EVALUATION OF THE TECHNICAL ESTATE OF A SECTION FROM THE FORESTRY ROADCIRIPA – STÎNA DE VALE , IN ORDER TO SUGGEST SOME SOLUTIONS REGARDING THE IMPROVEMENT OF THE DESIGN, EXECUTION AND MAINTENANCE OF THE FORESTRY ROADS

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Abstract

For an optimum and lasting administration of the forests, the forestry roads represent the main acces way and as a conseqence the most used acces way, so they suffer a series of degradations under the influence of lots of factors. In order to establish some solutions both for the design as well as for the execution of such acces ways and also for the maintenance and for a rational exploitation of these, a road section has been studied in this work and following the obtained results, some discussions are presented that can offer some answers to the any arising questions.

Key words: forestry roads, transversal profile, section, defaults

INTRODUCTION

The necessity of building forestry roads as well as maintaining the existing ones is motivated by she need to ensure a transport net capable to serve all the needs of the forestry sector in tight accordance with the current ecological requests.Tuus, the search related to the situation of the forestry roads is done in order to establish the estate in which these are and also to suggest possible technical solutions that might solve the arising problems and also for building new roads.

MATERIAL AND METHOD

This work studies a section having a lenght of 1013 m. The section belongs to the forestry road Ciripa – Stîna de Vale, situated in Management Unit II Molidiş and Management Unit V Valea Iadului, the Forest District Remeți, in a mountain area, with altitudes over 1000 m, in a alpin climate characterized by long periods freezing and by heavy rains both in summer as well as in winter, with inclined mountainsides and partly inclined, with streams with torrents and wide valleys. Because of this climate the road is exposed to ground gliding in some areas, with an added length of 280 m, glidings that are the consequence of the combined action of gravitation, leaking, and water infiltrations duet o the degradation of the forestry fond.

Duet o these aspects, and analysis of the road elements in a transversal profile has been tried, elements that can offer the image of the latter in what the design and the execution of the gradient, for example the situation of the gradient and of the driving sideway.

In order to do this the driving sideway has been evaluated in forty charagteristic points, points in wich transversal profiles have been done when she driving sideway has been designed; the surfaces of the profiles are presented in table number 1.

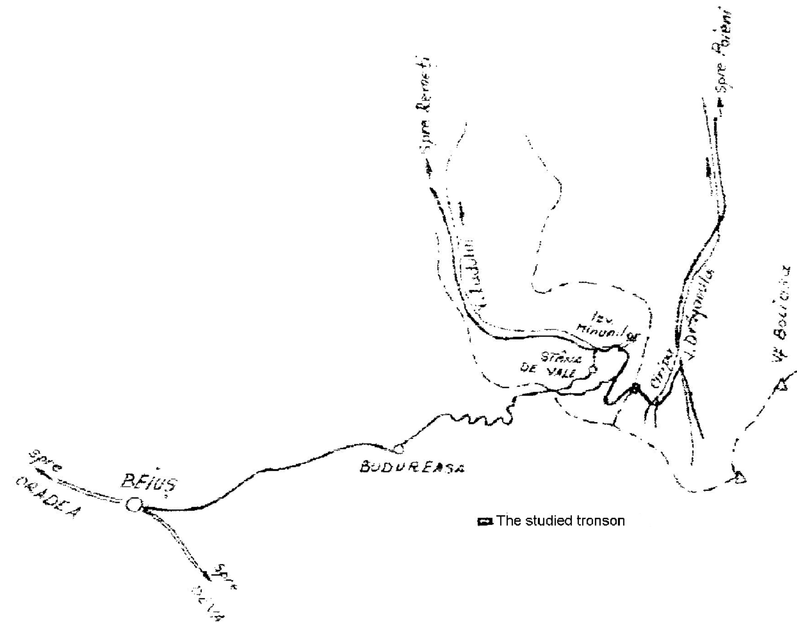

Fig.1. The situational plan of the studied road

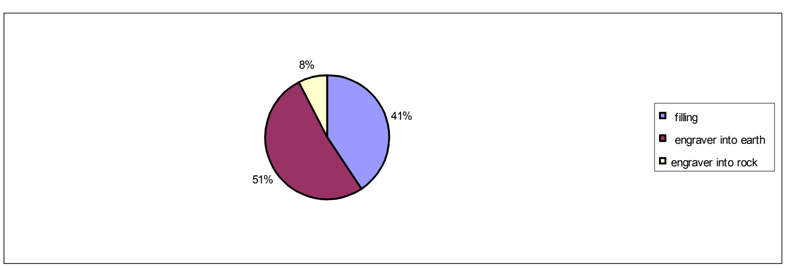

Fig.2. The percentage distribution of the transversal profile surfaces

Table 1

The transversal profile surfaces designed in the execution project

No.	Surfaces (m^2)		
	Filling	**Engraver**	
		Earth	Rock
1	0.9	1,9	-
2	3.3	1,9	-
3	1,7	1,8	-
4	3.1	1,3	-
5	0.3	6,1	-
6	0.8	4,3	-
7	1.8	1,3	-
8	-	1,3	-
9	0.2	2,0	-
10	2.4	0,5	-
11	1.1	-	4.0
12	1.5	3,9	0.5
13	0.3	6,8	2.3
14	-	5,0	-
15	11	1,8	-
16	-	1,9	-
17	-	2,2	-
18	-	0,9	-
19	0.7	1,7	-
20	0.6	1,3	-
21	1.3	4,8	-
22	0.8	3,8	-
23	0.7	1,2	-
24	1.4	0,2	-
25	-	2,9	-
26	0.1	0,3	-
27	5.5	1,6	-
28	9.5	-	-
29	-	2,8	12
30	1.6	0,1	-
31	21,2	-	-
32	-	8,9	-
33	-	16,4	-
34	-	2,0	-
35	3.6	0,3	-
36	13.7	-	-
37	7.6	3,7	-
38	-	7,0	-
39	-	9,6	-
40	-	10,2	-
TOTAL	96,7	123,7	18.8

The standard transversal profiles used for the design of this road are presented in the fig. below:

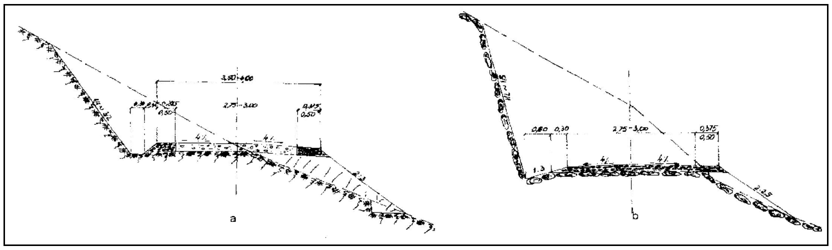

Fig.3. The standard transversal profiles:a) for areas with earth; b) for areas with rock

RESULTS AND DISCUSSIONS

From the analysis of the table 1 it comes aut that 59% from the surfaces of the transversal profiles is represented by engravers, from wich 51% are earth engravers. This fact leads to imposing some solutions in order to stabilize the gradient and the mountainsides respectively. This stabilization can be realized through different procedures, like.

- placing some support walls, made of stone with mortar or concrete; the advantage of these walls ist hat they support the embankments;
- support with the help of the gabions, support that does not need qualified labour and that has the advantage of using the existent local materials from the mountains areas; this support has also a disadvantage because the wire net can break in case of very unstable gradients andthe wire can also move the stony material from within, into the driving sideway or even downstrem;
- reduction of a too rich wooden vegetation, in certain situations; the weight of this vegetation affects the stability of the gradients.

Analysis of the technical estate of the driving sideway has been realized through noticing and establishing the dimensions of some defaults like: pits undlations, ruts or embankment glidings. These defaults are presented in table 2.

Table 2

Dimensional characteristics of the noticed defaults on the driving side

No.	Type of defaults	Defaulted surface [%]	Width of defaults [cm]		
			min	max	average
1	pits	15	8	22	11
2	undlations	10	5	10	8,5
3	ruts	5	2	8	3,5
4	Embankment glidings	1	20	30	25

In what the defaults that apeared on the driving side are concerned, they can be substantially reduced when the future forest roads will apear, by introducing some geogrates that must be placed between the foundation of the driving way and the bottom the driving way so that i tis integrated within the structure of the road ensemble.

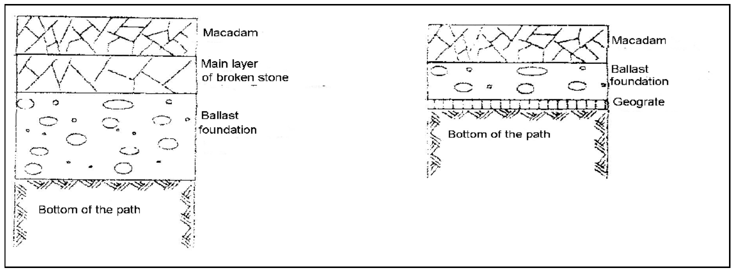

Fig.4. Applying the geogrates in the structure of the road (after Alexandru V., Ciobanu V.,2000)

This solution can be applied if the broken stone substratum is eliminated and if the width of the foundation is reduced as it can be seen in fig. no. 4.

CONCLUSIONS

For a good organization and functioning of a lasting forestry, a new conception , re-thinking and maintenance solutions are necessary.

From the analysis of this road section, a series of defaults of the driving way have been noticed, as well as of the gradients; these defaults were produced by an irrational exploitation of the road, by neglection of the gradient maintenance and of the water leaking ditches.

The work suggest some solutions, otherwise well-known in the construction of forestry roads but sometimes avoided duet o financial reasons. A radical change in the attitude of the people responsible with this problem is needed, especially of the people working in the forestry administration, and not only, in order to build quality forestry roads which can exclusively serve the interests of the forests.

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