Monitoring the current state of the Czech section of the horse-drawn railway České Budějovice – Linz and the design of its revitalization – part 2

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Abstract. This article follows the article "Monitoring of the current state of the Czech section of horse-drawn railway České Budějovice - Linz and the design of its revitalization" and deals with mapping of the remains of the Czech part of the České Budějovice - Linz line. The article lists the remaining parts of the track that were not listed in the first article. In the first article, we dealt with parts from Holkov to the state border with Austria. In the current article, we focus on parts from České Budějovice to Holkov. Relics Horse-drawn tracks are kept as national cultural monuments, each separately. Unfortunately, for this reason, it is impossible to work with the railroad as a whole, and therefore, it is very difficult to revitalize this track, even though the horse-drawn railway is one of the first large logistics operations in the Czech Republic. In České Budějovice, all relics are in good condition, after previous renovations and regular maintenance. All these relics are buildings located in the city center. The track in these places can no longer be restored to connect the objects to a single unit as these sites are built. The remaining parts of this section of the track are neglected and often in a catastrophic technical condition. In this work, we propose measures to increase tourism on the remains of the track. The possibility of revitalizing a section of the track to make tourists more attractive could be seen as possible. The work proposes new educational trails on horse-drawn track on the remains of the track. Trails, positions and stops are suggested for the nature trails, and what they should be concerned about, but the panels themselves are not designed. It is also proposed to use modern technologies, usable in smart devices.

1. Introduction
This article follows the article "Monitoring of the current state of the Czech section of horse-drawn railway České Budějovice - Linz and the design of its revitalization" and deals with mapping of the remains of the Czech part of the České Budějovice - Linz line. [1]

At the beginning of the nineteenth century, so-called Horse-drawn Railways began to be built around the world. The horse-drawn track consists of a railway superstructure, followed by a horse-drawn carriage. In the Czech Republic were two railways – the first one on the route Prague - Lány and the second one on České Budějovice - Linz. Significant and more extensive Horse-drawn Railway České Budějovice - Linz began construction in 1825 and the final construction, including the extension of the track, ended in 1842. This track was one of the first large logistics achievements in the territory of today's Czech Republic, along with the Schwarzenberg Canal. [2]
Mostly salt from today's Austria to Bohemia was transported on this track, and over time it was also used for passenger transport, transportation of other raw materials and finished products. In České Budějovice, salt was transferred to ships that sailed on the Vltava River to Prague, or on the Elbe. This path has succeeded in replacing a part of the prehistoric trade route, leading from the Mediterranean Sea, across Europe to the Baltic Sea, a breakthrough in traffic on this route. [3]

The aim of the thesis is to propose measures to increase tourism on the remains of this track in the part from České Budějovice to Holkov. Nowadays, this national and cultural monument is neglected and almost unused. In the past, efforts have been made by municipal councils, county councils, or various organizations, but not much has been done to rescue and make the track visible.

2. Monitoring the current state of the track from České Budějovice to Holkov

The problem analysis is mainly based on the 2016 survey, which was updated in 2018. Table no. 1 there are recorded relics of this part of the Horse-Drawn Railway in the territory of the Czech Republic.

| Number | Name of object                                      | Region            |
|--------|----------------------------------------------------|-------------------|
| 1      | Area of the house “U Zelené ratolestí“             | České Budějovice  |
| 2      | House of “Nisslův dům“                             | České Budějovice  |
| 3      | Salt storage                                       | České Budějovice  |
| 4      | Guard house n. 1                                   | České Budějovice  |
| 5      | Guard house n. 3                                   | Včelná             |
| 6      | Guard house n. 5                                   | Kamenný Újezd      |
| 7      | Incision in terrain                                | Kamenný Újezd      |
| 8      | Raised construction in terrain with vaulted passage and incision | Kamenný Újezd      |
| 9      | Raised construction in terrain with an arched bridge | Kamenný Újezd      |
| 10     | Guard house "Bukovec"                              | Kamenný Újezd      |
| 11     | Guard house Chlumec                                | Chlumec            |
| 12     | Raised construction in terrain with a bridge       | Krasejovka, Dolní Svince |

This survey of track relics was found by field research.

**Area of the house “U Zelené ratolestí“ (1)** was the first object on the track of the horse-drawn railway, or the last one, if we take the path from the point of view of its first use, namely the transport of salt from Austria to Bohemia. On the area of this house, goods were transshipped to ships, or to the cars of Forman. In addition, the house served as a “ZUM grunen Ast inn”, a stable, a car depot, etc. The building is older than a horse-drawn railway, dates back to 1821 and was used for track purposes by Vojtěch Lanna. It is a one-storey three-winged house around an inner courtyard with a hipped roof covered with ceramic roofing. Today the building is in good technical and aesthetic condition and serves as a pub, with shops and offices.

**House of “Nisslův dům“ (2)** was the second object on the track and served for railway company officials. The origin of the house is unknown, but the first mention of it dates back to 1837. It is a corner rebound double house situated on the corner of Piaristická and Česká Street. It is a two-storey, covered hip roof with ceramic roofing with copper eaves and downpipes. The building has been completely renovated and is in very good technical and aesthetic condition. Its current use is the inn, shops and offices.
The Salt storage (3) was another object on the horse-drawn track and certainly the oldest one. It was built in the second half of the 16th century. It was used as a salt storage facility long before the construction of the railway. Despite efforts to build a new warehouse in the freight station complex, this has never happened. Today's status is only one third of the original object's relic. The salt warehouse relic is a building with a raised attic of two floors, the roof is gabled, covered simply with plain tiles. The building is after complete reconstruction, so it is in good condition and today serves as a wine bar.

Guard House No. 1 (4) is the only remnant of the now defunct freight station. This station was built as a starting point for a runway that was later extended through the city around the three objects. The railway station was built in 1825, the guard house itself was built in 1828. The Guard House is now located at the intersection of Mánesova and Gerstnerova streets. The building was moved in 1977 due to the expansion of Mánesova Street by eight meters. It is a ground floor building with an L-shaped ground plan with a gable roof. The roof is covered with a ceramic roof tile. Today, this building houses an exhibition of the horse-drawn railway of the South Bohemian Museum.

The first object of the route behind České Budějovice is the Guard House No. 3 in Včelná (5). This house is not in good technical or aesthetic condition. It is a ground floor building with a rectangular ground plan with an annex and a gable roof. The building serves as a family house and is subject to execution. For this reason, the house cannot be reconstructed.

The Guard House No. 5 (6) is located at the beginning of Kamenný Újezd, closer to Budějovic and is after reconstruction. It is a ground floor building with a rectangular ground plan with a semi-hollow roof and a newer extension with a shed roof. The building serves as a family house.

Further along the track, there is Incision in terrain (7). Raised construction in terrain with vaulted passage and incision (8) and Raised construction in terrain with an arched bridge (9). These remains of the track have been preserved due to the different earlier and today's route. They are located in close proximity to today's railway leading around Kamenný Újezd and somewhere by rail and cross. All of these relics are overgrown with airborne cabbage, but they are clearly visible. Both the culvert and the bridge are in very good condition.

At the end of Kamenný Újezd is another Guard House named "Bukovec" (10), which is also in good condition. It is a small ground floor building on a rectangular floor plan with an outbuilding and a semi-hollow roof. Today the building is used for private recreation.

A little further along the route is another Guard House in Chlumec (11), which is also in good condition. It is a ground-floor house on a rectangular ground plan, on an offset plinth with an extension on the north side, with a gable roof. Today the building is used for private recreation.

Another object is Raised construction in terrain with a bridge (12). The embankment is not significant, but the bridge that is in it is very beautiful and in good condition.

2.1. Location České Budějovice
The first of the sites, with a greater density of buildings, is located in České Budějovice. These are four houses. All these objects are worth visiting. They are in good technical and aesthetic condition, but their location in the regional town of South Bohemia makes them a good tourist attraction.

1. Area of the house “U Zelené ratolesi“
2. House of “Nisslův dům“
3. Salt storage
4. Guard house n. 1

2.2. Location Kamenný Újezd

Five buildings can be included in the locality around Kamenný Újezd. These are guard houses, an incision in terrain, raised construction in terrain and bridges. This location is very interesting due to the small driving distance from České Budějovice. Although it does not offer as many buildings as the previous location, but there are a lot of landscapes, and it has a romantic impression.

1. Guard house n. 5
2. Incision in terrain
3. Raised construction in terrain with vaulted passage and incision
4. Raised construction in terrain with an arched bridge
5. 1Guard house "Bukovec"

3. Solution suggestions

In the previous chapter, there are two locations where there are multiple relics in a relatively small area. These locations can be used to design measures to increase tourism. In addition to the aforementioned locations, three more relics have been preserved on the original track, but at a great distance from the locations. Therefore, they have not been included and tourist measures do not count with them.

3.1. Location České Budějovice

On the territory of the South Bohemian metropolis, České Budějovice, the route of the horse-drawn railway led, except for a small section, exactly along the route of the streets, the location of which has been preserved until today. This is due to the fact that the streets of the city were used by the construction of the track, and they were left by the streets after its cancellation.

For these reasons, it is easy to go through the path of the original track and therefore in this work we propose to connect the points on the track with a nature trail. The trail leads around all four preserved buildings in the territory of České Budějovice. The nature trail is not designed as a circular trail, as is usually the case, because it is not needed here. Visitors to the nature trail can choose the way back through the historical city center, where many other beautiful objects and monuments can be seen.

On the 1.6 km education path, a total of six stations have been designed, four of them in the place of preserved relics, one at the beginning of the trail and one complementary. Station A is located at the beginning of the runway, at the confluence of the Vltava and Mlýnská stoka. The stations B, C, D and F are designed for specific objects (Area of the house “U Zelené ratolesti”, House of “Nisslův dům”, Salt storage and Guard house n. 1). Station E is dedicated to father and son Gerstner, the authors of the track. The last point on the education trail is F, at Guard house n. 1. The map of the Education Trail is shown in Figure 1.

The education trail marking is designed using metal targets embedded in curbs on one side of the road, one to three meters apart. Targets could be marked with the horse-drawn railway logo. In addition to the targets, the nature trail must be marked with a special marking, placed according to the regulations of the KČT

In addition to the education trail marking and the placement of the stop panels, the trail around the Mlýnská stoka needs to be cleared of greenery when making the trail. There is no need to modify the rest of the route and no other measures are needed.
Figure 1. Map of education path České Budějovice
Parking will be needed near the starting point of the trail. As the trail is located in the city center, there is no possibility to build a parking lot here. However, it is possible to use the existing parking lot for individual visitors to the trail. For example, you can park in Mariánské náměstí or in Na sadech Street.

To increase the comfort of tourists, it is also necessary to think about refreshments. Since the trail leads through the center of a large city, there is no need to address this measure. Refreshment facilities include, for example, a part of the house “U Zelené ratolesti”, which serves as an inn, part of the House of “Nisslův dům” also serves as a tavern, the Salt storage serves as a wine bar. Along the route, there are several other places where you can refresh yourself. The guard house No. 1, where the trail ends, serves as a museum of the Horse-Drawn Railway České Budějovice - Linz. That is why the end of the Education Trail is designed and tourists can visit this museum.

3.2. Location Kamenný Újezd
The newly designed horse-drawn railway education path along Kamenný Újezd runs along the original route of the horse-drawn railway. This path leads through five preserved relics. It is a circular education path, the second part of without stations. The route starts in Kamenný Újezd near České Budějovice at the Czech Railways stop and the target point is the “Bukovec” guard house. The education path is 5 km long and the journey back through the village 3.3 km.

There are seven stations on the path – one at the beginning and six at the place of preserved relics. Station A should generally apply to a horse-drawn railway, and station B to G to the specific relics it is in. Relics on this path are Guard House No. 5, Incision in terrain, Raised construction in terrain with vaulted passage and incision, Raised construction in terrain with an arched bridge and Guard House “Bukovec”. Station on the education path are A - parking lot (generally about horse-drawn railway, history, etc., B - relict 6 - summary of section from České Budějovice, C - relict 7 - landscaping on the track, D - relict 8 - use of stone from the core, E - relict 8 - summary of this section, F - relict 9 - culverts on the track and G - relict 10 - the life of railroad patrolmen.

The marking of the educational path is designed in a classical way, with a special marking placed according to the regulations of the KČT. Other measures include cutting down the green on the road at Guard House No. 5 due to the view of the cottage. The road does not lead directly around this building, but on the other side of the railway, therefore, the education path stopping will not be right at the object. Around the station C, D, E and F you will need to get rid of the greenery around the buildings and surroundings. Parking is designed right at the starting point of the education path, i.e. station A. The education path returns to the place through the village of Kamenný Újezd (Figure 2). The way back leads past the “Rychta” restaurant near the square in the village.

3.3. Visualizing proposed sites with modern technology
In addition to the aforementioned education path or hiking trails, the sites can also be made visible with the help of modern technologies. Nowadays almost every person owns a smart phone, which can be used for example in so-called Geocaching or QR code reading.

Geocaching is a worldwide adventure game that includes elements of sports and tourism, using GPS navigation systems, maps and internet services. The main task of the game is to find the hidden box, which is called in the English original cache, according to exact geographical coordinates. [4] The founder can hide the box on any, mostly interesting or significant place and enters its geographical coordinates with a description on the server www.geocaching.com. This game is very popular in the Czech Republic.
Figure 2. Map of education path Kamenný Újezd
The QR code is a means of automated data collection. The abbreviation is based on "Quick Response". The QR code can encode a much larger amount of data than the classic EAN barcode. [5] It would be possible to place a QR code tag on all runway relicts, which would include a link to Internet relics information sites. Another possible solution is to place text in the QR code, preferably brief information about a particular relic.

4. Conclusions
The survey of the condition and utilization of the buildings, the Czech part of the horse-drawn railway České Budějovice - Linz, confirmed a very low utilization due to the tourism. In the territory of České Budějovice, the buildings are in a good technical condition, but few know that they have served the needs of the horse-drawn railway in the history. On the other hand, objects in the vicinity of Kamenný újezd can be divided into two categories, guard houses and railway bodies with bridges and culverts. The guard houses are, except one, in a good condition. Railroads are much worse off. In both cases, people do not know that the buildings belonged to the horse-drawn railway. The relics are mostly surrounded by airborne greenery and do not lead to any marked trails, deterioration and neglect.

The main question of the work was to find a possibility of using the path for tourism. This premise was possible. The work includes relics, in two parts from České Budějovice to Holkov, lying close together. These locations are: Location České Budějovice and Location Kamenný újezd. In these locations, we design nature trails with horse-drawn railway themes. Furthermore, the thesis proposes the use of modern technologies usable on smart devices.

The thesis suggests the possibility of using the remains of the railway and should serve as a springboard in case of further efforts to protect, maintain and use the monument.

References
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