danube Bend, it is impossible to distinguish between watch towers and signal towers. Elsewhere, through, where the *limes* road swings away from the Danube, a second row of watch towers often appear. In these cases the watch towers erected on the banks of the Danube or the edges of plateaus can be differentiated from the signal stations – generally on the inner side – of the *limes* road that runs further from the Danube. The two kinds of towers, however, do not typologically differ from one another, or only do so to a minimal extent.

#### *Fortified river ports*

One characteristic of the *Ripa* is the row of late Roman fortified river ports built on the banks of the Danube. Research has shown similar structures in the Rhine area. The Romans considered the border rivers, including the Danube, and a strip of land several miles wide on the opposite side to be theirs. Presently 14 structures of this type are known or suspected along the borderlines of Pannonia Prima and Valeria.

These fortified river ports, which served as military bases and repositories, were established as a function of the 4<sup>th</sup> century military reforms and the treaties signed with the neighboring peoples. Their construction and use can be dated to the hypothesized period of utilization of the large system of earthworks on the Great Hungarian Plain, between 324-378. They can be found on both banks of the Danube and are usually found in pairs. It must be hypothesized that the system of confederations was sufficient not only for the safeguarding of the borderline, but also at the same time provided an opportunity and the right for a Roman military presence in *Barbaricum*, and the construction of fortified river ports.

### *The limes road along the Danube*

The Pannonian military road is recorded in part in the *Itinerarium Antonini*, and a depiction can also be found in the *Tabula Peutingeriana*. Both sources often provided a solution for identifying the names of settlements and military sites along the Danube. However they do not allow one to establish a precise route, and therefore cannot be used for cartographic research.

The linear defensive system was gradually organized and developed from the Flavian dynasty to the time of Hadrian (69-138 AD), and survived until the beginning of the 5<sup>th</sup> century. The linear defensive system of Pannonia belonged to the type where almost every military fort or other military settlement was constructed directly on the borderline, that is on the right bank of the Danube. Since the primary role of the military road was to connect these military settlements, it follows that the *limes* road ran close to the Danube.

The road from Europe to Anatolia through Hungary and then the Balkans, which was used in the Middle Ages and later, was the thoroughly constructed Roman military road. Cartographic research into the road began at the end of the 19<sup>th</sup> century, and long stretches were identified or presumed, and it was hypothesized that some highways or paths were of Roman origin. On the basis of the analysis of aerial photographs and data gained during the course of field work, it is presently possible to depict and precisely determine sections of the military road along the Danube that are often even 30-40 km long.

The *limes* road runs along the right bank of the Danube. The distance between the Danube and the road varies between a few meters and about ten kilometers. Naturally not the present, but the Roman era banks of the Danube must be taken into account. The Danube has changed its course by forming new bends or cutting off old ones, and during the river regulation projects over the last two centuries some bends have been straightened or the river has been diverted into one channel where there were once several branches. To the south of Aquincum, the southern-flowing Danube has changed its bed through historical times, partially as a result of the Earth's rotation (the Coriolis effect) and other natural effects. It is precisely the Roman remains, the *limes* road and the forts, that help to provide more information about the exact location of the Danube's Roman era banks.

The builders tried to run the road as close to the Danube as possible, but the river's twists forced the Romans to construct straight linking roads. The locations of the forts were chosen in accordance with strategic principles. Some forts were built so close to the Danube that they could not run the road through them because it was impossible to lay it along the riverbank through swampy areas, so they were linked by an access road. Areas where the Danube has destroyed the *limes* road or cut through it with new bends are known of to the east of Mosonmagyaróvár or Ad Mures (Ács-Bumbumkút).

The soldiers constructed the *limes* road according to designs by the military's surveyors (*gromaticus*). In hilly areas they endeavored to run the road at the level of the foot of the slopes. A second principle, contradictory to the previous, was to make very long straight sections. There are several sections known in Pannonia where it runs in a

regular straight line for 10-20 km. The curves are very abrupt, and appear as sharp angles on aerial photographs. Since the *limes* road in Hungary runs primarily through level or gently sloping land it was not a problem to make the road in straight sections. Thus the main characteristic of the roads in this province – in Hungary – was a route constructed with long straight sections bent at sharp angles.

The primary role of the *limes* road along the border was to ensure connections between the forts. The *limes* road ran from fort to fort, and along the main road of the forts, the *via principalis*. In almost every case, though, there is another road that branches off near the fort and provides a bypass around it. Presumably the bypasses were constructed subsequently after the roads through the forts.

The towers functioned as signal stations or watch towers. The signal towers stood in close relation to the *limes* road, since they were built later and right next to it at locations where the road was easily visible in both directions. The watch towers stood close to the Danube, and were only linked to the *limes* road if it ran right by them. These towers played a part in the system of military signaling, but those further from the *limes* road did not fill this role.

The *limes* road was precisely surveyed, and milestones provided information on the distance from Vindobona, Carnuntum, Brigetio or Aquincum. There are times when the road had several branches, for example there were three heading south from Intercisa. The first was used until the period of the Tetrarchy, the second until around the middle of the 4<sup>th</sup> century and the third after that.

The roads had to have been completed by the beginning of the 2<sup>nd</sup> century at the latest, when the construction of the linear defensive system was finished. However, even earlier than this, from the middle of the 1<sup>st</sup> century, the road on the right bank of the Danube must have been utilized when the first auxiliary troops were sent to the river. The earliest archaeological data related to the *limes* road in the province's Hungarian portion is dated by a coin of Hadrian (117-138 AD) found below the paved layer of the road in Matrica (Százhalombatta), but this is just *terminus post quem* data.

The structure of the *limes* road within the forts, larger settlements and cities differs from the structure of roads running through the countryside. On the basis of the known roads from Brigetio, Aquincum and Intercisa, they had thick foundations and their surfaces were often paved with thick stone slabs in the forts and cities, but their construction was simpler outside those areas. Our knowledge is not conclusive, since the *limes* road has only been transected in a few locations, at Mosonmagyaróvár, Nyergesújfalu, Százhalombatta and Csámpa. The road bed was excavated about 80 cm, and contained several layers of earth and stones. The surface was covered with gravel, which also sometimes contained broken ceramics as well. It was not always possible to identify the ditches on either side of the road. The roads can be identified on the basis of their light-colored traces and the large amounts of gravel visible on the surface even today, but there are no traces of gravel south of Intercisa.

The *limes* road along the Danube and other roads linked up with the full road network of the province. The diagonal roads and other roads intersected with the *limes* road. The major routes led through the cities to the military forts on the right bank of the Danube. Therefore, the roads passing through the *porta decumana* were for the most part important roads leading to the interior of the province.

The well designed and sturdily constructed Roman military roads were used even after the Roman period, since these were the only transportation route that could be used in winter as well. This was so in the Middle Ages and later, up until the construction of modern highways. In a few cases, the locations where the roads crossed streams are precisely visible in aerial photographs. These can be identified and provide an opportunity to research Roman bridges as well.



### 3. Justification for inscription

#### Summary Statements

*The Ripa Pannonica in Hungary (RPH) is a portion of the Frontiers of the Roman Empire (FRE) World Heritage serial nomination*

*It is the 417 km long continuous remains of the characteristic river border defense system developed in Pannonia. The RPH bears witness to the development of Roman defensive architecture and its strategic doctrine over several centuries.*

*The RPH reflects the development of the system of relationships between the Romans and Barbaricum.*

*The RPH is important testimony to the mutual exchange of human values across the border.*

*The RPH contributes to the better understanding of the intellectual and technical preparedness of the Empire.*

*The RPH bears testimony to the interactive ability to react to changes in human values and relationships.*

*The RPH displays a less well-known, characteristic and mundane aspect of Roman civilian and military architecture.*

*The RPH bears witness to how the Roman frontier policies resulted in the exchange of peoples within the Empire – and due to this contributed to the sudden spread of Greco-Roman civilization as well as Christianity.*

*The RPH bears witness to how military policies in Pannonia significantly shaped the history of the entire Roman Empire.*

*The RPH bears testimony to the flow of people, nations, goods and ideas.*

*The RPH is a testimonial to the success over several centuries of Roman technical civilization based on standardization throughout the Empire.*

*The RPH has to this day influenced the structuring of the nations, cultures, religions, civilizations, technology and in part the politics of the region.*

#### 3.a Criteria Under Which Inscription is Proposed (and justification for inscription under these criteria)

The RPH meets criteria (ii), (iii) and (iv):

*(ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town planning or landscape design*

The Summary Nomination Statement for the Frontiers of the Roman Empire World Heritage Site states: “taken as a whole, the Frontiers of the Roman Empire show the development of Roman military architecture from temporary camps through winter quarters for whole armies to the establishment of permanent forts and fortresses. These show a development through time from simple defenses to much more complex arrangements.”

The *Ripa Pannonica* is a section of the borders of the Roman Empire. It is a complex example of a linear border defense system along a river, a form that comprised only a minority of the Empire’s borders – developed only along the Rhine, the Danube and the Euphrates rivers. The *Ripa Pannonica* is the first of these to be proposed for inscription. Its periodical reorganization over the nearly 400 years of its existence and operation faithfully reflects the evolution of the system of relationships between the Romans and the peoples living across the border in *Barbaricum*. The Romans very deliberately utilized the political network

of treaties with the neighboring peoples to ensure their relative subservience, dependence and peacefulness. The changes in the political relationships and the strategic doctrines that depended on this can be traced in the development of organizational methods, the system of structures and their architectural forms.

The *Ripa Pannonica* exhibits an important interchange of human values during Roman rule along the Danube in present day Hungary from the first to the 5<sup>th</sup> century AD. This linear system of defense was developed in a full and exemplary manner in Pannonia in the 2<sup>nd</sup> century AD, and from Pannonian inscriptions we also know about a new type of watch tower built starting in the 180s. The most highly developed type of watch tower structure from the 4<sup>th</sup> century built on a river frontier in the Roman Empire is found at the *Ripa Pannonica*. The civilian settlements around the forts and the two *municipia* represent important sites for the interchange of cultural values between soldiers and the indigenous population, as well as between them and non-military settlers from different provinces or from *Barbaricum*.

Its maintenance for such a long time make it possible to trace the formation and development over time of the defensive techniques and their related construction and architectural practices, as well as to better understand the Empire's intellectual and technical training.

The Romans' relationship with the peoples living along the border in *Barbaricum* changed from time to time. Therefore, after the expansionist policy from the initial period of the *limes* ended in the time of Augustus, the goal was to maintain the Empire and strongly secure it from foreigners.

The linear border defense system was not yet developed when the province of Pannonia was acquired. The diagonal roads originating from the center of the Empire and leading to the crossings of the Danube, which made quick troop movements possible, were completed along with the forts established in the interior and the areas near the border in the middle of the 1<sup>st</sup> century, in the time of Claudius. This organization was rounded out by the system of alliances with the peoples across the border.

The organization and development of the linear system of defensive structures near the riverbanks that also presupposed this system of alliances depended in part upon internal political relationships as well. Its goal was the stationing of the military, which always demanded a role as a factor in internal politics, further from the center. At the end of the 1<sup>st</sup> century and the beginning of the 2<sup>nd</sup> century (the time of Trajan) this resulted in the construction of wooden auxiliary forts along the Danube, the marking out of the *limes* road and the development of the system of watch towers. The legionary fortresses were built already from stone.

The border defense doctrine based upon the *Pax Augusta* and the system of alliances was not fundamentally changed by the Marcomannic/Sarmatian wars at the end of the 2<sup>nd</sup> century. Even then, they did not count on an actual danger of assault when the forts were reconstructed in stone, and the system of watch towers was not developed completely. A succession of enemy invasions ensued into Pannonia as it was placed under ever increasing barbarian pressure, and in the middle of the 3<sup>rd</sup> century its border defenses collapsed.

At the beginning of the 4<sup>th</sup> century the Sarmatians, who had become allies, constructed with the aid of Roman military engineers an enormous system of earthworks, the so called *limes Sarmatiae*, known as the Csörsz-árok in Hungarian. This system of earthworks served as advance protection for the *limes*.

In the middle of this century the forts of the *limes* were strengthened with large projecting towers, the number of gates was reduced, the forts were encircled with larger and deeper systems of ditches and the system of watch towers was made denser.



The final remodeling of the fortifications of the *Ripa Pannonica* was the elimination of forts and the construction of small scale tower-like fortifications, usually in one of the corners of an abandoned fort, which became necessary due to the drastic decrease in the numbers of border defense units following the death of Theodosius (379-395 AD).

At the beginning of the 5<sup>th</sup> century, after the mercenary soldiers were no longer paid, the local residents took over the border defense. With the handover of the province of Pannonia Valeria by a alleged treaty to the Huns in 433, the purpose of the *Ripa Pannonica* as a border defense system ended.

The surviving remains of the *Ripa Pannonica* in Hungary are evidence of the system's development in sections, which shows the Roman Empire's ability to react interactively over a long period of time to the changes in human values and relationships, as well as the impact this had on the development of architecture and the shaping of the land.

*(iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation which is living or which has disappeared*

The Summary Nomination Statement for the Frontiers of the Roman Empire World Heritage Site states: “the Frontiers of the Roman Empire are the largest monument of the Roman Empire, one of the greatest of the world's pre-industrial empires. The physical remains of the frontier line, of the forts and fortresses along it, as well as of the cities, towns and settlements associated with it and development upon it demonstrate the complexities of Roman culture across Europe and the Mediterranean world. Unlike the great monuments from urban centers around the Mediterranean already inscribed as World Heritage Sites, the frontiers show a more mundane aspect of the Roman culture, both military and civilian. As such they are evidence of the spread of Roman culture and its adoption by the Empire's subject peoples. Inscriptions and other evidence demonstrate the extent to which the frontier led to an interchange of peoples across Empire. To a large extent, this was the result of the movement of military units (e.g. British units in Romania, or Iraqi boatmen in northern Britain) but there is also strong evidence of civilian movement (e.g. merchants from the Middle East who settled in Britain, Germany and Hungary). The frontiers also acted as base for movement of Roman goods (and presumably ideas) to pass well beyond the Empire.”

The *Ripa Pannonica* represents one of the most important parts of the Roman Empire's frontiers, and so it is an exceptional testimony to Roman civilization in Hungary. The armies and governors of the Pannonian provinces (Pannonia Superior and Inferior in the 2<sup>nd</sup>-3<sup>rd</sup> centuries and further split into four provinces in the 4<sup>th</sup> and 5<sup>th</sup> centuries) together with other Danube provinces provided the Roman Empire with its emperor in both 69 and 193 AD, and on many other occasions up to 378 AD This means that the interactions between soldiers and civilians, as well as between them and other peoples such as the Sarmatian and German tribes were a main factor in determining the policies and history of the Roman Empire. Pannonia was a melting pot of different people and nations, and Romanized chieftains of Sarmatian, German, Dacian or other origins were able to settle in Pannonia and in other Roman territories, sometimes later becoming generals or emperors.

The *Ripa Pannonica*, as the eastern border of the Roman Empire for many years, was exposed to the effects of the continuous east-west migrations of peoples in ancient times. The movements of people and nations is demonstrated by the fact that the Romanized inhabitants of Pannonia included Sarmatians, Alans, Iazyges, Marcomanni, Quadi and Dacians in the 1<sup>st</sup>-4<sup>th</sup> centuries and Ostrogoths, Visigoths, Heruli, Scirii, Gepids, Huns and Vandals in the 5<sup>th</sup>.

The inscriptions, gravestones, altars found at the *limes* settlements provide information about the movement of peoples related to the Roman army, and show the flexibility in Roman military thinking and strategy. Through these, the power and strength of the Roman Empire, as well as its crucial influence for many centuries after its fall, is made even clearer.

Thanks to its strategic flexibility the Empire was able to react appropriately to the frequently changing political conditions, which contributed to a large extent to its ability to survive for so long. At the same time, the redistribution of soldiers significantly contributed to the intermingling of the Empire's peoples, as well as to the spread of the goods, commodities and cultural beliefs of distant nations.

Already at the end of the 2<sup>nd</sup> century Tertullian reported that Christians permeated the units. The life in the forts along the *limes*, as well as the movement of the legions throughout the empire and particularly along the borders, contributed a great deal to the spread of Greco-Roman civilization, the expansion of the oriental cults and the proliferation of Christianity.

The governors of Pannonia and the commanders of the troops belonged to the senatorial and equestrian order, and having originated from Italy or the provinces they made a career sometimes up the emperorship. Antonius Primus for example who was born in Gallia, served in different posts and provinces, and as general of the Pannonian and Moesian legions gained for Vespasian the victory in the civil war in 69.

During the time of Trajan, Pannonian legions were detached to Moesia and legions from the Rhine Valley replaced them.

At the end of the 2<sup>nd</sup> century a Syrian archery unit was stationed in Ulcisia (Szentendre), while a Syrian mounted regiment served at Intercisa (Dunaújváros). The province of Syria also included Palestinian lands, and the gravestones of the Syrian units indicate soldiers of oriental descent in many cases. Other auxiliary troops arrived from other provinces, but the soldiers were replaced by Pannonian as a result of the local recruitment.

Following the suppression of the Bar Kochba Revolt, the legions brought with them many Jews who had been thrown into slavery. Next to Komárom a Bar Kochba Revolt coin was recovered from a Roman soldier's grave.

The *Legio I Adiutrix* was stationed at Brigetio (Komárom) in Pannonia, but also took part in a few campaigns against the Parthians. The *Legio II Adiutrix*, which fought against the Dacians and participated in the campaigns against the Parthians, the Marcomanni and later the Sassanids, was at Aquincum.

The *Ripa Pannonica* also bears witness to the ebb and flow of Roman thought; several shrines to the mystery religion of Mithras, Iuppiter Dolichenus and other oriental gods which including in Aquincum. At Gerulata (Bratislava–Rusovce, Slovakia, on the right bank of the Danube – Oroszvár in Hungarian), in addition to figures of the Roman pantheon, there were several scenes from the syncretic Gallo-Roman religion, as well as from eastern hunting cults, including an altar raised to Cybele, the mother of the gods, the Phrygian (present-day Turkey) god Attis and the Egyptian goddess Isis. The frequent redeployment of the legions along the borders starting from the 2<sup>nd</sup> century was also a significant factor in the spread of Christianity.

*(iv) be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates a significant stage in human history*

The Summary Nomination Statement for the Frontiers of the Roman Empire World Heritage Site states, “the physical remains of the frontiers of the Roman Empire demonstrate the power and might and civilization of the Romans. As such they are evidence of the development of the Roman Empire and its spread across much of Europe and parts of Asia and Africa. They therefore illustrate the spread of classical culture and Romanisation which shaped much of the subsequent development of Europe.”

The *Ripa Pannonica* represents an outstanding example of the technological development of Roman military architecture and its frontier defense system. The well designed and strategically located military structures on Pannonia’s border were effectively able to serve the defense of the empire along this often endangered part for centuries. It bears exceptional testimony to the military traditions of Rome and the flexibility with which they could make use of the local features. According to archaeological investigations, the technology and the construction of the military structures and roads bear witness to the high skill of the architects and surveyors of the Roman army in Pannonia.

The maintenance, periodic reconstruction and modernization of the system of fortifications over many years demonstrate the high degree of centralized Roman control. This did not manifest itself to a great extent in extraordinary building techniques or architecture in the case of the structures of the *Ripa Pannonica*. Instead it demonstrates that the work performed by the engineers based upon imperial standardization, and centrally developed types constituted the foundation that spread Roman technical civilization throughout their enormous empire, due to which its multinational army was able to operate effectively.

The remains of the *limes* border defense structures along the *Ripa Pannonica* are visible or have been identified through archaeological methods in numerous locations. Not only the excavated remains, but those under the ground that have been identified with the aid of aerial archaeology, field walks or geophysical surveying verify the standardized system of ground plans, measurements and choice of locations for the forts and fortresses, as well as the consistent, empire-wide structural norms for the laying of the *limes* road. These call attention to the advanced state of Roman military science, help in understanding the process of development and attest to the existence of an effective Roman technological system of training.

For many centuries after the fall of the Empire these former borders determined the principle outlines for the structure of Europe’s nationalities, cultures, religions, civilizations, technology and often politics, and many times this is clearly evident up to the present day.

### **3.b Proposed Statement of Outstanding Universal Value**

#### **3.b.1 Outstanding Universal Value**

The Summary Nomination Statement for the Frontiers of the Roman Empire World Heritage Site states: “The Roman Empire is of undoubted outstanding universal value. Spanning three continents, the Empire developed and transmitted over large parts of Europe a universal culture based on Greek and

Roman civilization. Its influence reached far beyond its actual boundaries in Europe and around the Mediterranean. Its culture framed and guided the cultures of Europe up to and including the present day. The frontiers of the Roman Empire form the single largest monument to this civilization. They helped define the very extent and nature of the Roman Empire. As a whole, they represent the definition of the Roman Empire as a world state. They also played a crucial role in defining the development of the successor states to the Roman Empire. The frontiers and their garrisons were also a crucial tool of Romanization on both sides of the border line. The frontiers also have high significance as illustrating the complexity and organizational abilities of the Roman Empire. With only the technology and communications of a pre-industrial society, the Empire was able to plan, create and protect a frontier of some 5000 km and garrisons of tens of thousands of men. It was then able to manage and use this system, on the whole successfully, for periods of many centuries, both as a physical barrier, and also as the basis for diplomatic and military intervention far beyond the actual frontier line itself. Physically, the frontiers demonstrate the variety and sophistication of the responses of the Roman Empire to the common need to demarcate, and control and defend its boundaries. This had to be done in widely differing circumstances, reflecting the interaction of political, military and topographical features. Mostly, the Empire faced a variety of tribal groups, but on their eastern front they were confronted by the Parthian Empire, a state of equal sophistication and complexity. In some places the boundary ran along rivers. Elsewhere it edged the desert and in other places it ran through areas with no natural barriers. In each case, the Romans developed a local solution, making use of topographical features and political circumstances to provide a barrier that was an effective control of movement across the frontier as well as a strong military defense barrier. The variety of physical remains has outstanding value in demonstrating the complexity and success of this society in using boundary fortifications to define and protect itself in ways appropriate to the local circumstances in each case.” The borders by the movement of legions along them, also played a particular role in diffusion of Christianity in this part of Europe.

The *Ripa Pannonica* is a section of the borders of the Roman Empire. It is a complex example of a linear border defense system along a river which has been verified archaeologically. This is a form that comprised only a minority of the Empire’s borders – developed only along the Rhine, the Danube and the Euphrates rivers. The defensive system along rivers was a special type of Roman border defense that was adapted to the conditions of the terrain and did not require the construction of a continuous structure or earthworks as was the case for Hadrian’s Wall or the Antonine Wall that have already been inscribed in the World Heritage. It was a rational system of structures comprised of various elements with a high degree of organization. This system adapted itself to the prevailing interests of the Empire’s external and internal politics as well as the numbers of soldiers stationed on it, their equipment and their system of organization. This linear defense system was developed in its full and exemplary form in the 2<sup>nd</sup> century in Pannonia, within the current territory of Hungary.

The development of the river border defensive system and its periodic reorganization over 400 years to conform to internal and external political conditions bears record to Roman military doctrines and the sustainable development and multifaceted flexibility of its army.

The significant value of the *Ripa Pannonica*, in addition to its historical lessons, lies in its archaeological sites which represent evidence of Roman architectural and engineering knowledge and how through the Roman system of border defense the political arrangement of the Roman Empire is more easily understood.

The Empire’s periodical reorganization over the nearly 400 years of its existence and operation faithfully reflects the evolution of the system of relationships between the Romans and the peoples living across

the border in *Barbaricum*. This Empire that stretched over three continents developed the Greco-Roman world culture in this part of Europe, and further disseminated it. The uniform arrangement of the Roman Empire, its common language and last but not least the movement of soldiers on the borders and between the most distant areas established the medium through which Christianity suddenly proliferated, providing the foundation for the future of Europe. In addition to the archaeological remains, its impact, which stretches far beyond the period that the Empire existed, is clearly evident to the present day in the spatial organization of towns and regional systems of roads as well as economic and cultural borders.

### 3.b.2 Outstanding Archaeological Value

The *Ripa Pannonica* is a section of the several thousand mile border of the Roman Empire, which as a part of a whole exhibiting outstanding universal value naturally does not only share in this universal value, but contributes to its broadening and enhancement through its own particular features.

From a historical standpoint the *Ripa Pannonica* and the armies stationed there, which made up the main strength of the Danubian army – within the three big military concentrations in the West, in the East and in the middle of the empire the largest military force – acquired extraordinary significance. This army obtained the throne for Vespasian in 69 AD and for Septimius Severus in 193. Both of these emperors founded dynasties and so the reign of their families ensured that particular attention was paid to Pannonia for a long time. Our area enjoyed a similarly exceptional appreciation under the later Illyrian emperors, including Aurelian and Diocletian. They succeeded to reunite the empire which had splitted to more parts in the turbulent decades of the third century. Also the Constantinian and Valentinian dynasties originated from the Balcanic provinces.

Crucial events and battles took place in Pannonia's lands, which impacted and determined the fate of not only the province, but of the entire empire. Marcus Aurelius was victorious over the Germanic peoples in Pannonia and foraying out from Pannonia in the 170s. On many occasions it was here that the forces of the western and eastern empire clashed, between Ingenuus and Gallienus in 258, Licinius and Constantine in 314 and Magnentius and Constantius II in 351. During the time of the tetrarchy a Pannonian city, Sirmium, became an imperial seat and it retained its special position for several decades.

The *Ripa Pannonica* enriches the universal value of the Roman *limes* World Heritage site with many unique archaeological elements. In addition to it being the longest riverside *limes* section in the nominations for the World Heritage, it should also be pointed out that it is here where the *limes* road has been the most thoroughly researched and included in the nomination up to this point. The sections of road that have been examined and mapped also show that the *limes* road was built according to the classic traditions of Roman road construction, and its path has been determined with precise geodesic measurements. As a result of this, the Roman military road is divided up into absolutely straight sections that are 5-10 or even 20 km long.

A prominent characteristic of the *Ripa Pannonica* is that through the means of archaeology four centuries of history and border defense can be examined, studied and marveled at along its path. The Danube formed the border of the province and the empire starting from its conquest by Augustus until the 430s when it was abandoned, so it has an outstanding ability to represent the long historical development of Roman border defense.

The various military structures on the riverside *limes* were continuously built up starting from the middle of the 1<sup>st</sup> century. Archaeological investigations have successively shown the changes that occurred in border

defense and military doctrine from time to time. These reflect both the prevailing strength of the Roman Empire as well as the shifts in emphasis that brought about the ensuing changes in defensive strategy. The forts' construction in earth and timber, and then in stone, the defensive works with special sizes and forms erected due to the need for increased protection in the late Roman era, as well as the occasional discovery of the construction of new fortifications makes it possible through archaeological research and conservation work to track the individual phases of military architecture and their monuments of outstanding significance.

New elements of universal value are represented by the bridgeheads or fortified river ports, which arise from the characteristic Roman notion of the river border, where Rome considered the entire breadth of the Danube along with its far shore to be its property. With regards to this, we have information from as early as the period of the Marcomannic Wars in the 2<sup>nd</sup> century. In the 4<sup>th</sup> century, in addition to the fortifications erected primarily across from the legionary fortresses, new forts and bridgeheads were constructed at river crossings.

This is also the first time in the course of Roman *Limes* World Heritage proposals that legionary fortresses are also included in the nomination. Two sites of this type show up in the present nomination. Next to both of these a Roman city was established and important excavations have been performed and are ongoing at both sites – although to differing degrees – to exhibit the connections between them. The exhibition of these civilian towns is also accompanied by a special feature that augments the universal value of the *Ripa Pannonica*, in that they throw light on important theoretical questions about Roman regional planning and the establishment of cities. That is to say, these civilian cities are not the same as the civilian settlements, *canabae*, that commonly developed around the legionary fortresses and that sprung up here as well. These examples were independent of the *canabae* and were built outside the military territory at least two Roman miles from the fortresses. It is a particular point of interest and a result of historical development that in time these civilian settlements were legally united, which in the case of Aquincum can be satisfactorily displayed. The richly decorated residential and public buildings, temples and shrines, as well as other finds related to the standard of living and customs as well as the composition and Romanization of the Roman frontier society at the two *canabae* and the two civilian cities provide us with extraordinary information.

The civilian settlement, *vicus* of Intercisa (Dunaújváros), due to its size and wealth, stands out prominently from the list of civilian settlements that developed next to forts for auxiliary troops. It has extraordinary and universal value since it shows that towns without the rights of cities could develop that clearly significantly outstripped those invested with these rights, so long as the local situation, the composition of the inhabitants and the town's geographical circumstances created favorable conditions.

Finally, the tower-like fortifications that were built in the last period of Roman border defense in Pannonia, at the turn of the 5<sup>th</sup> century, have outstanding archaeological significance. Some of these fortlets with quite high walls were formed by enclosing one corner of an existing fort, while others were newly built structures on an existing fort site. All of this suggests that at this time the numbers in the army had decreased considerably and the remaining soldiers took refuge in more easily defended, multi-storied forts and stout towers. These forts do not only add to the universal value of the *Ripa Pannonica* through their specific forms and structures, but also by the fact that they provided the late Roman inhabitants and the peoples from across the border that were settling in the area in increasing numbers with a location to make connections and merge with one another.

### 3.c Comparative Analysis

The summary nomination statement for the Frontiers of the Roman Empire World Heritage site (FRE) contains a comparative analysis of the whole of the Roman borders. The river borders employed for their particular geographical conditions are an important factor in the outstanding universal value of the border system of the entire Empire. In this manner, the global comparison of the *Ripa Pannonica* is not the subject of this analysis, but instead it is only necessary to underline its particular characteristics within the border defense of the Empire.

The *Ripa Pannonica* was a river border. These borders were developed in different parts of the Roman Empire, but none of them has been inscribed in the Frontiers of the Roman Empire World Heritage Site. All three properties so far incorporated in this site are land borders that include a wall.

The physical barrier of the river borders is the river itself, a natural barrier that did not need a wall. Apart from this difference all other features are essentially the same. They have in common their systems of linear defense, the military roads which run along the border and connect the military structures, as well as all the forts and other military structures together with their civilian settlements.

However, several differences may also be found. These originate primarily from the strategic planning which always adapted the defenses to their geographic circumstances and to the level of the threat.

The *Ripa Pannonica* has several special features which make it unique:

It was better for ordering the legions along the frontier line, a solution which was not implemented on any of the previously inscribed properties.

Another distinctive feature is the variation in the system of watch towers. Since the *limes* road was built in a straight line, it moved away from the curving river in some places. In these sections watch towers could either be built near to the road or near to the river. The watchtowers from the time of the emperor Commodus belong to the latter type.

These and other peculiarities show both the common and unified principles for designing military sites in the military provinces of the Roman Empire on the one hand, and the skilful adjustment of these principles to local conditions on the other. These features underline the significance and the World Heritage value of the *Ripa Pannonica*.

The *Ripa Pannonica* border defense system stood for four hundred years, a longer time than any of the other three border sections already inscribed in the Frontiers of the Roman Empire World Heritage Site, and so makes it possible to follow the evolution of the Empire's military strategy and architecture over an unparalleled length of time.

Its exceptionally long survival provides archaeological data related to Roman road construction, earthworks and architecture in both wood and stone, and makes it possible to understand the development over time of solutions that conformed to the changing military situation.

### 3.d Integrity and/or Authenticity

The Hungarian part of the *Ripa Pannonica* lies along an almost 417 km line that follows the Danube. There are many medieval and modern settlements here, which partly lie over or disturb the Roman remains, but have also led to their investigation. Many excavations and other types of fieldwork have been performed on the military sites along the *Ripa Pannonica*, all of which are able to contribute a great deal to the integrity of the property. Through aerial archaeology and field surveys, long sections of the military road have been identified. Every element in the nominated area has either been investigated through excavations or if there are unexcavated elements they have been verified with non-intrusive archaeological methods – aerial archaeology, field walks or geophysical research – are authentic and are preserved in good condition, with the exception of sites lost under more recent construction. The row of forts, watch towers and civilian settlements along the military road forms the entire fabric of the *Ripa Pannonica*, and although there are missing pieces due to earlier damage or lack of information, nothing has spoiled its integrity. The identified remains are supervised and preserved, conservation projects have been performed according to the Venice Charter, and some of the rare reconstructed elements will be placed in the buffer zone.

The selection of the individual sites being nominated took into account the considerations of integrity, authenticity and outstanding value:

- Sites identified on the basis of the strict archaeological criteria of the RPH have been placed in the nomination
- The individual sites represent the integrity of the entire nominated site, the *Ripa Pannonica*
- The individual sites demonstrate the functional structure and the system of interconnectedness
- Outstanding, uniquely valuable sites that have been taken out of the context of the functional defensive system – e.g. in areas that have been built upon – have also been placed in the nomination
- Every characteristic functional element of the *Ripa* has been included in the nomination
- The historical development of every functional element is also presented
- Sites located on the opposite (left) bank of the Danube, but which are closely related to the defensive system (e.g. fortified river ports and bridgeheads at river crossings) have also been included in the nomination
- The supplementary regional defensive structures, which served to protect the empire in the inner territory of Pannonia or in the more distant areas of *Barbaricum* have not been included in the nomination (the Devil's Dykes/*limes Sarmatiae*/Csörsz-árok, the river crossing and bridgehead of Partiscum at Szeged, etc.) as it is stated in the Koblenz declaration of 2004.

The *Ripa Pannonica* represents a high level of authenticity, and the military – strategic, tactical, engineering and logistical – design conception for its system of structures signifies a unique character in comparison to the three sections of the Frontiers of the Roman Empire World Heritage Site that have already been inscribed. This character has been clearly preserved and can be perceived and understood in the proposed system of remains.

The *Ripa Pannonica* is an authentic source of archaeological information about the changing form of a Roman river border defense system over an exceptionally long period of time.

It has preserved the norms for imperial military architecture that varied over different eras, as well as indications of the changes in military doctrine. This includes evidence for the 2<sup>nd</sup> century decentralization of the legions, the reconstruction of wooden forts in stone, the marking out of the *limes* road, the



construction of the system of watch towers, the defensive modernization of the forts in response to the greater barbarian threat, the construction of watch towers at closer intervals and finally the 4<sup>th</sup> century construction of forts and fortlets to accommodate for the decrease in military forces.

In relation to construction materials, the defensive systems made of earthworks can be authentically determined, there are surviving marks that show evidence of wooden construction and the remains of stone structures have been excavated or are able to be excavated. The former construction techniques, numerous carvings, stone inscriptions and other finds that have been authentically preserved bear witness to the standard of architecture, the significance of the border defenses, the ethnic, religious and cultural life of the time and the intermingling and interaction of peoples and nations. These finds are also important chronological reference points for this authenticity, through which the development of the changing border defense system can be traced with precision to a decade or even a year, making it possible to corroborate them in relation to world history.

The finds support the integrity and authenticity of the *Ripa Pannonica*, along with the important documentation, are publicly conserved and safeguarded in the institutions of the two hundred year old Hungarian museum system.

In relation to its integrity, the entire Hungarian section of the *Ripa Pannonica* – together with its structures – has been surveyed and inventoried, as verified through archaeological excavations, the processing of archival records and surveys, the analysis and evaluation of aerial photographs taken before the major construction and agricultural transformations and the scholarly research that extends to the examination of these and all other historical data. Within this realm of integrity, a strict review of the research has separated the elements and sections that have been fully verified and documented and those that have not yet gone through this process. These latter may be placed in the category of well-founded inferences or hypotheses. In the light of this research, it can be stated that the proposed sites represent the entirety of the *Ripa Pannonica*. In the proposal, every characteristic functional element of the RPH is included, and the historical development of every characteristic functional element together with its system of relationships is represented in its entirety. In addition, every nominated element has been verified and authenticated through non-destructive archaeological methods (e.g. intensive field survey, geophysical survey, aerial archaeology).

The *Ripa Pannonica* is a site well suited to present a Roman river border defense system in an interdisciplinary manner, and through the exhibition of its archaeological remains it disseminates important historical knowledge in relation to this.

Through their exhibition of the abundant finds from the *Ripa*, the museum institutions related to the sites contribute to the understanding of the *Ripa Pannonica*, Roman civilization and culture and their importance as evidence from world history, and also contribute to the full analysis and comprehension of the in situ remains.



## 4. State of Conservation and Factors Affecting the Property

### 4.a Present State of Conservation

Taking into account that in most cases the buffer zone is an area with archaeological value as well, we have also provided the state of the buffer zone in the following.

#### 4.a.1 Present State of Conservation of Individual Sites

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
1.	Altinum – 1 watch tower	N	N	N	erosion, intrusion	N	N	N	N
2.	<i>Altinum</i> fort and <i>vicus</i>	Y	N	N	N	N	N	N	N
3.	Lugio – 5 watch tower	N	N	N	N	N	N	N	N
4.	<i>Lugio / Florentia</i> fort and <i>vicus</i>	N	N	N	riverbank landslides	N	N	N	riverbank landslides
5.	<i>Contra Florentiam?</i> fortified river port	Y	Y	Y	flooding	Y	N	N	N
6.	limes road	N	N	N	N	N	N	N	N
	Ad Statuas – 2 watch tower	N	N	N	N				
	Ad Statuas – 3 watch tower	N	N	N	N				
7.	way station	Y	N	N	N	N	N	N	N
8.	limes road	N	N	N	N	N	N	N	N
9.	Alisca – 3 watch tower	Y	N	N	N	N	N	N	N
10.	<i>Alisca</i> fort and <i>vicus</i>	N	N	N	N	N	N	N	N
11.	limes road (A)	N	N	N	N	N	N	N	N
12.	limes road (B)	N	N	N	N	N	N	N	N
13.	limes road (C)	N	N	N	N	N	N	N	N
	limes road (D)	N	N	N	N				
14.	Alta Ripa – 2 watch tower	N	N	N	N	N	N	N	N
15.	Alta Ripa – 1 watch tower	N	N	N	N	N	N	N	N
16.	limes road	N	N	N	N	N	N	N	N
	Lussonium – 10 watch tower	N	N	N	N				
17.	limes road	N	N	N	N	N	N	N	N
	Lussonium – 9 watch tower	N	N	N	agriculture				

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
18.	Lussonium – 6 watch tower	N	N	N	N	N	N	N	N
19.	Lussonium – 12 watch tower	Y	N	N	N	N	N	N	N
20.	Lussonium – 3 watch tower	Y	N	N	N	N	N	N	N
21.	limes road	Y	N	N	N	N	N	N	N
22.	<i>Lussonium</i> fort and <i>vicus</i>	Y	Y	Y	N	N	N	N	N
23.	Annamatia – 9 watch tower	N	N	N	N	N	N	N	N
	limes road	N	N	N	N				
24.	Annamatia – 8 watch tower	N	N	N	N	N	N	N	N
	limes road	Y	N	N	N				
25.	Annamatia – 7 watch tower	N	N	N	N	N	N	N	N
	limes road	N	N	N	N				
26.	Annamatia – 12 fortified river port	Y	N	N	N	N	N	N	N
27.	<i>Annamatia</i> fort	Y	N	N	N	N	N	N	N
	<i>Annamatia</i> <i>vicus</i>	N	N	N	N				
28.	limes road	N	N	N	N	N	N	N	N
	Intercisa – 5 watch tower	N	N	N	N				
	Intercisa – 6 watch tower	Y	N	N	N				
	Intercisa – 10 watch tower	Y	N	N	N				
29.	Intercisa – 2 watch tower	Y	N	N	N	N	N	N	N
30.	Intercisa fort	Y	Y	Y	N	N	N	N	N
	<i>Intercisa</i> <i>vicus</i> (semi-detached house)	Y	Y	Y	N				
	<i>Intercisa</i> <i>vicus</i> (building with an apse)	Y	Y	Y	N				
31.	Vetus Salina – 8 watch tower and <i>limes</i> road	N	N	N	N	N	N	N	N
32.	limes road	N	N	N	N	There is no buffer zone			
33.	limes road	N	N	N	N	N	N	N	N
	Vetus Salina – 11 watch tower	N	N	N	N				
34.	limes road	N	N	N	N	N	N	N	N
35.	limes road	Y	N	N	N	N	N	N	N
36.	Matrica – 13 fortified river port?	N	N	N	N	N	N	N	N
37.	<i>Matrica</i> fort	Y	N	N	N	N	N	N	N
	<i>Matrica</i> <i>vicus</i>	Y	Y	Y	N				

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
38.	<i>Campona</i> fort and <i>vicus</i>	Y	Y	Y	N	N	N	N	N
39.	<i>Contra Aquincum</i> / <i>Contra Teutantum?</i> fort	Y	Y	Y	N	N	N	N	N
40.	Aquincum – III camp and <i>vicus</i>	Y	N	N	N	N	N	N	N
41.	<i>Aquincum</i> fortress	Y	Y	Y	N	N	N	N	N
	<i>Aquincum canabae</i> (Hercules Villa)	Y	Y	Y	N				
	<i>Aquincum canabae</i> ( <i>amphitheatrum</i> )	Y	Y	Y	N				
42.	<i>Aquincum municipium</i>	Y	Y	Y	N	Y	N	N	N
	Ulcisia – 16 watch tower	Y	N	N	N				
43.	Ulcisia – 5 watch tower	Y	N	N	N	N	N	N	N
44.	limes road	N	N	N	N	N	N	N	N
45.	Ulcisia – 2 watch tower	Y	N	N	N	N	N	N	N
46.	limes road	N	N	N	N	N	N	N	N
47.	<i>Ulcisia</i> fort	Y	N	N	N	N	N	N	N
48.	Ulcisia – 9 fortified river port	Y	Y	Y	N	N	N	N	N
	Ulcisia – 8 fortified river port	Y	N	N	N				
49.	fort	Y	N	N	N	N	N	N	N
50.	Cirpi – 2 watch tower	Y	Y	Y	N	N	N	N	N
51.	<i>Cirpi</i> fort	Y	N	N	N	N	N	N	N
52.	Solva – 38 fortified river port	Y	Y	N	N	N	N	N	N
53.	Solva – 28 watch tower	Y	N	N	N	N	N	N	N
54.	<i>Pone Navata?</i> fort	Y	Y	Y	N	N	N	N	N
55.	Solva – 24 watch tower	Y	Y	Y	N	N	N	N	N
56.	Solva – 35 watch tower	Y	Y	Y	N	N	N	N	N
57.	<i>Quadriburgium?</i> fortlet	Y	Y	Y	N	N	N	N	N
58.	Solva – 22 watch tower	Y	N	N	N	N	N	N	N
59.	brick firing kilns	Y	N	N	N	N	N	N	N
60.	Solva – 21 watch tower	Y	N	N	N	N	N	N	N
61.	Solva – 20 way station / watch tower?	Y	N	N	N	N	N	N	N
62.	<i>Ad Herculem</i> fort	Y	N	N	N	N	N	N	N
63.	Solva – 19 fortlet	Y	N	N	N	N	N	N	N
64.	Solva – 18 watch tower	Y	N	N	N	N	N	N	N

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
65.	Solva – 11 watch tower	Y	N	N	N	N	N	N	N
	Solva – 13 watch tower	Y	N	N	N				
	Solva – 14 watch tower	Y	N	N	N				
66.	Solva – 34 fortified river port	Y	N	N	N	N	N	N	N
67.	fort	N	N	N	N	N	N	N	N
	limes road	N	N	N	N				
	Solva – 9 way station	Y	N	N	N				
	Solva – 10 watch tower	N	N	N	N				
68.	Solva – 8 watch tower	Y	N	N	N	N	N	N	N
69.	Solva – 1 watch tower	Y	N	N	N	N	N	N	N
70.	<i>Solva</i> fort	Y	N	N	N	N	N	N	N
71.	Crumerum – 2 watch tower	Y	N	N	N	N	N	N	N
72.	limes road	N	N	N	N	N	N	N	N
73.	limes road	N	N	N	N	N	N	N	N
74.	<i>Gardellaca / Cardabiaca?</i> fort and vicus	Y	Y	Y	N	N	N	N	N
75.	limes road	N	N	N	N	N	N	N	N
76.	limes road	Y	N	N	N	N	N	N	N
77.	<i>Crumerum</i> fort	N	N	N	N	N	N	N	N
78.	Odiavum – 5 watch tower	N	N	N	N	N	N	N	N
79.	Odiavum – 4 watch tower	Y	N	N	N	N	N	N	N
80.	<i>Azaum / Odiavum vicus</i>	Y	N	N	N	Y	N	N	N
81.	Brigetio – 1 watch tower	Y	N	N	N	N	N	N	N
	<i>Brigetio</i> fortress and <i>canabae</i>	Y	N	N	N				
82.	<i>Brigetio municipium</i>	Y	N	N	N	N	N	N	N
83.	Brigetio – II camp	N	N	N	N	N	N	N	N
	Brigetio – III camp	N	N	N	N				
84.	Brigetio – IV camp	N	N	N	N	N	N	N	N
85.	Brigetio – V camp	N	N	N	N	N	N	N	N
86.	Brigetio – VIII–XI camps	N	N	N	N	N	N	N	N
	Brigetio – XXXII camp	N	N	N	N				
87.	Brigetio – XXX–XXXI camps	N	N	N	N	N	N	N	N

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
88.	Brigetio – XIX camp	N	N	N	N	N	N	N	N
	Brigetio – XX camp	N	N	N	N				
	Brigetio – XXI camp	N	N	N	N				
89.	Brigetio – VI camp	N	N	N	N	N	N	N	N
	Brigetio – VII camp	N	N	N	N				
90.	Brigetio – XVII camp	N	N	N	N	N	N	N	N
91.	Brigetio – XVIII camp	N	N	N	N	N	N	N	N
92.	Brigetio – XXII–XXIII camps	N	N	N	N	N	N	N	N
93.	Brigetio – XXIV camp	N	N	N	N	N	N	N	N
94.	Brigetio – XXV camp	N	N	N	N	N	N	N	N
	Brigetio – XXVI camp	N	N	N	N				
95.	Brigetio – XXVII camp	N	N	N	N	N	N	N	N
96.	Brigetio – XXVIII camp	N	N	N	N	N	N	N	N
	Brigetio – XXIX camp	N	N	N	N				
97.	Brigetio – XII, XXXIII camps	N	N	N	N	N	N	N	N
98.	Brigetio – XIII–XIV camps	N	N	N	N	N	N	N	N
	Brigetio – XV camp	N	N	N	N				
	Brigetio – XXXIV camp	N	N	N	N				
99.	<i>Ad Mures</i> fort and <i>vicus</i>	Y	N	N	N	N	N	N	N
100.	<i>Ad Statuas</i> fort	Y	N	N	riverbank landslides	N	N	N	N
	Arrabona – 10 watch tower	N	N	N	N				
101.	Arrabona – 7 watch tower	Y	N	N	agriculture	N	N	N	N
102.	limes road (A)	N	N	N	N	N	N	N	N
103.	limes road (B)	N	N	N	N	N	N	N	N
104.	Arrabona – 11 way station	Y	N	N	N	N	N	N	N
	limes road (C)	N	N	N	N				
105.	Arrabona – 4 watch tower	N	N	N	N	N	N	N	N
106.	Arrabona – 2 watch tower	N	N	N	N	N	N	N	N
107.	Arrabona – I camp	N	N	N	N	N	N	N	N
108.	<i>Arrabona</i> fort and <i>vicus</i>	Y	N	N	N	N	N	N	N
109.	limes road	N	N	N	N	N	N	N	N

RPH Nr.	Name	element of nominated property				buffer zone			
		excavation	conservation	exhibition	danger	excavation	conservation	exhibition	danger
110.	Quadrata – 3 watch tower	N	N	N	N	N	N	N	N
	limes road	N	N	N	N				
111.	limes road	N	N	N	N	N	N	N	N
112.	Quadrata – 5 watch tower	N	N	N	N	N	N	N	N
113.	Quadrata – I camp?	Y	N	N	N	N	N	N	N
114.	Quadrata – 2 fortified river port?	Y	N	N	N	N	N	N	N
115.	<i>Quadrata</i> fort	Y	N	N	N	N	N	N	N
	<i>Quadrata vicus</i>	N	N	N	N				
116.	limes road (A)	N	N	N	N	N	N	N	N
117.	<i>Ad Flexum vicus</i>	Y	N	N	N	N	N	N	N
118.	limes road (B)	N	N	N	N	N	N	N	N
	limes road (C)	N	N	N	N				
119.	limes road (D)	N	N	N	N	N	N	N	N
120.	Ad Flexum – 4 fortified river port?	Y	N	N	N	N	N	N	N
121.	Gerulata – 4 watch tower	Y	N	N	N	N	N	N	N

#### 4.a.2 Legal Framework for Protection

Hungary's heritage preservation system has many levels. The protection of the World Heritage was set down in a separate law, Law LXXVII of 2011, which will take effect on January 1<sup>st</sup> 2012. This law lays down that only those areas that enjoy protection as heritage or natural sites can be declared as part of the World Heritage. The utilization of the areas on the World Heritage List and the tentative list in a manner that serves their protection, survival and the retention of their character is in the public interest. The minister responsible for culture will ensure that the state of the World Heritage sites are monitored, and that the fundamental rule during the course of preserving their character is to cooperate with civic organizations that deal with cultural heritage preservation, or in the case of natural sites those that deal with nature conservation.

Law LXIV of 2001 on the preservation of cultural heritage creates a proper framework for the preservation of World Heritage sites and provides for the protection of archaeological remains and historic properties. The Hungarian heritage preservation laws and decrees are in accordance with the valid international conventions and agreements. The National Office of Cultural Heritage sees to the measures taken to provide sites with protection, as well as the supervision of this protection.



The system for implementing this protection is ensured by Law XXVI of 2003 on the National Regional Development Plan, as well as Law LXXVIII of 1997 on the protection and shaping of the built and natural environment, and Law LXV of 1990 on local governments.

The system for archaeological protection differs from the protection of historic properties. That is, every archaeological site is placed under legal protection independent of its notoriety or its state of excavation, while only those structures that the authorized minister registers as protected receive the status of protected historic properties. Consequently all Hungarian material remains of the *Ripa Pannonica* are – *ex lege* – protected by law.

The law can establish three degrees of archaeological protection: “general archaeological protection”, “protection as an archaeological site of regional significance” and “protection as an archaeological site of national significance”. However, general protection is afforded to all known or unexpectedly discovered archaeological sites, it is important that every proposed site at least receive the status of “protected archaeological site of regional significance”. Only this can ensure comprehensive protection in the regional development and regional or town planning, as well as investment processes. The general protection set down in the law only makes preventive or rescue excavations mandatory, which while they are sufficient for the preservation of the material finds discovered, only in rare cases do these result in modifications to the plans whose outcome makes it possible to preserve the remains together with the context of the entire site.

The surviving remains from the Hungarian section of the *Ripa Pannonica* can be placed in three fundamental categories for their states of conservation. There are excavated remains that are conserved or rehabilitated as historic properties; there are remains that have been excavated and registered with excavation documentation and records, but have been re-interred or that have been covered over by construction; and there are those that have been identified, but have not been excavated. All three types are protected, but the degree of their protection can differ. We further point out that in relation to both the nominated property and the buffer zones, the given level of protection can either relate to the entire site or only a portion of it.

In Hungary the maintenance and proper upkeep of heritage sites is in general the duty of the owner. Besides insignificant exceptions, the excavated remains of the *Ripa Pannonica* are in the ownership of the state, local governments or sometimes the Church. The sphere of private ownership for the most part extends to the sites that are unexcavated and are under agricultural cultivation or built-in areas. If the obligation for maintenance is neglected, the law provides for official measures to enforce compliance.

The precise, orthophoto maps, descriptions and the photographs all made for the nomination statement are suitable for the monitoring of the state of conservation for the individual sites included in the *Ripa Pannonica*.

## **4.b Factors Affecting the Property**

### **(i) Development Pressures, Encroachment, Agriculture, Mining**

The development pressures and encroachment are under official state supervision in Hungary:

A separate law regulates the rights and obligations related to historic and archaeological sites. Of the normal official local governmental affairs, the jurisdiction over building regulations related to historic

properties has been removed from the local governments and placed in the hands of the National Office of Cultural Heritage and governmental offices of the counties.

Hungarian regional and town planning is placed in a hierarchical order. The Parliament ratifies the National Regional Development Plan that stands at the top of this hierarchy, and the plan is legally binding. The National Regional Development Plan can determine highlighted areas, for which similarly legally binding plans are prepared. In the National Regional Development Plan a town that contains *a World Heritage site or tentative World Heritage site or a historic town district is a zone that is to be treated as an area of national significance from the standpoint of cultural heritage.*

In the zones of World Heritage and tentative World Heritage sites the method and extent of land use must be in harmony with the objectives defined in the management plan. In these zones: new surface mining operations may not be introduced and existing surface mining operations may not be expanded; networks and structures for transportation infrastructure must be located so as not to damage the character of the cultural heritage, and so as to preserve the site's unity and to contribute to the assertion of its appearance; and public utility lines and accompanying public utility structures must be located in a manner that integrates into the landscape, and that utilizes technical solutions that do not impede the preservation of the World Heritage sites, including the placement of lines underground.

The provisions of higher level plans are binding for the lower level plans, therefore the National Regional Development Plan has authority over the regional and county plans, and these over the town development plans. The county and town development plans have the force of local government ordinances. A particular provision is the obligation to prepare a heritage preservation impact statement, which in the case of town planning procedures and major projects stipulates the investigation of how the envisaged change will impact the condition, preservation, and future possibilities for the prosperity of archaeological and historic sites.

Sustainable agricultural cultivation, if it is maintained as it has been for a long time, in general will not further damage the remains that have existed under the ground for 1,000-1,500 years. A change in cultivation could pose a threat, though, if it is accompanied by disturbing the earth to a depth of more than 30 cm (e.g. planting grape vines), if it involves the planting of vegetation with fundamentally different root systems (e.g. afforestation), if it breaks up the bonded ground surface and creates a danger of erosion (the plowing of fields and pastures) or if it fundamentally alters the water consumption or chemical composition of the land (irrigation or chemical protection of plants). The method of cultivation is the status registered in the records of the land registry. Changes in the type of land use are regulated by law in Hungary. The National Office of Cultural Heritage must be included in the official procedures for changes in the land use recorded at the land registry, if this use is recorded in the heritage preservation registry (which is required for protected lots).

Construction work involving excavation that affects protected historic properties or archaeological sites must obtain a permit from the National Office of Cultural Heritage, or in certain cases must allow a preventive excavation or archaeological monitoring during the works.

## **(ii) Environmental Pressures, Pollution, Climate Change**

In Hungary the risk of frost damage is particularly high. Every year as many as one hundred freeze-thaw cycles can occur, which damages architectural remains on or close to the surface to a great extent. After the

ruins have been exposed particular care must be taken, and until a permanent solution is found seasonal protection from frost must be provided. In the case of final rehabilitation, conservation or exhibition, solutions to the problems of water infiltration and frost for the remains must be found through water management, insulation/damp-proofing and the employment of proper techniques for interventions. The regulations for interventions are controlled by strict official supervision, and special post-graduate training exists for the acquisition of these design techniques.

Air pollution that damages construction materials characteristically exerts its impact through moisture. Protection of the elements of the ruins against moisture also neutralizes most airborne threats.

The aforementioned, legally binding National Regional Development Plan includes prohibitive provisions: Chapter VI, section 22/A (2) New surface mining sites cannot be established within the zone, and the area of existing surface mining sites cannot be expanded.

### (iii) Natural Disasters (earthquakes, floods, fires)

Hungary is not a seismically threatened area. A yearly average of 100-150 minor quakes occur, which do not exceed a strength of 3.5 measured on the Richter scale. Quakes that cause damage occur approximately every forty years, and serious earthquakes every 400 years.

The Danube River has threatened the structures of the *Ripa Pannonica* since their construction, or for nearly two thousand years. The section of the Danube that runs north-south has been gradually shifting to the west, away from the direction of the Earth's rotation. This process is slow, but water has washed the eastern side of many forts and watch towers into the Danube. There are also spectacular periods for slow processes. The Danube has a high right bank after it flows through Budapest. This riverbank is made of loess, and according to evidence from old maps and records from time to time significant pieces break off into the Danube. In 1860 one million cubic meters slid off at Dunaszekcső, two million cubic meters came off at Dunaújváros in 1965 and another one million cubic meters at Dunaföldvár in 1970. The latest was a spectacular landslide that occurred on the 12<sup>th</sup> of February 2008 and unfortunately affected the already damaged Dunaszekcső fort. The river bank broke off on a 300 meter long and 30-35 meter wide section, and subsided about 10 meters, taking along with it the most recent portion of the Lugio fort as well as significant archaeological evidence from the ground's cultural layers. The continuing danger of landslides rules out any opportunity for excavation. The government is planning measures to stabilize the riverbank, but no interventions have occurred yet.

The other characteristic of the Danube that causes problems is the danger of floods. The flood prevention measures developed since the second half of the 19<sup>th</sup> century safeguard the individual structures of the *Ripa* on the protected side. The flooding of these can occur in extraordinary cases, approximately every fifty years if the water overflows the levees despite their reinforced protection. This would be an act of God that cannot be avoided. The remains that are still within the flood plains, primarily fortified river ports, crossings and signal towers are exposed to flood waters once or twice a year. The rehabilitation of these must be resolved in a stable manner through hydraulic construction means, but even then they cannot be protected from floods caused by ice dams. It is only possible to think about rehabilitation in the case of outstandingly significant remains, in other cases only the condition that has evolved through the action of the water can be maintained.

Wildfires and forest fires do not represent a significant danger in Hungary.

**(iv) Visitor/Tourism Pressures**

Damage caused by high numbers of tourists is not characteristic of the excavated and exhibited sites of the *Ripa*. The institutional management is able to see to the upkeep of the ruins.

Today the *Ripa* does not represent a significant tourist attraction by itself, but it does represent a favorable expansion of opportunities for the existing, primarily recreational, tourist activities. The sites do not cause a greater burden than is customary. Rising above this general state is the independent civilian town museum of Aquincum that is a cultural attraction of international note, and which operates within an enclosed framework with museum conditions, and serves 50,000 visitors annually. The system of visitor traffic serving to safeguard the ruins provides sufficient protection for the preservation of the excavated and exhibited finds.

**(v) Number of Inhabitants Within the Property and the Buffer Zone – Inhabitants' Pressure**

The sites being nominated for the World Heritage – aside from the areas with development that covers the remains – do not in general have any inhabitants. There are occasions where an individual site has 10-30 inhabitants in its buffer zone, though. Of the 121 individual sites contained within the nomination only 13 have inhabitants within the nominated property. The exposed, rehabilitated ruins can be safeguarded from damage by the inhabitants through the general public safety measures.

Total population of the nominated sites	120,400
Total population of the nominated property	25,025
Total population of the buffer zones	95,375

The relatively high total population does not represent a serious pressure from inhabitants. Only a total of three individual sites have a population of over 1,000 in the nominated property and buffer zone. All three sites are intensively developed urban areas:

**RPH 40. Aquincum – III camp and vicus**, Budapest 2<sup>nd</sup> and 3<sup>rd</sup> Districts – Víziváros  
population: nominated property – 12,000, buffer zone – 29,000

**RPH 41. Aquincum fortress and canabae**, Budapest 2<sup>nd</sup> and 3<sup>rd</sup> Districts – Óbuda  
population: nominated property – 9,500, buffer zone – 63,000

**RPH 108. Arrabona fort and vicus**, Győr – Káptalandomb  
population: nominated property – 2,400, buffer zone –

**Population Data for the Individual Sites:**

The population numbers indicated in the table below has been determined on the basis of the size of the site and the general population density data related to the area, together with the analysis of aerial photographs.

RPH Nr.	Name	element of nominated property	buffer zone	$\Sigma$
1.	Altinum – 1 watch tower	0	0	0
2.	<i>Altinum</i> fort and <i>vicus</i>	0	0	0
3.	Lugio – 5 watch tower	0	0	0
4.	<i>Lugio / Florentia</i> fort and <i>vicus</i>	5	0	5
5.	<i>Contra Florentiam?</i> fortified river port	0	0	0
6.	Ad Statuas – 2–3 watch towers and limes road	0	0	0
7.	way station	0	0	0
8.	limes road	0	0	0
9.	Alisca – 3 watch tower	0	0	0
10.	<i>Alisca</i> fort and <i>vicus</i>	0	0	0
11.	limes road (A)	0	0	0
12.	limes road (B)	0	0	0
13.	limes road (C–D)	0	0	0
14.	Alta Ripa – 2 watch tower	0	0	0
15.	Alta Ripa – 1 watch tower	0	0	0
16.	Lussonium – 10 watch tower and limes road	0	0	0
17.	Lussonium – 9 watch tower and limes road	0	0	0
18.	Lussonium – 6 watch tower	0	0	0
19.	Lussonium – 12 watch tower	0	0	0
20.	Lussonium – 3 watch tower	0	0	0
21.	limes road	0	0	0
22.	<i>Lussonium</i> fort and <i>vicus</i>	0	100	100
23.	Annamatia – 9 watch tower and limes road	0	5	5
24.	Annamatia – 8 watch tower and limes road	0	0	0
25.	Annamatia – 7 watch tower and limes road	0	0	0
26.	Annamatia – 12 fortified river port	0	0	0
27.	Annamatia fort and <i>vicus</i>	0	30	30
28.	Intercisa – 5–6, 10 watch towers and limes road	0	0	0
29.	Intercisa – 2 watch tower	0	0	0
30.	Intercisa fort and <i>vicus</i>	60	0	60
31.	Vetus Salina – 8 watch tower and limes road	0	0	0
32.	limes road	0	There is no buffer zone	0
33.	Vetus Salina – 11 watch tower and limes road	0	0	0
34.	limes road	0	0	0
35.	limes road	0	15	15

RPH Nr.	Name	element of nominated property	buffer zone	Σ
36.	Matrica – 13 fortified river port?	0	5	5
37.	<i>Matrica</i> fort and <i>vicus</i>	0	50	50
38.	<i>Campona</i> fort and <i>vicus</i>	500	350	850
39.	<i>Contra Aquincum</i> / <i>Contra Teutanum?</i> fort	100	150	250
40.	Aquincum – III camp and <i>vicus</i>	12000	29000	41000
41.	<i>Aquincum</i> fortress and <i>canabae</i>	9500	63000	72500
42.	<i>Aquincum municipium</i> and <i>Ulcisia</i> – 16 watch tower	0	1000	1000
43.	<i>Ulcisia</i> – 5 watch tower	0	0	0
44.	limes road	0	0	0
45.	<i>Ulcisia</i> – 2 watch tower	0	5	5
46.	limes road	0	0	0
47.	<i>Ulcisia</i> fort	75	150	225
48.	<i>Ulcisia</i> – 8–9 fortified river ports	30	0	30
49.	fort	0	50	50
50.	<i>Cirpi</i> – 2 watch tower	0	30	30
51.	<i>Cirpi</i> fort	0	0	0
52.	<i>Solva</i> – 38 fortified river port	0	0	0
53.	<i>Solva</i> – 28 watch tower	0	0	0
54.	<i>Pone Navata?</i> fort	0	0	0
55.	<i>Solva</i> – 24 watch tower	0	5	5
56.	<i>Solva</i> – 35 watch tower	0	0	0
57.	<i>Quadriburgium?</i> fortlet	0	0	0
58.	<i>Solva</i> – 22 watch tower	0	5	5
59.	brick firing kilns	0	30	30
60.	<i>Solva</i> – 21 watch tower	0	0	0
61.	<i>Solva</i> – 20 way station / watch tower?	0	0	0
62.	<i>Ad Herculem</i> fort	0	175	175
63.	<i>Solva</i> – 19 fortlet	0	0	0
64.	<i>Solva</i> – 18 watch tower	0	0	0
65.	<i>Solva</i> – 11, 13–14 watch towers	0	0	0
66.	<i>Solva</i> – 34 fortified river port	0	0	0
67.	fort and limes road, <i>Solva</i> – 9 way station and <i>Solva</i> – 10 watch tower	0	0	0
68.	<i>Solva</i> – 8 watch tower	5	0	5
69.	<i>Solva</i> – 1 watch tower	0	0	0

RPH Nr.	Name	element of nominated property	buffer zone	Σ
70.	<i>Solva</i> fort	0	0	0
71.	Crumerum – 2 watch tower	0	0	0
72.	limes road	0	0	0
73.	limes road	0	0	0
74.	<i>Gardellaca / Cardabiaca?</i> fort and <i>vicus</i>	0	10	10
75.	limes road	0	0	0
76.	limes road	0	0	0
77.	<i>Crumerum</i> fort	0	0	0
78.	Odiavum – 5 watch tower	0	0	0
79.	Odiavum – 4 watch tower	0	0	0
80.	<i>Azaum / Odiavum vicus</i>	0	0	0
81.	<i>Brigetio</i> fortress and <i>canabae</i> and <i>Brigetio</i> – 1 watch tower	150	0	150
82.	<i>Brigetio municipium</i>	1000	0	1000
83.	<i>Brigetio</i> – II–III camps	0	0	0
84.	<i>Brigetio</i> – IV camp	0	0	0
85.	<i>Brigetio</i> – V camp	0	0	0
86.	<i>Brigetio</i> – VIII–XI, XXXII camps	0	0	0
87.	<i>Brigetio</i> – XXX–XXXI camps	0	0	0
88.	<i>Brigetio</i> – XIX–XXI camps	0	0	0
89.	<i>Brigetio</i> – VI–VII camps	0	0	0
90.	<i>Brigetio</i> – XVII camp	0	0	0
91.	<i>Brigetio</i> – XVIII camp	0	0	0
92.	<i>Brigetio</i> – XXII–XXIII camps	0	0	0
93.	<i>Brigetio</i> – XXIV camp	0	0	0
94.	<i>Brigetio</i> – XXV–XXVI camps	0	0	0
95.	<i>Brigetio</i> – XXVII camp	0	0	0
96.	<i>Brigetio</i> – XXVIII–XXIX camps	0	0	0
97.	<i>Brigetio</i> – XII, XXXIII camps	0	0	0
98.	<i>Brigetio</i> – XIII–XV, XXXIV camps	0	0	0
99.	<i>Ad Mures</i> fort and <i>vicus</i>	0	0	0
100.	<i>Ad Statuas</i> fort and Arrabona – 10 watch tower	0	0	0
101.	Arrabona – 7 watch tower	0	0	0
102.	limes road (A)	60	35	95
103.	limes road (B)	80	65	145

RPH Nr.	Name	element of nominated property	buffer zone	Σ
104.	Arrabona – 11 way station and limes road (C)	0	0	0
105.	Arrabona – 4 watch tower	0	0	0
106.	Arrabona – 2 watch tower	0	0	0
107.	Arrabona – I camp	0	0	0
108.	<i>Arrabona</i> fort and <i>vicus</i>	2400	0	2400
109.	limes road	0	0	0
110.	Quadrata – 3 watch tower and limes road	0	0	0
111.	limes road	0	0	0
112.	Quadrata – 5 watch tower	0	0	0
113.	Quadrata – I camp?	0	0	0
114.	Quadrata – 2 fortified river port?	0	0	0
115.	<i>Quadrata</i> fort and <i>vicus</i>	25	10	35
116.	limes road (A)	0	40	40
117.	<i>Ad Flexum vicus</i>	150	15	165
118.	limes road (B–C)	0	0	0
119.	limes road (D)	0	0	0
120.	<i>Ad Flexum</i> – 4 fortified river port?	0	35	35
121.	Gerulata – 4 watch tower	0	0	0
	Σ	26140	94365	120505

## (vi) Endangered Sites

**RPH 1. Altinum – 1 watch tower**, Sátorhely – Törökdomb

nominated property: endangered: erosion

tasks: excavation, erosion protection

**RPH 4. Lugio / Florentia fort and vicus**, Dunaszekcső – Várhegy

nominated property: endangered: loess riverbank landslides

Buffer zone: endangered – loess riverbank landslides

tasks: protection of the loess riverbank

**RPH 5. *Contra Florentiam?* fortified river port**, Dunafalva

nominated property: endangered: flooding

Buffer zone: endangered

tasks: flood prevention

**RPH 17. Lussonium – 9 watch tower**, Fadd – Bodzás-dűlő

nominated property: endangered: agriculture

tasks: horticultural exhibition



**RPH 48. Ulcisia – 8 fortified river port, Szigetmonostor – Horány**

nominated property: partially endangered: flooding

tasks: flood prevention

**RPH 100. *Ad Statuas* fort, Ács – Vaspuszta**

nominated property: endangered: riverbank landslides

tasks: prevention of riverbank landslides

**RPH 101. Arrabona – 7 watch tower, Nagyszentjános – Proletár-dűlő**

nominated property: endangered: agriculture

tasks: change in land use



## 5. Protection and Management of the Property

### 5.a Ownership/stakeholders

The 121 individual sites show a mixed distribution in terms of ownership, and within this every site is comprised of several lots.

The 121 nominated individual sites contain a total of 162 archaeological sites.

Total number of lots nominated:	4645
Number of lots in the nominated property:	2773
Number of lots in the buffer zone:	1871

Ownership distribution:

State ownership:	5.7%	265 lots
Local government ownership:	20.0%	929 lots
Private ownership (individual and joint – total of 2147 owners):	74.3%	3451 lots
	100%	4645 lots

In Hungary there are essentially two types of ownership: *public ownership* and *private ownership*. The two main types of public ownership are recognized, *state ownership* and *local government ownership*. In both cases the rights of the abstract community (the state or the local government) are held by a lots manager, which can be a legal entity or even a private individual designated by the organ of state or local government with jurisdiction over this. There can also be two kinds of *private ownership*, *joint* or *individual ownership*. Joint owners can be any kind of economic company, association, corporation with legal status, registered church, civic organization, foundation or co-operative, etc. The experience in Hungary following the change – in 1990 – of the “socialist” state system that restricted private ownership is that the state’s share of the national wealth, which was then ca. 90%, has dropped significantly in favor of local government and private ownership. Even today this process cannot be considered to have been concluded. There are legal opportunities for the privatization of state and local government lots. In many cases a single lot may have several forms of ownership mixed together, and the ownership structure is constantly liable to change.

In Hungary the owners of lots must be entered in the land registry records, and changes are continuously recorded. In addition to this, the deed of ownership records the size of the lot and its character – i.e. an agricultural area or one that is excluded from cultivation. It is also obligatory to indicate the type of agricultural land use, and any change to this is only possible on the basis of an official permit. The proposed World Heritage site encompasses several thousand lots. To provide a comprehensive and illustrative picture of their ownership status is impossible. The diverse mosaic of ownership conditions is however regulated by the Law LXIV of 2001 on cultural heritage, which stipulates the obligation to maintain the character of cultural heritage, and that this maintenance is required to be performed by the existing owner.

The law stipulates that the owner, lot manager or user of the protected cultural heritage property must tolerate the work ordered or permitted by the official agency. If the interests of heritage cannot be enforced by other means the lot may be expropriated by the state.

### **Involvement of the local stakeholders**

The maps of the demarcated sites were sent to the local governments having jurisdiction, and we began negotiations in person. We sought out the mayor's offices in the smaller towns, and the district head architects in Budapest. The mayors provided favorable responses in every case, and agreed to make the sites available through agreements with the affected property owners and the residents of the town. Following this, every single property owner received a personal letter and invitation to the negotiations. In addition to them, all of the affected public utilities and professional authorities also received invitations in each case. Of the latter, the forestry and environmental conservation authorities should be noted in particular. The number of invitations sent was between 11 and 312, depending on how many owners were concerned. At the negotiations, there was a presentation introducing the Roman *Limes*, the areas of it that had already been inscribed in the World Heritage and the goals of the project, as well as the sites concerning the given community. After this, we answered questions and asked for the opinions of those present. In three cases (Dunaföldvár, Kisoroszi, Tahitótfalu) the opinion of the owners was categorically negative. In two other cases (Dunakeszi and Szentendre) the owners formulated conditions which could be negotiated in the future. With the exception of these cases, the project received full support everywhere. An official record was prepared of the negotiations, which can be found in the archives of the National Office of Cultural Heritage amongst the other documentation for the project.

In Budapest on account of the unmanageably large number of property owners of the built-in areas a different procedure was employed. We introduced the plans to the district head architects, and then requested the position of the local government council in an official letter. In case of support of the project, owners were informed through the aid of local media (the press, TV and a website). Of the six districts of Budapest, only one rejected the nomination.

## **5.b Protective Designation**

On the basis of the Cultural Heritage Law LXIV of 2001, the entire site is under general archaeological protection by virtue of law. However, in connection with every site whose entire nominated property does not have protection as an “archaeological site of national significance” or as an “archaeological site of regional significance” it is necessary to take measures to provide the site with at least the status of “archaeological site of regional significance” in the interest of its effective preservation.

In addition to this, the National Regional Development Plan adopted by law has classified every town where nominated sites can be found as “districts to be administered with a high priority for the considerations of cultural heritage” on the basis of their inclusion on the World Heritage tentative list.

### **The Protected Status of the Individual Sites:**

The National Office of Cultural Heritage identification number is the registration number for their protected status.

RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
1.	Altinum – 1 watch tower	24881	general	general
2.	<i>Altinum</i> fort and <i>vicus</i>	24809	national	national
3.	Lugio – 5 watch tower	32036	general	general
4.	<i>Lugio / Florentia</i> fort	24621	national	national and general
	<i>Lugio / Florentia vicus</i>	24623		
5.	<i>Contra Florentiam?</i> fortified river port	24608	regional	regional
6.	Ad Statuas – 2–3 watch towers and limes road	32041	general	general
7.	way station	59096	general	general
8.	limes road	73259	general	general
9.	Alisca – 3 watch tower	23225	general	general
10.	<i>Alisca</i> fort	32067	general and regional	general and regional
	<i>Alisca vicus</i>	32068		
11.	limes road (A)	32069	general	general
12.	limes road (B)	30720	general	general
13.	limes road (C–D)	54314	general	general
14.	Alta Ripa – 2 watch tower	73509	general	general
15.	Alta Ripa – 1 watch tower	50962	general	general
16.	limes road	23131	general	general
	Lussonium – 10 watch tower	23133		
17.	limes road	23136	general	general
	Lussonium – 9 watch tower	23137		
18.	Lussonium – 6 watch tower	37580	general	general
19.	Lussonium – 12 watch tower	57709	general	general
20.	Lussonium – 3 watch tower	51263	general	general
21.	limes road	23256	general	general
22.	<i>Lussonium</i> fort and <i>vicus</i>	20027	regional and general	general
23.	Annamatia – 9 watch tower and limes road	62650	general	general
24.	Annamatia – 8 watch tower	62644	general	general
	limes road	57710		
25.	Annamatia – 7 watch tower	23819	general	general
	limes road	67045		
26.	Annamatia – 12 fortified river port	20004	general	general; protected natural site

RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
27.	<i>Annamatia</i> fort	21803	regional	general
	<i>Annamatia vicus</i>	38795	regional and general	
28.	Intercisa – 5 watch tower	47894	general	general
	Intercisa – 6 watch tower	21996		
	Intercisa – 10 watch tower	68273		
	limes road	74243		
29.	Intercisa – 2 watch tower	22663	general	general
30.	Intercisa fort	22656	national	national
	Intercisa <i>vicus</i>	22648		
31.	Vetus Salina – 8 watch tower and limes road	37601	general	general
32.	limes road	74241	general	There is no buffer zone
33.	Vetus Salina – 11 watch tower and limes road	21536	general	general
34.	limes road	21536	general	general
35.	limes road	74239	general	general
36.	Matrica – 13 fortified river port?	58872	general	general
37.	<i>Matrica</i> fort	11477	national; registered historic property	national and general; registered historic property
	<i>Matrica vicus</i>	11478	national	
38.	<i>Campona</i> fort	31521	national	national; registered historic surroundings
	<i>Campona vicus</i>	47237		
39.	<i>Contra Aquincum / Contra Teutanum?</i> fort	15661	national	national
40.	Aquincum – III camp and <i>vicus</i>	39706, 39707	national and general; registered historic district / surroundings / property	national, regional and general; registered historic district / surroundings / property
41.	Aquincum fortress and canabae	45926	national and general; registered historic surroundings / property	national, regional and general; registered historic district / surroundings / property
	<i>Aquincum canabae</i> (Hercules Villa)	45907	national	
	<i>Aquincum canabae</i> ( <i>amphitheatrum</i> )	45913	national	

RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
42.	<i>Aquincum municipium</i>	30913, 31505, 45629	national, regional and general; registered historic property	national, regional and general; registered historic property
	Ulcisia – 16 watch tower	76489	general	
43.	Ulcisia – 5 watch tower	62528	general	general
44.	limes road	10046	general	general
45.	Ulcisia – 2 watch tower	10048	national and general	general
46.	limes road	11550	general	general
47.	<i>Ulcisia</i> fort	11521	national and general; registered historic property	national and general; registered historic district / surroundings
48.	Ulcisia – 8 fortified river port	10600	regional	regional; registered historic surroundings; protected natural site
	Ulcisia – 9 fortified river port	10228	regional; registered historic surroundings / property	
49.	fort	10356	national	national
50.	Cirpi – 2 watch tower	10674	registered historic property	local protection
51.	<i>Cirpi</i> fort	10205	national	national and general; protected natural site
52.	Solva – 38 fortified river port	12411	registered historic property	natural
53.	Solva – 28 watch tower	58667	general	natural
54.	<i>Pone Navata?</i> fort	32382	national	national; protected natural site
55.	Solva – 24 watch tower	59410	registered historic property	registered historic surroundings / property
56.	Solva – 35 watch tower	25559	general	general
57.	<i>Quadriburgium?</i> fortlet	31055	national; protected natural site	national
58.	Solva – 22 watch tower	2011	general	general
59.	brick firing kilns	2016	general	general
60.	Solva – 21 watch tower	2001	general	general; protected natural site
61.	Solva – 20 way station / watch tower?	2010	general	general
62.	<i>Ad Herculeum</i> fort	2503	national and general	national and general
63.	Solva – 19 fortlet	2511	general	general
64.	Solva – 18 watch tower	2525	general	general

RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
65.	Solva – 11 watch tower	2519	general	general
	Solva – 13 watch tower	2521		
	Solva – 14 watch tower	2522		
66.	Solva – 34 fortified river port	11667	regional	regional
67.	fort	2182	regional	regional and general
	limes road	2181, 2505	regional	
	Solva – 9 way station	2504	regional	
	Solva – 10 watch tower	2506	general	
68.	Solva – 8 watch tower	2180	registered historic property	registered historic property
69.	Solva – 1 watch tower	2163	general	general
70.	<i>Solva</i> fort	2089	national	national
71.	Crumerum – 2 watch tower	2119	general	general
72.	limes road	2627	general	general
73.	limes road	2657	general	general
74.	<i>Gardellaca / Cardabiaca?</i> Fort	2662	national	national and general
	<i>vicus</i>	2658	national and general	
75.	limes road	77153	general	general
76.	limes road	73379, 2457	general	general
77.	<i>Crumerum</i> fort	2446	national	national
78.	Odiavum – 5 watch tower	62510	national and general	national and general
79.	Odiavum – 4 watch tower	55920	general	general
80.	<i>Azaum / Odiavum vicus</i>	34284, 26750	general	national and general
81.	<i>Brigetio</i> fortress	52716	national and general	national and general
	<i>Brigetio canabae</i>	52725	national and general	
	Brigetio – 1 watch tower	28161	national	
82.	<i>Brigetio municipium</i>	53044	national and general; registered historic surroundings	general
83.	Brigetio – II camp	62396	general	general
	Brigetio – III camp	62402	general	
84.	Brigetio – IV camp	62406	general	general
85.	Brigetio – V camp	62410	general	general
86.	Brigetio – VIII–XI camps	62420	general	general
	Brigetio – XXXII camp	77163	general	



RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
87.	Brigetio – XXX–XXXI camps	77161	general	general
88.	Brigetio – XIX camp	77155	general	general
	Brigetio – XX camp	77157		
	Brigetio – XXI camp	77159		
89.	Brigetio – VI-VII camps	62416	general	general
90.	Brigetio – XVII camp	62506	general	general
91.	Brigetio – XVIII camp	62508	general	general
92.	Brigetio – XXII–XXIII camps	77165	general	general
93.	Brigetio – XXIV camp	77167	general	general
94.	Brigetio – XXV camp	77169	general	general
	Brigetio – XXVI camp	77171		
95.	Brigetio – XXVII camp	77173	general	general
96.	Brigetio – XXVIII camp	77175	general	general
	Brigetio – XXIX camp	77177		
97.	Brigetio – XII, XXXIII camps	62484	general	general
98.	Brigetio – XIII–XIV camps	62488	general	general
	Brigetio – XV camp	62492		
	Brigetio – XXXIV camp	77179		
99.	<i>Ad Mures</i> fort and <i>vicus</i>	26558	national and general	national and general
100.	<i>Ad Statuas</i> fort	26556	national and general	national and general
	Arrabona – 10 watch tower	1785	general	
101.	Arrabona – 7 watch tower	1771	general	general
102.	limes road (A)	77181	general	general
103.	limes road (B)	77183	general	general
104.	Arrabona – 11 way station	1779	general	general
	limes road (C)	70435		
105.	Arrabona – 4 watch tower	21478	general	general
106.	Arrabona – 2 watch tower	21479	general	general
107.	Arrabona – I camp	38659	general	general
108.	<i>Arrabona</i> fort and <i>vicus</i>	41418	national	national
109.	limes road	31943	general	general
110.	Quadrata – 3 watch tower	1542	general	general
	limes road	31943		
111.	limes road	32004	general	general
112.	Quadrata – 5 watch tower	32003	general	general

RPH Nr.	Name	National Office of Cultural Heritage id. nr.	element of nominated property	buffer zone
113.	Quadrata – 1 camp?	57617	general	general
114.	Quadrata – 2 fortified river port?	24263	general	general
115.	<i>Quadrata</i> fort	24340	regional and general	regional
	<i>Quadrata vicus</i>	31124		
116.	limes road (A)	57774	general	general
117.	<i>Ad Flexum vicus</i>	70681	general	general
118.	limes road (B)	77229	general	general
	limes road (C)	77231		
119.	limes road (D)	57775	general	general
120.	<i>Ad Flexum</i> – 4 fortified river port?	25597	general	general
121.	Gerulata – 4 watch tower	53979	general	general

### 5.c Means of Implementing the Measures for Protection

The protection of the World Heritage Sites has been framed in a separate law, **Law LXXVII of 2011 on the World Heritage**, which takes effect on January 1<sup>st</sup> 2012. The law ensures a proper framework for the preservation, sustainable development and management of the outstanding universal value that exists at the World Heritage sites. However, **Law LXIV of 2001 on the preservation of cultural heritage** provides a proper framework for the preservation of World Heritage sites even today. The system for implementing this protection is ensured by **Law XXVI of 2003 on the National Regional Development Plan**, as well as **Law LXXVIII of 1997 on the protection and shaping of the built environment** and **Law LXV of 1990 on local governments**. The **National Office of Cultural Heritage** sees to the measures taken to provide sites with protection, as well as the supervision of this protection.

**All of the nominated sites are protected under law.** The National Regional Development Plan adopted by law has classified every town where *nominated sites* can be found as districts to be administered with a high priority for the considerations of cultural heritage.

The provisions of the National Regional Development Plan are binding for the lower level development plans (regional, county and town), and on the basis of law these plans must designate land uses that are compatible with heritage preservation interests. The guarantee that heritage preservation considerations will be asserted in the town planning process is the **heritage preservation impact statement**. The preparation of a heritage preservation impact statement is required in the town planning process (the town development conception, the town development plan, the local building regulations and the regulatory plan, as well as in the case of major projects). The provision of the law on the impact statement stipulates an analysis of how the envisaged change will impact the condition, preservation, and future possibilities for the prosperity of archaeological and historic sites.

Beyond this, every one of the sites is under general archaeological protection, a portion are protected as archaeological sites of regional or national significance and some are protected as natural sites. It should be noted that these types of protection can overlap with one another (multiple protection), and besides the general archaeological protection they do not always cover the entire site.

### **Law LXIV of 2001 on the preservation of cultural heritage**

#### 1/ Archaeological protection:

By virtue of this law, archaeological sites, whether they are known or not, are under *general protection*. In addition to this, there are those that are protected as *archaeological sites of national significance*, which have exceptional scientific importance and have outstanding relevance on an international or national level, and there are those that are protected as *archaeological sites of regional significance*, whose scientific importance can be established and have outstanding value from the perspective of a major geographical area.

#### 2/ Historic preservation:

The law regulates the listing of sites as protected and regulates the maintenance and utilization of historic properties. The historic districts and buildings are registered as protected in a decree by the minister on the basis of a proposal by the National Office of Cultural Heritage. During official procedures (e.g. construction or demolition permitting) for structures protected as historic properties the government office for heritage preservation has jurisdiction, or the opinion of the professional agency is binding for the agency with jurisdiction. In the scope of town planning procedures falling within the realm of legislative processes, the professional opinion of the government office for heritage preservation is optional – not binding – in relation to protected areas. Within the process of town planning the heritage preservation provisions of the legally binding National Regional Development Plan are obligatory.

#### 3/ Local protection:

This is protection based upon a local governmental ordinance, whose subject and regulations are determined by the given local government.

### **Law LIII of 1996 on nature protection**

The law aims at generally protecting the natural values and areas, the landscape and its natural systems, the biological diversity, supporting the acknowledgement and sustainable use thereof, as well as satisfying the demand of society for a healthy and aesthetic natural environment. The three main categories of protected objects put down in the law are *National Park*, *district of landscape protection* and *protected natural environment*. The law defines the concept of these, and regulates in detail among others the intended use, the activities that are permitted to be exercised therein and buffer zones to be established outside these areas.

### **Relevant nature protections**

#### National Parks:

- Fertő-Hanság National Park
- Duna-Ipoly National Park
- Duna-Dráva National Park
- Kiskunság National Park

**Districts of Landscape Protection:**

- Szigetköz Landscape Protection District
- Pannonhalma Landscape Protection District
- Gerecse Landscape Protection District
- Buda Landscape Protection District
- Dél-Mezőföld Landscape Protection District

**Protected Natural Environments:**

- Dunaalmás Quarry Nature Conservation Area
- Háros Island Flood Plain Forest Nature Conservation Area
- Érd Kakukk Mountain Nature Conservation Area
- Adony Nature Conservation Area
- Rácalmás Islands Nature Conservation Area
- Bölcske Iris Nature Conservation Area
- Dunaszekcső Loess Bluffs Nature Conservation Area

**Means for asserting the interests of heritage:**

For the objective of asserting the interests of cultural heritage the authorities can utilize various coercive means, the tools of *resolutions*, *obligations* and *finés*.

The owner is burdened by an *obligation for tolerance*: According to section 69 (1) the owner, trustee or user of the protected cultural heritage must tolerate the work ordered or permitted by the authority.

If heritage interests cannot be ensured in any other way, chapter III, section 87 of the law provides the opportunity for *expropriation* in the case of both archaeological sites and historic properties.

For the realization of certain objectives set down in the instruments for town planning, town governments can sign *town planning contracts* with the owners of the affected lot or with parties having the intent to invest in the lot.

## **5.d Existing Plans Related to the Municipalities and Regions in Which the Proposed Property is Located**

### **a/ From the amended Law XXVI of 2003 on the National Regional Development Plan:**

Chapter I, section 1 The purpose of this law is to determine the land use stipulations for the country's individual regions and the coordinated spatial order for technical and infrastructure networks taking into consideration their sustainable development, as well as the preservation of regional, landscape, natural, ecological and cultural conditions and the protection of resources.

Section 2. In the application of this law:

15. *Areas to be administered as a high priority from the point of view of cultural heritage*: zones determined in the National Regional Development Plan where the sites of World Heritage and tentative World Heritage, as well as *historic town districts* can be found.

Section 3. The National Regional Development Plan includes the structural plans for the country as well as the regional zones of the country and the regulations related to these.

Section 4. (1) The regulations related to land use and construction in the country's towns and individual regions must be framed in accordance with the provisions of this law.

Section 14/B The World Heritage and tentative World Heritage sites or historic town districts must be counted as areas to be administered as a high priority from a cultural heritage standpoint in the zones in the highlighted regional and county area development plans, and must be defined through the delimitation of the affected town's administrative territory.

An appropriate border for the actual extent of the zones for the above sites must be determined in the town development plan.

Considering that in some cases the individual sites of the World Heritage site extend into several towns, the provision in the law related to this is extremely important:

Chapter V, section 16/B (1) For the administration – defined in law – of shared town development and town planning duties that are included in the zone for areas that can be jointly planned a combined simplified town structural plan may be prepared.

(2) The sections related to the individual towns in the combined simplified town structural plans are adopted through ordinances by the affected town governments.

The law also contains the obligation to designate buffer zones:

Chapter VI, section 21 (5) In the town structural plan, the regulatory plan and the local building regulations the border of the townscape preservation district must be designated, which contains the areas that are valuable to the landscape and are to be administered as a high priority from a cultural heritage standpoint, areas of the ecological network, nature conservation areas under national or local protection and their surroundings, as well as important character defining areas for the appearance of the town.

**The law protects World Heritage sites and tentative World Heritage sites with special zoning provisions:**

Chapter VI, section 22/A (1) In the zone of World Heritage and tentative World Heritage sites the method and extent of land use must be in harmony with the objectives defined in the management plan.

(2) In this zone, new surface mining operations may not be introduced and existing surface mining operations may not be expanded.

(3) In this zone, networks and structures for transportation infrastructure must be located so as not to damage the character of the cultural heritage, and so as to preserve the site's unity and to contribute to the assertion of its appearance.

(4) In this zone, public utility lines and accompanying public utility structures must be located in a manner that integrates into the landscape, and that utilizes technical solutions that do not impede the preservation of the World Heritage sites, including the placement of lines underground.

Due to the location of the *Ripa* along the banks of the Danube, many individual sites are areas liable to water erosion, and the law contains a special zoning provision in relation to this:

Chapter VI, section 26. Towns within the zone for areas liable to water erosion must stipulate a type of land use for endangered areas in the town structural plan and designate stipulations for a building regulation zone in the local building regulations that reduces the extent of water erosion.

The National Regional Development Plan highlights the bicycle routes running along the upper and middle sections of the *Ripa* from amongst the elements of the **National Bicycle Route Main Network** (appendix 1/6):

### 1. Upper Danube Valley Bicycle Route (Euro Velo® 6):

- 1.A: (Slovakia and Austria) - Rajka - Bezenye - Mosonmagyaróvár - Halászi - Darnózseli - Hédervár - Ásványráró - Dunaszeg - Györladamér - Győrzámoly - Győrújfalú - Győr - Vének - Gönyű - Komárom - Almásfüzitő - Dunaalmás - Neszmély - Sütő - Lábatlan - Nyergesújfalu - Tát - Esztergom - Pilismarót - Dömös - Visegrád - Dunabogdány - Tahitótfalú - Leányfalú - Szentendre - Budapest
- 1.B: Komárom - (Slovakia)
- 1.C: Pilismarót - Szob - Nagymaros - Verőce - Vác - Göd - Dunakeszi (from Dunakeszi to Budapest it is under construction).

Chapter VII, section 29, The review of the National Regional Development Plan occurs at least every 5 years.

Section 30 (1) The provisions of this law must be applied:

- a) during the course of the preparation and adoption of the county development plans,
  - b) during the course of the preparation and ratification of the town development plan and local building regulations.
- (2) In the public administration matters begun following the enactment of this paragraph, in relation to the national technical infrastructure networks and individual structures recorded in appendix number 1/1-11 the provisions of this law must be applied.
- (3) The county development plans must be brought into compliance with this law by December 31<sup>st</sup> 2011.
- (4) The county governments that do not yet have a county development plan must prepare a county development plan by December 31<sup>st</sup> 2011.

### b/ County Development Plans:

The years of ratification for the county development plans in force at the present moment that concern the area of the *Ripa*:

Bács-Kiskun County, 2006; Baranya County, 2005; Fejér County, 2009; Győr-Sopron-Moson County, 2005; Komárom-Esztergom County, 2005; Pest County, 2006; Tolna County, 2005.

### c/ Town Development Plans:

It is important to note that the county development plans cannot contain provisions that are binding for the town development plans, at most they can have recommendations. For town development planning the National Regional Development Plan is directly legally binding. (Law XXVI of 2003, section 4 (1) – see above)

Law LXXVIII of 1997 on the protection and shaping of the built environment contains provisions for the periodical review and adjustment of the town plans:

Chapter II (2) The town governments must review the town structural plans every 10 years, and when necessary they must see to its amendment or the preparation of a new plan. During the course of the necessary 10 year review they must see that the revisions that have occurred in the meantime are framed within a uniform plan.

## **5.e Property Management Plan or Other Management System**

The Law LXIV of 2001 on the preservation of cultural heritage “Section 5/A (3) For the preservation, sustainable utilization and recording of changes of World Heritage sites a management organization must be established that performs its activities on the basis of the Management Plan.”

The management activities demand a unified conception, clear and explicit objectives and professional direction and coordination, although the role of volunteers should not be disregarded. Therefore an organization must be established where the formulation of objectives is founded upon scholarly research and the basis for conservation is the general public interest, but that ensures a framework for voluntary support and participation. The management organization must, among other things, rely upon the tools of regional and urban planning, state and local governmental administration, the system of institutes for science and higher learning and the similar systems of preservation/conservation (e.g. nature conservation), while winning the support of the leading players in industry, agriculture and tourism and developing good relationships with the community and the media.

Taking into account that the site to be managed stretches along an area that is 417 km long and the 121 individual sites affect seven counties and the capital city, more than sixty local governments and a large number of state and private lots as well as numerous managers, a functioning and effective organization can only be envisaged that has a structure containing multiple levels:

### **5.e.1 The Management Organization**

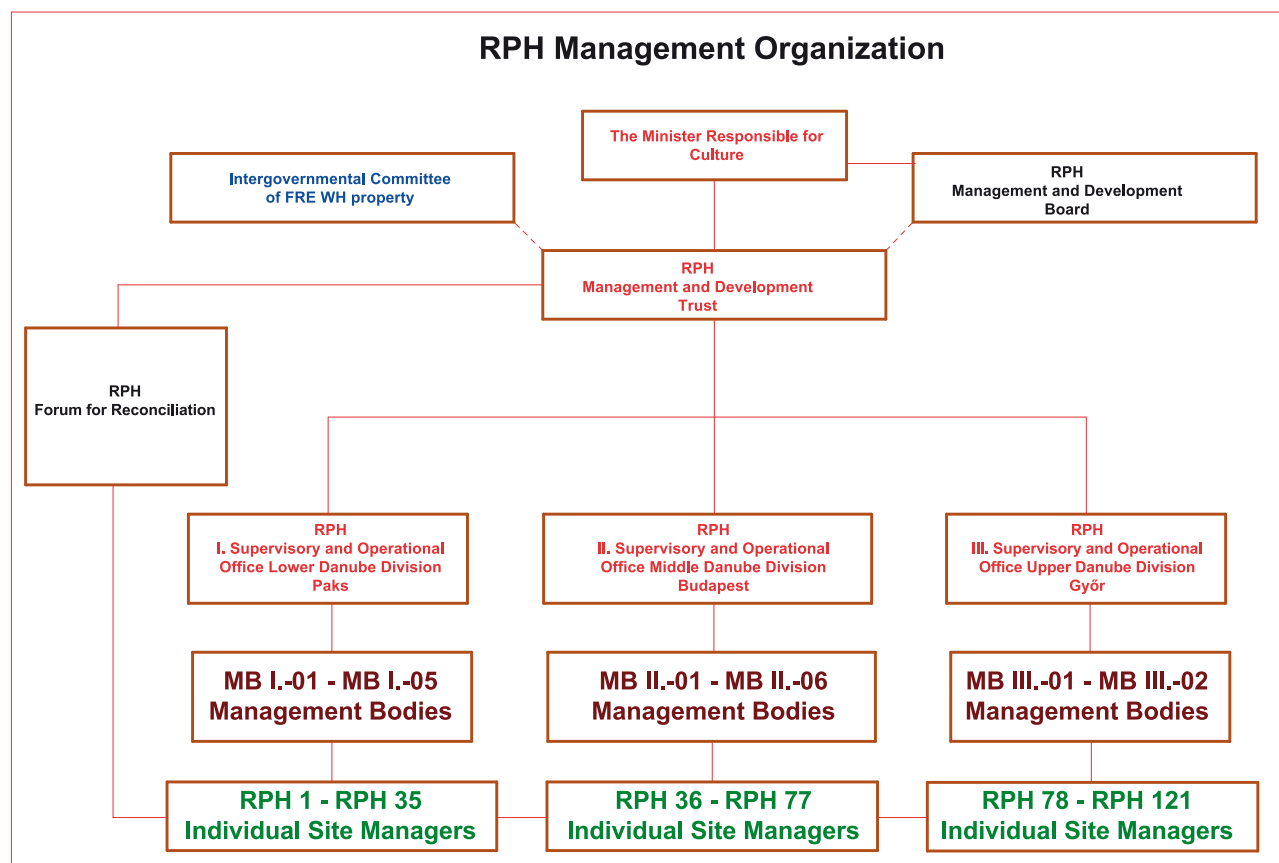
#### **Recommendation for the structure of the management organization:**

##### **Agencies/offices:**

- **Ripa Pannonica in Hungary (RPH) Management and Development Trust**
- **Ripa Pannonica in Hungary (RPH) Supervisory and Operational Office**
- **Ripa Pannonica in Hungary (RPH) Management Bodies**
- **Ripa Pannonica in Hungary (RPH) individual site managers**

##### **Associations:**

- **Ripa Pannonica in Hungary (RPH) Management Board**
- **Ripa Pannonica in Hungary (RPH) Forum for Reconciliation**



### RPH Management and Development Trust

- The RPH Management and Development Trust will be created by the Hungarian state.
- The RPH Management and Development Trust is a legal entity – it is an independently functioning economic budgetary organization under the direction and supervision of the Minister of National Resources.
- The single responsible leader of the RPH Management and Development Trust is its director.
- The RPH Management and Development Trust prepares (has someone prepare) the site's Management Plan for the proposal for inscription on the World Heritage List.
- The basis for the Management Plan prepared by (for) the RPH Management and Development Trust is comprised by the valid Hungarian laws.
- The main duty of the RPH Management and Development Trust is to promote scholarly research, archaeological excavations, conservation and the formulation and implementation of utilization and development programs and plans through the employment of the financial resources at its disposal from the state and grant funds received from Hungary and the European Union on the basis of the schedule set down in the Management Plan's Program for Action.
- The RPH Management and Development Trust performs its duties according to the schedule laid down in the Management Plan.



- The RPH Management and Development Trust maintains contact with the Secretariat of the Hungarian World Heritage Commission and the Intergovernmental Committee of Frontiers of the Roman Empire World Heritage (United Kingdom and Germany) and the international management organizations for sites from the Frontiers of the Roman Empire that are on the World Heritage tentative list, as well as with the Bratislava Group and the Hungarian government commissioner responsible for the Danube Strategy.
- The RPH Management and Development Trust informs the public, the press, the media and civic organizations about the value and significance of the sites, the laws and obligations related to them, as well as the activities that are underway or that are planned.
- The RPH Management and Development Trust convenes the RPH Forum for Reconciliation on an annual basis at the beginning of the calendar year, and reports to the RPH individual site management organizations about work that has been completed and planned future tasks.
- The RPH Management and Development Trust prepares a financial and performance report at the end of the calendar year for the Minister of National Resources.

Members: director, secretary, financial director and officers (7 members)

#### **RPH Management and Development Board**

- The Management and Development Board aids in the work of the director of the RPH Management and Development Trust.
- The members of the Management and Development Board are distinguished experts in town development, economics, archaeology and historic preservation who perform their duties on the basis of a mandate from the minister responsible for culture.
- The Management and Development Board reports on the long-term prospects for the RPH.
- The Management and Development Board reviews the RPH Management Plan annually, and provides recommendations for necessary modifications.
- The Management and Development Board provides recommendations for the distribution and utilization of the available financial assistance resources.
- The Management and Development Board provides its opinion on the annual work schedule of the RPH Management and Development Trust.

Members: archaeologists, heritage preservationists, nature conservationists, and town engineers (5 members)

#### **RPH Supervisory and Operational Office (Non-profit Company)**

- The RPH Supervisory and Operational Office is created by the RPH Management and Development Trust.
- The single responsible leader of the Office is the office manager.
- The main tasks of the Office are keeping records, monitoring, professional reporting, coordination, making recommendations and the preparation and implementation of decisions.

- The Office keeps detailed records noting conditions of the individual sites and on their managers.
- The Office continuously monitors the conditions of the individual sites, and in the case of negligence in the obligation for good maintenance or legal violations it draws the attention of the authority with jurisdiction to take the necessary measures such as official obligations or the levying of fines.
- The Office, on the basis of legal authorization, reports on and coordinates the regional planning and town development concepts, town structural plans, regulatory plans and building regulations prepared for the individual sites or their surroundings.
- The Office prepares or has the documents and plans prepared that are necessary for the yearly and medium-term tasks determined by the RPH Management and Development Trust. It provides a preliminary report on the grants submitted for support. It verifies the utilization of the funds received.
- Considering that the site is 417 km long it seems practical – for the purpose of accessibility as well as reducing travel expenses – to split the tasks of the Office into three regional divisions: one from the western border of the country to Dömös (Győr-Moson-Sopron and Komárom-Esztergom counties) headquartered in Győr, another between Dömös and Százhalombatta (Pest County) headquartered in Budapest, and the last between Százhalombatta and the southern border of the country (Fejér, Tolna, Baranya and Bács-Kiskun counties) headquartered in Paks.

Members: director, secretary and financial director, as well as archaeological, historic preservation, town planning, environmental protection and agricultural officers. (30 members)

#### **RPH Management Bodies**

Competent museums with professional staff are assigned to keep contact with the individual site managers, to entrust them with the managing tasks and to supervise their work.

#### **RPH Individual Site Management Organizations**

The individual site managers are entrusted with the expert tasks of managing one or more individual sites by the RPH Supervisory and Operational Office through a commission, contract or agreement. For practical reasons the managers of the individual sites are professionals authorized to manage the individual sites owned by the state or local governments, such as the managers of museums operating in the area, local governments or private individuals.

- They appraise the condition of the individual site they are entrusted with, take into account the state of work appropriate for its management category indicated in the Management Plan and prepare regular reports.
- They oversee that the cultivation and utilization of the area is in accordance with the Management Plan, that the obligation for proper maintenance is observed and that the obligations related to the existing protection based upon the laws on cultural sites of outstanding value are observed.
- Each individual site manager administers or may administer several individual sites, so long as this is necessary or possible in terms of efficient management.



**RPH Forum for Reconciliation:**

- The members of the Forum for Reconciliation representing the Hungarian state are the RPH Management and Development Trust, the National Office of Cultural Heritage, the government commissioner for the Danube Strategy, the county museums with jurisdiction, water conservancy agencies, nature conservation agencies and the management organizations for the individual sites, as well as the town and county governments representing the specific owners of the individual sites.
- The main tasks of the Forum for Reconciliation are harmonizing the yearly and medium-term duties, providing expert information, reconciling interests and resolving and settling conflicts in interest.
- The Forum for Reconciliation holds an annual meeting at the beginning of the year where the RPH Management and Development Trust reports on the completed work and the planned future tasks to the owners and managers of the individual sites.
- Any member of the Forum for Reconciliation may summon the Forum together at a time when it is deemed necessary.

**5.e.2 The Management Strategy**

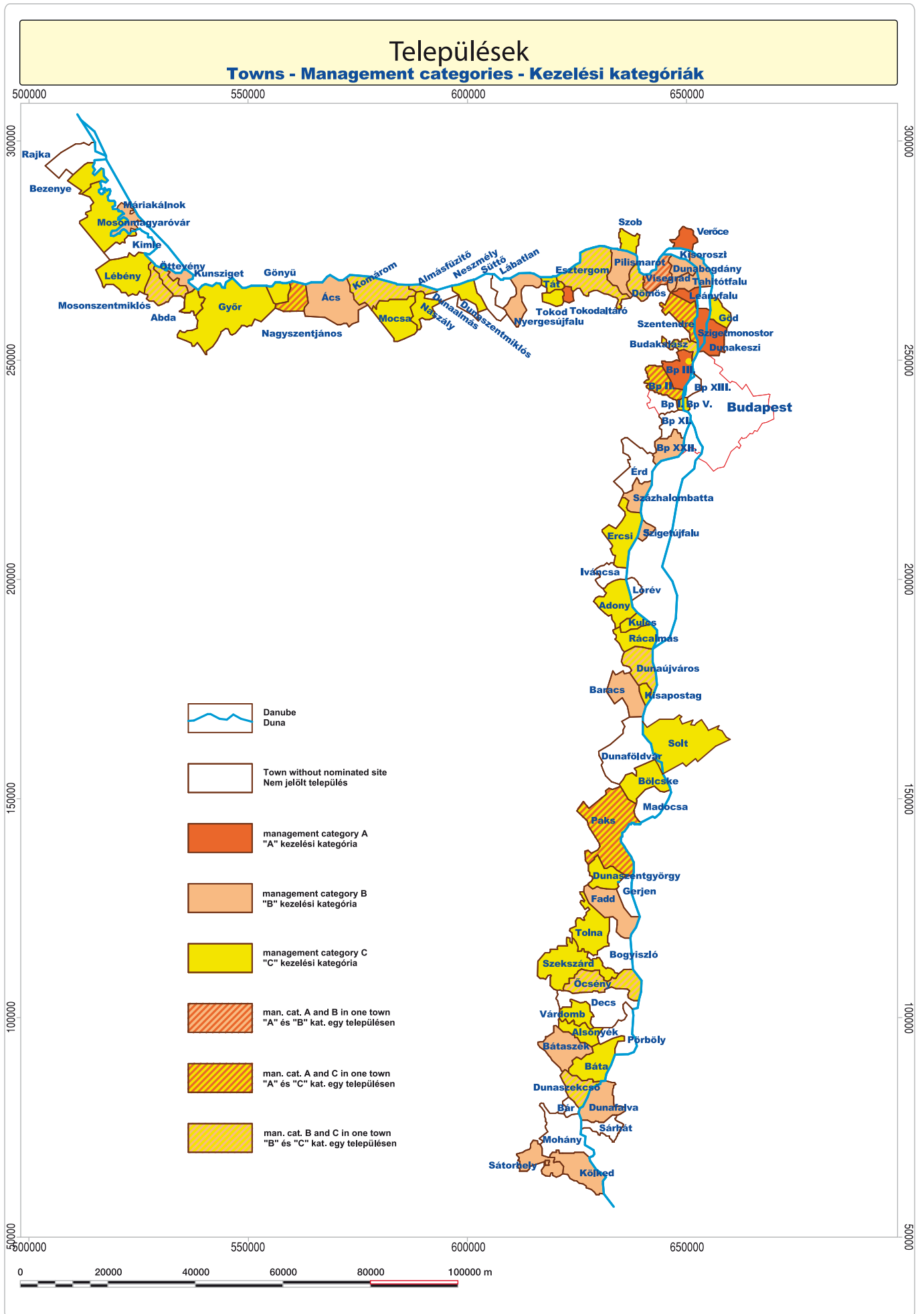
The management strategy for protection fundamentally structures the future prospects related to the excavated or unexcavated sites of the *Ripa* from a short, medium and long term perspective. The management/maintenance recommendations are different depending on whether one is considering remains that are visible on the surface, conserved and able to be visited and that can be integrated into a possible international system of *limes* parks, or those areas where only initial steps have been taken, but in this perspective the known archaeological potential supports realizing the above – at least within the medium term. The situation is also different if we know that the only well-considered goal is the undisturbed preservation of the remains for the foreseeable future.

According to the above the following categories have been developed:

**Category A sites:** – Archaeological parks (*limes* parks) that already exist or can be developed within the short term. Included in this category are those sites that are already protected, excavated, conserved and in some cases pieced together and restored as well as being under constant institutional supervision, and that can be visited and viewed. They need constant scientific supervision, maintenance management, development of visitor-friendly infrastructure and tourism management.

**Category B sites:** – Those sites belong here whose known archaeological finds and conditions make it possible that within the medium term (i.e. 15 years) they can be developed into category A sites. The most important concern for these is establishing the proper level of protection, settling the site's ownership – expropriations – as well as their excavation or excavation and scientific research, their conservation or restoration and the creation of the institutional and financial framework for the development of infrastructure, as well as the establishment of a conception for their utilization and tourism management.

**Category C sites:** – Those sites belong here, which according to present knowledge or the possibilities contained within its known, but more modest, finds do not make obvious development possible, although scientific and heritage preservation considerations justify their long-term, undisturbed preservation. In these cases, their preservation for the foreseeable future and the halting of known processes that cause deterioration are the major considerations. In the interest of this it is necessary to take measures that are justified concerning its ownership, its registration as protected and possibly its expropriation. An analysis of its usage and any threats to it as well as whether or not there needs to be a change in its maintenance, with particular consideration to the provisions on land use in the valid town development plan, as well as the method of cultivation recorded in the land registry.



<b>PRESERVATION/ PROTECTION</b>	<b>Nature of the measures</b>	<b>Category A sites</b>	<b>Category B sites</b>	<b>Category C sites</b>
	Informing the public	continuous	continuous	continuous
	Declaration of protection as nationally significant	Short term	Short term	Short term
	Evaluation of the level of threats - landslides - flood prevention - change in type of cultivation - change in method of cultivation - preservation of conditions	Short term	Short term	Short term
	Necessary expropriations, evaluation of ownership and management rights	Short term	Short term	Short term

<b>SCIENTIFIC RESEARCH (genuine excavations, identification excavations, rescue excavations, field walks, aerial archaeological research, processing of earlier finds and literature) REGIONAL PLANNING</b>	<b>Nature of the measures</b>	<b>Category A sites</b>	<b>Category B sites</b>	<b>Category C sites</b>
	Establishment of a schedule for archaeological research	Short term	Short term	Long term
	Drafting of a detailed development and utilization conception	Short term	Short term	Long term
	Amendment of the National Regional Development Plan	Short term	Short term	Short term
	Amendment of the regional and county plans	Short term	Short term	Short term
	Prevention of threats	Short term	Short term	Short term

<b>MAINTENANCE UTILIZATION TOWN PLANNING</b>	<b>Nature of the measures</b>	<b>Category A sites</b>	<b>Category B sites</b>	<b>Category C sites</b>
	Expropriations, settling ownership and management rights	Continuous	Continuous	Continuous
	Prevention of threats	Medium term	Medium term – long term	Medium term – long term
	Excavation-rehabilitation-presentation-utilization-maintenance	Medium term – long term	Medium term – long term	–
	Monitoring	Continuous	Continuous	Continuous
	Review and correction of the Management Plan	Continuous	Continuous	Continuous
	Amendment of town development plans	Short term	Short term	Short term

The fact that according to the above table the measures related to the individual sites placed in the particular categories (A, B and C) are identical indicates that the fundamental management tasks are the same. The obligations for registration, preservation and the maintenance of conditions are universally valid. The basic difference is in relation to the high cost excavations, development and exhibition. The role of these categories is therefore significant primarily in the planning of budgets and the development of programs for action.

The particular individual sites were placed in the categories A, B and C from the standpoint of management.

### Management Categories and Highlighted Tasks

RPH Nr.	Name	Management Category	Tasks / opportunities
1.	Altinum – 1 watch tower	B	excavation, erosion protection
2.	<i>Altinum</i> fort and <i>vicus</i>	B	change in land use
3.	Lugio – 5 watch tower	C	
4.	<i>Lugio / Florentia</i> fort and <i>vicus</i>	B	prevention of riverbank landslides
5.	<i>Contra Florentiam?</i> fortified river port	B	flood prevention
6.	Ad Statuas – 2–3 watch towers and limes road	C	horticultural exhibit
7.	way station	B	
8.	limes road	C	horticultural exhibit
9.	Alisca – 3 watch tower	B	can be exhibited
10.	<i>Alisca</i> fort and <i>vicus</i>	B	change in land use
11.	limes road (A)	C	horticultural exhibit
12.	limes road (B)	C	horticultural exhibit
13.	limes road (C–D)	C	horticultural exhibit
14.	Alta Ripa – 2 watch tower	C	
15.	Alta Ripa – 1 watch tower	C	
16.	Lussonium – 10 watch tower	B	horticultural exhibit
	limes road	C	
17.	Lussonium – 9 watch tower and limes road	B	horticultural exhibit
	limes road	C	
18.	Lussonium – 6 watch tower	C	
19.	Lussonium – 12 watch tower	C	
20.	Lussonium – 3 watch tower	C	
21.	limes road	C	
22.	<i>Lussonium</i> fort and <i>vicus</i>	A	organizing the lots
23.	Annamatia – 9 watch tower and limes road	C	horticultural exhibit
24.	Annamatia – 8 watch tower and limes road	C	
25.	Annamatia – 7 watch tower and limes road	C	



RPH Nr.	Name	Management Category	Tasks / opportunities
26.	Annamatia – 12 fortified river port	C	
27.	<i>Annamatia</i> fort and <i>vicus</i>	B	
28.	Intercisa – 5–6, 10 watch towers and limes road	C	
29.	Intercisa – 2 watch tower	C	
30.	Intercisa fort and <i>vicus</i>	A	
31.	Vetus Salina – 8 watch tower and limes road	C	
32.	limes road	C	
33.	Vetus Salina – 11 watch tower and limes road	C	
34.	limes road	C	
35.	limes road	C	
36.	Matrica – 13 fortified river port?	C	
37.	<i>Matrica</i> fort and <i>vicus</i>	B	
38.	<i>Campona</i> fort and <i>vicus</i>	B	
39.	<i>Contra Aquincum</i> / <i>Contra Teutantum?</i> fort	A	
40.	Aquincum – III camp and <i>vicus</i>	C	
41.	<i>Aquincum</i> fortress and <i>canabae</i>	A	
42.	<i>Aquincum municipium</i>	A	
	Ulcisia – 16 watch tower	B	
43.	Ulcisia – 5 watch tower	C	
44.	limes road	C	
45.	Ulcisia – 2 watch tower	B	conservation of the excavated portions
46.	limes road	C	
47.	<i>Ulcisia</i> fort	B	can be exhibited
48.	Ulcisia – 8–9 fortified river ports	A	flood prevention
49.	fort	C	horticultural exhibit
50.	Cirpi – 2 watch tower	A	
51.	<i>Cirpi</i> fort	B	can be excavated
52.	Solva – 38 fortified river port	A	
53.	Solva – 28 watch tower	B	can be excavated
54.	<i>Pone Navata?</i> fort	A	
55.	Solva – 24 watch tower	A	
56.	Solva – 35 watch tower	A	
57.	<i>Quadriburgium?</i> fortlet	A	
58.	Solva – 22 watch tower	C	
59.	brick firing kilns	B	can be exhibited

RPH Nr.	Name	Management Category	Tasks / opportunities
60.	Solva – 21 watch tower	B	can be exhibited
61.	Solva – 20 way station / watch tower?	C	
62.	<i>Ad Herculem</i> fort	B	can be exhibited
63.	Solva – 19 fortlet	B	can be exhibited
64.	Solva – 18 watch tower	B	can be exhibited
65.	Solva – 11, 13–14 watch towers	B	can be exhibited
66.	Solva – 34 fortified river port	C	
67.	fort	B	can be exhibited
	limes road	C	
	Solva – 9 way station	C	
	Solva – 10 watch tower	B	can be exhibited
68.	Solva – 8 watch tower	B	can be exhibited
69.	Solva – 1 watch tower	B	can be exhibited
70.	<i>Solva</i> fort	C	
71.	Crumerum – 2 watch tower	C	
72.	limes road	C	horticultural exhibit
73.	limes road	C	horticultural exhibit
74.	<i>Gardellaca / Cardabiaca?</i> fort and <i>vicus</i>	A	
75.	limes road	C	horticultural exhibit
76.	limes road	C	horticultural exhibit
77.	<i>Crumerum</i> fort	B	horticultural exhibit
78.	Odiavum – 5 watch tower	C	
79.	Odiavum – 4 watch tower	C	
80.	<i>Azaum / Odiavum vicus</i>	C	
81.	<i>Brigetio</i> fortress and <i>canabae</i> and <i>Brigetio</i> – 1 watch tower	B	
82.	<i>Brigetio municipium</i>	B	
83.	<i>Brigetio</i> – II–III camps	C	
84.	<i>Brigetio</i> – IV camp	C	
85.	<i>Brigetio</i> – V camp	C	
86.	<i>Brigetio</i> – VIII–XI, XXXII camps	C	
87.	<i>Brigetio</i> – XXX–XXXI camps	C	
88.	<i>Brigetio</i> – XIX–XXI camps	C	
89.	<i>Brigetio</i> – VI–VII camps	C	
90.	<i>Brigetio</i> – XVII camp	C	

RPH Nr.	Name	Management Category	Tasks / opportunities
91.	Brigetio – XVIII camp	C	
92.	Brigetio – XXII–XXIII camps	C	
93.	Brigetio – XXIV camp	C	
94.	Brigetio – XXV–XXVI camps	C	
95.	Brigetio – XXVII camp	C	
96.	Brigetio – XXVIII–XXIX camps	C	
97.	Brigetio – XII, XXXIII camps	C	
98.	Brigetio – XIII–XV, XXXIV camps	C	
99.	<i>Ad Mures</i> fort and <i>vicus</i>	B	can be excavated
100.	<i>Ad Statuas</i> fort	B	prevention of riverbank landslides
	Arrabona – 10 watch tower	C	
101.	Arrabona – 7 watch tower	C	change in land use
102.	limes road (A)	C	
103.	limes road (B)	C	
104.	Arrabona – 11 way station and limes road (C)	B	exhibition
105.	Arrabona – 4 watch tower	C	
106.	Arrabona – 2 watch tower	B	
107.	Arrabona – I camp	C	
108.	<i>Arrabona</i> fort and <i>vicus</i>	C	
109.	limes road	C	
110.	Quadrata – 3 watch tower and limes road	C	
111.	limes road	C	
112.	Quadrata – 5 watch tower	B	
113.	Quadrata – I camp?	C	
114.	Quadrata – 2 fortified river port?	B	
115.	<i>Quadrata</i> fort and <i>vicus</i>	B	
116.	limes road (A)	C	horticultural exhibit
117.	<i>Ad Flexum</i> <i>vicus</i>	C	
118.	limes road (B–C)	C	horticultural exhibit
119.	limes road (D)	C	horticultural exhibit
120.	<i>Ad Flexum</i> – 4 fortified river port?	B	
121.	Gerulata – 4 watch tower	C	

### 5.e.3 Management Plan

According to the World Heritage law that is in the preparatory stage, the minister responsible for cultural heritage prepares and reviews the World Heritage management plan, and also administers the duties arising from it.

The management plan is public and legally binding. The management plans for World Heritage sites and tentative sites are proclaimed in a decree by the Government.

The management plan is attached as an appendix to the nomination documentation.

### 5.f Sources and Levels of Finance

There are various sources of funding for the management of the RPH.

First of all, the World Heritage law provides funding for the operation of the publicly funded management organizations, and through these for the Hungarian World Heritage sites. For sites owned by the Hungarian state, the Hungarian National Property Management Co. designates management organizations that cover the costs of managing and maintaining the sites through funds provided to them from the state budget and from their own revenues obtained through their operation (e.g. ticket sales, publications, and from other proper uses etc.).

Cultural assets receive significant prominence amongst the priorities of the National Development Plan. The government has the opportunity to declare the most important cultural programs for highlighted development. These receive support from central budgetary sources. Preservation projects that are not highlighted can receive support from domestic, European Union or other sources (e.g. the Norwegian Financial Mechanism) through the National Development Plan's grant system in support of its priorities. The wide spectrum of the grant system is diverse, so it is open not only to state owned sites, but also those owned for example by local governments, companies or individuals as well. The terms of the grants generally require some funding from the organization's own resources, although in some cases there is an opportunity to cover this through other grants.

### 5.g Sources of Expertise and Training in Conservation and Management Techniques

The university training of archaeologists, ethnographers, art historians, architects, urban planners, landscape architects and regional planners in Hungary occurs throughout the country. Restoration experts are trained at the Hungarian University of Fine Arts. The professional standards and accreditation are overseen by professional associations. The system providing the conditions for maintaining professional expertise is comprehensively ensured.

Archaeology:

- Institute of Archaeological Science, Eötvös Loránd University, Faculty of Humanities, Budapest
- Department of Archaeology, University of Szeged, Faculty of Arts, Szeged
- Department of Archaeology, University of Pécs, Faculty of Humanities, Pécs

Architectural and urban planning training:

- Occurs at numerous institutes in Budapest, Debrecen, Győr and Pécs

Landscape architectural training:

- Department of Landscape Architecture, Corvinus University of Budapest

Special training:

- Historic preservation engineer training at the Budapest University of Technology and Economics
- Heritage preservation manager training at the University of Pécs
- Restoration expert training at the Hungarian University of Fine Arts

## 5.h Visitor Facilities and Statistics

The *Ripa* does not represent a considerable tourist attraction, with the exception of a few “*limes park*”-type excavated and exhibited sites. The sites in Visegrád, Leányfalu, Dunakeszi and Szigetmonostor are at excursion destinations where the main attraction is provided by the natural assets and the opportunities for summer holidays. The entire *Ripa* falls within the Danube tourism district. Therefore the *Ripa* represents a fortuitous broadening of the offerings for cultural tourism, but the sites do not create a greater burden beyond the ordinary.

The excavated structures of the civilian town of Aquincum represents a site that is an independent attraction that can be visited in a discrete museum setting. Aquincum can boast of about 50,000 visitors annually, which considering the building ruins present in its over 30 hectare contiguous area is not overwhelming, but its appeal and renown does ensure it a significant position amongst Hungarian museums. The appropriate expert staff for the scientific excavation and expert conservation of the remains, as well as the on-site care, restoration and exhibition of its movable finds is provided by the Budapest Museum of History that runs it. The safeguarding, management and visitor-friendly infrastructure of the site is provided for.

Significant improvements have also taken place in recent years, a modern viewing storehouse was opened to display the finds excavated at the site. This viewing storehouse makes it possible to place as many of the restored finds kept in the museum’s inventory on display in an organized manner for the visitors.

A special Hungarian invention, the chronoscope, aids in understanding the ruins. This viewing device electronically augments the view of the surviving ruins with a virtual reconstruction based on scholarly research, helping to a great extent to interpret and understand the lifeless ruins and improve the visitor experience. The chronoscope is an educational, visitor-friendly device that makes interpretive physical augmentation and reconstruction interventions, which damage the ruins, unnecessary. The museum caters to the convenience of tourists with its visitor-friendly infrastructure and the museum store.

Innumerable university periodicals, academic publications and educational books deal from time to time on a scholarly level with the topic of the RPH, the history, research and historic finds of the Roman Empire in Hungary. In addition to this there is an increasing array of publications and programs aimed at the wider public, as well as children and adolescents.

The popularization of the RPH is assisted by the periodical entitled *Szép Magyarország* (Beautiful Hungary), which regularly publishes articles and essays related to the *limes*. A picturesque map of Pannonia, showing a panorama of the Hungarian section of the *limes*, the borders of the Roman Empire, has appeared on its cover.

“Heritage Preservation Workbooks” have been introduced into the elementary school curriculum, and “Roman Life in Pannonia” is included in this series, which introduces the youngest students with the *limes* and the basics of Roman culture.

Events promoting traditions popularize the *limes*.

With the goal of creating a wide range of sights and events through the collaboration of the towns along the *limes*, the town government of Dunaszekcső and civic groups from Dunafalva have organized the Lugio Days and the International *Limes* Camp since 2003.

The Lugio Days, amongst the major events of *The Limes as a Cultural Route*, serves up a festival with costumed parades, time travel on a Roman galley, displays of Roman armaments, presentations on the battle techniques of the legions and the Celts and ancient theater productions, in addition to which an ICOMOS professional archaeological conference also takes place.

At the International *Limes* Camp, groups of Hungarian and foreign children take part in an Ancient Adventure Tour.

### The Sites and Programs of the *Limes* Cultural Route

#### **RPH 4. *Conra Florentiam?* fortified river port, Dunafalva**

- Archaeological site: foundation walls still visible today on the grounds of the fort on the opposite bank

#### **RPH 3. *Lugio / Florentia* fort and *vicus*, Dunaszekcső – Várhegy**

- Archaeological exhibition: Local history collection
- Roman well and milestone
- Guided tours, field tours and museum visits
- Lugio Days festival, the third weekend in July every year
- International *Limes* Camp and Ancient Adventure Tour, the third week in July every year
- Accommodations, Roman cuisine and gastronomy at the Aréna Restaurant.

#### **RPH 6-26. Sites of Tolna County**

- Wosinszky Mór Museum: Archaeological exhibition, Szekszárd

#### **RPH 22. *Lussonium* fort and *vicus*, Paks – Dunakömlőd–Sánc-hegy**

- Archaeological park: The results of the archaeological excavations at the site of the fort
- Paks Museum: Permanent exhibit containing the abundant finds from the excavations

#### **RPH 26. *Annamatia* – 12 fortified river port, Bölcské, Solt – Duna-meder**

- Lapidarium: Roman gravestones and altar stones that were excavated from the Danube riverbed can be seen at their outdoor exhibit site.

**RPH 30. *Intercisa fort and vicus*, Dunaújváros – Öreg-hegy****a. Sights**

- Intercisa Museum - Dunaújváros, Városháza tér 4. (permanent exhibit entitled “The History of Dunaújváros from Prehistory to the Middle of the 1970s)
- Roman-era lapidarium and archaeological park - Dunaújváros, Római körút. (Archaeological park at the site of the auxiliary fort with building remains and an open lapidarium)
- Roman-era military baths - Dunaújváros, Öreghegyi út.
- Foundations of a Roman-era semi-detached residence - Dunaújváros, Római körút.
- Foundations of an early Christian church - Dunaújváros, Római körút.

**b. Programs:**

- Guided exhibit tours, special history classes and play houses that bring the past to life in the museum and the lapidarium
- Ancient garden party in the lapidarium.

**c. Events:**

- Cultural Heritage Days (in the middle of September)
- Night of the Museums (at the end of June)

**RPH 37. *Matrica fort and vicus*, Százhalombatta – Dunafüred**

- Matrica Museum and archaeological park
- Handcrafts, gastronomical and lifestyle programs

**RPH 38. *Campona fort and vicus*, Budapest 22<sup>nd</sup> District – Nagytétény**

- Remains of the fort that are open to visitors: eastern and southern fort gates
- Planned archaeological park next to the Nagytétény Palace Museum
- Nagytétény Palace Museum: series of events for the Ancient Happy Days

**RPH 39. *Contra Aquincum / Castellum contra Teutantum? fort*, Budapest 5<sup>th</sup> District – Március 15. tér**

- Section of the wall of the fort, with bastion

**RPH 41-42. *Aquincum fortress, canabae, municipium*; Budapest 2<sup>nd</sup> and 3<sup>rd</sup> Districts – Óbuda****a. Sights:**

- Aquincum Museum (3<sup>rd</sup> District, Szentendrei út 139.)
- Hercules Villa (3<sup>rd</sup> District, Meggyfa u. 21.)
- Thermae Maiores – Bath Museum 3<sup>rd</sup> District, Flórián tér underpass)
- Remains of the southern gate of the legionary fortress (3<sup>rd</sup> District, Flórián tér: southern side of the Buda on-ramp to the Árpád Bridge)
- Section of the *Centurio* house with an atrium (3<sup>rd</sup> District, Flórián tér: southern side of the Buda on-ramp to the Árpád Bridge)
- Eastern gate of the legionary fortress (3<sup>rd</sup> District, Kórház u. – Harrer Pál u.)
- Section of a late Roman fortress wall with bastions (3<sup>rd</sup> District, parking lot of the Ramada Plaza Hotel)
- Eastern gate of the cavalry fort (3<sup>rd</sup> District, in the paving of the parking lot of the Ramada Plaza Hotel)
- Military amphitheater (3<sup>rd</sup> District, Nagyszombat u.)
- Tábórváros Museum: with the bathhouse wing of the inn (3<sup>rd</sup> district, Pacsirtamező u. 63.)
- Early Christian cemetery chapel (*cella trichora*) (3<sup>rd</sup> District, Raktár u. – Hunor u. – Körte u.)
- Restored piers of the aqueducts (3<sup>rd</sup> District, median strip of Szentendrei út)
- Northern wall of the civilian town (3<sup>rd</sup> District, corner of Szentendrei út, Római út and Pók u.)
- Amphitheater of the civilian town (3<sup>rd</sup> District, corner of Szentendrei út and Zsófia u.)
- Roman-era aqueduct well-head mounting (3<sup>rd</sup> District, grounds of the Római Strandfürdő)

**b. Exhibits:**

- New permanent exhibit on Budapest's Roman-era urban predecessors
- The Aquincum water organ – music from ancient times
- The mosaics and murals from the proconsul's palace
- Animals in the world of Humans

**c. Events**

- Pompa Romana – festive parade from the amphitheater of the military town to the amphitheater of the civilian town
- Floralia – Roman spring festival
- Aquincum Poetry Competition
- Organ Week – antique music concert with a working reconstruction of the Aquincum organ
- Liberalia – Roman wine festival
- Small concerts at the Hercules Villa.
- Connections to the traditional events held nationally and in the capital:
- Night of the Museums, Óbuda Summer, Cultural Heritage Days

**d. Museum Education**

- Guided tours in Hungarian, English, German and French at the Aquincum Museum, the Hercules Villa and the Bath Museum
- Museum classes for groups of elementary and high school students, through prior arrangement
- Museum classes for persons living with disabilities – for the blind and sight impaired and for the mentally challenged
- Empathy Program – the museum introduces an understanding of the senses of the blind to healthy participants
- Connection to the SzüniDödő summer break series of events at the Petőfi Hall
- Playful Sundays – family programs

**e. Things to see at the Romkert Archaeological site**

- Chronoscope: window to the past
- Lapidarium

**RPH 47. *Ulcisia* fort, Szentendre**

- *Ulcisia*, fort (under excavation, not yet on exhibit)
- Collection of Roman-era stones (Danube Bend tour route)
- Villa Rustica excavated and restored ruin that can be visited at the open-air ethnographic museum
- 16 Kossuth u., remains of the floor heating system from a Roman-era bath exhibited in the basement of the Rex Matthias bed and breakfast and restaurant

**RPH 53-57. *Pone Navata?* fort, *Quadriburgium?* fortlet and Solva – 24, 28, 35 watch towers, Visegrád**

- Mátyás Király Museum
- Visegrád-Lepence: Late imperial period watch tower
- Visegrád-Gizellamajor: Roman fortlet
- Visegrád-Kőbánya watch tower
- Visegrád-Sibrik-domb: Roman fort

**RPH 62. *Ad Herculem* fort, Pilismarót – Kis-hegy**

- Kis-hegy: The remains of the fort



**RPH 67. *Solva fort***, Esztergom – Várhegy

- Balassa Bálint Museum: Archaeological collection
- Vármúzeum: Roman carved stones

**RPH 74. *Gardellaca / Cardabiaca? fort and vicus***, Tokod, Tokodaltáró – Vár-berek, Erzsébet-akna

- Vár-berek: Late Roman fort

**RPH 77. *Crumerum fort***, Nyergesújfalu – Sánc-hegy

- Memorial tablet and inscribed stone
- Sánc-hegy: The grounds of the fort
- Crumerum Days, festival

**RPH 78-79. *Odiavum – 4-5 watch towers***, Neszmély

- Kalin-hegy: Late Roman watch tower
- Neszmély – Tata wine route

**RPH 80. *Azaum / Odiavum vicus***, Almásfüzitő – Foktorok

- Ludi Odiavenses, Roman holiday and festival

**RPH 81-82. *Brigetio fortress, canabae and municipium***, Komárom – Szőny

- Klapka György Museum: Roman-era frescos, sarcophagi and material finds from Brigetio – permanent exhibit
- Fort Igmánd: Collection of Roman stones – Roman-era sculpted stones, inscribed gravestones and sarcophagi from Brigetio
- MOL Housing Estate (area of the legionary fortress): Memorial to the emperor Valentinian
- Famous Komárom – historical games at Fort Monostor with the participation of societies for the preservation of traditions
- Permanent exhibition of roman fresco from Brigetio in Kuny Domokos Museum (Tata)

**RPH 99-100. *Ad Mures and Ad Statuas forts***, Ács

- Local history collection, Ács

**RPH 108. *Arrabona fort and vicus***, Győr – Káptalandomb

- Castle casemate: Collection of Roman-era stones
- Xantus János Museum: The history of Győr and its surroundings from prehistory to the present day

**RPH 117. *Ad Flexum vicus***, Mosonmagyaróvár

- Hanság Museum: Archaeological collection, Roman-era finds
- Castle: Inscribed Roman stones in its walls
- Mosonmagyaróvár Castle Games

## 5.i Policies and Programmes Related to the Presentation and Promotion of the Property

### The Basic Principles for the Presentation Concept of the Roman *Limes – Ripa Pannonica* – in Hungary

Due to geographic and other features of the individual sites within the full World Heritage site, which is made up of a series of major sections between the current international borders, they can have significantly differing conditions. Therefore it is genuinely justified and necessary, for example in relation to their exhibition, to create solutions that are appropriate for the given section.

A fundamental characteristic of the sections of the *limes* along a river is that the defensive system was not continuous in a physical sense or connected in a manner like a constructed linear defensive system such as a wall, palisade, etc. In accordance with this, one of the greatest challenges in relation to its presentation is to resolve the issue of while dealing with a concrete section, an element of the defensive system, the visitor should sense or at least understand that it is at the same time an integral portion of a greater whole. In consideration of this, the conception for its presentation must strive to make each portion/element precisely and clearly identifiable as to where it fits into the whole, what connections it has (had) and what role it played. All of this can and must be achieved utilizing a unified system of information and orientation (including the use of terms, pictograms and overall design).

The fragmentary nature and minor amount of remains surviving within the individual defensive elements may cause particularly large problems in making this interdependence clear. Despite this, or to compensate for it, efforts must be made in the case of exhibited portions that when possible the presentation of the given part should not suggest its self-contained, closed nature, but should do just the opposite, always indicate its interconnectedness. In relation to this, the watch towers play a particular role, since in their original position or setting they functioned as points along the line of the *limes* stretching along the Danube. One aspect and role of their presentation is to establish a connection to the neighboring watch tower exhibits, by at least indicating their direction and distance.

The possibilities for presentation are influenced to a great degree by the conditions determined by their urban or rural location, the extent of development on the site, agricultural cultivation and accessibility. When considering the essence of the conception their intelligibility, interpretability and integration into the overall whole should be asserted.

In deciding which of the elements of the Hungarian section of the *limes* that have been verified as existing and are contained in the nominated property can and need to be exhibited in addition to being preserved and managed, the decisive factors are the immediate conditions of their setting understood in the widest sense, as well as the role they play in achieving the “threshold of integrity” in the authentic appearance of the *limes*.

Exhibition, while not entirely the same as accessibility and being open to visitors, is however closely related to them. In accordance with this, the conceptual aspect of presentation includes the idea that it should occur if possible in logical sections. Certain elements located within present-day towns and/or related elements in the former defensive system can and must be organized into presentation sections such as this.

The physical/visual concept of their exhibition rests fundamentally on the conservation of the existing (and excavated) remains. At the same time the conservation itself may necessitate (for example to ensure stability) supplementation (structural, capping of the wall, etc.). However, in addition to the minimal utilization of supplementation, the complexity and great extent of the *limes* defensive system does not exclude the introduction of authentic educational reconstructive exhibits in certain sections where interventions such as this would not damage the existing elements in any way. An example of this that already exists is the gate structure of Lussonium.

The presentation of one of the most important elements of the defensive system, the network of the *limes* road, represents a serious challenge. This is in particular due to the great linear extent of the road network and its very serious deterioration in most sections, as well as its poor physical condition and state of conservation. The path of the *limes* road, based on Roman military principles, and its relationship to the present-day road network in and of itself represents outstanding value. Therefore, efforts must be made in its presentation to point out these similarities and differences. Related to this, accessibility must be ensured to as many sections of the *limes* road as possible for stretches that are as long as possible, even when only very little of the former road can be discerned. The most expedient method of presenting these sections of road may through plantings.

Overall the presentation must not fundamentally strive towards being showy, but instead towards indicating and rendering perceptible and understandable the system represented by the existing elements. This must be done with particular attention towards ensuring that the structures created for serving visitors genuinely play a subordinate role, not pushing the appearance of existing *limes* elements into the background or disturbing them in any way.

### **The Danube Strategy – the European Union Strategy Related to the Danube Region – 2010**

The RPH is connected with the priorities of the Danube Strategy. The Danube Strategy is a strategic development recommendation of the European Commission. The Danube River and its catchment basin lie within 14 countries, most of which are now EU members. The Danube Region, which includes more than one hundred million inhabitants and one-fifth of the territory of the EU, plays a fundamental role in the life of Europe. The entire RPH lies within the Danube Region, and is the nearly 2,000 year-old foundation for the common history, traditions, culture and art of the Danube Region that still has an impact today.

The EU Danube Strategy highlights the fact that the Danube Region possesses a striking cultural, ethnic and natural diversity. There are global cities and heritage sites, including more capitals than any river in the world. This requires a modern tourism offer and infrastructure, so that guest and host can profit;

The EU Danube Strategy sets down that:

“With common history and tradition, culture and arts reflecting the diverse communities of the Region, as well as its outstanding natural heritage, the Region has attractive assets. A common and sustainable approach to improving and publicising these opportunities should make the Danube Region a European and world “brand”.”

Three highlighted key points are transport, energy and culture/tourism. In the third section there are two action plans related to cultural heritage and 12 are found under the tourism subsection.

**Action – “To build on cultural diversity as strength of the Danube Region”**

In the interest of this

- Protecting the Danube region’s cultural values: cooperation in the protection of values and heritage, joint scientific research, exchange of experiences, courses, conferences, events, traineeships; preservation of military memorial sites;
- Increasing human contacts, promoting inter-cultural dialogue, inter-religious dialogues, language exchanges etc.
- Establishing a network of ‘creative forces’ which includes actors in the artistic field. This network can build on the experience of the various festivals in the Danube Region;
- Establishing a data-base gathering data on cultural assets and cultural activities.

*Project recommendation:* The arrangement of tourist packages that extend from the Black Forest to the Black Sea that are based upon a combination of bicycle-railway-boat routes.

**Action – “To improve planning and infrastructure for tourism”**

This should include accommodation and hospitality facilities, port tourism infrastructure, walkways and paths, infocentres, cycling routes and their networking in the Danube area including their linkage to the network of routes along the rivers Sava and Drava. It should also emphasise protected areas and locations of natural and cultural heritage as well as theme parks, wine roads, view towers, grounds and equipment for sports and recreation.

The Danube *limes* project can be found in the tourism subsection. (Action - “To promote cultural exchange and exchange in the arts”)

**e Network of *Limes* Parks**

The organization of the individual sites into a network is the basis for the cultural, tourism, educational and economic effectiveness of the RPH. The National Office of Cultural Heritage has prepared a selection of the RPH sites that can be developed into *limes* parks and linked to the European network of *limes* parks:

- **RPH 41. *Aquincum* fortress and *canabae***, Budapest 2<sup>nd</sup> and 3<sup>rd</sup> Districts – Óbuda: **military amphitheater:** Excavated, conserved and exhibited. Planted with grass. Protected as an archaeological site. Located within the urban fabric. Access: good, by car or by public transport. May be visited at any time. – **the southern and western gates of the legionary fortress and its baths:** Partially excavated and conserved. Planted with grass. A copy of the capital of a Roman column found here has been erected. Protected as a historic property and as an archaeological site of national significance. Located in a public space within the urban fabric. Access: good – by automobile or by public transport. May be visited at any time. Bath Museum: Tue.-Sun 10 a.m. – 5 p.m., and in winter depending on the weather.
- **RPH 42. *Aquincum municipium***, Budapest 3<sup>rd</sup> District: **archaeological park and museum:** Partially excavated and conserved. Gravel paths. Protected as an archaeological site. Access: good (Szentendre commuter rail, buses, automobile). Opportunities: exhibit, museum education programs, library, events, wedding pictures, café, store, publications, toilets. Open: April 15-30 and October 1-31 – archaeological site: 9 a.m. – 5 p.m., exhibits: 10 a.m. – 5 p.m., May 1-September 30 – archaeological site: 9 a.m. – 6 p.m., exhibits 10 a.m. – 6 p.m.. Closed Mondays. November 1-April 15 exhibit: 10 a.m. – 4 p.m.

- **RPH 48. Ulcisia – 9 fortified river port**, Dunakeszi – Rév: Partially excavated, conserved and exhibited. Covered with a roof. Private property. Access: good, located within the town on a paved road. Connected exhibit. Open: on the advertised open weekends and at pre-arranged times for groups. Information: [www.dunakeszierod-fortlet.org](http://www.dunakeszierod-fortlet.org). There is a virtual reconstruction.
- **RPH 48. Ulcisia – 8 fortified river port**, Szigetmonostor – Horány: Excavated and conserved. Protected as an archaeological site of regional significance. Access: slightly complicated – from Tahitófalu, by foot on the land of the water works; from Dunakeszi by ferry (reached by automobile or on foot)..
- **RPH 50. Cirpi – 2 watch tower**, Leányfalu: Excavated (1912) and conserved. Listed historic property. Maintained. Access: good – located within the town on Route 11 at a gas station. May be visited at any time.
- **RPH 54. *Pone Navata?* fort**, Visegrád – Sibrik-domb: Already known of in the time of Flóris Rómer (1815-1889). Partially excavated (excavation: 1951-52). So far four of the fort's interior buildings have been excavated, in the 1970s, during the course of road construction the remains of the defensive structures to the northeast were discovered. Listed historic property. Partially conserved. Planted with grass. Access: by automobile or on foot from Route 11 along Mátyás király út. May be visited at any time.
- **RPH 55. Solva – 24 watch tower**, Visegrád – Kőbánya: Listed historic property, conserved. Location: travelling towards Esztergom, next to the Bánya-csatorna at the edge of Visegrád. Access: good, found next to Route 11. May be visited at any time.
- **RPH 56. Solva – 35 watch tower**, Visegrád – Lepence: Its walls have survived to an average height of 2 m. Partially excavated. Partailly conserved. Protected as an archaeological site. Access: from Route 11 by car. Fenced off, open by previous arrangement (with the Mátyás Király Museum in Visegrád). A virtual reconstruction has been made of it.
- **RPH 57. *Quadriburgium?* fortlet**, Visegrád – Gizellamajor: Partially excavated (excavations from 1988, the remains of the former Roman baths have also been found) and partially exhibited. Listed historic property (1991). Conserved, covered with a protective roof. Access: good, by car or on foot on a paved road. Fenced off, open by previous arrangement (with the Mátyás Király Museum in Visegrád). A virtual reconstruction has been made of it.
- **RPH 74. *Cardabiaca / Gardellaca?* fort and vicus**, Tokod, Tokodaltáró – Vár-berek, Erzsébet-akna: Excavated (excavations: 1893, 1926, 1960–69). Listed historic property since 1964. 1966–67: wall conservation, in the 1970s its entrance was walled off and it was covered with a reinforced concrete structure. The fort walls, and the foundation walls of the towers and warehouse building can be seen. Planted with grass. May be visited at any time. Located in an area of cultivated fields. Access: difficult – from Tokod, along Kossuth Lajos út, and then by dirt road.

According to the considerations mentioned above all of the individual sites were listed in management categories A (*limes* park), B (able to be developed into a *limes* park) or C (preservation undisturbed). In addition to this, in the interest of achieving these goals the most important tasks to be completed were designated.

## 5.j Staffing Levels (professional, technical, maintenance)

Law LXIV of 2001 on cultural heritage stipulates that the obligation to maintain sites of cultural heritage is the responsibility of the existing owner. Due to the many sites and the varied types of ownership it cannot be taken for granted that all of the owners have the appropriate expertise or experts on hand. In the background of the law, upon which the protection is based and ensured by the organization established for its management, is the existence of expertise at the individual sites.

The necessary human resources are on hand for the theoretical foundation and practical implementation of the management of the sites. The most important scientific bases for the RPH are the Archaeology Department of the University of Pécs and the National Office of Cultural Heritage. The leading museum center for the conservation of Roman archaeological remains in Hungary is the Aquincum Museum of the Budapest Museum of History (about 50,000 visitors annually) and the Hungarian National Museum (over 500,000 visitors per year). The main professional supervision for archaeology is performed by the National Office of Cultural Heritage. Any work on the protected lots is authorized and supervised by the heritage preservation offices of the governmental offices.

In Hungary the excavation, recording, documenting and restoration of cultural sites occur within the context of several national and regional institutions. These are the Archaeological Institute of the Hungarian Academy of Sciences, The Art History Research Unit of the Hungarian Academy of Sciences, the National Office of Cultural Heritage, the cultural heritage preservation offices for the capital city and county governments, the system of county museums and the institutes of archaeology of the universities

In reality the organization entrusted with the supervision and management of the RPH sites is the *RPH Management and Development Trust*, whose staff of experts (archaeologists, historic preservationists, urban planners and agricultural experts) are from the *Management and Development Board and the Supervisory and Operational Offices*.

These institutions have a sufficient base of experts in archaeology, architecture and art history.

The archaeologists, ethnographers, art historians, architects, urban planners, landscape architects and regional planners comprise the main professional corps for heritage preservation and see to the range of duties for rescuing, preserving and managing these special sites, assisted by a variety of experts in engineering, information services and economics.

The experts at the institutes of higher learning do not only take part in teaching activities, but also perform scientific, research and practical work.

## 6. Monitoring

### 6.a Main Indicators for Measuring the State of Conservation

- **Raising the level of protection:** We have specified the status of archaeological or historic preservation protection for every individual site in this nomination (5.b). We have designated the level desired for effective protection, the status as a “protected archaeological site of regional significance”, which is not yet enjoyed by every individual site. How many decrees for protection are proclaimed during an examined period can be measured, as well as how many archaeological sites have had their degree of protection raised to this level.
- **Development:** All of the individual sites have been placed in categories A, B or C (5.e) in accordance with their medium-term objectives as *limes* parks (A), sites able to be developed into *limes* parks (B) and sites for undisturbed preservation (C). It is possible to measure what has been realized for the sites according to these objectives.
- **Scientific research:** (Actual excavations, identification excavations, rescue excavations, field walks, aerial survey research, processing of earlier finds and professional literature) The database reports on the state of excavation in connection with every individual site. In the case of *limes* parks (A) and sites to be developed into *limes* parks (B) the continuation of excavations is a fundamental requirement, which is set down in the Management Plan in charts according to categories. In the case of sites to be preserved undisturbed, the long-term maintenance of protection justifies increasing knowledge. The development of the state of excavation can be verified in an itemized manner.
- **The removal of threats:** Averting the threats indicated in section 5.b can be verified in an itemized manner.
- **Performing highlighted tasks:** In the case of individual sites, the most important tasks have been indicated in section 5.e. The completion of these can be verified in an itemized manner.

### 6.b Administrative Arrangements for Monitoring Property

The Government of Hungary will prepare a report on the state of the World Heritage site every 6 years, as stipulated by UNESCO.

The scope of duties for the minister responsible for cultural heritage include appraising and continuously monitoring the state of the World Heritage site, as well as performing the necessary measures for the preservation, maintenance and presentation of its outstanding universal value. The minister will provide an annual report to the Government and every four years will report to the Parliament on the state of the World Heritage sites and the administration of the duties arising from the Convention.

The operational portion of monitoring *will be performed by the Supervisory and Operational Offices* of the RPH Management and Development Trust established by the minister. These will constantly monitor the state of the individual sites, and if the obligation for good maintenance is not observed or if there is a

violation of the law they will bring the necessary steps to be performed (e.g. official compulsory measures or fines) to the attention of the authorities with jurisdiction

Within the scope of the functioning of local governments is the constant supervision of their territory to make sure that the land use is according to the town development plan and local building regulations, therefore this involves the World Heritage sites and tentative sites that have been required to be included in the town development plans on the basis of the obligations in the National Regional Development Plan. According to the law, the method and extent of land use in these zones must be in harmony with the objectives defined in the management plan.

It is the constant obligation of the heritage preservation offices of the government agencies to monitor the state of protected objects of heritage (archaeological and historic).

### **6.c Results of Previous Reporting Exercises**

The following deal with a comprehensive professional summary of the conditions and state of the nominated World Heritage site and its individual sites:

ZS. VISY: *Der pannonisch Limes in Ungarn*, Budapest, Corvina 1988

ZS. VISY, *The Ripa Pannonica in Hungary*. Budapest 2003.

ZS. VISY, *A római limes magyarországi szakasza mint a Római Birodalom európai limesének része*. Pécs 2008.

ZS. VISY (ed.), *Investigation, conservation and maintenance of the military sites along the Ripa Pannonica*. *Specimina nova XIII* 2009, 1-183.

UNESCO – WORLD HERITAGE TENTATIVE LIST SUBMISSION – 12<sup>th</sup> June 2009: **Frontiers of the Roman Empire – Ripa Pannonica in Hungary** (extension of the inscribed World Heritage Site in the United Kingdom of Great Britain and Northern Ireland and in Germany, Date of Inscription 1987, Extensions 2005 and 2008)



## 7. Documentation

### 7.a Photographs, Slides, Image Inventory and Authorization Table and Other Audiovisual Materials

See the separate section 1.e

### 7.b Texts, Plans, etc. Related to the Site

See points 5.b, 5.d, 5.e and the separate attached Management Plan

### 7.c Form and Date of Most Recent Records or Inventory of Property

With the support of the European Union within the framework of the Central European Cooperation Program the project entitled “The Nomination of the Danube *Limes* Central European Section as a Portion of the ‘Frontiers of the Roman Empire’ International World Heritage Site” was prepared between October 1<sup>st</sup> 2008 and September 30<sup>th</sup> 2011. (Project code: ICE079P4, Shortened title: Danube *Limes* – UNESCO World Heritage) This data collection includes identification data for the sites, descriptions, bibliographies, cartographic delimitation, geographic coordinates, on-site photographs, official property land registers and methods of land use, identification numbers for the decrees of protection, types and degrees of protection, data on conservation, state of excavation and exhibition, management categorization and in certain cases endangerment and tasks deserving priority attention. The data system is digitally based, in shp, shx, dbf, xls, jpg, tif, pdf and word formats.

### 7.d Address Where Inventory, Records and Archives are Held

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##### Pest County Museum Administration

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**Budapest Museums:****Hungarian National Museum:**

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## 7.e Bibliography

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(The professional bibliography related to the individual sites is included in the separate section 1.e, organized by site)

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- Sites: Sátorhely, Kölked, Dunaszekcső (RPH 1-5)

### **Tolna County Museum Administration**

7100 Szekszárd, Béla tér 1

Telephone: +36 74/419-667

Fax: +36 74/316-222

E-mail: lovascs@wmmm.hu

- Sites: Bába, Bátaszék, Alsónyék, Várdomb, Ócsény, Szekszárd, Tolna, Fadd, Dunaszentgyörgy and Bölcske (RPH 6-19, RPH 24-26)

### **Paks Municipal Museum**

7030 Paks, Deák Ferenc u. 2, Pf.: 141

Telephone: +36 75/830 373; +36 20/883 0373

Fax: +36 75/510 449

- Paks sites (RPH 20-23)

### **Fejér County Museum Administration**

8000 Székesfehérvár, Fő utca 6

Telephone: +36 22/315-583

Fax: +36 22/311-734

E-mail: fmmuz@mail.iif.hu

- Sites: Baracs, Kisapostag, Rácalmás, Kulcs, Adony and Ercsi (RPH 27-28, RPH 31-35)

### **Intercisa Museum**

2400 Dunaújváros, Városháza tér 4

Telephone: +36 30/415-0804

E-mail: intercisa.dunaujvaros@museum.hu

intercisamuz@gmail.com

- Dunaújváros sites (RPH 29-30)

### **Pest County Museum Administration**

2000 Szentendre, Fő tér 6

Telephone: +36 26/310-790

Fax: -

E-mail: info@pmmi.hu

- Sites: Szigetújfalu, Budakalász, Szentendre, Dunakeszi, Szigetmonostor, Göd, Leányfalu, Dunabogdány, Verőce and Szob (RPH 36, RPH 44-52, RPH 66)

**Matrica Museum**

2440 Százhalombatta, Gesztenyés u. 1-3.

Telephone: + 36 23/354 591, + 36 23/540 070

Fax: +36 23/540 069

E-mail: info@matricamuzeum.hu

- Százhalombatta site (RPH 37)

**Mátyás Király Museum of the Hungarian National Museum**

2025 Visegrád, Fő utca 23.

Telephone: +36 26/597 010

Fax: + 36 26/597 011

E-mail: info@visegradmuzeum.hu

- Visegrád sites (RPH 53-57)

**BTM Aquincum Museum**

1031 Budapest, Szentendrei út 135

Telephone: 36 1/ 430-1081

Fax: 36 1/ 430-1083

E-mail: -

- Budapest sites (RPH 38-43)

**Balassa Bálint Museum**

2501 Esztergom, Mindszenty tér 5, Pf.: 19.

Tel/Fax: +36-33-412-185; Tel.: +36-33-500-175

E-mail: balassamuzeum@balassamuzeum.hu

- Sites: Dömös, Pilismarót, Esztergom, Tát, Tokod, Tokodaltáró, Mogyorósbánya, Nyergesújfalu sites (RPH 58-65, 67-69, 71-72)

**Vármúzeum**

2500 Esztergom, Szent István tér 1.

Telephone: + 36 33/415 986

Fax: + 36 33/500 095

e-mail: varmegom@invitel.hu

- Site: Esztergom–Solva (RPH 70)

**Komárom-Esztergom County Museum Administration**

2892 Tata, Öregvár

Telephone: +36 34/381-251

Fax: +36 34/380-682

E-mail: -

- Sites: Dömös, Pilismarót, Tát, Tokod, Tokodaltáró, Nyergesújfalu, Neszmély, Almásfüzitő, Mocsa, Naszály and Ács (RPH 73-80, 89-100)

### **Klapka György Museum**

2900 Komárom, Kelemen László u. 22.

Telephone: +36 34/344-697

Fax: +36 34/344-697

E-mail: klapka.komarom@museum.hu

- Komárom sites (RPH 81-88)

### **Győr-Moson-Sopron County Museum Administration**

9022 Győr Széchenyi tér 5

Telephone: +36 96/310-588

Fax: +36 96/310-731

E-mail: xantus@gymsmuzeum.hu

- Sites: Nagyszentjános, Gönyű, Győr, Abda, Öttevény, Kúnsziget, Lébény, Mosonszentmiklós, Máriakálnok and Bezenye (RPH 100-115, 120-121)

### **Hanság Museum**

9022 Győr Széchenyi tér 5

Telephone: +36 96/310-588

Fax: +36 96/310-731

E-mail: xantus@gymsmuzeum.hu

- Mosonmagyaróvár sites (RPH 116-119)

### **Bács-Kiskun County Museum Administration**

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Fax: +36 76/481-122

E-mail: -

Museum with jurisdiction over the area of Dunafalva and Solt

### **Main Professional Supervisory Body for Hungarian Archaeology:**

#### **National Office of Cultural Heritage**

Address: H-1014 Budapest, Táncsics Mihály utca 1, Hungary

Telephone: +36-1-2254000; +36-309416841

Fax: +36-1-2254900

e-mail: koh@koh.hu

### **Water Conservation Authorities:**

#### **Northern Transdanubian Environmental Protection and Water Conservation Administration**

9021 Győr, Árpád út 28-32

Telephone: +36 96/500-000

Fax: +36 96/500-019

E-mail: titkarsag@edukovizig.hu



**Central Danube Valley Environmental Protection and Water Conservation Administration**

1088 Budapest, Rákóczi út 41

Telephone: +36 1/477-3500

Fax:

E-mail:

**Central Transdanubian Environmental Protection and Water Conservation Administration**

8000 Székesfehérvár, Balatoni u 6

Telephone: +36 22/514-000

Fax: +36 22/313-275

E-mail: szfehervar@kdtvizig.hu

**Southern Transdanubian Environmental Protection and Water Conservation Administration**

7623 Pécs, Köztársaság tér 7

Telephone: +36 72/506-300

Fax: +36 72/506-350

E-mail: titkarsag@ddkovizig.hu

**Lower Danube Valley Environmental Protection and Water Conservation Administration**

6500 Baja, Széchenyi u. 2/c

Telephone: +36 79/525-100

Fax: +36 79/325-212

E-mail: titkarsag@adukovizig.hu

**Nature Conservation:**

**National Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

1016 Budapest, Mészáros utca 58/a

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Fax: +36 1/224-9262

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**Northern Transdanubian Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

9021 Győr, Árpád utca 28-32

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Fax: +36 96/524-024

E-mail: eszkdunantuli@zoldhatosag.hu

**Central Danube Valley Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

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E-mail: kozepdunavolgyi@zoldhatosag.hu

**Central Transdanubian Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

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E-mail: kozepdunantuli@zoldhatosag.hu

**Southern Transdanubian Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

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**Lower Tisza Region Environmental Protection, Nature Conservation and Water Conservation Supervisory Board**

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E-mail: atiktvf@atiktvf.hu

**National Parks:**

**Fertő-Hanság National Park Administration**

9435 Sarród, Rév-Kócsagvár  
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Fax: +36 99/ 537-621  
E-mail: fhnpititkarsag@fhnp.kvvm.hu

**Duna-Ipoly National Park Administration**

1121. Budapest, Költő utca 21  
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Fax: +36 1/200-1168  
E-mail: dinpi@dinpi.hu

**Duna-Dráva National Park Administration**

7625 Pécs, Tettye tér 9  
Telephone: +36 72/ 517-200  
Fax: +36 72/ 517-229  
E-mail: dunadrava@ddnp.kvvm.hu

**Disaster Prevention:**

**Győr-Moson-Sopron County Disaster Prevention Administration**

9021 Győr, Munkácsy Mihály u. 4  
Telephone: +36 96/529-530  
Fax: +36 96/529-531  
E-mail: gyormki.titkarsag@katasztrofavedelem.hu

**Komárom-Esztergom County Disaster Prevention Administration**

2800 Tatabánya, Ságvári u. 18  
Telephone: +36 34/512-070,  
Fax: +36 34/301-224  
E-mail: komarommki@katasztrofavedelem.hu

**Pest County Disaster Prevention Administration**

1149 Budapest, Mogyoródi út 43  
Telephone: +36 1/441-1000  
E-mail: pestmki@katved.hu

**Metropolitan Citizen Protection Administration**

1052 Budapest, Városház u. 9-11  
Telephone: +36 1/318-2218  
Fax: -  
E-mail: fovarospvi@katasztrofavedelem.hu

**Fejér County Disaster Prevention Administration**

8000 Székesfehérvár, Szent Fórián körút 2  
Telephone: +36 22/512-150  
Fax: +36 22/512-168  
E-mail: fejermki@katved.hu

**Tolna County Disaster Prevention Administration**

7100 Szekszárd, Mikes u. 16-22  
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Fax: +36 74/ 504-719  
E-mail: titkarsag@tmki.hu

**Baranya County Disaster Prevention Administration**

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Telephone: +36 72/514-860  
Fax: +36 72/514-863  
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**Bács-Kiskun County Disaster Prevention Administration**

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Telephone: + 36/76 502-010  
Fax: + 36 76/481-241  
E-mail: bacsmki@katasztrofavedelem.hu

## Affected Local Governments

### Győr-Moson-Sopron County:

- Bezenye (right bank) – [epitesz@bezenye.hu](mailto:epitesz@bezenye.hu)
- Mosonmagyaróvár (right bank) - [kitley.tibor@mosonmagyarovar.hu](mailto:kitley.tibor@mosonmagyarovar.hu) (Head Architect)
- Máriakálnok (Szigetköz Region) – [polgarmester@mariakalnok.t-online.hu](mailto:polgarmester@mariakalnok.t-online.hu) (Emma Gáspár, Mayor)
- Lébény (right bank) – [polgarmester@lebeny.hu](mailto:polgarmester@lebeny.hu) (Gábor Kovács, Mayor)
- Mosonszentmiklós (right bank) – [polgarmester@mosonszentmiklos.hu](mailto:polgarmester@mosonszentmiklos.hu) (Csaba Bedő, Mayor)
- Öttevény (right bank) – [polgmester@otteveny.hu](mailto:polgmester@otteveny.hu) (Péter Király, Mayor)
- Kunsziget (right bank) – [jegyzo@kunsziget.hu](mailto:jegyzo@kunsziget.hu)
- Abda (right bank) – [polgarmester@abda.hu](mailto:polgarmester@abda.hu) (Zsolt Szabó, Mayor)
- Győr (right bank) – [fuke.peter@gyor.ph.hu](mailto:fuke.peter@gyor.ph.hu) (Péter Fűke, town development department head)
- Gönyű (right bank) – [polgarmester@gonyu.hu](mailto:polgarmester@gonyu.hu) (Gábor Major, Mayor)
- Nagyszentjános (right bank) – [polgarmester@nagyszentjanos.hu](mailto:polgarmester@nagyszentjanos.hu) (Cecília Friderics, Mayor)

### Komárom-Esztergom County:

- Ács (right bank) – [polghiv.acs@axelero.hu](mailto:polghiv.acs@axelero.hu) (Imre Csöbönyi, Mayor)
- Komárom (right bank) – [polghiv.acs@axelero.hu](mailto:polghiv.acs@axelero.hu) (János Zatykó, Mayor)
- Almásfüzitő (right bank) – [fuzitopolg.hiv@axelero.hu](mailto:fuzitopolg.hiv@axelero.hu) (Lukács Karánsebesy, Mayor)
- Mocsá – [mocsapmhiv@vivamail.hu](mailto:mocsapmhiv@vivamail.hu) (Ferenc Marschall, Mayor)
- Naszály – [hivatal@naszaly.hu](mailto:hivatal@naszaly.hu) (István Maszlavér, Mayor)
- Neszmély (right bank) – [polgarmester@neszmely.hu](mailto:polgarmester@neszmely.hu) (István Janovics, Mayor)
- Nyergesújfalu (right bank) – [polgarmester@nyergesujfalu.hu](mailto:polgarmester@nyergesujfalu.hu) (Magdolna Mihelik, Mayor)
- Tát (right bank) – [polghivatal@tat.hu](mailto:polghivatal@tat.hu) (Lajos Szenes, Mayor)
- Tokodaltáró – [tokodaltaro@tokodaltaro.hu](mailto:tokodaltaro@tokodaltaro.hu) (József Petrik, Mayor)
- Mogyorósbánya – [mogyorosbanyahiv@vnet.hu](mailto:mogyorosbanyahiv@vnet.hu) (Tibor Havrancsik, Mayor)
- Tokod – [polgarmester@tokod.hu](mailto:polgarmester@tokod.hu) (Tivadar Tóth, Mayor)
- Esztergom (right bank) – [szalai.olga@esztergom.hu](mailto:szalai.olga@esztergom.hu) (Head Architect)
- Pilismarót (right bank) – [polgarmester@pilismarot.hu](mailto:polgarmester@pilismarot.hu) (István Csaba Pergel)
- Dömös (right bank) – [polgarmester@domos.hu](mailto:polgarmester@domos.hu) (Lajos Novák, Mayor)

### Pest County:

- Szob (left bank) – [szobvarosfejl@invitel.hu](mailto:szobvarosfejl@invitel.hu) (Zoltán Illés, department head)
- Visegrád (right bank) – [visegrad@visegrad.hu](mailto:visegrad@visegrad.hu) (Sándor Hadházy, Mayor)
- Verőce (left bank) – [polghiv@veroce.hu](mailto:polghiv@veroce.hu) (Farkas Bethlen, Mayor)
- Dunabogdány (right bank) – [polgarmester@dunabogdany.hu](mailto:polgarmester@dunabogdany.hu) (Gyula János Pályi, Mayor)
- Leányfalu (right bank) – [polgarmester@leanyfalu.hu](mailto:polgarmester@leanyfalu.hu) (Csaba Nyíri, Mayor)
- Szigetmonostor (Szentendre Island) – [polgarmester@szigetmonostor.hu](mailto:polgarmester@szigetmonostor.hu) (Zsolt Molnár, Mayor)
- Göd (left bank) – [varoshaza@god.hu](mailto:varoshaza@god.hu) (József Markó, Mayor)
- Dunakeszi (left bank) – [foepitesz@dunakeszi.hu](mailto:foepitesz@dunakeszi.hu) (Gábor Pass, Head Architect)
- Szentendre (right bank) – [foepitesz@ph.szentendre.hu](mailto:foepitesz@ph.szentendre.hu) (Zsuzsanna Alföldiné Petényi, Head Architect)
- Budakalász (right bank) – [polghiv@budakalasz.hu](mailto:polghiv@budakalasz.hu) (Katalin Massányi, Head Architect)
- Budapest 1<sup>st</sup> district (right bank) – [hivatal@budavar.hu](mailto:hivatal@budavar.hu) (Gábor Tamás, Nagy, Mayor)
- Budapest 2<sup>nd</sup> district (right bank) – [szalai.tibor@masodikkerulet.hu](mailto:szalai.tibor@masodikkerulet.hu)
- Budapest 3<sup>rd</sup> district (right bank) – [kiss.anita@obuda.hu](mailto:kiss.anita@obuda.hu)
- Budapest 5<sup>th</sup> district (left bank) – [hivatal@belvaros-lipotvaros.hu](mailto:hivatal@belvaros-lipotvaros.hu)

- Budapest 22<sup>nd</sup> district (right bank) – onkormanyzat@bp22.hu
- Százhalombatta (right bank) – vezermihaly@mail.battanet.hu (Mihály Vezér, Mayor)
- Szigetújfalu (right bank) – szujfaph@fibermail.hu (Vilmos Paulheim, Mayor)

**Fejér County:**

- Ercsi (right bank) – polghivatal@ercsi.hu (Tamás József Szabó, Mayor)
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- Rácalmás (right bank) – polgarmester@racalmas.hu (István Schrick, Mayor)
- Kulcs (right bank) – epitesugy@kulcs.eu (János Lukács-Nagy, Clerk)
- Dunaújváros (right bank) – polgmest@pmh.dunanet.hu (Imre Szabó, Head Architect)
- Kisapostag (right bank) – hivatal@kisapostag.fejer.hu (Béla Schreiner, Mayor)
- Baracs (right bank) – phbaracs@vnet.hu (Róbert Várai, Mayor)

**Tolna County:**

- Bölcske (right bank) – polghiv@bolcske.axelero.net (József Kiss, Mayor)
- Paks (right bank) – muszak@paks.hu (András Horváth, Municipal Head Architect)
- Dunaszentgyörgy (right bank) – phivdsztgy@tolna.net (Sándor Hencze, Mayor)
- Fadd (right bank) – titkarsag@faddph.axelero.net (János Fülöp, Mayor)
- Tolna (right bank) – polgarmester@tolna.hu (Dr. Zoltán Sümegi, Mayor)
- Szekszárd – polgarmester@szekszard.hu (István Horváth, Mayor)
- Ócsény (right bank) – ocsenyph@tolna.net (János Fülöp)
- Várdomb – var7146@t-online.hu (Csaba Simon, Mayor)
- Bátaszék – polgarmester@bataszekph.hu (Jenő Bognár, Mayor)
- Alsónyék – kozseghaza.alsonyek@t-online.hu (Tibor Dózsa-Pál, Mayor)
- Bába (right bank) – bata@polghiv.tolnamegye.hu (Rozália Anna Huszárné Lukács)

**Baranya County:**

- Dunaszekcső (right bank) – pmhivatal@dunaszekcso.koznet.hu (János Faller, Mayor)
- Sátorhely (right bank) – satoronk@saghysat.hu (Árpád Lőrincz, Mayor)
- Kölked (right bank) – kolked@dravanet.hu (János Martényi, Mayor)

**Bács-Kiskun County:**

- Dunafalva (left bank) – dfalvhiv@axelero.hu (György Magosi, Mayor)
- Solt (left bank) – polgarmester@solt.hu (Pál Kalmár, Mayor)

**8.d Official Web Address**

<http://www.koh.hu>

Individual responsible: Judit Tamási, chairperson

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## APPENDIX

**The *Ripa Pannonica* in Historic Sources and Old Maps**

Zs. Visy

The earliest depictions of the *Ripa Pannonica* are from antiquity. On one page of the *Tabula Peutingeriana*, the only map from antiquity that has survived – in the form of a Byzantine copy – to this day, the fortifications of the Pannonian *limes* along the Danube can be seen. The place names with data on distances, along with the *Itenerariaum Antonini* and other epigraphic sources, have contributed a great deal to the determination of the names of the *limes* fortifications.



Fig. 1

While not indicated by cartographic depictions, but instead with small pictures, one of the pages of the *Notitia Dignitatum* provides the names of the fortresses under the control of the *dux Valeriae*, making this an important resource for research:



Fig. 2

The legacy of the Roman-era population has been coming to light in this area for an incalculable amount of time as a result of various excavations and even from finds scattered on the surface. Certain architectural remains have never been covered over by earth, and these ruins as well as other traces that have been able to be clearly recognized in places on the surface have always awakened a mysterious curiosity in the later inhabitants of the region. On the basis of numerous observations it is certain that the territories of the Roman settlements and their surroundings were still inhabited by the population found here at the end of the 9<sup>th</sup> century, the period of the Hungarian conquest. However, there is no evidence that these people were the later descendants of the Roman provincial population, although naturally it cannot be ruled out that there were some amongst them.

The earliest reference to the Roman remains is from the 12<sup>th</sup> century during the time of Béla III. This is when the royal notary Anonymus, who as his name suggests still hasn't been identified to this day, wrote the first historical work that survives, the *Gesta Hungarorum*. Amongst other things he wrote that Attila, the king of the Huns, "... erected a royal seat for himself next to the Danube upstream from the thermal springs; he restored all the old buildings he found there and it was all surrounded by a quite strong wall. This is now called Budavár in the Hungarian language, while the Germans call it Ecilburg", then later,



“Chief Árpád and every leader along with all the knights of Hungary entered Attila’s royal city. There they saw the royal palaces – some in ruins to the ground, others not – and above these all marveled at the stone building (translated to English from the Hungarian translation of Dezső Pais). These buildings refer to the buildings of Aquincum that were still standing. This example – and quite a few others – clearly shows that the remains of Pannonia still stood in part, and for the most part were known in Hungary during the course of the Middle Ages. However, it can also be ascertained that precise knowledge of the long-gone era was extremely scanty. It is no surprise that the actual extent, significance and names of the former settlements remained a mystery, or, as often was the case, were prone to unhistorical speculation. As in other European countries, significant changes could be observed in Hungary during the Renaissance. The humanists of the 15<sup>th</sup> and 16<sup>th</sup> centuries provide information about numerous archeological remains. Antonio Bonfini refers to the ruins of the *latinae gentis colonia* in Szöny (Brigetio) in connection with his description of King Matthias’s palace in Tata. István Brodarics writes the following about (Duna)pentele (Dunaújváros) in connection with Lajos II’s march towards Mohács in 1526, “... (the king) went along the Danube to Pentele, a place that just as we stated about Osijek preserves the remains of some ancient Roman colony” (translated to English from the Hungarian translation of Péter Kulcsár). Numerous references related to Dacian and Pannonian antiquities can also be found in the work of Miklós Istvánffy. Brigetio was known and recorded as an ancient Roman town in the Middle Ages as well, since its partially ruined but still standing walls drew attention at several places. A. Bonfini mentions them first after his description of Tata, “*non procul hinc a Danubii ripa, Romanorum legionis vestigia pleraque supersunt, quae adhuc prae loci amoenitate, et feracitate soli, latinae gentis coloniam vocant*” (not far from here on the bank of the Danube plentiful remains of the Roman legions stand, which due to its pleasant location and the fertility of the land the Latin people named it a colony) (Bonfini, 17717, IV/7, 648.). W. Lazius first made it clear that Arrabona was to be found at Győr and Brigetio to the east of Komárom, where ruins were even visible, “*quo ex loco superioribus annis, dum muniendi Comari castris gratia nova propugnacula extruerent, et undique ex ruinis proximis lapides et saxa adportarent, strenuus quondam et magnificus vir, faelicis (sic) memoriae, Leonhartus A’Vels, supremus militiae tum per Pannonias magister, in praesenti monumenta quaedam nobis Viennam transmisit ex aliis vero quae ob magnitudinem ferri non poterant, rhapsodias est impartitus... Sane locum adhuc hodie Hungarii a ponte Bontuda appellant, ubi Bregetionis illius celeberrimi vestigia extant, et ruinae*” (Lazius, 1578, XII, 1128 sk.) (... from the place where in recent years, when new defensive works were constructed for the reinforcement of Komárom Castle and for this purpose stones and rocks were transported from all of the nearby ruins, at that time the hard-working and magnificent man, the well-remembered Leonhartus A’Vels, the commanding officer of the army stationed in Pannonia at the time, personally sent to us in Vienna certain remains, and from others, which due to their size could not be transported, donated (valuable) fragments... The Hungarians to this day refer to this place after the Bontuda [Bonchida] Bridge, where upstream the famous vestiges and ruins of Bregetio stand). Lazius’s map also contains numerous references to the antiquities of Hungary, including those along the *limes*, marking the *limes* fortifications of Brigetio, Potenciana (=Campona), Altinium (Tolna, or in place of Alta Ripa). He was familiar with and provided on his map the, probably incorrect, divisions of Pannonia into two and four parts as well (Hungariae descriptio, after 1570).

One of the most commonly cited old authors is without doubt count Luigi Marsigli, who at the turn of the 18<sup>th</sup> century during the campaign of liberation against the Turks received the task of surveying the military structures. However, since he was strongly interested in the remains from Roman times, at the same time he depicted and recorded numerous Roman towns, fortifications and earthworks. In 1726 he published the results of his work in several volumes, which since then have served as the basis for quite a bit of scholarly research on *limes* fortifications. He recorded the legionary forts and aqueducts of Brigetio and Aquincum

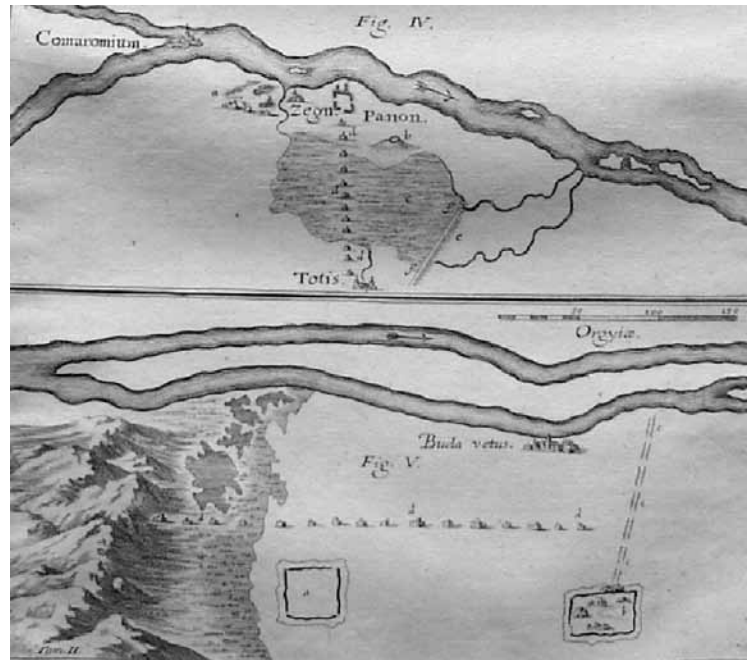


Fig. 3

just as he did with the *limes* road and the towers standing alongside it in the vicinity of Dunapentele (Dunaújváros).

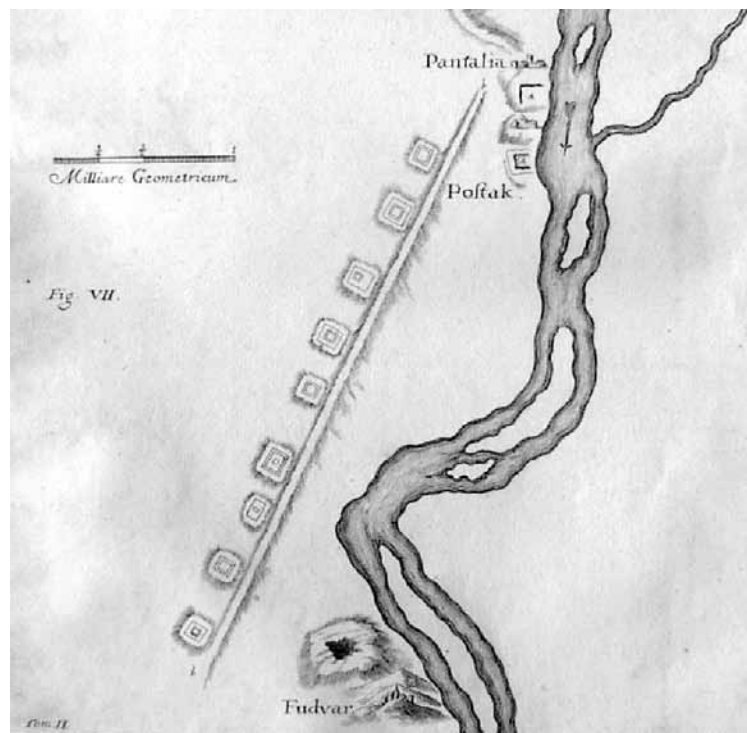


Fig. 4

All of these Roman monuments have without exception been found and identified through recent research, even though the traces of some of them are hardly visible on the surface.

Hungarian *limes* research owes a great deal to German and English travel sketches and travel diaries from the 16<sup>th</sup> to 18<sup>th</sup> centuries. The *limes* road – or at least its path – preserved its significance during the Middle Ages and later as the most important overland artery between Europe and Asia Minor. From the former descriptions and sketches of varying accuracy it appears that at that time one was able to observe standing walls and clearly outlined systems of ditches in many places, which later unfortunately fell victim to stone quarrying and intensive agricultural cultivation for the most part. The descriptions that are the best and preserve the most archeological data originated from the pens of Johannes Beza, Hans Dernschwam, Eduard Brown, Richard Pococke and Jeremias Milles.

Since it seems that L. Marsigli was not familiar with the work of W. Lazius, R. Pococke believed that he was the first to recognize the remains of Brigetio next to Szöny, “It has been commonly thought that Brigetio was at Gran, but in considering the distances, and from the inscriptions found at Zeny a league below Comorra, we discovered that this was the site of Brigetio” (Pococke II/2, 245. = Kubitschek 1929, 40).

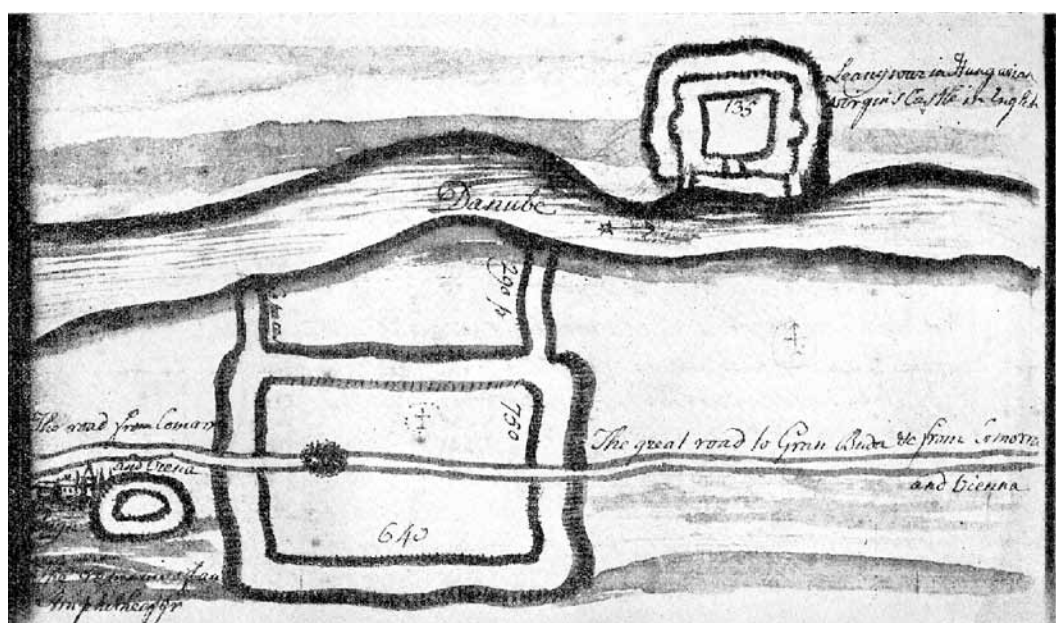


Fig. 5

The *castellum* of Crumerum, a Roman archeological site that has been known of for a long time, is on Sánchegy Hill rising above the Danube at Nyergesújfalu. R. Pococke characterized it in the following manner, “This hill was fortified by those who were in the rebellion of Hungary, and they were all cut to pieces here. We saw about the ruins of the fort several Roman bricks, and in other part foundations of thick walls, which seemed to be Roman.” (Pococke 1745, II,2, p.246 = Kubitschek 1929, 42).

The research owes a great deal to numerous Hungarian geographical and topographical descriptions. The work of Mátyás Bél in the 18<sup>th</sup> century is quite significant in this manner. He recorded quite a few archeological remains as well in connection with sketching the landscape and describing the inhabitants and their customs. For his work he utilized the maps of Sámuel Mikoviny, whose activities opened a new era in Hungarian cartography in the first half of the 18<sup>th</sup> century. He drafted various series of maps for the works of Mátyás Bél, including amongst others the first county maps. He also indicated quite a few Roman archeological sites on these. Among other things Bél provided interesting descriptions of the Roman aqueducts that lead to Brigetio (Szöny/Komárom). Important data is also found in the works of Sámuel Timon and Stephanus Salagius (István Szalágyi), which are from the end of the 18<sup>th</sup> century. From the pen of this latter author came one of the first Hungarian archeological articles in 1780, which is written on a milestone found in Buda.

The first military survey of the Habsburg Empire at the end of the 18<sup>th</sup> century, the so-called maps of Joseph II, represented a significant new step forward in this development. Numerous archeological remains can be found on these map plates, including many of the visible or likely traces along the Roman *limes*. The officers performing the surveys marked quite a few earthworks (“Schantze”), old walls (“altes Gemauer”) and ruins (“rudera”). It is well known that during the Napoleonic Wars new earthworks were erected atop the Roman fortifications of Matrica (Százhalombatta-Dunafüred). It is for just this reason that it is very important that the map naturally depicts the *castellum* of Matrica without these later earthworks, quite clearly and precisely in fact.

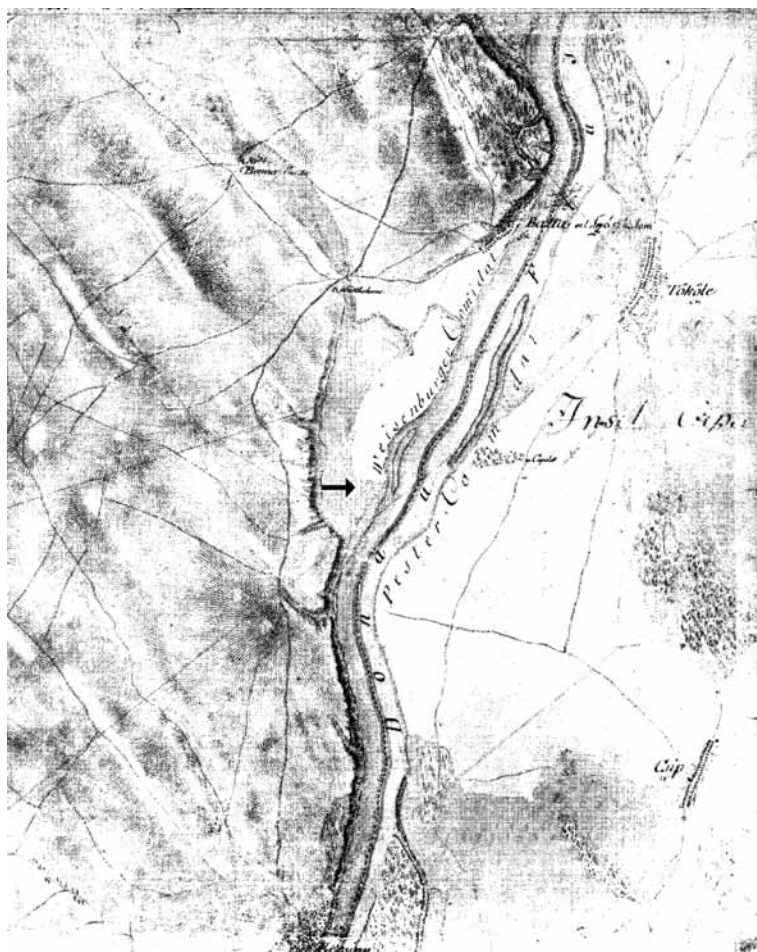


Fig. 6

Almost as important in researching the structures of the *limes* was the second military survey as well, which took place between 1806 and 1869. Quite a few Roman fortresses and watch towers can be discovered on these plates, including a section of Brigetio’s aqueducts to the north of Tata, the fortress of Odiavum (Almásfüzitő) further to the north and on the northern section of Csepel Island what is perhaps a Roman fortlet.

In Érd the *limes* road climbed up to the top of the plateau for the most part along a ditch that cuts deeply into the surface where the present-day Római Street runs. The path of the Roman road could be easily recognized in the past, but this is only possible in certain places today. Its earliest known depiction is from Sámuel Mikoviny.

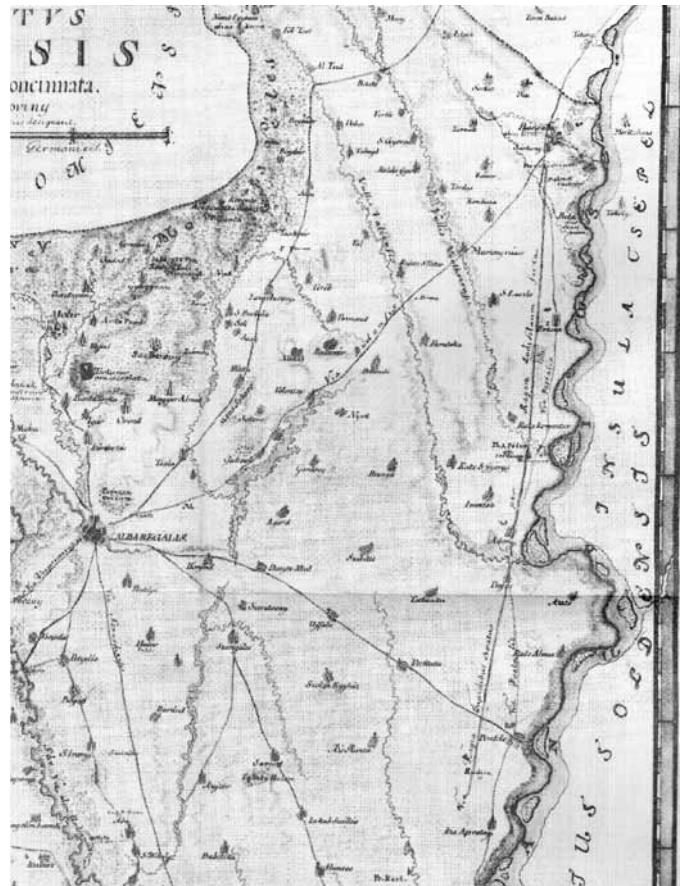


Fig. 7

The nearly dead-straight ancient marked road stretched from Érd to Kisapostag. The text: *Via Regia lapidibus strata per regem Ladislaum facta*. A later depiction based on a precise survey was made in 1814, when Benjamin Chiapo [Csapó], the official land surveyor of Fejér County surveyed its traces between Érd and Pentele. Its map is titled the '*Planum exhibens faciem viae Romanae et modernae penes Danubium decurrentis nec non planum libellationis elaboratum*' (Csapó, OL Térképtár, S-12, Div. XIII No. 424). The first part of the map depicts the Érd-Százhalombatta section and the second the section extending to Pentele.

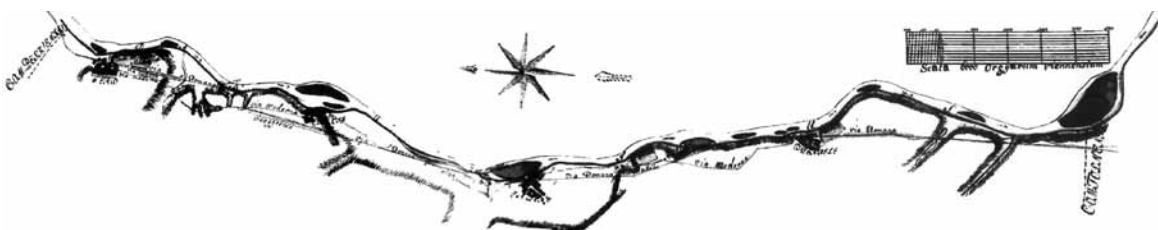


Fig. 8

Water management surveys began in the 18<sup>th</sup> century. These precisely recorded the conditions prior to river regulation, which is important for *limes* research, as well as several of the Roman watch towers that were visible near the banks.

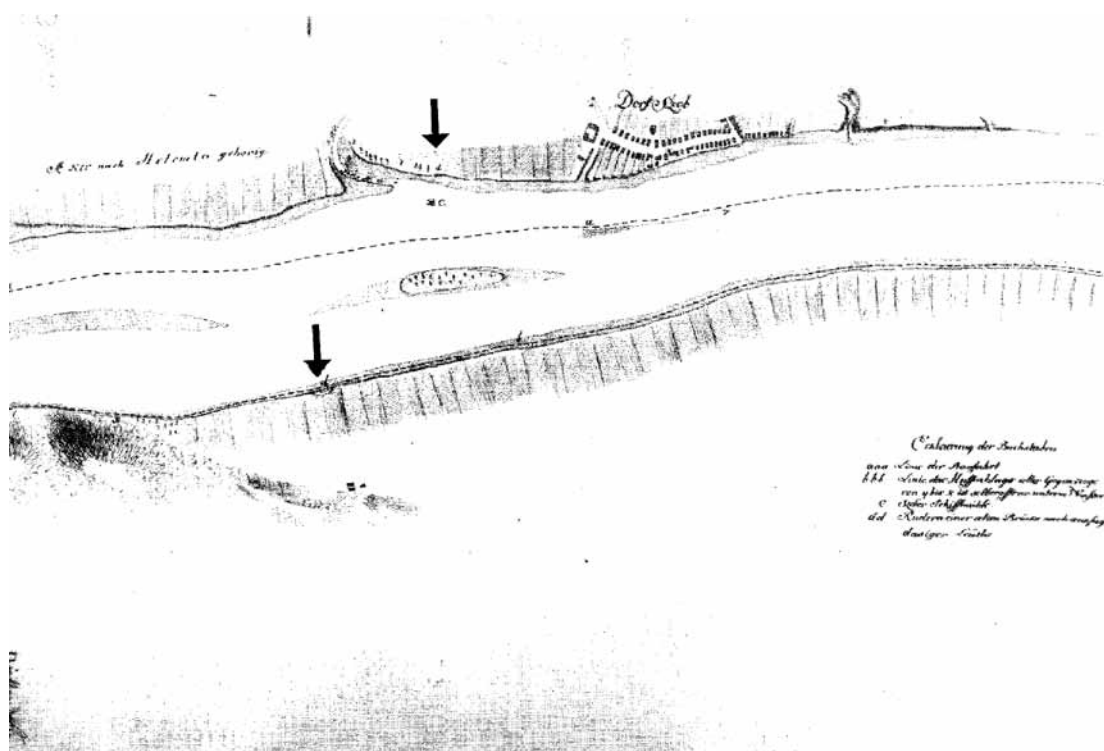


Fig. 9

Ferenc Vertics had a precise map made of a questioned border area in Bölcske, Dunaföldvár and Madocsa in 1794 in connection with an estate dispute. During the course of this, the highway to Buda was also surveyed from the border of Kömlöd to the north all the way to the Radicsi Vineyards. He calls the road the *via Regia*, so he was probably aware of its Roman origins.

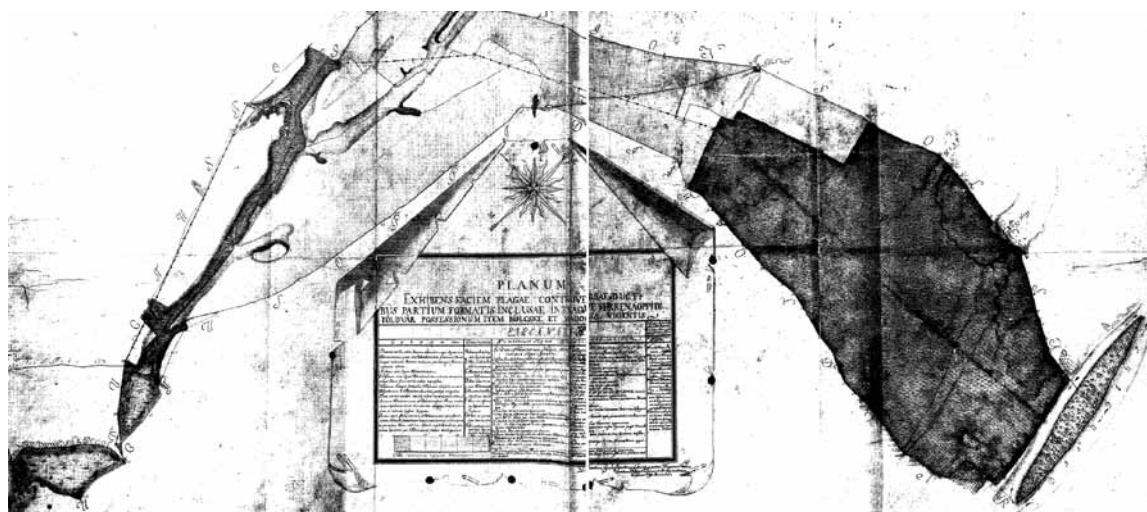


Fig. 10

Bölcske-Leányvár and the tower that has been presumed to be there has been known in the professional literature for a long time (Annamatia – *burgus* 7). Already in the first military survey the structure enclosed with ditches was unmistakably depicted as a Roman *burgus*, with the caption “Leány-Vár oder alt. SCH. Leány”.



Fig. 11

The Vertics map that was lost for a long time depicts the defensive ditches of the former Roman tower even more clearly and precisely. In the annotation attached to the map the following can be read about this, “*Diverticulum Leány Vár Sántza dictum*”.

The old place and field names also provide quite important evidence for the research. Titles such as Földvár (earthwork fort) or Leányvár (fairy’s fort) as well as names such as Leshegy (Strázsahalom) and Belátóhegy (all roughly meaning lookout hill) in most cases suggest Roman military structures. Place names such as Öttevény (constructed road) or Pénzhányás (scattering of money) also tell quite a bit. These latter names survive to this day in the vernacular and their utilization is of fundamental importance to archeological research.

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