

STUDY OF APPLICABILITY OF RISK REDUCTION MEASURES IN SPATIAL PLANS

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Content

Part 1 - Summary of the first part of the study	2
Part 2 - pilot locality of Lipí and proposed changes to area planning documentation	4
1. Objectives of the applicability study in a selected pilot site	5
2. Description of the procedure for processing proposals for changes to spatial planning documentation	5
3. Description of the proposed solution - in a general position for the entire solved locality	6
4. Description of the proposed solution - for individual municipalities in the pilot locality	14
5. Public discussion of the second part of the study - objections raised	47
6. Proposal of changes to individual area planning documentation.....	49
7. Summary.....	81
8. Attachments – Stage II.....	82

Part 1 - Summary of the first part of the study

According to the agreement between the South Bohemian Region and the author of this study, only the second part of the study was prepared in English. For this reason, a summary of the essential information from the first part of the study is provided here. The purpose and aim of this part of the study is to find in four pilot localities of the RAINMAN project collisions between the proposal of protective measures against damage caused by torrential rains prepared by the T. G. Masaryk Water Research Institute and existing valid area planning documentation of municipalities located in pilot localities.

At the end of this part of the study, it can be assessed that its stated goal has been met. For all four pilot sites, collision points are defined in which there is a disharmony between the proposed protection measures and the solution found in the valid area planning documentation. These collision points are divided into two categories depending on the link to the influence of the conceptual solution of the valid area planning documentation - category "k" and category "u". Conflict points classified in category "k" foreshadow the need to coordinate the protection measure with the conceptual solution of the valid area planning documentation, collision places classified in category "u" do not have a significant impact on the concepts contained in area planning documentation. However, minor area planning modifications are needed in these places. Documentation, usually in the sense of adjusting the conditions of use of individual areas with different uses.

On the whole, it can be said that most of the protective measures proposed by the T. G. Masaryk Water Research Institute do not come into any conflict with the valid area planning documentation of municipalities. In all four pilot locations, a total of only 60 collision sites were identified. From the point of view of the number of collision places, it can be stated that majority of collision places were included in category "k" (a total of 43 places).

This number is significantly influenced by the location of the Lipí and Písek localities near large towns providing job opportunities, as within these localities increased development in the area of housing can be expected, to which area planning documentation responds by proposing new buildable areas. Buildable areas are usually located in direct connection with the built-up area, the protection of which against damage after a torrential collision is currently a priority, and therefore a significant number of protective measures are proposed in the vicinity of the built-up area. It is already clear from this situation, that both protective measures and buildable areas are proposed in the vicinity of a built-up area, and the two proposals very often overlap and conceptually influence each other significantly. Therefore, there is a significant predominance of "k" type collision points in these localities, which also affects the overall statistics of defined collision points. In the localities of Popelín and Strakonice, on the other hand, collision points of the "u" type prevailed, as these are localities of a rather agricultural nature with expected smaller development in the form of buildable areas.

For all localities together, it can also be stated that the solution of these localities comprehensively within one small river basin was generally accepted by municipalities and local farmers or the public with a very positive response. The comprehensive solution clearly illustrated the necessary cooperation of municipalities needed to protect against damage caused by torrential rain.

Common to all localities is also the predominance of protective measures included among agrotechnical measures, biotechnical measures and permanent grassland. In the context of these proposed measures, there was a consensus among participants in public hearings in all localities that the current system of agricultural subsidies, which in most cases depends on the size of a complete block of agricultural land (area subsidies), is very limiting for possible implementation of measures. This method of allocating subsidies, depending on the necessity of solving the protection of the area against damage caused by torrential rains, which consists mainly in the fragmentation of the landscape and appropriately selected agrotechnical procedures, seems to be wrong. This kind of subsidy system basically prevents greater fragmentation of the agricultural landscape and, together with the ownership and user relations to the land, is the biggest obstacle to the implementation of anti-erosion and anti-flood, as well as for measures against drought.

For these reasons, it is problematic to enforce measures such as boundaries, field borders or small reservoirs in agricultural areas.

In its next stage, this study aims, among other things, to publicly discuss (in the regime of the currently valid Building Act) a proposal for specific changes in area planning documentation of municipalities included in Lipí locality, these changes will focus on binding definition of protective measures (areas and corridors), which would eliminate damage caused by torrential rainfall in the built-up area. This public hearing will verify whether the concerns raised in the previous paragraph are real in the initial negotiations, and whether there is a way to combine the protection of the territory with its usability in profitable economy.

II. Part 2 – pilot locality of Lipí and proposed changes to area planning documentation

1. Objectives of the applicability study in a selected pilot site

The purpose and aim of this study are the integration of the proposed flood control measures into the zoning plans of individual municipalities in the Lipí pilot locality with regard to the particularity of zoning plans in the Czech Republic limited by legal regulations. This study deals mainly with the coordination of real flood control measures leading to the mitigation or even elimination of damage from local floods in times of sudden torrential rains and their projection into area planning documentation in one comprehensive small river basin. The main benefit of this study is especially the complexity of the solution seen in the solution of a small river basin as a whole. It does not solve only partial passages individually according to the administrative district of individual municipalities, as is usual in the field of area planning.

The aim of this stage of the study is to propose specific changes to the area planning documentation of municipalities included in the Lipí locality in order to project the proposed measures to protect against torrential rain directly into these documents by defining specific areas and corridors intended almost exclusively for their implementation.

2. Description of the procedure for processing proposals for changes to spatial planning documentation

The incorporation of anti-flood modifications is based on the "Study of runoff conditions including a proposal for possible protective measures in the Lipí pilot area" prepared by the T. G. Masaryk Water Research Institute, which evaluated erosion and runoff conditions in the area and based on this evaluation proposed protective measures.

On the basis of the mentioned study from the T. G. Masaryk Water Research Institute, in the first part (resp. I. stage) of this study a confrontation of the proposed measures with valid spatial plans of municipalities located in the solved area of pilot sites of the RAINMAN project was performed. When comparing the proposed protective measures of the T. G. Masaryk Water Research Institute with the zoning plans within the Lipí locality, collision places were marked (for more details see Part I of the study or below). In the case of the Lipí locality, these were only collision points of the "k" category - collisions with the conceptual solution of the spatial planning documentation (schematically see Figure No. 23). The conflict points shown in Figure 23 were consulted with representatives of individual municipalities and supplemented with their observations and places in which it is expedient to change the spatial planning documentation to ensure the protection of the area from the consequences of torrential rainfall. These consultations showed that the protective measures proposed by the T. G. Masaryk Water Research Institute correspond to the needs of individual municipalities and only a partial amount needed to be supplemented by other measures - for example, the water management system was added.

All protective measures (proposed by the T. G. Masaryk Water Research Institute and proposed by the author of this study on the basis of local surveys and consultations with representatives of municipalities) were confronted with output T3.2.4 "Method of selecting measures for area planning documentation." This material, which was also prepared within the RAINMAN project, defined which measures can be implemented in spatial planning documentation.

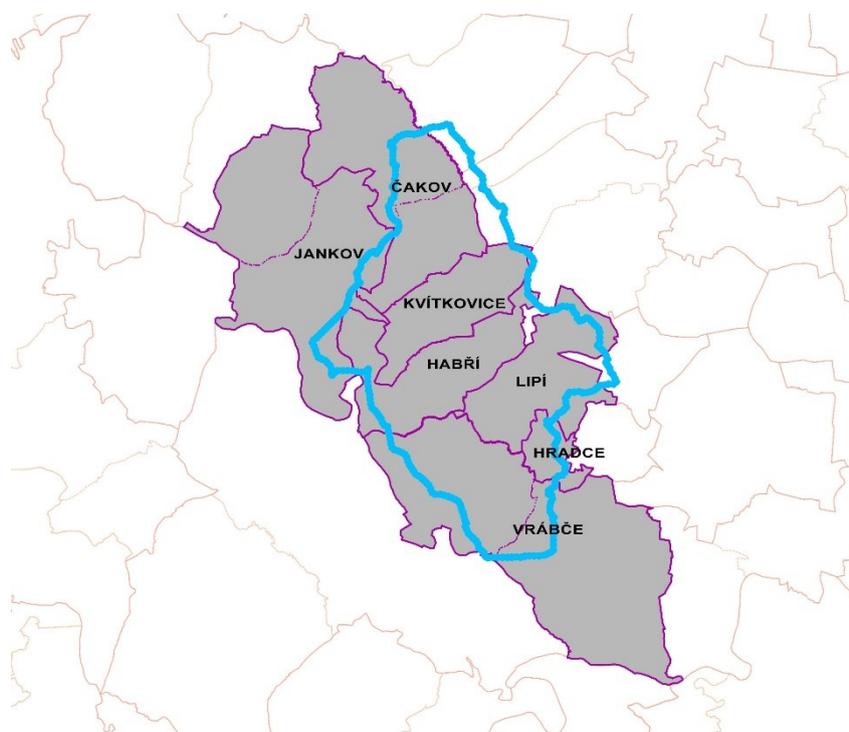
Subsequently, protection measures were proposed, which can be implemented in area planning documentation, and they were incorporated into the solution of individual area planning documentation by defining specific areas and corridors for their location, always taking into account the current development concept of municipalities and their expected future development. Output T3.2.5 "Selected measures reflected in the area planning documentation", which was also developed within the RAINMAN project, was used as a specific protection measure in a specific area with a different use or a specific corridor. This material serves as a methodological aid in the application of protective measures to area planning documentation. In the content of this material, all protective measures usable for protection of the territory against the consequences of torrential rains, which can be displayed in the area planning documentation, are assigned a specific area with different uses or a specific corridor in which this measure is to be included in the area planning documentation.

Newly proposed solutions defined in the form of new areas with different uses or corridors are processed for individual municipalities in the area, always on the basis of the main drawing of valid area planning documentation. This method of creation was chosen mainly due to a greater visibility of the coordination of the proposed flood control measures with the future development of a municipality.

Ultimately, solutions were found which, if implemented, will help reduce damage in the area caused by torrential rains, and at the same time they will allow the municipality to naturally develop its territory in the form of new development.

3. Description of the proposed solution - in a general position for the entire solved locality

Unlike the 1st stage (part) of the study, the subject of the solution of the 2nd stage (part) of the study is only the Lipí locality. In this locality there are administrative territories of a total of seven municipalities (Čakov, Habří, Hradec, Jankov, Kvítkovice, Lipí and Vrábče), while only in the six of them (Čakov, Habří, Hradec, Kvítkovice, Lipí and Vrábče) flood control measures are proposed. The administrative territory of the municipality of Jankov is included in the list of municipalities only due to part of the border of the solved area being on its cadastral territory. Within the Dehtářský brook basin, no flood control measures are proposed in the Jankov administrative area.



Within the first stage (part), a total of 11 collision points was identified in the Lipí locality. In all the cases, these were collision points of the "k" category - collisions with the conceptual solution of area planning documentation (for definitions, see Part I, p. 9).

Table of collision points:

area - territory of Čakov, Jankov, Habří, Lipí, Vrábče- Dehtářský brook municipalities						
municipality	cadastral area	collision code	VÚV proposal	Valid ÚPD	note	
Čakov	Čakovec	Čc-1	k agrotechnical measure	individual housing area	partial interference	
Habří	Habří	Ha-1	k agrotechnical measure	individual housing area, TI	partial interference	
Habří	Habří	Ha-2	k agrotechnical measure	individual housing area	partial interference	
Lipí	Lipí	Li-1	k agrotechnical measure	individual housing area	partial interference	

Lipí	Lipí	Li-2	k	agrotechnical measure	individual housing area	partial interference
Lipí	Lipí	Li-3	k	agrotechnical measure	individual housing area	partial interference
Vrábče	Slavče	Sl-1	k	agrotechnical measure	individual housing area	partial interference
Vrábče	Slavče	Sl-2	k	agrotechnical measure	individual housing area	
Vrábče	Vrábče	V-1	k	agrotechnical measure	individual housing area	
Vrábče	Vrábče	V-2	k	agrotechnical measure	individual housing area	US
Vrábče	Vrábče	V-3	k	VENP		

Tab. 5: Description of collision points in the Lipí pilot locality

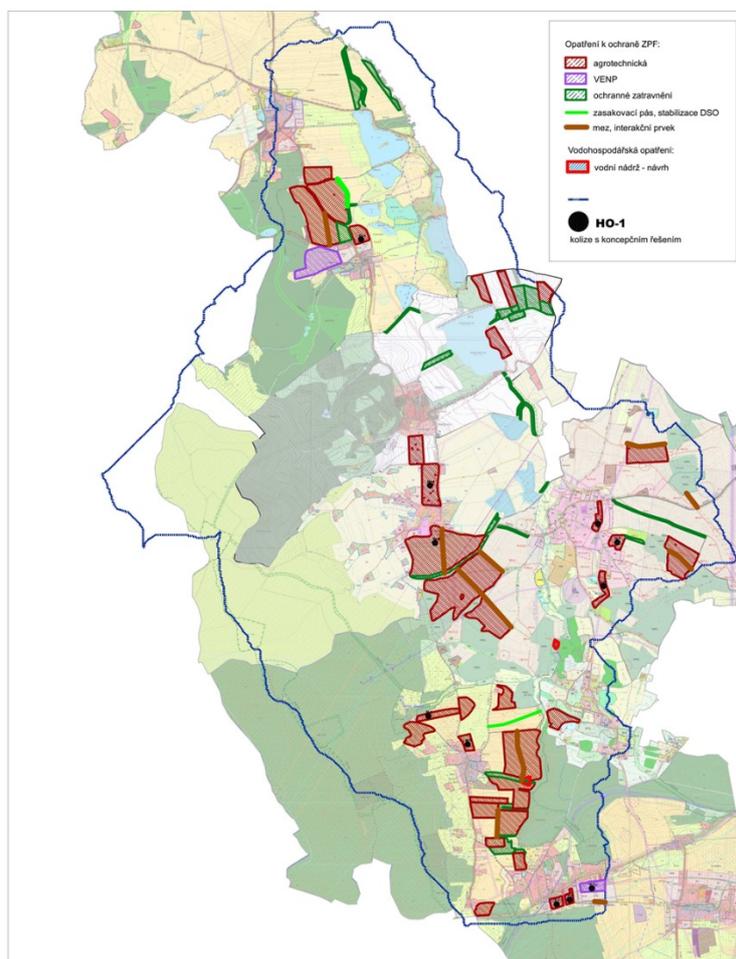
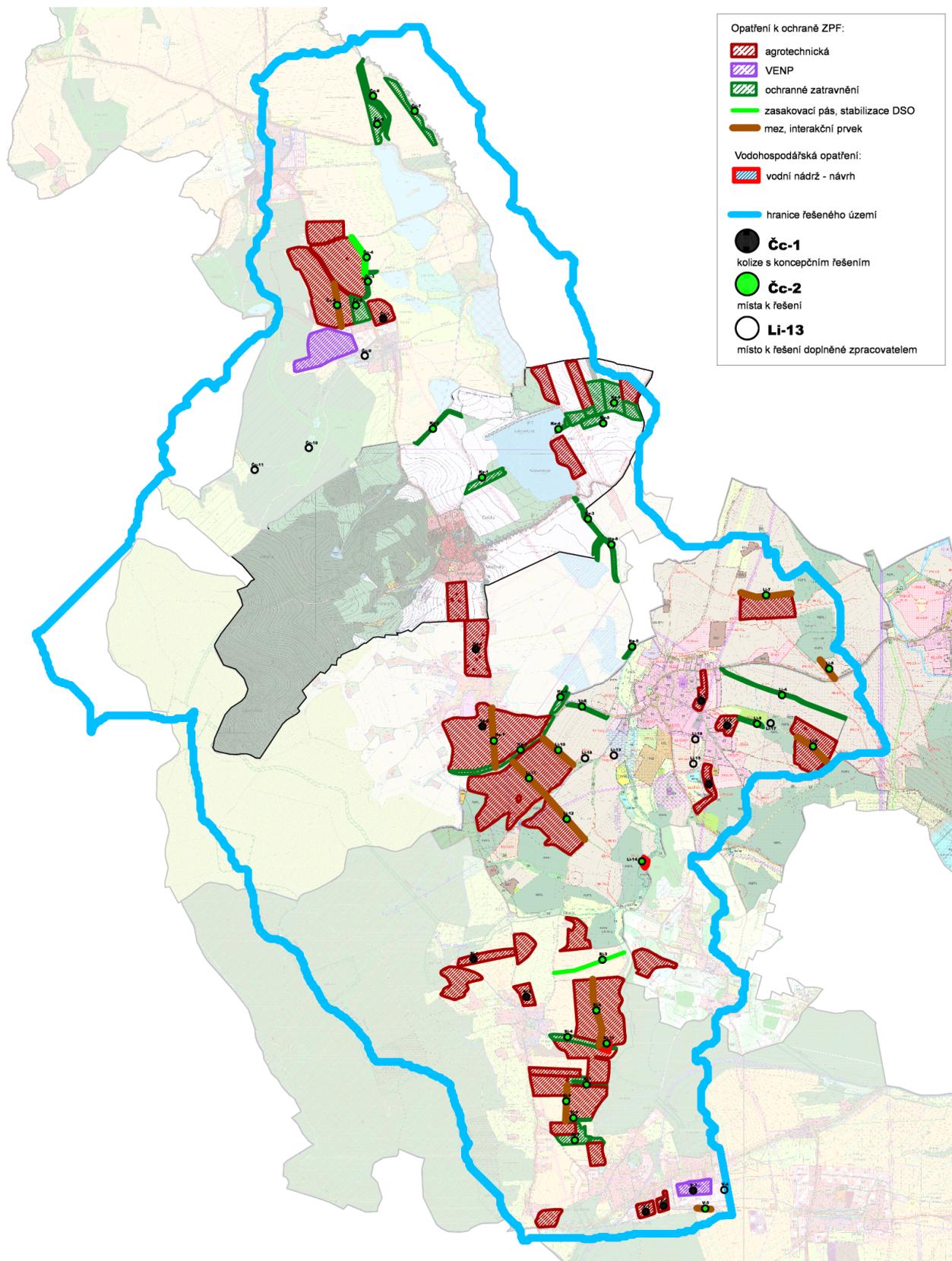


Fig. 23: Situation of collision points – solved area of the Lipí locality (České Budějovice) 1:25,000

The author of the study of the applicability of flood protection measures into land use plans after solving the above 11 collision points (for details of the solution see below in individual "cards" of municipalities) also examined other proposals prepared by the T. G. Masaryk Water Management Research Institute and found that to meet the goal of "preservation" of the territory of the municipality for a specific flood control measure, it is necessary for each proposed measure (except for the exclusion of erosion-unstable crops) to define a separate area with a different use (or corridor). Based on this consideration, the author of the study added descriptive codes to these measures defined by the T. G. Masaryk Water Research Institute, which do not have a conceptual or conditional collision with the current state of area planning documentation (in the opinion of the author these measures can be implemented in the current state of area planning documentation), however, in order to clearly identify the need for the territory precisely and (relatively) exclusively for the implementation of a particular planned anti-flood measure, it is appropriate to change areas with different uses (i. e. change the area planning documentation) to a form that will allow the implementation of exclusively proposed measures. Thus, in the pilot locality of Lipí, the

following places were added to the solution in the change of area planning documentation of these municipalities:

area - territory of municipalities	Čakov, Kvítkovice, Habří, Hradce, Lipí, Vrábče – Dehtářský brook				
solution location code	municipality	Cadastral area	VÚV proposal	Valid ÚPD	note
Čc-5	Čakov	Čakov	protective grassing	agricultural area	
Čc-6	Čakov	Čakov	protective grassing	agricultural area	
Čc-7	Čakov	Čakov	protective grassing	agricultural area	
Čc-8	Čakov	Čakov		agricultural area	
Čc-2	Čakov	Čakov	protective grassing	agricultural area	
Čc-3	Čakov	Čakov	protective grassing	agricultural area	
Čc-4	Čakov	Čakov		agricultural area	
Kv-1	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Kv-2	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Kv-3	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Kv-4	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Kv-5	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Kv-6	Kvítkovice	Kvítkovice	protective grassing	agricultural area	
Ha-3	Habří	Habří	protective grassing	agricultural area	
Ha-4	Habří	Habří	protective grassing	agricultural area	
Ha-5	Habří	Habří	protective grassing	agricultural area	
Ha-6	Habří	Habří	protective grassing	agricultural area	
Ha-7	Habří	Habří	boundary	agricultural area	
Li-4	Lipí	Lipí	protective grassing	agricultural area	
Li-5	Lipí	Lipí	protective grassing	agricultural area	
Li-6	Lipí	Lipí	protective grassing	agricultural area	
Li-7	Lipí	Lipí	boundary	agricultural area	
Li-8	Lipí	Lipí	boundary	agricultural area	
Li-9	Lipí	Lipí	boundary	agricultural area	
Li-10	Lipí	Lipí	boundary	agricultural area	
Li-11	Lipí	Lipí	boundary	agricultural area	
Li-12	Lipí	Lipí	boundary	agricultural area	
Li-14	Lipí	Lipí	small water reservoir	water and water management area	
Sl-3	Vrábče	Slavče	Infiltration belt, DSO stabilization	agricultural area	
Sl-4	Vrábče	Slavče	protective grassing	agricultural area	
Sl-5	Vrábče	Slavče	protective grassing	agricultural area	
Sl-6	Vrábče	Slavče	protective grassing	agricultural area	
Sl-7	Vrábče	Slavče	protective grassing	agricultural area	
Sl-8	Vrábče	Slavče	boundary	agricultural area (arable)	
Sl-9	Vrábče	Slavče	boundary	agricultural area (arable)	
Sl-10	Vrábče	Slavče	small water reservoir	water and water management area	
V-5	Vrábče	Vrábče	boundary	agricultural area (arable)	



Prior to the elaboration of own proposals for changes in area planning documentation of individual municipalities located in the Lipí pilot locality, consultations took place with local government representatives, and new field surveys were carried on, and based on the consultations and surveys (e. g. in

the village of Čakov – its part called Čakovec - measures were added including a system of barrages and two new small water reservoirs, also in the village of Lipí small water reservoirs, a ditch, protective baulks, etc. were added, for more see the following table and always "cards" of individual municipalities).

area - territory of municipalities	Čakov, Kvítkovice, Habří, Hradce, Lipí, Vrábče – Dehtářský brook				
solution location code	municipality	cadastral area	VÚV proposal	valid ÚPD	note
Čc-9	Čakov	Čakovec	small water reservoir	water and water management area – wetlands	
Čc-10	Čakov	Čakovec	system of dams	agricultural area, mixed unbuilt area, forest area, water and water management area	
Čc-11	Čakov	Čakovec	small water reservoir	water and water management area, forest area	
Li-13	Lipí	Lipí	ditch	agricultural area	
Li-15	Lipí	Lipí	small water reservoir	agricultural area (TTP)	
Li-16	Lipí	Lipí	small water reservoir	areas of housing in farmsteads	
Li-17	Lipí	Lipí	small water reservoir	forest area	
Li-18	Lipí	Lipí	dam	landscape greenery	
V-4	Vrábče	Vrábče	ditch	agricultural area (arable)	

Based on a locality survey, a flood protection measure was added in the village of Vrábče - a ditch (k_SN_F1) in locality V-4 and the measure in locality V-5 (k_SN_F3) was extended – a field border. However, these two proposed measures were located outside the boundaries of the original solved area, determined by the VÚV (see stage 1). Based on the inclusion of these measures in the overall concept of flood control measures into the Dehtářský brook basin, the solved area was expanded by these two design measures.

Some measures proposed by the TG Masaryk Water Management Research Institute were slightly modified to ensure the functionality of flood protection, and at the same time they better take into account the current and future state in the area (e. g. adjustment of an afforestation area based on additions of new measures or facts in Slavče, modification of the area for the change of agrotechnology in Lipí, etc., again for more see the "cards" of individual municipalities).

The proposed solution is based primarily on the assumption of appropriate management of agricultural land in the locality. Part of the proposal is to supplement the landscape with areas with a greater degree of ability to absorb and retain water in the landscape and thus mitigate the waves of storm water flowing from the hills of the surrounding landscape into the valleys and streams. An integral part is the addition of water management elements and systems, which are very important for the functioning and proper correction of the drainage and at the same time water retention in the landscape.

The main proposed elements are grassing areas, landscaping areas of watercourses friendly to the countryside, an infiltration belt, field border, ditch, dam, small water reservoir, grassing of the valley, a system of dams, conversion of arable land to pastures or deciduous forests. These protective elements are selected from the documents, specifically from the prepared catalogue of measures to reduce risks, which was prepared by the T. G. Masaryk Water Research Institute and other partners of the RAINMAN project. These measures are proposed in detail suitable for incorporation into zoning plans and regulatory plans, or zoning plans with elements of the regulatory plan.

In the conditions of today's legislation, it is not possible to project areas intended for adjustment from the point of view of agrotechnical management in a binding way into the area planning documentation. However, farming on agricultural or other land has a very significant effect on the water in the soil and erosion, and thus it significantly affects flood wave in the area concerned. Functional protection of the area against damage from torrential rains will therefore not be possible without taking these measures into account (and especially the implementation!). However, if the problem areas are not shown anywhere, it does not force anyone (especially landowners or tenants) to think about possible changes in land management. Due to the fact that these are not measures that can be captured in the area planning

documentation (agrotechnical measures), the author of the study decided to prepare for each municipality as part of this study (not individual changes to spatial plans) drawings "Proposed measures that cannot be included in area planning documentation" in order to ensure the complexity of the water management solution leading to the mitigation of damage after floods caused by torrential rainfall.

Table of measures contained in the processed catalogue from document T.3.2.5, which was applied to changes in zoning plans under 2nd stage:

measure number according to the catalogue	name of the measure according to the catalogue	description
16	Furrows	Furrows are shallow and wide ditches on arable land with mild slopes and a small longitudinal gradient. They allow interception, infiltration and alternatively drainage of surface runoff. They should be dimensioned properly for meeting functional requirements and require maintenance.
9	Infiltration belts (grass) and buffer strips (permanent vegetation)	Infiltration belts should be projected on slopes in the direction of a contour. In the vicinity of reservoirs, watercourses and built-up areas they protect them against penetration with eroded material. Buffer strips offer good conditions for effective water infiltration and slowing of surface runoff. Hedges across long, steep slopes intercept and slow surface run-off water before it builds into damaging flow, particularly when there is a buffer strip alongside.
15	Baulks	Baulks are belts of uncultivated land separating fields from each other. If baulks are oriented in the direction of a contour, they can slowdown surface runoff and support infiltration. The highest efficiency is achieved when the measure is accompanied by an infiltration belt located above and a furrow located under the baulk. Implementation is recommended in case that other types of structural measures are ineffective or can't be implemented.
18	Drainage ditches; swales	Ditches allow intercepting, infiltrating and alternatively draining the surface runoff without causing damage. They should be dimensioned to the corresponding return period of the discharge, meet functional requirements and get regular control and maintenance. Ditches on farmland are usually proposed in areas where the space for constructing furrows is limited. Within urban areas they are part of the urban drainage system and can have a variety of cross sections to suit the urban landscape. They can include the use of planting to provide enhanced visual appeal and water treatment. The measure requires an occupation of land. Therefore, settlement of property rights relations is necessary.
38	Regulation of torrent streams and gullies	This measure is usually carried out in form of sets of barrages built in a direction perpendicular to a stream's direction. The aim of the measure is to modify the erosion and accumulation processes in torrent streams through the retention of water and eroded material, e.g. when settlement areas are at risk. Its effect is enhanced when applied together with other measures in the watershed. The material used for the barriers depends on the natural conditions of the area of interest and on hydro-technical calculations. Permission by water management authority and nature conservation authority may be required.
17	Barrages	Barrages act as barriers to swift creeks and gullies or usually dry pathways of concentrated surface runoff. They can be constructed in form of a sill or a step. The measure reduces the longitudinal slopes, serves the accumulation of surface waters and controls the velocity of the concentrated surface runoff during intense rainfall events. It should be implemented in case of ineffectiveness of less intensive measures and requires usually permission.
31	Small retention reservoirs	Small reservoirs (protective reservoirs) are constructed to intercept surface runoff and transform flood waves, so they can protect objects underneath them from the negative effects of floods and from the transported soil particles from erosion processes. The ideal is the design of multipurpose reservoirs that can perform multiple functions simultaneously. The measure requires an occupation of (often agricultural) land. Therefore, settlement of property rights relations is necessary. Design documentation, planning permission, and realization might be demanding.
32	Increasing the retention capacity of existing channels and floodplains by restoration	The measures reside in terrain modifications of channels and floodplain to increase their ability to slow down the runoff and to create inundation zones so that potential consequences of surface runoff would be reduced. They can include individual modifications that are generally termed "restoration". Specifically, modification of the channel's course, branching of streams, channel stabilisation, restoration of oxbows, accompanying riparian vegetation. The effect of the stream modification itself is not decisive in terms of surface runoff. However, if the modification is a part of a set of other measures in the contributing area, it can certainly play a positive role in slowing down the runoff and reduction of peak discharge. In general, the goal is to bring the stream as close as possible to the near-natural state.

11	Stabilisation of runoff pathways	Pathways of concentrated surface runoff are usually stabilized by grassing. They can be reinforced by stones so that they are able to transfer the concentrated surface runoff without the occurrence of erosion on the pathway. The most common shape is a parabola with a low depth, which is most similar to that of the naturally created pathways. The measure requires an occupation of agricultural land. It should be implemented if protective soil measures are ineffective to protect soil from erosion. When accompanied by appropriate vegetation, they can be a part of the territorial system of ecological stability. The effect is enhanced when other measures exist in the contributing area. The consolidation of property rights relations might be necessary.
19	Conversion of arable land into grassland/ deciduous forest or short rotation plantations	Heavy rain risk can significantly be reduced by converting farmland into grassland/deciduous forests or short rotation plantations. The measure increases the surface roughness constantly (effect: reduction of flow velocities) and decreases soil erosion (effect: reduction of mud deposition). The measure is well-suited for steep slopes with light soils, for fields prone to flooding, and for drained areas near water courses.

For the applicability of these measures to the zoning plans, a graphic appendix is prepared, in the form of change and design areas or corridors, which will serve as a basis for the incorporation of design measures into new zoning plans or their changes.

For the creation of the graphic part of the 2nd stage of the applicability study, and material T.3.2.5 "Selected measures reflected in the area planning documentation" was used to include the proposed measures in areas or corridors with different uses. The following tabular classification of specific measures into areas or corridors with different uses and their code designation in the graphic part corresponds to the above-mentioned material. For the purposes of creating the basic division drawing, the individual measures were included in one of three categories: corridor (X), area of change in the landscape (K) and buildable area (Z).

Table of selected measures according to material T.3.2.5 applied to simulations of changes in zoning plans in the solved area:

the name of the measure	area / corridor with different uses	area / corridor code	Inclusion in the area of ÚP in the basic division drawing (corridor = X, area of change in the landscape = K, buildable area = Z)
Furrows	corridors of mixed undeveloped land - furrow	k_SN_D	X
Infiltration belts (grass) and buffer strips (permanent vegetation)	corridors of mixed undeveloped land - infiltration belt	k_SN_CH	X
Baulks	corridors of mixed undeveloped land - baulks	k_SN_B	X
Drainage ditches; swales	corridors of mixed undeveloped land - ditch	k_SN_F	X
Regulation of torrent streams and gullies	corridors of mixed undeveloped land - system of dams	k_SN_G	X
Barrages	areas of mixed undeveloped land - barrage	p_SN_E	Z
Small retention reservoirs	water and water management areas - small water tank	p_VV_B	Z
Increasing the retention capacity of existing channels and floodplains by restoration	water and water management areas - adjustment of the flow line to the near-nature state	p_VV_G	K
Stabilisation of runoff pathways	areas of mixed undeveloped land - grassing valley	p_SN_I	X
Conversion of arable land into grassland/ deciduous forest or short rotation plantations	agricultural areas - permanent grassland	p_PZ_C	K

The marking of individual changed areas and proposed corridors is evident in the graphic part. Specifically, it is a change of areas with different uses of areas or corridors of mixed undeveloped area with a more detailed specification of permissible functions (e. g. overburden, infiltration belt) and delimitation of forest areas (conversion of arable land to forests) or water management areas (e. g. for small reservoirs).

In conclusion, it can be said that the locality of Lipí is relatively organized and is aware of the consequences of possible torrential rains. Therefore, most of the proposed buildable areas are already supplemented in the spatial planning documentation by areas that help to divert or mitigate possible torrential rains from built-up and buildable areas. In most cases, the proposal of the T. G. Masaryk Water Research Institute in these places coincides with the area planning documentation, only in exceptional cases there are places where the proposal of the T. G. Masaryk Water Research Institute conflicts with the solution of area planning documentation. These are usually the cases where the area which is planned for building development is currently used for farming, i. e. it is currently used as agricultural land. In the event of its building up, the agricultural area will be transformed into a cultivated area and will not have such an effect on the landscape in the case of the assessment of torrential rains and erosion.

In the opinion of the author of the study, in case of respecting (and implementation) of the proposed protective measures, it can be stated that in this small river basin (in the pilot locality) the damage in the area caused by torrential rains will be minimized and at the same time the possibility of a natural development of the administrative territories of municipalities will be preserved. For this reason, the author of this study proposes to make changes to the area planning documentation in the individual municipalities included in the Lipí pilot locality, as proposed below in this study (on the "cards" of individual municipalities).

The result of this incorporation of individual measures are, in addition to text parts, also drawings of the entire area (see graphic appendix) in the scope of:

1. Basic division of the area
2. Main drawing
3. Drawing of public benefit buildings, measures and landscape sanitation.

4. Description of the proposed solution - for individual municipalities in the pilot locality

ČAKOV MUNICIPALITY

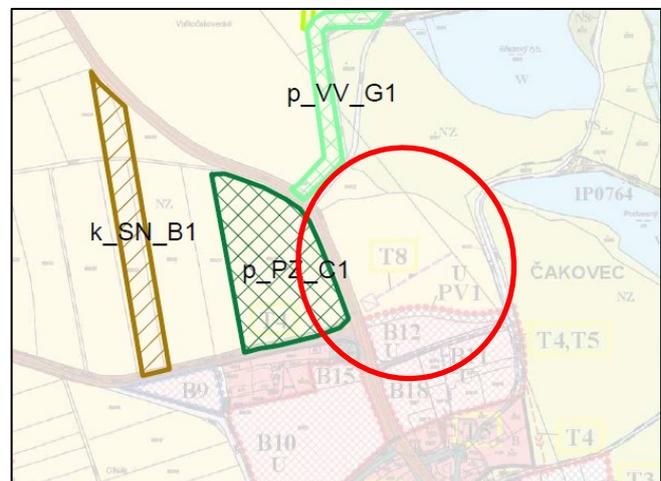
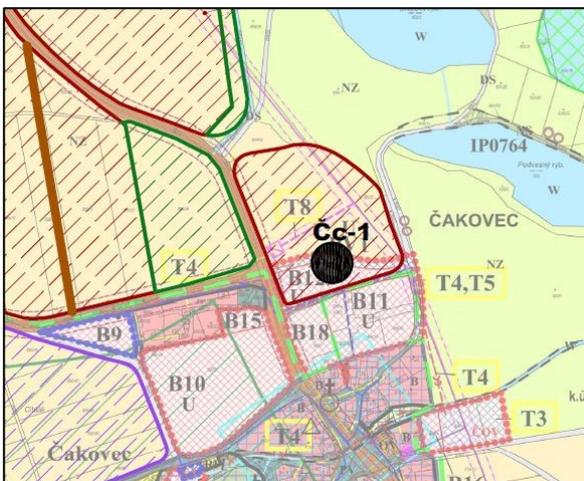
A. Collision points determined in the first part of this study and their solution:

In the first part of the study, only one collision point was identified in the administrative territory of Čakov, and this collision point was included in category "k" - collision with the conceptual solution of area planning documentation. It was a collision point Čc-1, for which the author of this study proposes the following solution:

Collision place Čc-1 (municipality Čakov, cadastral area Čakovec):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Čakov zoning plan. Specifically, the design of anti-erosion agrotechnology was designed on the entire area designated by the zoning plan for housing (B12), on the area of public space surrounding the area (PV1) and also in this area is the design of NV 22 kV high voltage power lines and transformer stations (T8).

After checking the condition of the area and the municipality's interest in construction in this locality, the study of the applicability of flood protection measures to land use plans assessed that the proposed protective measure in the form of anti-erosion agrotechnology on arable land is designed for the current state of the area and until construction in B12 or PV1 it is appropriate to respect it throughout the proposed area. However, after the start of construction in the mentioned areas, it is necessary to include the newly emerging construction in the protection, as the municipality is interested in maintaining the construction in this area. Therefore, the author of this study modified the proposed protective measure (proposal of the T. G. Masaryk Water Research Institute) outside the buildable area. However, the adjusted area for agrotechnical measures will not be reflected in the change of the zoning plan, as its inclusion would contradict the current wording of § 43 par. 3 of the Building Act (it would exceed the detail of the area planning documentation of the municipality). The definition of the modified agrotechnical area is therefore only obvious from the drawing "Proposed measures that cannot be included in area planning documentation", which is part of this study (not the actual changes to the area plan).



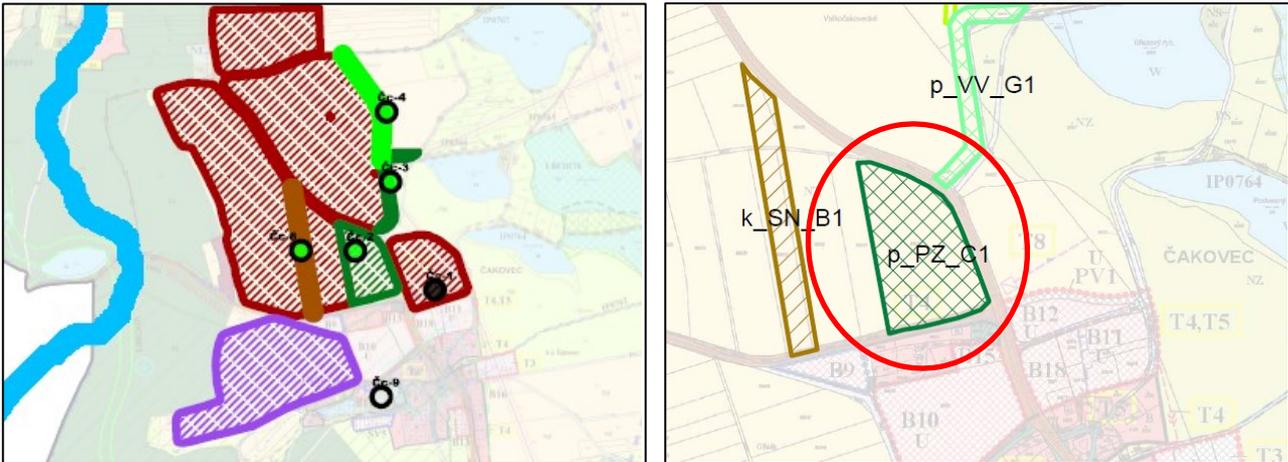
B. Solution points identified in the second part of this study and their solutions:

When creating a proposal for changes to individual area planning documentation, the 2nd part of this study determined the so-called places to be solved, for which it is desirable to include them in the form of a specific area with a different way of use (corridor) in the area planning documentation. The following places were in the village of Čakov:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Čakov	Čakov	Čc-5	Protective grassing	Agricultural area (arable)	P_VV_G - water and water management areas - adjustment of the flow line to the near-nature state
Čakov	Čakov	Čc-6	Protective grassing	Agricultural area (arable)	P_VV_G - water and water management areas - adjustment of the flow line to the near-nature state
Čakov	Čakov	Čc-7	Protective grassing	Agricultural area (arable)	P_VV_G - water and water management areas - adjustment of the flow line to the near-nature state
Čakov	Čakov	Čc-2	Protective grassing	Agricultural area (arable)	P_PZ_C – agricultural areas – permanent grassland
Čakov	Čakov	Čc-3	Protective grassing	Agricultural area (arable)	P_VV_G - water and water management areas - adjustment of the flow line to the near-nature state
Čakov	Čakov	Čc-4	Infiltration belt, DSO stabilization	Agricultural area (arable)	K_SN_CH – corridor of mixed undeveloped land – infiltration belt
Čakov	Čakov	Čc-8	Baulk	Agricultural area (arable)	K_SN_B – corridor of mixed undeveloped land – baulk
Čakov	Čakov	Čc-9		Water and water management area - wetlands	P_VV_B - Water and water management area – small water reservoir
Čakov	Čakov	Čc-11		Forest area, water and water management area	P_VV_B - Water and water management area – small water reservoir
Čakov	Čakov	Čc-10		Forest area, water and water management area, mixed undeveloped area, agricultural area	K_SN_G - corridor of mixed undeveloped land – system of barrages

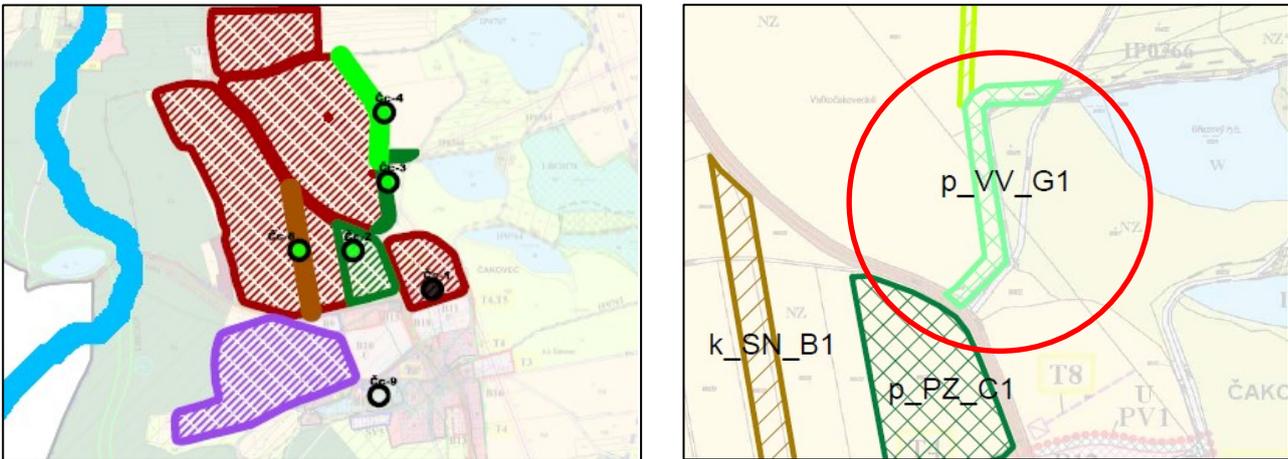
Place for solution Čc-2 (village Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included among the agricultural areas - ZPF arable, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassing. From the assessment of the given area, the processor agrees with the VÚV proposal, he proposed the transformation of arable land into a grassland area, which will enable a better creation of conditions for the implementation of the proposed protective measure. Therefore, for the implementation of the protective measure in question, an agricultural area - permanent grassland (p_PZ_C1) is proposed in the amendment to the zoning plan.



Place for solution Čc-3 (municipality Čakov, cadastral area Čakovec):

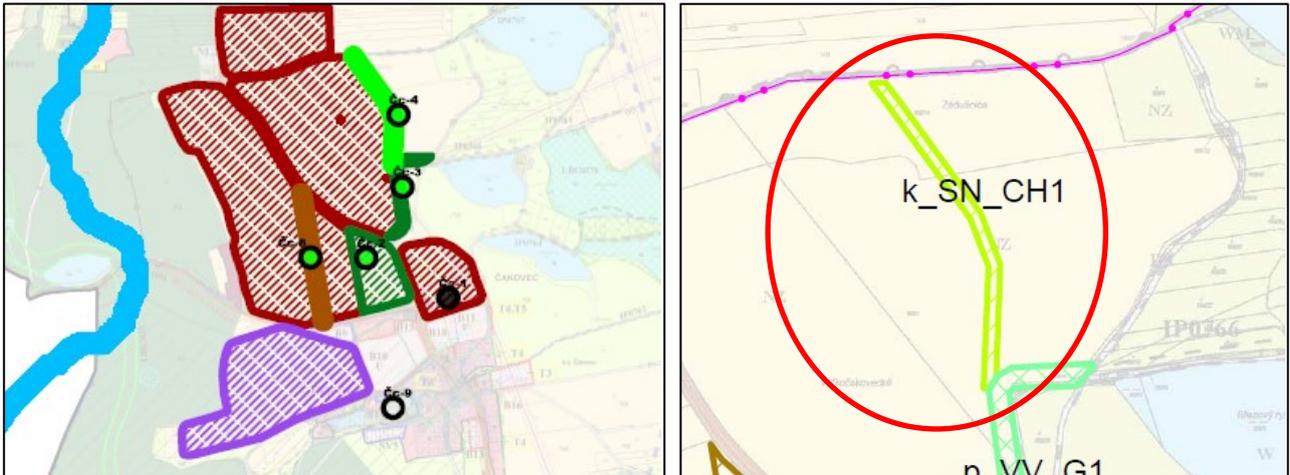
On the territory in the Čakov zoning plan included among agricultural areas - ZPF arable, agricultural areas - ZPF permanent grasslands and water and water management areas - water areas and streams, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassing. However, after assessing the area, the author of this study concluded that a more appropriate solution to the flood risk in this locality would be to modify the flow to a state friendlier to the countryside, especially because some space will be created for landscaping the stream to increase the ability of the environment to slow down the runoff and create floodplains that will reduce the potential consequences of surface runoff. Therefore, for the implementation of the protection measure in question, the water area and the water management area is proposed in the amendment to the zoning plan - modification of the flow line to a state friendlier to the countryside (p_VV_G1).



Place for solution Čc-4 (municipality Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included in the agricultural areas - ZPF arable, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of a infiltration belt (stabilization of concentrated runoff paths) to ensure flood protection. After assessing the area, the author of this study agreed with the VÚV proposal, and therefore a mixed corridor of a mixed

undeveloped area - a infiltration belt (k_SN_CH1) is proposed in the amendment of the zoning plan for the implementation of the protection measure in question.



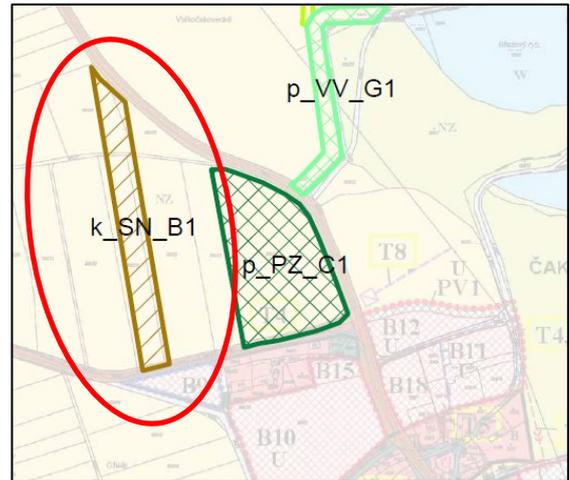
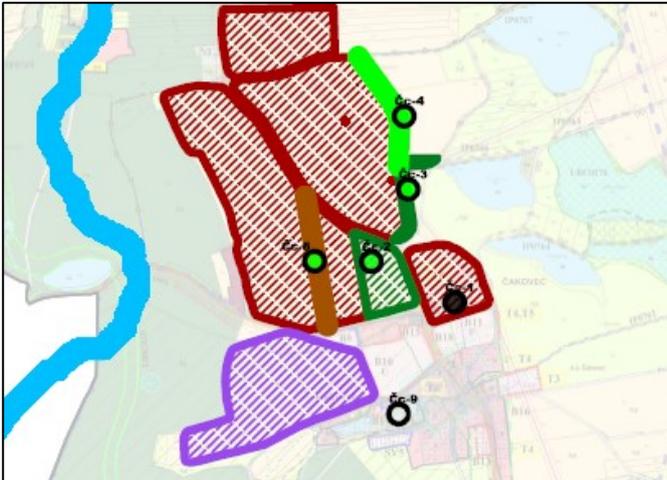
Places to solve Čc-5 to Čc-7 (municipality Čakov, cadastral area Čakov):

On the territory in the Čakov zoning plan included into agricultural areas - ZPF arable, water and water management areas - water areas and streams, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, the author of this study, after assessing the area, came to the conclusion that a more appropriate solution to flood risk in this locality would be to modify the flow to a state friendlier to the countryside, especially because some space will be created for landscaping the stream and floodplain to increase the ability environment to slow down runoff and create floodplains that will reduce the potential consequences of surface runoff. Specifically, it is a directional adjustment of the flow, branching of the flow, stabilization of the riverbed or accompanying riparian vegetation. Therefore, for the implementation of the protective measure in question, a water and water management area is proposed in the amendment to the zoning plan - modification of the flow line to a state friendlier to the countryside (p_VV_G2 and p_VV_G3). The proposed measures, under the designation of the place to solve Čc-5 and Čc-6, were re-evaluated by the processor and unified into one area of flood control measures, for the area p_VV_G2, which will accommodate the flow in the section and allow its subsequent modification within the defined area. with an appropriate flood control measure.



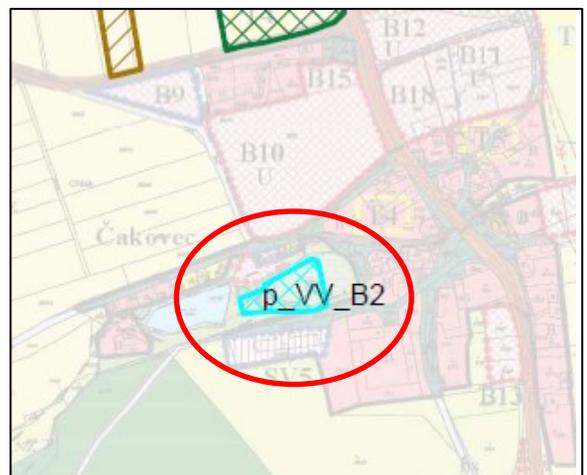
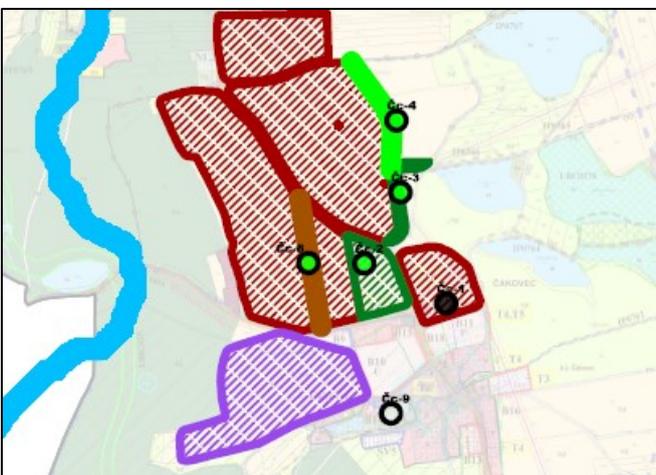
Place for solution Čc-8 (municipality Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included among the agricultural areas - ZPF arable, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion limit to ensure flood protection. The developer of this study, after assessing the given area, agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area - limit (k_SN_B1) is proposed for the implementation of the protection measure in question in the amendment of the zoning plan.



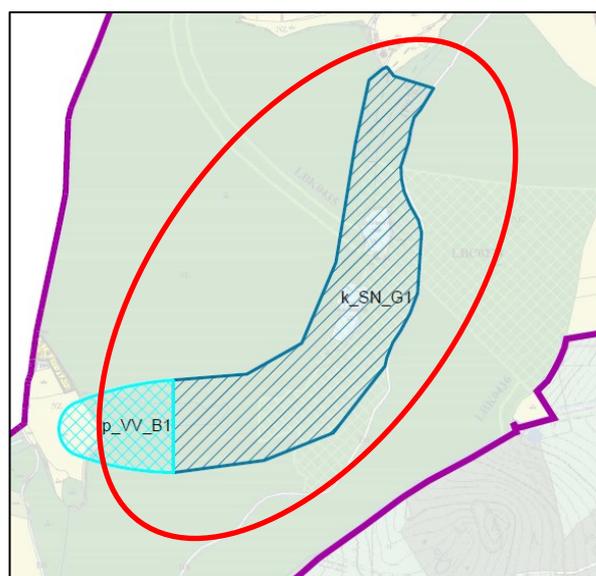
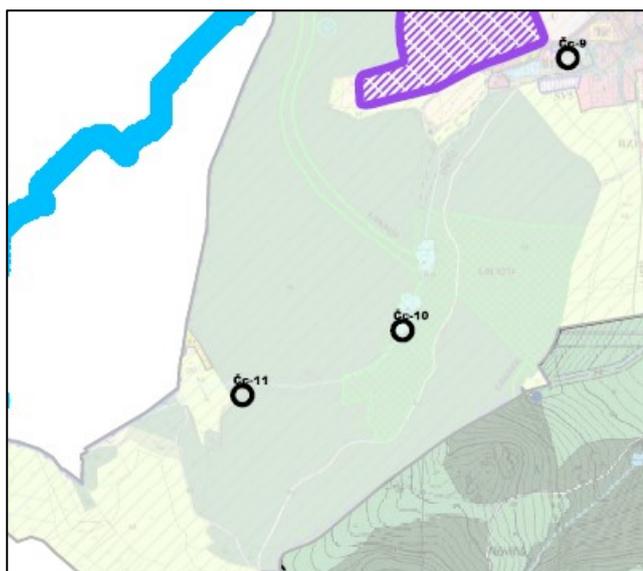
Place for solution Čc-9 (municipality Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included between water and water management areas - wetlands, the T. G. Masaryk Water Research Institute did not propose the implementation of any protective measures to ensure flood protection. However, after preparing the area, the author of this study concluded that in order to reduce the flood risk in this locality, it is appropriate to supplement the flood protection measures with a new small reservoir, mainly due to the addition of another possible water area with an auxiliary function, when capturing storm water flowing into this place from the surrounding hills. This water area is also designed with regard to the requirements of the municipality, which in these places is struggling with the accumulation of torrential precipitation which further proceeds through the creek bed to the centre of the municipality. Therefore, for the implementation of the protective measure in question, a water and water management area - a small water reservoir (p_VV_B2) is proposed in the amendment to the zoning plan.



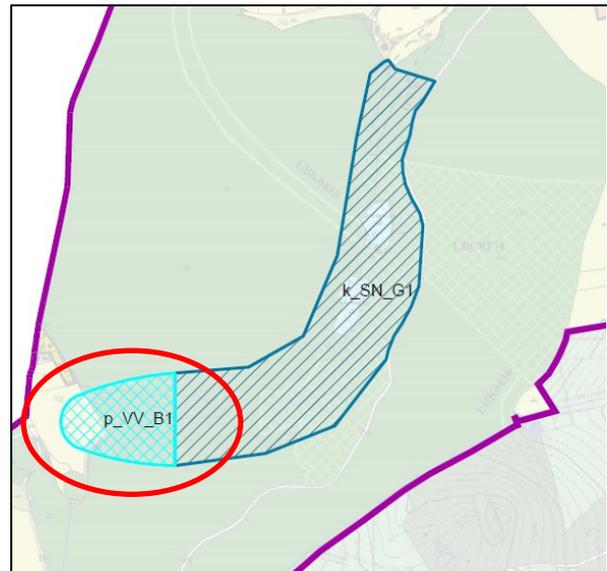
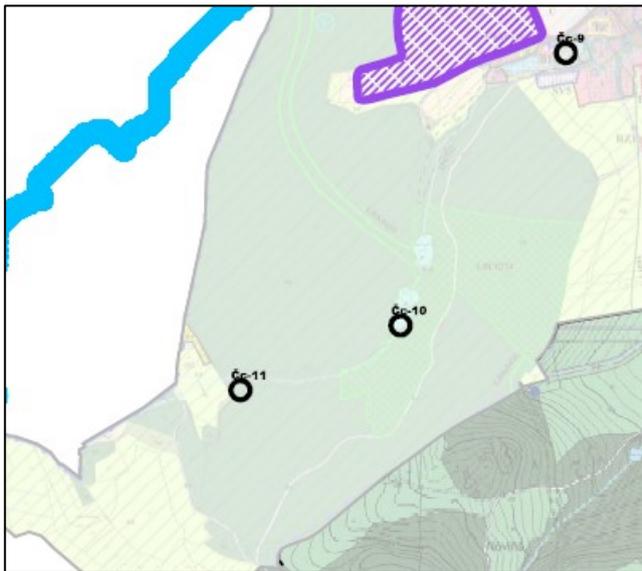
Place for solution Čc-10 (municipality Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included among water and water management areas - water areas and streams and forest areas (the territory also passes elements of the local system of ecological stability LBC0274 and LBK0435) However, after assessing the area, the author of this study concluded that in order to reduce the flood risk in this locality, it is appropriate to supplement the flood protection system with a system of dams, mainly due to the creation of a corridor for new flood protection elements located in forest lands. The system of dams is designed mainly due to the slowing down of the outflow of storm water, its regulation and partial retention on forest land. Therefore, for the implementation of the protective measure in question, a mixed corridor of a mixed undeveloped area - a system of dams (k_SN_G1) is proposed in the amendment to the zoning plan.



Place for solution Čc-11 (village Čakov, cadastral area Čakovec):

On the territory in the Čakov zoning plan included among water and water management areas - water areas and streams, forest areas, mixed undeveloped areas - lands of natural and nature-friendly ecosystems and agricultural areas - ZPF did not design permanent grasslands to ensure flood protection T. G. Masaryk Water Research Institute implementation of any protective measure. However, after assessing the area, the author of this study came to the conclusion that in order to reduce the flood risk in this locality, it is appropriate to supplement flood control measures with a small reservoir, especially due to the capture of rainwater and storm water in forest land, the creation of a cooperating biological element in landscape, which will help, in the event of a drought, by bringing water to the surrounding landscape and creating a quality microclimate. Therefore, for the implementation of the protective measure in question, a water and water management area - a small water reservoir (p_VV_B1) is proposed in the amendment to the zoning plan.



Final summary of the proposed measures:

On a forest stream springing in the forest massif of the Haberské Mountains (Blanský Forest Protected Landscape Area), a new corridor of mixed unstoppage area is designed in a section of approx. 750 m - a system of dams in areas in forest, water and forest cultures. Its function will be subordinated to the forest management in the valley of the watercourse, in the width of the corridor 100 to 150 m within the system of dams on streams. In order to avoid the demolition of small dams at the extreme of rainstorms, a larger water reservoir (p_VV_B1) is designed above the valley of the watercourse to contain torrents from the Haberské Mountains, with an area of 2.35 ha. At the mouth of the watercourse into a wet valley in contact with the currently built-up area of Čakovec, another water reservoir (p_VV_B2) is designed, again for the function of retaining extreme rainfall endangering the currently built-up area.

Other flood protection measures in cadastral area Čakov and Čakovec complement and modify the valley floodplain of the Dehtářský brook in terms of area and space for the restoration of the original meanders accompanied by high greenery. The division of large ploughed strips for monocultural farming is supplemented by landscaping for the implementation of the accompanying greenery of anti-erosion boundaries and the infiltration belt (k_SN_CH1).

It mainly concerns the areas along the Dehtářský brook, designed for permanent grassing, which will allow the overflow of storm water, as well as the extension of watercourse management, not only to meet the current situation of the road network and respecting the electricity network. The expansion of floodplains (p_VV_G2 and p_VV_G3) on permanently grassed land is concentrated in the pond valley floodplain of the Dehtářský brook in the section of the Beranov and Dlouhý ponds near Čakov. These flood control measures here complement the existing proposal of ÚSES (Territorial system of ecological stability) elements according to the valid zoning plan. The result of all these measures is respect and protection of natural terrain in the sloping area above Čakovec, a slightly sloping area along the main service roads between Čakov, Čakovec, Kvítkovice and Jankov, and the maximum target water retention in the pond system of the Dehtářský brook floodplain. It concerns demarcated areas and corridors requiring, in particular, changes in crops from arable to permanent grassland.

Specifically, the proposed areas of mixed corridors are defined in the scale of the valid Čakov zoning plan – a infiltration belt, a field border (k_SN_CH1 and k_SN_B1). Furthermore, water and water management areas are defined with the function of modifications of the flow management to the state nearer to nature (p_VV_B2, p_VV_G3) on land in the crops of the agricultural land fund.

A very important set of protective measures also consists of agrotechnical measures, which, however, cannot be directly reflected in the zoning plan with regard to the detail of the zoning plan embedded in the Building Act. However, agrotechnical measures have a very significant effect on the protection of the territory from the consequences of torrential rains (see e.g. conclusions from the Popelín locality in the first stage of the study) and therefore the study also includes a drawing entitled "Proposed measures that cannot be included in area planning documentation", from which it is evident in which areas agrotechnical measures should be implemented so that the protection of the area from the consequences of torrential rains is as effective as possible.

THE VILLAGE OF KVÍTKOVICE

A. Collision points determined in the first part of this study and their solution:

In the first part of the study, no collision points of the type "k - collision with the conceptual solution of area planning documentation" or type "u - collision with conditions in zoning plan".

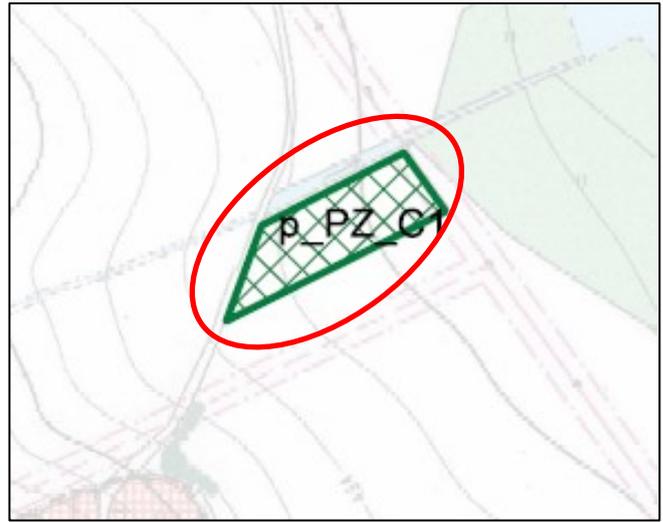
B. Solution points identified in the second part of this study and their solution:

When creating a proposal to change the area planning documentation Kvítkovice was within the 2nd part of this study determined the so-called places to be solved, for which it is desirable to include them in the form of a specific area with a different way of use (corridor) in the area planning documentation. In the village of Kvítkovice there were the following places:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Kvítkovice	Kvítkovice	Kv-1	Protective grassing	Agricultural area	p_PZ_C – agricultural area – permanent grassland
Kvítkovice	Kvítkovice	Kv-2	Protective grassing	Agricultural area	p_SN_E – areas of mixed undeveloped land – grassing the valley
Kvítkovice	Kvítkovice	Kv-3	Protective grassing	Agricultural area	p_SN_E – areas of mixed undeveloped land – grassing the valley
Kvítkovice	Kvítkovice	Kv-4	Protective grassing	Agricultural area	p_PZ_C – agricultural area – permanent grassland
Kvítkovice	Kvítkovice	Kv-5	Protective grassing	Agricultural area	p_PZ_C – agricultural area – permanent grassland
Kvítkovice	Kvítkovice	Kv-6	Protective grassing	Agricultural area	p_PZ_C – agricultural area – permanent grassland

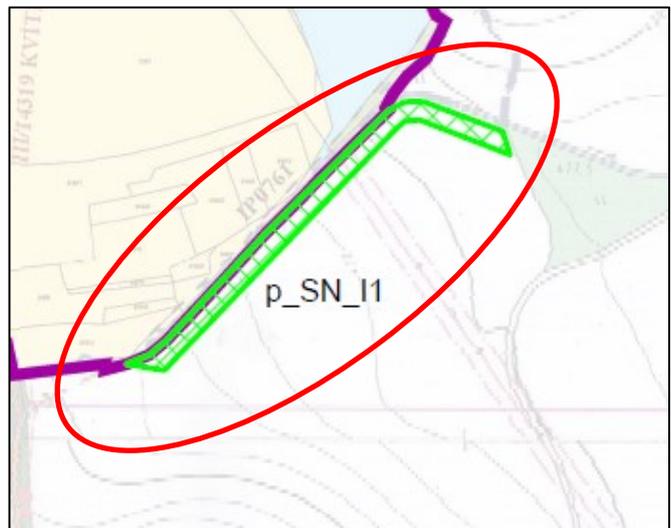
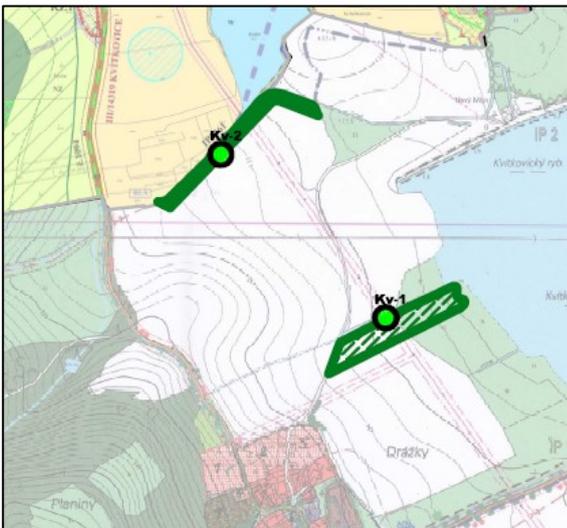
Place for solving Kv-1 (village Kvítkovice, cadastral area Kvítkovice):

On the territory in the Kvítkovice zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassing. During the assessment of the given area, the author proposed the conversion of arable land into an area of permanent grassland, which will enable a better creation of conditions for the implementation of the proposed protective grassing. This is only a part of the proposed area according to the VÚV, because the part adjacent to the water area is already in the area - meadows and pastures. Therefore, for the implementation of the protective measure in question, the area of the measure - agricultural area - permanent grassland (p_PZ_C1) is proposed in the amendment to the zoning plan.



Place for solving Kv-2 (village Kvítkovice, cadastral area Kvítkovice):

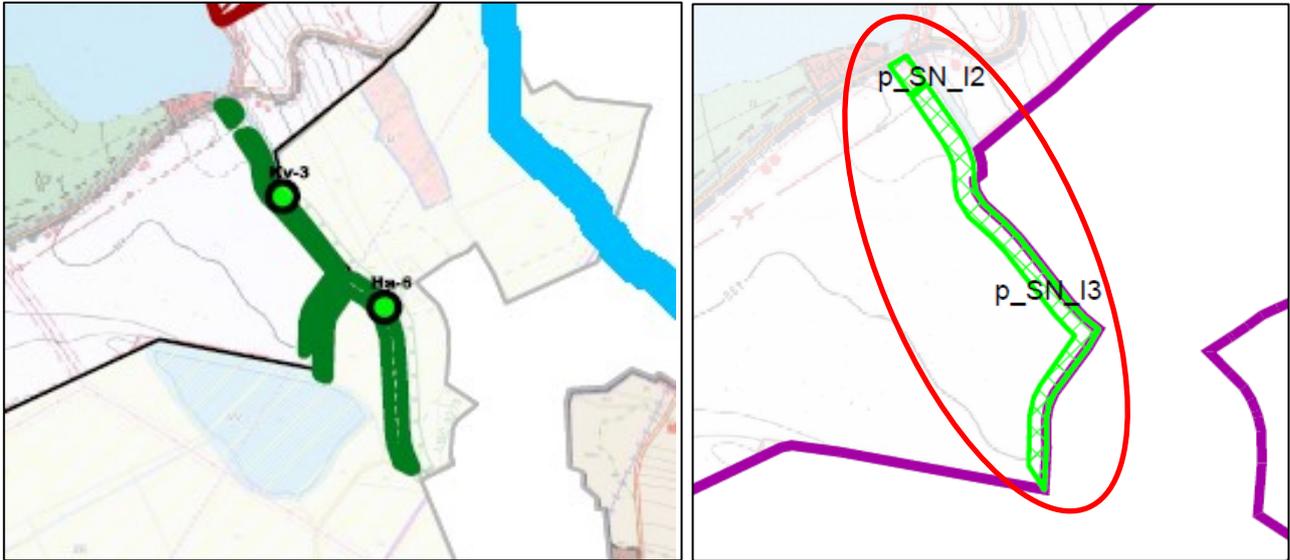
On the territory in the Kvítkovice zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassing. However, after assessing the area, the author of the study concluded that a more appropriate solution to the flood risk in this locality would be to stabilize the concentrated runoff paths, mainly because space will be created for landscaping the stream to increase the ability of the environment to slow down runoff and create runoff flood zones, which will reduce the potential consequences of surface runoff. Therefore, for the implementation of the protection measure in question, a mixed area of undeveloped area - grassing of the valley (p_SN_I1) is proposed in the amendment to the zoning plan to ensure stabilization of the concentrated runoff path.



Place for solving Kv-3 (village Kvítkovice, cadastral area Kvítkovice):

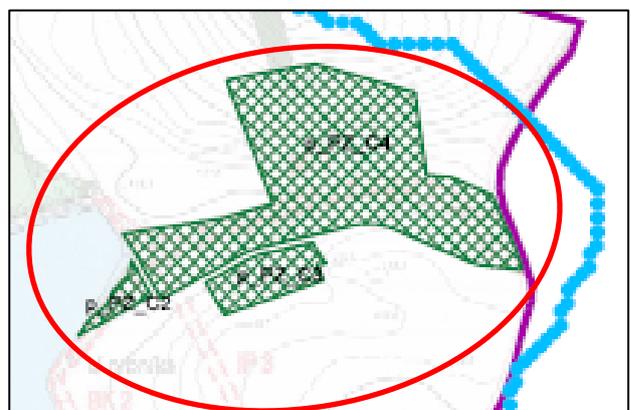
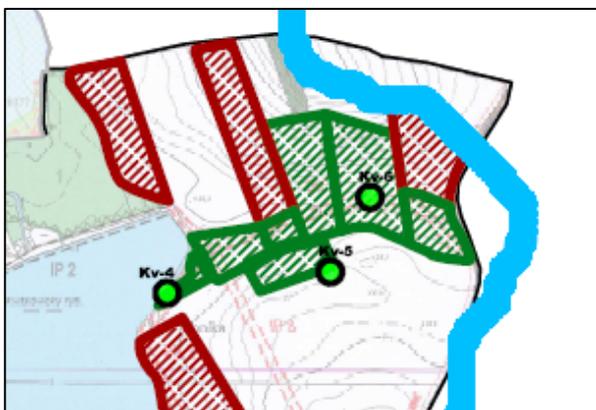
On the territory in the Kvítkovice zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective

grassing. However, after assessing the area, the author of the study concluded that a more appropriate solution to the flood risk in this locality would be to stabilize the concentrated runoff paths, mainly because space will be created for landscaping the stream to increase the ability of the environment to slow down runoff and create runoff. flood zones, which will reduce the potential consequences of surface runoff. Therefore, for the implementation of the protection measure in question, a mixed area of undeveloped area - grassing of the valley (p_SN_I2, p_SN_I3) is proposed in the amendment to the zoning plan to ensure stabilization of the concentrated runoff path.



Place for solution Kv-4 to Kv-6 (village Kvitkvice, cadastral area Kvitkvice):

On the territory in the Kvitkvice zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. From the assessment of the given area, the processor agrees with the VÚV proposal, therefore he proposed the conversion of arable land into an area of permanent grassland, which will enable a better creation of conditions for the implementation of the proposed protective grassing. For the implementation of the protective measure in question, the areas of the measure - agricultural areas - permanent grassland (p_PZ_C2, p_PZ_C3, p_PZ_C4) are proposed in the amendment to the zoning plan.



Final summary of the proposed measures:

To prevent the overflow of storm water along the valley of the stream flowing from the pond Hluboký and Paseky in the forests of the Haberské Mountains, it is proposed to grass the valley in the area p_SN_I1 along the reclaimed watercourse of this stream on mixed undeveloped areas in the section of the stream under the 3rd class road between Kvítkovice and Čakovec in the direction of its outlet to the outlet of the Bojiště pond. In this locality, the modification of the near-natural flow course will be defined so that there is a sufficient width of areas for the ability to slow down the runoff and create an inundation zone to reduce the potential consequences of a surface runoff from the rainfall.

The possibility of implementing the proposed protective grassing is the conversion of arable land to the area of permanent grassland on the area p_PZ_C1. It is a locality threatened by erosion from visible areas between the built-up area of the village and the 3rd class road from Kvítkovice to Čakovec together with surface floods from the currently built-up areas of Kvítkovice, thus creating an increase in the areas for floods and removing the consequences of erosion in the existing watercourse above the Kvítkovický pond.

In the section of piped drained land the watercourse in the area p_PZ_C2, p_PZ_C3, p_PZ_C4 between small Hajský pond and Kvítkovický pond, which is in the original valley of the meandering stream, there is ploughed drained land, designed on both sides of the Kvítkovický pond to prevent topsoil erosion and flow into the pond. It is proposed to change the zoning plan on land in arable culture to areas of permanent grassland.

In the valley of the Dehtářský brook in the section from its mouth into the Kvítkovický pond in its length in the cadastres of the villages Kvítkovice and Habří ending at the border of the flow with the village Lipí, it is proposed to extend this valley on area p_SN_I2, p_SN_I3 by grassing in the required width for the inflow of storm water in the area of the floods in previous years.

THE VILLAGE OF HABŘÍ

A. Collision points identified in the first part of this study and their solutions:

In the first part of the study, only two collision points were identified in the administrative territory of the municipality of Habří, which were included in the category "k" - a collision with the conceptual solution of area planning documentation. It was a collision point Ha-1 and Ha-2, for which the author of this study proposed the following solution:

Collision place Ha-1 (village Habří, cadastral area Habří):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Habří zoning plan. Specifically, the design of anti-erosion agrotechnology was designed on a part of the area designated by the zoning plan for housing (B2 and B12), on a private and dedicated green area surrounding the area (B2), and also the existing 22 kV HV power line in this area.

Collision place Ha-2 (village Habří, cadastral area Habří):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Habří zoning plan. Specifically, the design of anti-erosion agrotechnology was designed in the area designated

by the zoning plan for mixed residential areas (SO-2), and also in this area there are existing sewerage and water supply lines.

After checking the condition of the area and the interest of the municipality in construction in these localities, the study of the applicability of flood protection measures to land use plans assessed that the proposed protective measure in the form of anti-erosion agrotechnology on arable land is designed for the current state of the area B2, B12 and SO-2 it is appropriate to respect it throughout the proposed area. However, after the start of construction in the mentioned areas, it is necessary to include in the protection also the newly emerging construction, as the municipality is interested in maintaining the construction in these areas. Therefore, the author of this study modified the proposed protective measure (proposal of the T. G. Masaryk Water Research Institute) outside the buildable area. However, the modified areas for agrotechnical measures will not be reflected in the change of the zoning plan, as their clogging would contradict the current wording of § 43 paragraph 3 of the Building Act (it would exceed the detail of the area planning documentation of the municipality). The definition of modified agrotechnical areas is therefore only apparent from the drawing "Proposed measures that cannot be included in spatial planning documentation", which is part of this study (not the actual changes to the area plan).



B. Solution points identified in the second part of this study and their solutions:

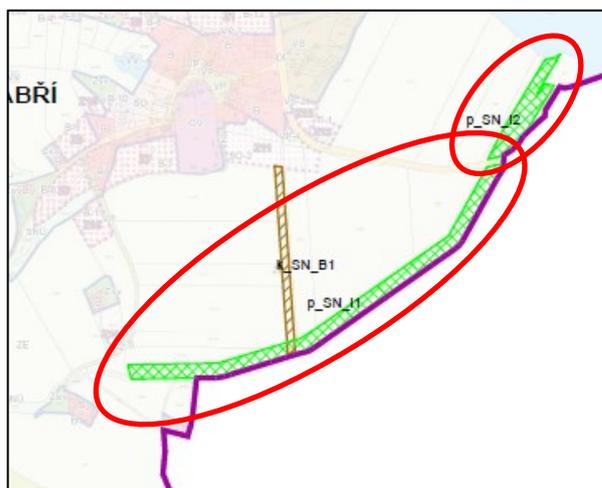
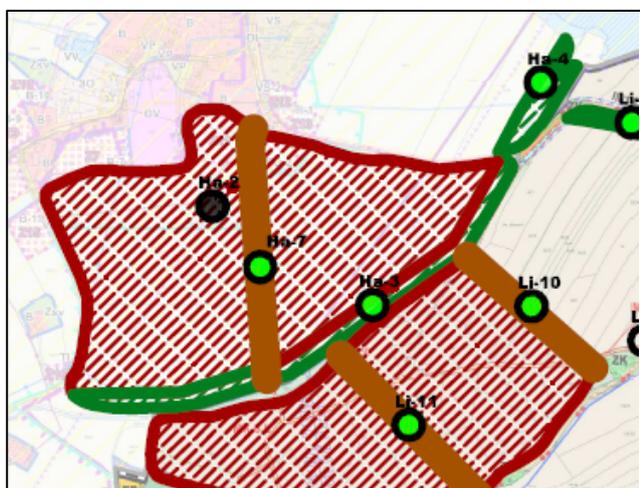
As flood protection does not only apply to areas for development, the developer also assessed other design measures (proposal of the T. G. Masaryk Water Research Institute) as relevant and included these areas among the collision points, in this case collisions of type u - collisions with territorial conditions plan. The author of the study modified the proposed protective measure of the VÚV outside the buildable area.

When creating a proposal for a change in area planning documentation, Habří was within the 2nd part of this study determined the so-called places to be solved, for which it is desirable to include them in the form of a specific area with a different way of use (corridor) in the area planning documentation. In the village Habří these were the following places:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Habří	Habří u Lipí	Ha-3	Protective grassing	Agricultural area	p_SN_E – areas of mixed undeveloped land – grassing the valley
Habří	Habří u Lipí	Ha-4	Protective grassing	Agricultural area	p_SN_E – areas of mixed undeveloped land – grassing the valley
Habří	Habří u Lipí	Ha-6	Protective grassing	Agricultural area	P_VV_B water and water management area – grassing the valley
Habří	Habří u Lipí	Ha-7	Protective grassing	Agricultural area	p_SN_E – areas of mixed undeveloped land – grassing the valley
Habří	Habří u Lipí	Ha-8	Baulk	Agricultural area	K_SN_A – corridor of mixed undeveloped land – baulk

Places to solve Ha-3 and Ha-4 (Habří municipality, Habří u Lipí cadastral area):

On the territory in the Habří zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, after assessing the area, the author of this study came to the conclusion, that a more suitable solution to the flood risk in this locality would be to stabilize the concentrated runoff paths, mainly due to easier and more accurate management of water runoff from the surrounding terrain. Specifically, it is a modification of the vegetation in the immediate vicinity of the stream, stabilization of the riverbed or modification of the accompanying riparian vegetation. Therefore, for the implementation of the protection measure in question, mixed areas of undeveloped area - grassing of the valley (p_SN_I1 and p_SN_I2) are proposed in the amendment to the zoning plan.

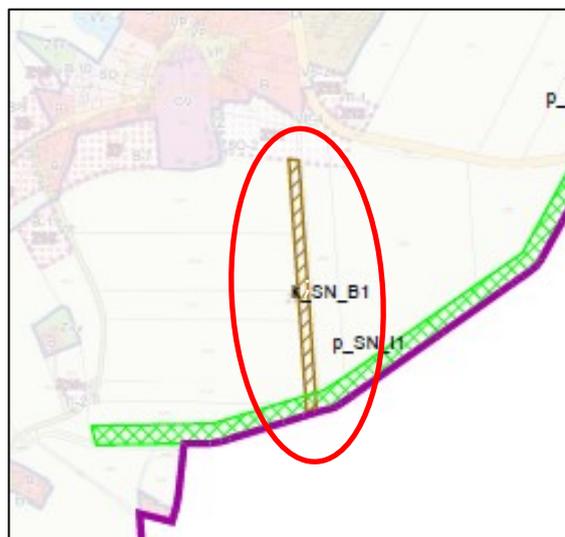
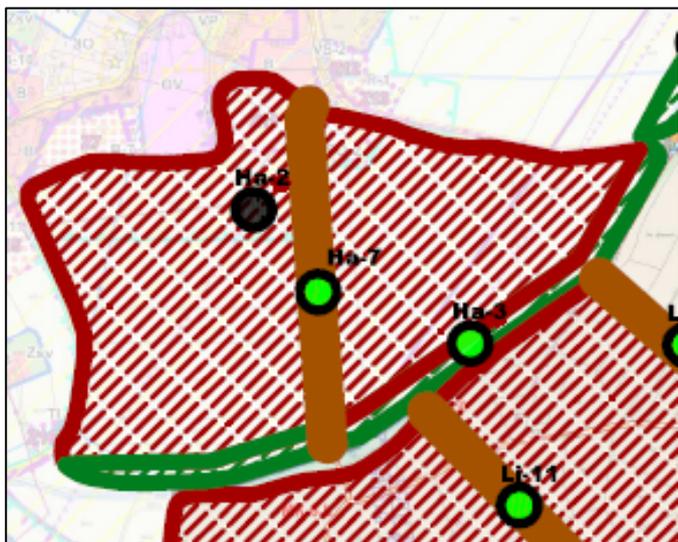


Place for solving Ha-5 (village Habří, cadastral area Habří u Lipí):

On the territory in the Habří zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, the author of this study, after assessing the area, came to the conclusion that a more appropriate solution to flood risk in this locality would be to modify the flow to a state friendlier to the nature, especially because some space will be created for landscaping the stream and

Place for solving Ha-7 (village Habří, cadastral area Habří u Lipí):

On the territory in the Habří zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion field border to ensure flood protection. The author of this study, after assessing the given area, agreed with the VÚV proposal, and therefore, for the implementation of the protective measure in question, a mixed corridor of a mixed undeveloped area - limit (k_SN_B1) is proposed in the amendment of the zoning plan.



Final summary of the proposed measures:

In the section of the watercourse on the areas p_SN_I1 and p_SN_I2 (the original stream currently piped) from the springs in the Vobr and Cihelna localities at the foot of the steep wooded slopes of the Haberské Mountains a protective grassing in the valley corridor is proposed. The purpose is to stabilize the runoff in the required width of the valley to create a meandering stream. This measure, approximately 1 km long, will define intensively managed, mainly ploughed plots of land on both sides of the valley. It is proposed to change the zoning plan on land in arable culture to areas of permanent grassland.

In the centre of gravity between the brook and the built-up area of the village of Habří, a completely ameliorated agricultural strip of land in the areas of ZPF are significantly divided in a north-south direction by landscaping for the implementation of the mixed undeveloped area corridor - baulks k_SN_B1. The purpose of this measure is to capture the erosion storms and their natural seduction by means of a border (future road) into the watercourse of the future meandering stream, the so-called division of storm water so as not to endanger the 3rd class road, especially before the mouth of the said watercourse into Panin pond. This will allow the distribution of torrents along the entire course of the 3rd class road in the direction of the village Lipí.

THE VILLAGE OF LIPI

A. Collision points identified in the first part of this study and their solutions:

In the first part of the study, three collision points were identified in the administrative territory of the municipality of Lipí, which were included in the category "k" - collisions with the conceptual solution of area planning documentation. They were collision points Li-1, Li-2 and Li-3, for which the author of this study proposed the following solution:

Collision point Li-1 (village Lipí, cadastral area Lipí):

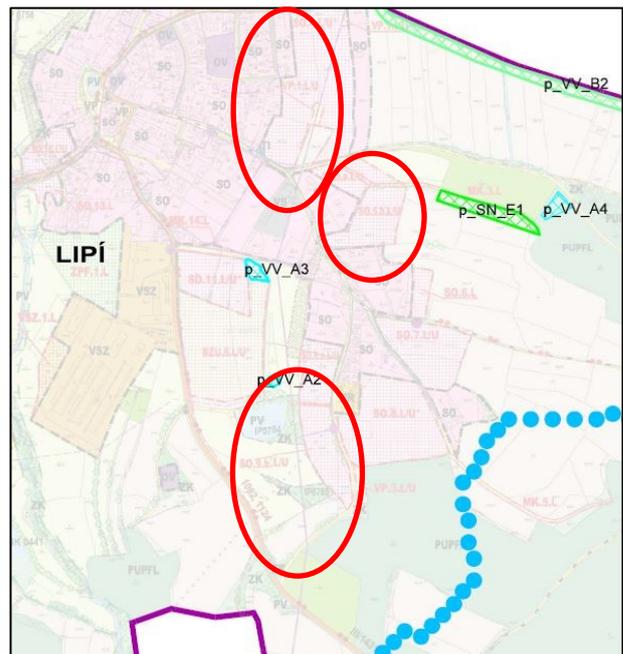
In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Lipí zoning plan. Specifically, the design of anti-erosion agrotechnology was designed on a part of the area designated by the zoning plan for housing (SO.4.L), then on the area of public space (VP.1.L), and also in this area is the existing 22 kV HV power line.

Collision point Li-2 (village Lipí, cadastral area Lipí):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Lipí zoning plan. Specifically, the design of anti-erosion agrotechnology was designed in the area designated by the zoning plan for mixed residential areas (SO.5.a.L and SO.5.b.L).

Collision point Li-3 (village Lipí, cadastral area Lipí):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid Lipí zoning plan. Specifically, the design of anti-erosion agrotechnology was designed on a part of the area designated by the zoning plan for housing (SO.9.a.L) and also in this area there is an existing 22 kV HV power line, including a transformer station.



After checking the condition of the area and the municipality's interest in construction in these localities, the author of the study of the applicability of flood control measures to land use plans assessed that the proposed protective measure in the form of anti-erosion agrotechnology on arable land is proposed for the current state of the area and until construction begins in SO.4. L, SO.5.aL, SO.5.bL, SO.9.aL and VP.1.L, it is appropriate to respect it throughout the proposed area. However, after the start of construction in the mentioned areas, it is necessary to include in the protection also the newly emerging construction, as the municipality is interested in maintaining the construction in these areas. Therefore, the author of this study modified the proposed protective measure (proposal of the T. G. Masaryk Water Research Institute) outside the buildable area. However, the modified areas for agrotechnical measures will not be reflected in the change of the zoning plan, as their clogging would contradict the current wording of § 43 paragraph 3 of the Building Act (it would exceed the detail of the spatial planning documentation of the municipality). The definition of modified agrotechnical areas is therefore only apparent from the drawing "Proposed measures that cannot be included in spatial planning documentation", which is part of this study (not the actual changes to the spatial plan).

B. Solution points identified in the second part of this study and their solutions:

As flood protection does not only apply to areas for development, the developer also assessed other design measures (proposal of the T. G. Masaryk Water Research Institute) as relevant and included these areas among the collision points, in this case collisions of type u - collisions with territorial conditions in the zoning plan. The author of the study modified the proposed protective measure of the VÚV outside the buildable area.

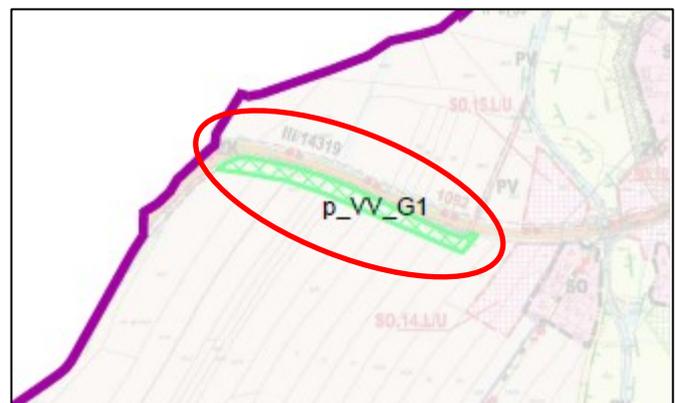
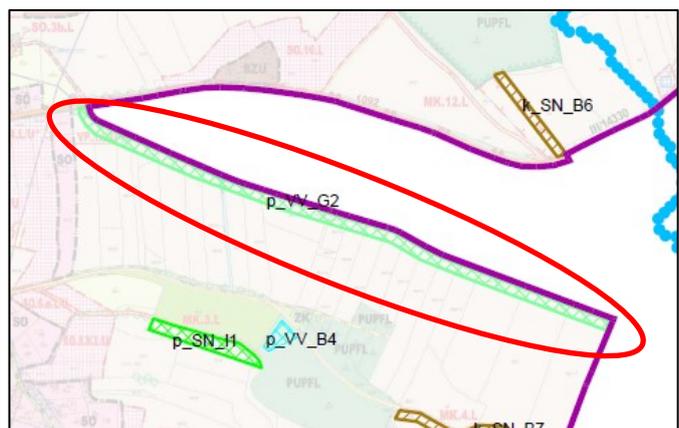
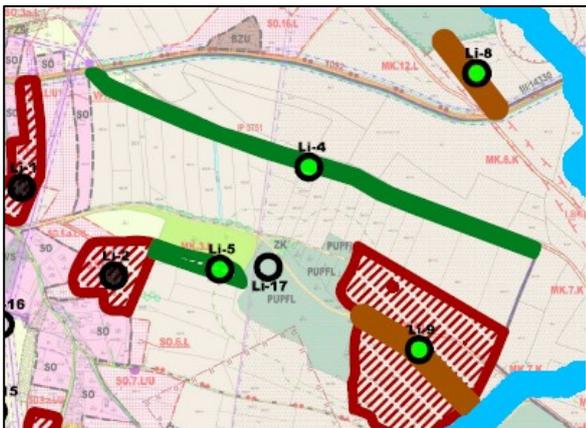
When creating a proposal for a change in the area planning documentation of Lipí, the 2nd part of this study determined the so-called places to be solved, for which it is desirable to include them in the form of a specific area with a different way of use (corridor) in the area planning documentation. They were the following places in the village of Lipí:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Lipí	Lipí	Li-4	Protective grassing	Agricultural area	p_VV_B water and water management area - adjustment of the flow line to the near-nature state
Lipí	Lipí	Li-5	Protective grassing	Agricultural area	p_SN_E - areas of mixed undeveloped land - grassing valley
Lipí	Lipí	Li-6	Protective grassing	Agricultural area	p_VV_B water and water management area - adjustment of the flow line to the near-nature state
Lipí	Lipí	Li-7	Baulk	Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk + k_SN_B - corridor of mixed undeveloped land - furrow
Lipí	Lipí	Li-8	Baulk	Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk
Lipí	Lipí	Li-9	Baulk	Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk
Lipí	Lipí	Li-10	Baulk	Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk
Lipí	Lipí	Li-11	Baulk	Agricultural area Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk
Lipí	Lipí	Li-12	Baulk	Agricultural area	K_SN_A - areas of mixed undeveloped land – baulk
Lipí	Lipí	Li-13	-	Agricultural area	K_SN_D - areas of mixed undeveloped land - ditch
Lipí	Lipí	Li-14	Small water reservoir	Water and water management area	P_VV_A - water and water management area – small water reservoir

Lipí	Lipí	Li-15	-	Agricultural area (TTP)	P_VV_A - water and water management area – small water reservoir
Lipí	Lipí	Li-16	-	Area of housing in farmsteads	P_VV_A - water and water management area – small water reservoir
Lipí	Lipí	Li-17	-	Forest area	P_VV_A - water and water management area – small water reservoir
Lipí	Lipí	Li-18	-	Landscape greenery	p_SN_C areas of mixed undeveloped land - barrage

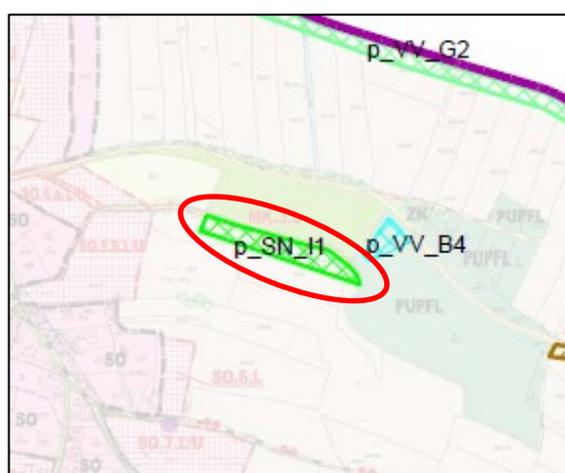
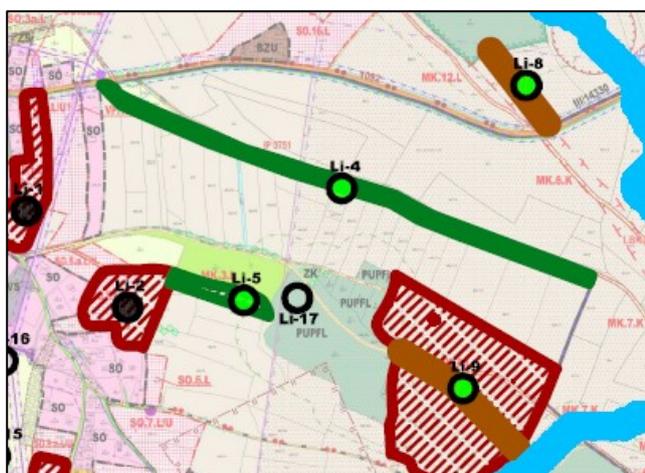
Place for solving Li-4 and Li-6 (Lipí village, Lipí cadastral area):

On the territory in the Lipí zoning plan included among the agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, the author of this study, after assessing the area, came to the conclusion that a more appropriate solution to flood risk in this locality would be to modify the flow to a state friendlier to the countryside, especially because some space will be created for landscaping the stream and floodplain to increase the ability environment to slow down runoff and create floodplains that will reduce the potential consequences of surface runoff. Specifically, it is a directional adjustment of the flow, branching of the flow, stabilization of the riverbed or accompanying riparian vegetation. Therefore, for the implementation of the protective measure in question, a water and water management area are proposed in the amendment to the zoning plan - modification of the flow line to a state friendlier to the countryside (p_VV_G1 and p_VV_G2).



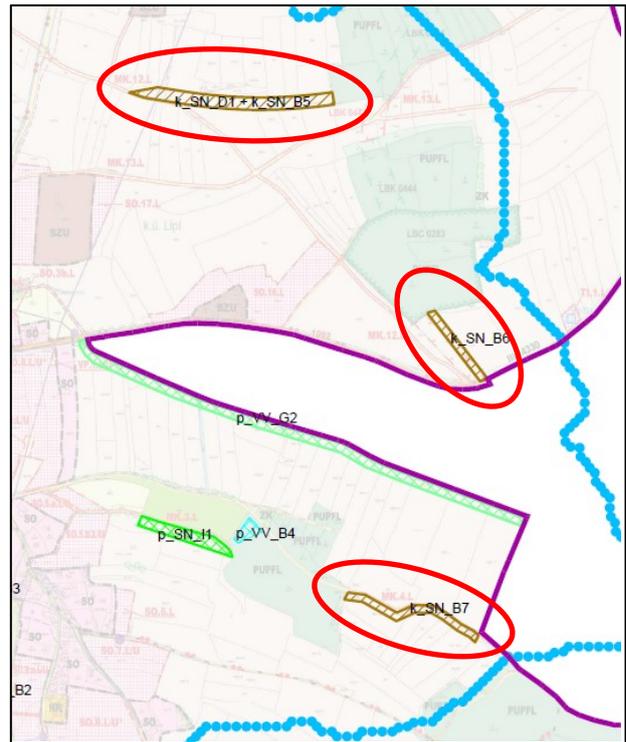
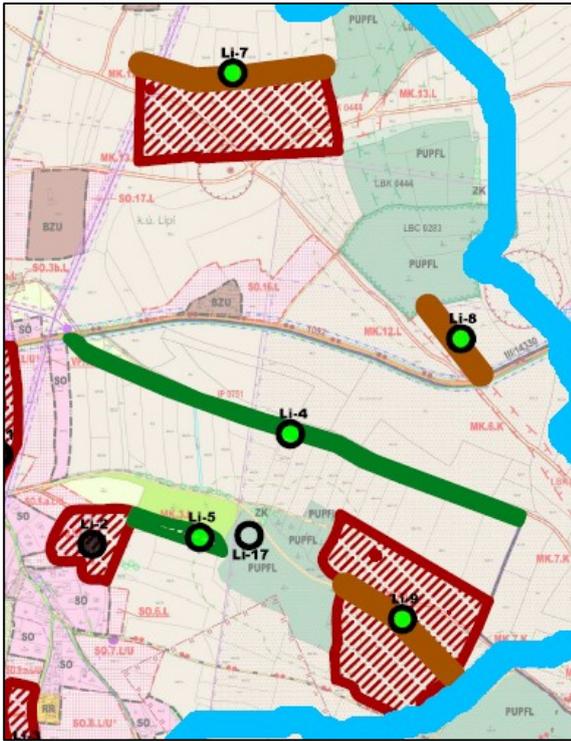
Place for solution Li-5 (village Lipí, cadastral area Lipí):

On the territory in the Lipí zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, after assessing the area, the author of this study came to the conclusion that a more suitable solution to the flood risk in this locality would be to stabilize the concentrated runoff paths, mainly due to easier and more accurate management of water runoff from the surrounding terrain. Specifically, it is a modification of the vegetation in the immediate vicinity of the stream, stabilization of the riverbed or modification of the accompanying riparian vegetation. Therefore, for the implementation of the protective measure in question, a mixed area of undeveloped area - grassing of the valley (p_SN_I1) is proposed in the amendment to the zoning plan.



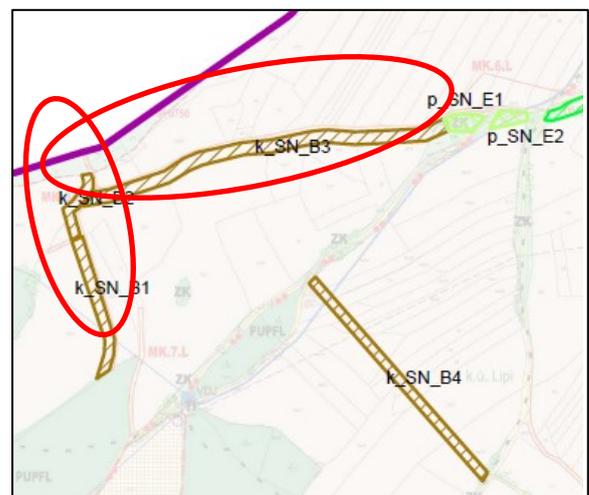
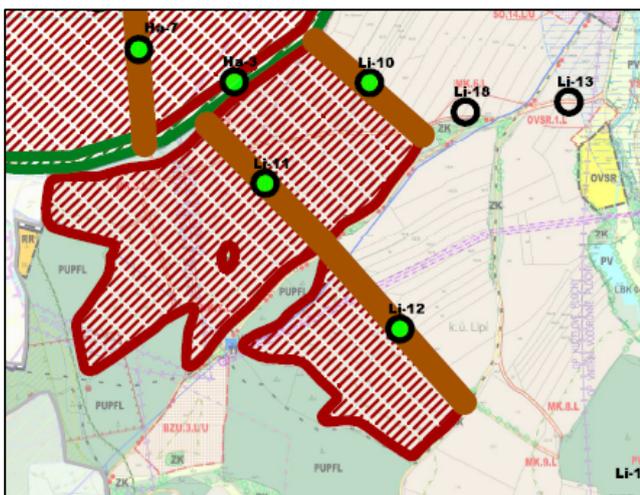
Place for solving Li-7 to Li-9 (Lipí village, Lipí cadastral area):

On the territory in the Lipí zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion field border to ensure flood protection. The author of this study, after assessing the area, agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area - limit (k_SN_B5 to k_SN_B7) is proposed for the implementation of the protection measure in question in the amendment of the zoning plan. Within the design, there was only a minor modification of the shape of the proposed corridor (k_SN_B7), according to local conditions in the area. Together with the corridor k_SN_B5, a flood protection measure k_SN_D1 - a gap is proposed in the same route.



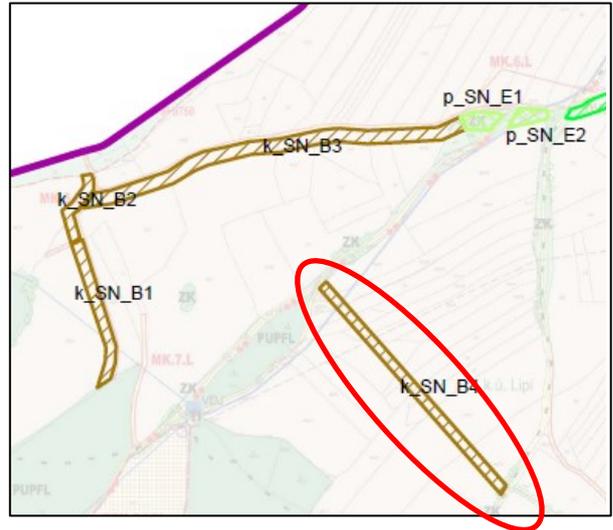
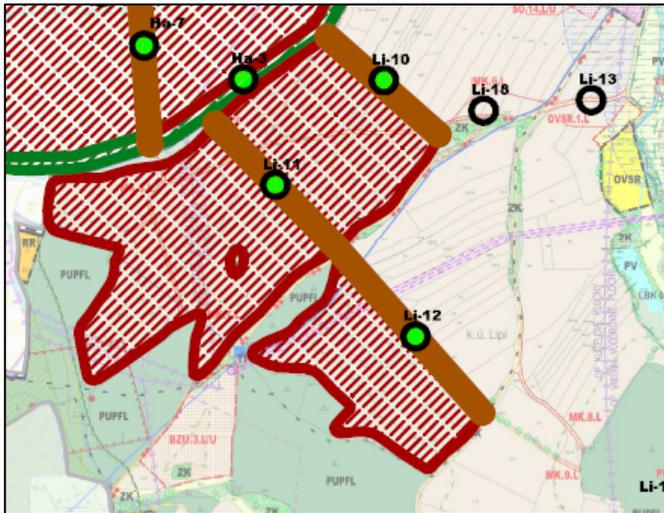
Place for solving Li-10 and Li-11 (Lipí village, Lipí cadastral area):

On the territory in the Lipí zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion field border to ensure flood protection. After assessing the area, the author of this study decided to propose a mixed undeveloped area corridor - a field border (k_SN_B1 to k_SN_B3) in the amendment to the zoning plan, which, however, does not correspond with the shape or location of the measure proposed by the VÚV. This change arose after consultation with the representatives of the municipality and after an examination of the affected area. The new land improvements in cadastral area also contributed to the new location of the proposed measures in Lipí cadastral area.



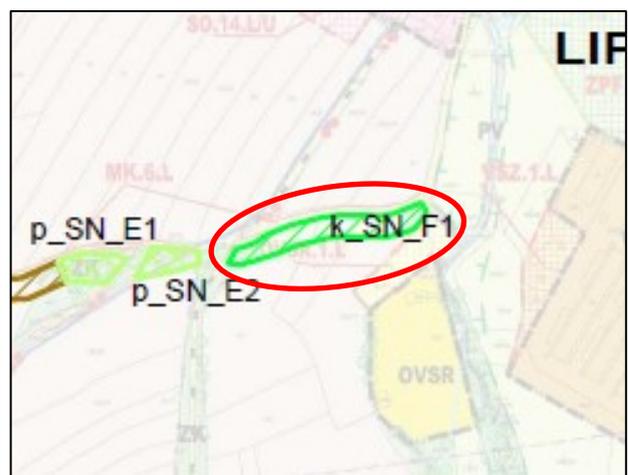
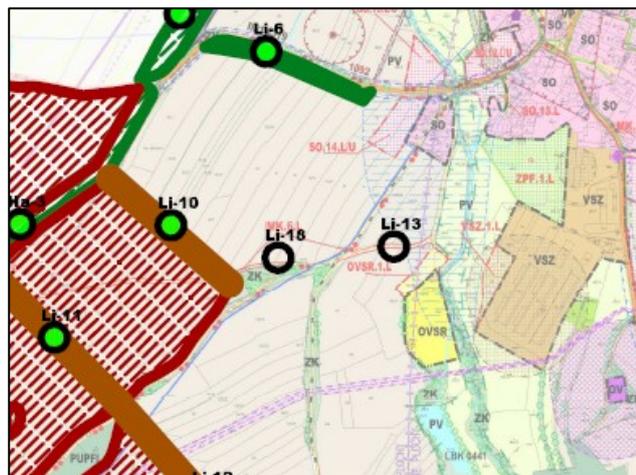
Place for solving Li-12 (village Lipí, cadastral area Lipí):

On the territory in the Lipí zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion field border to ensure flood protection. The developer of this study, after assessing the area, agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area – a field border (k_SN_B4) is proposed in the amendment of the zoning plan for the implementation of the protection measure in question.



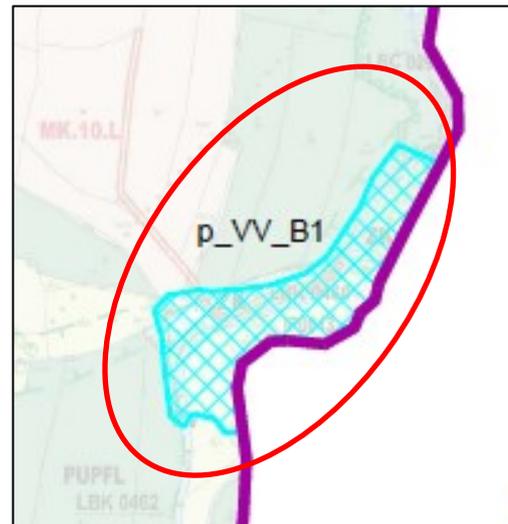
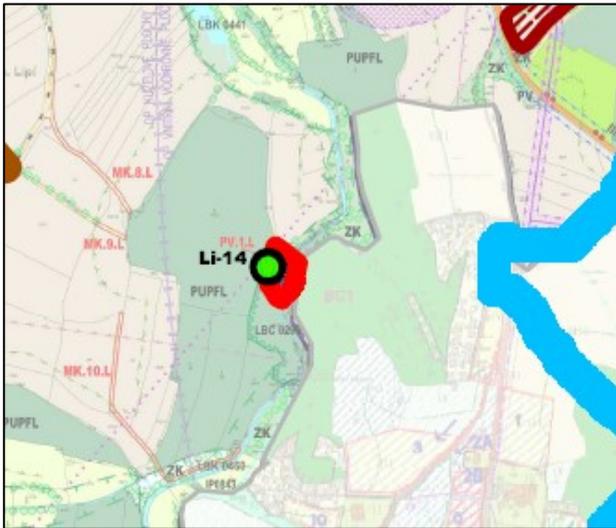
Place for solving Li-13 (Lipí village, Lipí cadastral area):

In the area of the Lipí zoning plan included among agricultural areas, a measure to ensure flood protection in the form of a drainage ditch was added. After assessing the area, the author of this study decided to supplement the site in the change of the zoning plan with a mixed undeveloped area corridor - ditch (k_SN_F1), which will help a better drainage of water from adjacent fields and prevent water from torrential rains enter the built-up area of the village.



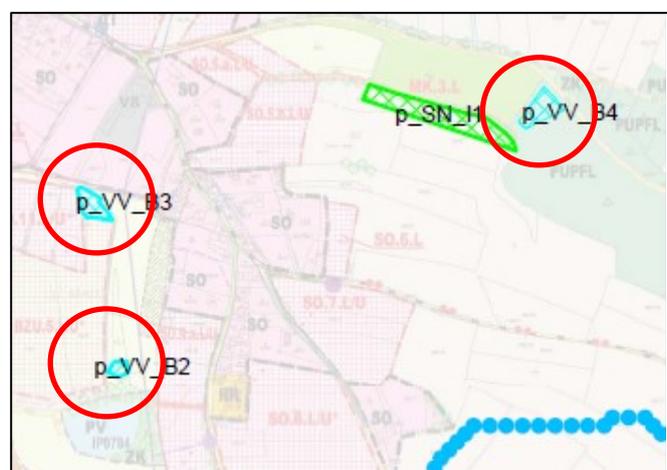
Place for solving Li-14 (village Lipí, cadastral area Lipí):

On the territory in the Lipí zoning plan included among water and water management areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure - a small water reservoir (p_VV_B1) to ensure flood protection. After assessing the area, the author of this study decided to propose a new location of the water and water management area - small water reservoir (p_VV_B1) in the amendment to the zoning plan, which does not correspond to the shape or location of the measure proposed by VÚV. This change was made on the basis of a comment submitted after the public hearing and after a thorough examination of the area concerned.



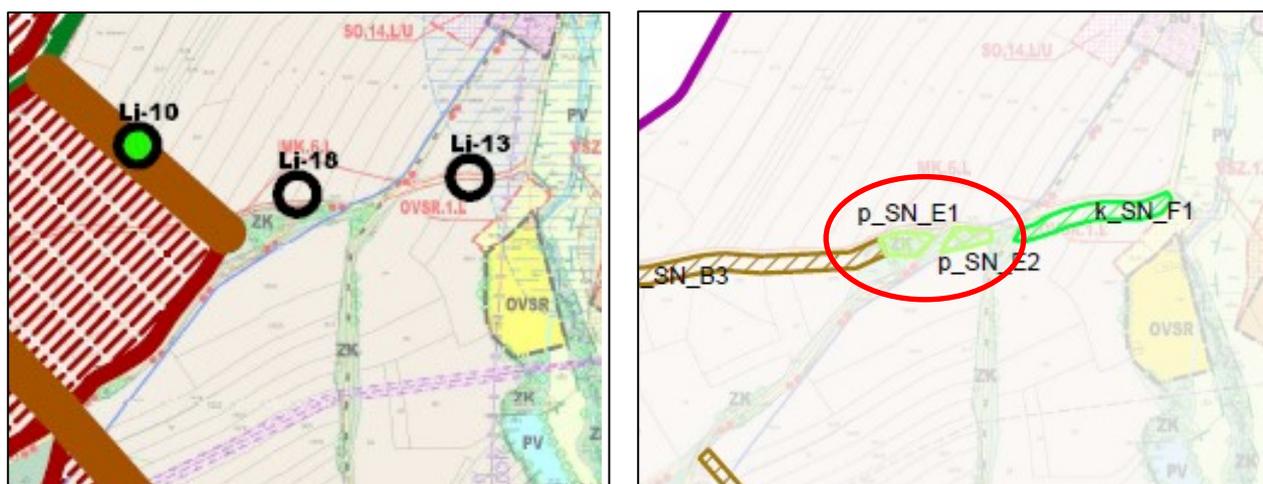
Place for solving Li-15 to Li-17 (Lipí village, Lipí cadastral area):

The T. G. Masaryk Water Research Institute did not propose any protective measures to ensure flood protection in the territory of the Lipí zoning plan included between water and water management areas, forest areas, mixed undeveloped areas, agricultural areas and areas of housing in agricultural homesteads. However, after assessing the area, the author of this study came to the conclusion that in order to reduce the flood risk in this locality, it is appropriate to supplement flood protection measures with small reservoirs, mainly due to rainwater and stormwater capture in forest land by creating an interacting biological element in the landscape, which will help, in the event of a drought, by bringing water to the surrounding landscape and creating a quality microclimate. Therefore, for the implementation of the protective measures in question, a small water reservoir (p_VV_B2 to p_VV_B4) is proposed in the amendment of the zoning plan for water and water management areas.



Place for solution Li-18 (village Lipí, cadastral area Lipí):

On the territory in the Lipí zoning plan included among the areas of landscape greenery, the T. G. Masaryk Water Research Institute did not propose implementation of any protective measures to ensure flood protection. However, after assessing the area, the author of this study came to the conclusion that in order to reduce the flood risk in this locality, it is appropriate to supplement flood protection measures with elements of dams, especially due to the capture of rainwater and storm water from adjacent agricultural areas. Therefore, for the implementation of the protective measures in question, areas of the mixed undeveloped area - dams (p_SN_E1 and p_SN_E2) are proposed in the amendment to the zoning plan.



Final summary of the proposed measures:

The basic principle of flood protection measures in cadastral area Lipí is the drainage of storm water from extremely sloping non-grassed agricultural land, which is in contact with the currently built-up area and buildable areas in the entire north-south length of the eastern edge of the village. Equally important for protection against torrents and floods are flood protection measures from the opposite western side of the village along the entire valley floodplain of the Dehtář brook. Measures in this area are also of local significance, as they correct the flow of the stream and its tributaries from the Haberské Mountains. In the whole range of proposed anti-flood measures for the protection of the municipality of Lipí, these are mainly extensions and modifications of line corridors in the mainly undeveloped area and modifications of water areas, i.e. streams which are friendlier to the countryside. The extension of the line corridors includes a system of overhangs, infiltration belts, boundaries and grassing of valleys and it is determined by a specialist to the scale of the zoning plan. In practice, this means that the definition of the width will be further determined on the basis of other stages of project documentation needed for their implementation.

Unforested slopes in localities below the municipal forest "Na Kotlovech" represent, due to their elevation above the northern edge of the built-up area of the village, a considerable range of areas that are not protected from erosion and torrential rains. In this area, an anti-flood measure of the field border type (k_SN_B5) is proposed on the area, and in the slope below this area, a flood-type measure (k_SN_D1) is proposed. These linear anti-flood landscaping measures in the required length just below the top of the slopes will divert the main influx outside the built-up area of the village.

In the continuation of the terrain relief to the east by the 3rd class road above the municipality, a line flood control measure is proposed – a field border (k_SN_B6). Towards the south, the sloping area along the eastern edge of the development of the village decreases in terraces, which are secured by flood protection measures as follows: under the 3rd class road, the adjustment of the flow line friendlier to the nature

p_VV_G2 is proposed along the entire length of the local watercourse. In the continuation of the terraced arrangement of the village terrain, the grassing corridors of the p_SN_I1 valley with a small water reservoir p_VV_B4 and the continuation of the k_SN_B7 a field border corridor are further designed in a linear arrangement. To reduce the flood risk in the buildable area on the eastern edge of the village, areas of small water reservoirs p_VV_B2 and p_VV_B3 and their capacity increase to retain water floods, including protective grassing of the p_SN_I1 valley above their catchment area, are proposed. This measure is in not yet built-up land.

In contrast to the draft of the existing zoning plan, the study in the south-eastern part of the area proposes a new water and water management area for the small water reservoir p_VV_B1. This area was created on the basis of a comment submitted after a public hearing. Based on it and after a thorough local investigation, it was stated that the location of the water area in the existing valid zoning plan is incorrect, and therefore it was proposed to place the new water area further upstream into a more favourable profile. Here a new area will be defined for a retention reservoir with a small constant level and a flood during the passage of a design flood on the area approx. 2.0 ha - the area of possible heating can then be taken for the implementation of revitalization and nature - friendly measures - ponds, revitalization of the stream.

Flood protection measures are proposed in the valley floodplain of the Dehtářský brook along the western edge of the currently built-up area of the village in order to divide large monocultural areas of the ZPF, to slow down the outflow from the tributaries of the Haberské Mountains. It is a system of execution of consecutive corridors of grassy boundaries k_SN_B1, k_SN_B2, k_SN_B3, k_SN_B4, which direct the outflow of torrents to the newly built dams p_SN_E1 and p_SN_E2 and further in the direction of the original watercourse its extension in the corridor for ditch k_SN_F1 before the mouth of the Dehtářský brook. This measure is related to no less important investment in water and water management areas, namely the modification of the flow into the friendlier state of the countryside p_VV_B1 in order to reduce the flow of rainwater towards the valley Dehtářský brook in the vicinity road III. class at the entrance to the village.

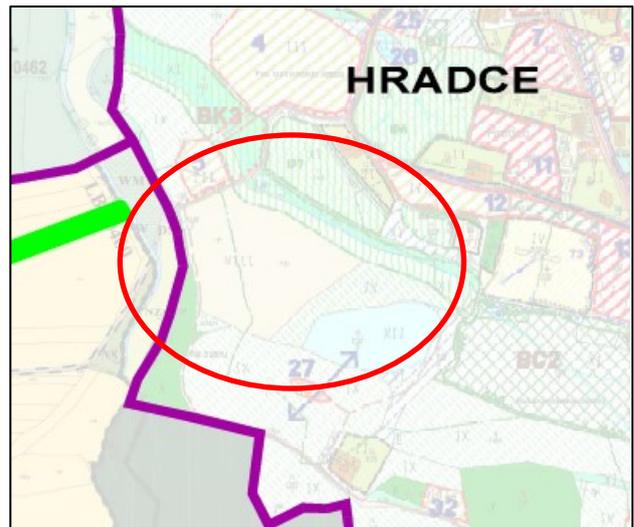
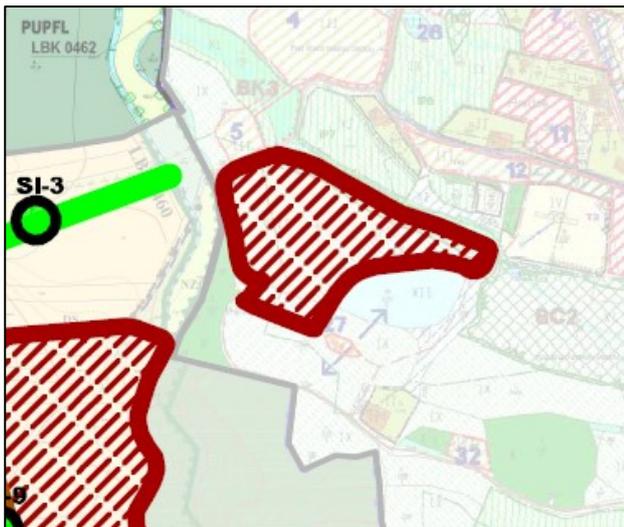
MUNICIPALITY OF HRADCE

A. Collision points determined in the first part of this study and their solution:

In the first part of the study, no collision points of the type "k - collision with the conceptual solution of area planning documentation" or type "u - collision with conditions in zoning plan".

B. Solution points identified in the second part of this study and their solutions:

As the protection against floods does not only concern the areas for development, the author also evaluated other design measures (proposal of the T. G. Masaryk Water Research Institute) as relevant. However, the areas for agrotechnical measures will not be reflected in the change of the zoning plan, as their clogging would contradict the current wording of § 43 par. 3 of the Building Act (it would exceed the detail of the area planning documentation of the municipality). The definition of the modified agrotechnical area is therefore only apparent from the drawing "Proposed measures that cannot be included in area planning documentation", which is part of this study (not the actual changes to the area plan).

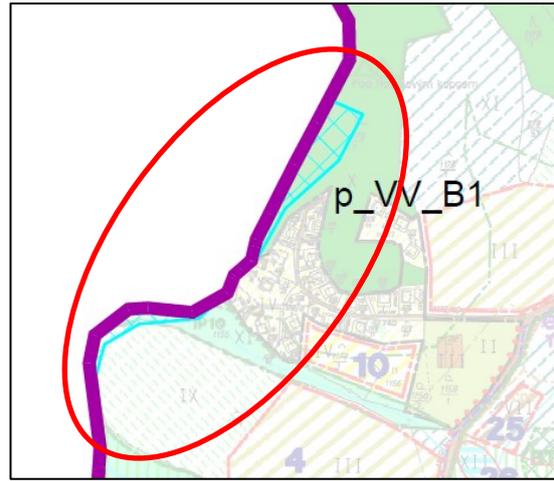


During the creation of the proposal for the change of the area planning documentation of Hradce, the “places to be solved” were determined within the 2nd part of this study, for which it is desirable to include them in the form of a specific area with different use (corridor) in the area planning documentation. In the village of Hradce it was the following places:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Hradce	Hradce u Homolí	Hr-1	-	Forest area, natural area, agricultural area – grass fund	P_VV_A - Water and water management area – small water reservoir

Place for solution Hr-1 (village Hradce, cadastral district Hradce u Homol):

On the territory in the zoning plan of Hradec included between forest areas, natural areas and agricultural areas - the grassland fund, the T. G. Masaryk Water Research Institute did not propose the implementation of any protective measures to ensure flood protection. However, after assessing the area and based on the comments submitted after the public hearing, the author of this study concluded that in order to reduce the flood risk in this locality, it is appropriate to supplement flood protection measures with water and water management area, especially due to rainwater and stormwater capture. from adjacent agricultural areas and their subsequent possible spillage. Therefore, for the implementation of the protective measures in question, a change in the Hradce zoning plan proposes a water and water management area - a small water reservoir (p_VV_B1), which is, however, for the most part located in cadastral area. Lipí and to cadastral area Hradec covers about 1/10 of its total proposed area.



Final summary of the proposed measures:

A comprehensive agricultural strip of land in sloping conditions under the development of the village of Hradec in the direction of the terrain notch of the Dehtářský brook valley is designed for systemic agricultural agrotechnical measures in the sense of alternating cultivated crops, cereals, clover with permanent grassland. In the case of root crops, spacing and ploughing along the contours is recommended. The aim is to reduce soil erosion and the washing of topsoil into the Dehtářský brook.

The measure proposed by the study, in the eastern part of the territory, a new water and water management area for a small water reservoir p_VV_B1, is a part of the newly proposed measure in the Lipí area. This measure extends to the cadastral area of Hradce, as its delimitation cannot be determined only on the territory of cadastral area Lipí. This area was created on the basis of a comment submitted after a public hearing. Based on it and after a thorough local investigation, it was stated that the location of the water surface in the most advantageous profile on the watercourse. Here a new area will be defined for a retention reservoir with a small constant level and a flood during the passage of a design flood with an area of about 2.0 ha - the area of possible flooding can then be taken to carry out revitalization and nature-friendly measures - ponds, stream revitalization. The overlap of the delimited water area to the corner of Hradec is about 1/10 of the total delimited area.

It is important to protect buildings and land along the banks of the Dehtářský brook, namely, at the beginning of the formation of floods below its spring. It is also a matter of capturing the transported, i.e. all erosive sediments.

THE VILLAGE OF VRÁBČE

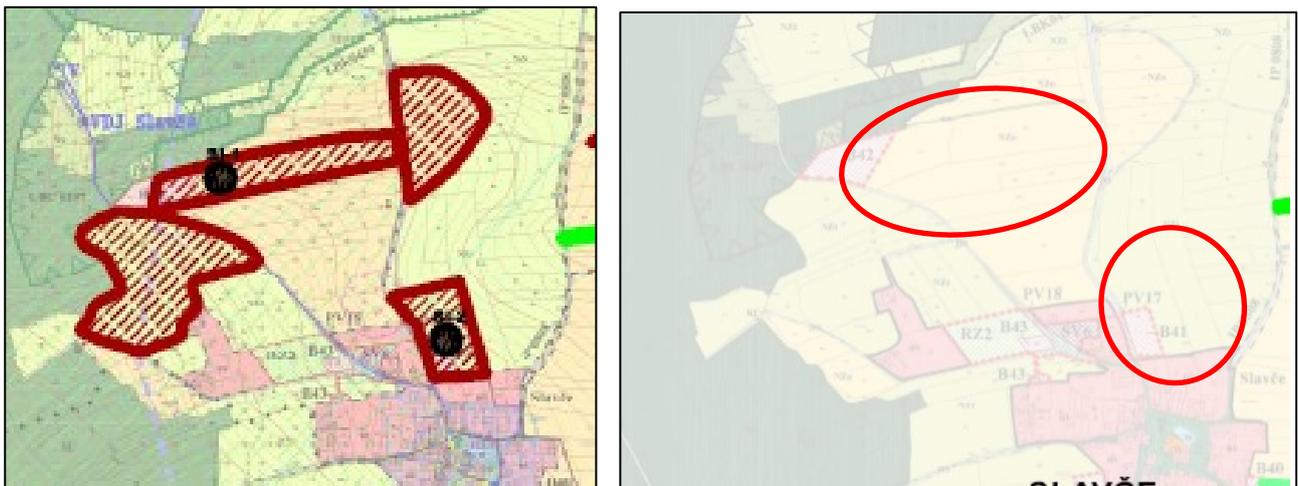
A. Collision points determined in the first part of this study and their solution:

In the first part of the study, five collision points were identified in the administrative territory of the municipality of Vrábče and these collision points were included in the category "k" - collisions with the conceptual solution of area planning documentation. These were collision sites SI-1, SI-2, V-1, V-2 and V-3, for which the author of this study proposed the following solution:

Collision point SI-1 and SI-2 (municipality Vrábče, cadastral area Slavče):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid zoning plan of Vrábče. Specifically, the design of anti-erosion agrotechnology was designed on a part of the area designated by the zoning plan for housing (B41, B42).

After checking the condition of the area and the interest of the municipality in construction in this locality, the study of the applicability of flood control measures to land use plans assessed that the proposed protective measure in the form of anti-erosion agrotechnology on arable land is designed for the current state it is appropriate to respect it throughout the proposed area. However, after the start of construction in the mentioned areas, it is necessary to include the newly emerging construction in the protection, as the municipality is interested in maintaining the construction in this area. Therefore, the author of this study modified the proposed protective measure (proposal of the T. G. Masaryk Water Research Institute) outside the buildable area. However, the adjusted area for agrotechnical measures will not be reflected in the change of the zoning plan, as its inclusion would contradict the current wording of § 43 paragraph 3 of the Building Act (it would exceed the detail of the area planning documentation of the municipality). The definition of the modified agrotechnical area is therefore only apparent from the drawing "Proposed measures that cannot be included in area planning documentation", which is part of this study (not the actual changes to the spatial plan).

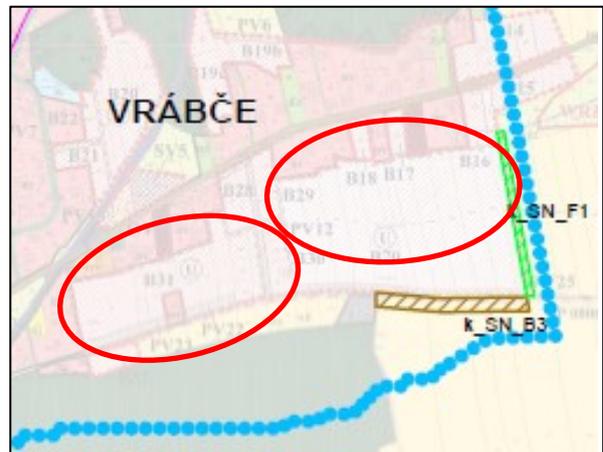


Collision place V-1, V-2, V-3 (village Vrábče, cadastral area Slavče):

In this case, the collision consisted in the proposal of a protective measure in the form of anti-erosion agrotechnology on arable land, while this proposal interfered with the buildable areas defined in the valid zoning plan of Vrábče. Specifically, the design of anti-erosion agrotechnology was designed in the area designated by the zoning plan for housing (B31). A flood protection measure of the VENP type (exclusion of erosively dangerous crops) is proposed on a part of the residential area (B70).

After checking the condition of the area and the interest of the municipality in construction in this locality, the study of the applicability of flood protection measures to land use plans assessed that the proposed protective measure in the form of anti-erosion agrotechnology is designed for the current state of the area B31 it is appropriate to respect it in the whole proposed area. The situation is similar in the case of the proposed measure on the buildable area B70 (current areas of agricultural land - arable land), which will also be respected until the start of construction. However, after the start of construction in the mentioned areas, it is necessary to include in the protection also the newly emerging construction, as the municipality

is interested in maintaining the construction in this territory. Therefore, the author of this study no longer envisages these measures. The adjusted area for agrotechnical measures will not be reflected in the change of the zoning plan, as its inclusion would contradict the current wording of § 43 paragraph 3 of the Building Act (it would exceed the detail of the area planning documentation of the municipality).



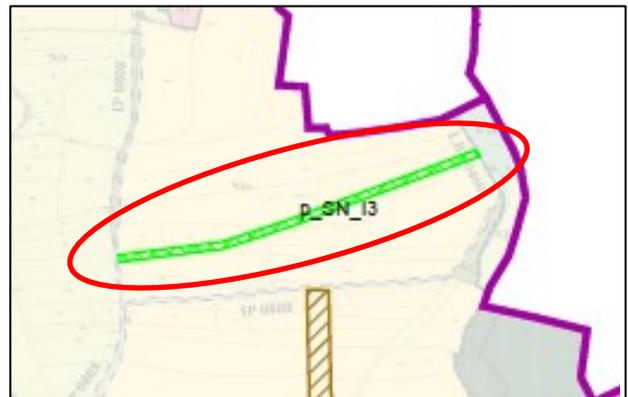
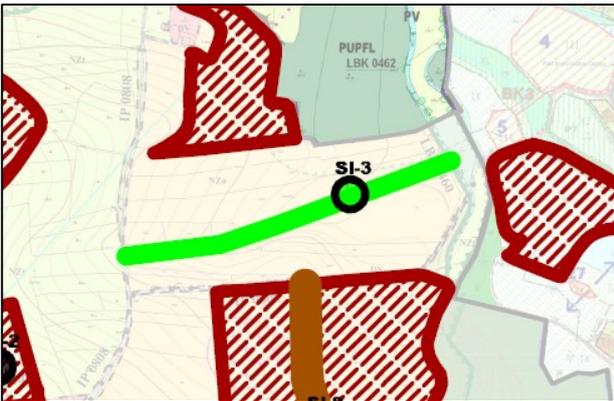
B. Solution points identified in the second part of this study and their solutions:

When creating a proposal for changes to individual area planning documentation, the 2nd part of this study determined the so-called places to be solved, for which it is desirable to include them in the form of a specific area with a different way of use (corridor) in the area planning documentation. In the village of Vrábče these were the following places:

Municipality	Cadastral area	Solution location code	VÚV proposal	Valid ÚPD	Design area /corridor with different ways of use
Vrábče	Slavče	SI-3	Infiltration belt, DSO stabilization	Agricultural land (arable)	k_SN_E - corridor of mixed undeveloped land - grassing valley
Vrábče	Slavče	SI-4	Protective grassing	Agricultural land (arable)	P_VV_B - water and water management areas - adjustment of the flow line to the near-nature state
Vrábče	Slavče	SI-5	Protective grassing	Agricultural land (arable)	P_SN_E - areas of mixed undeveloped land - grassing valley
Vrábče	Slavče	SI-6	Protective grassing	Agricultural land (arable)	P_SN_E - areas of mixed undeveloped land - grassing valley
Vrábče	Slavče	SI-7	Protective grassing	Agricultural land (arable)	P_PZ_C – area for grassing
Vrábče	Slavče	SI-8	Baulk	Agricultural land (arable)	K_SN_A - corridors of mixed undeveloped land - baulks
Vrábče	Slavče	SI-9	Baulk	Agricultural land (arable)	K_SN_A - corridors of mixed undeveloped land - baulks
Vrábče	Slavče	SI-10	Small water reservoir	Agricultural land (arable)	P_VV_A - water and water management area – small water reservoir
Vrábče	Vrábče	V-4	-		K_SN_D - corridors of mixed undeveloped land - ditch
Vrábče	Vrábče	V-5	Baulk	Agricultural land (arable)	K_SN_A - corridors of mixed undeveloped land - baulks

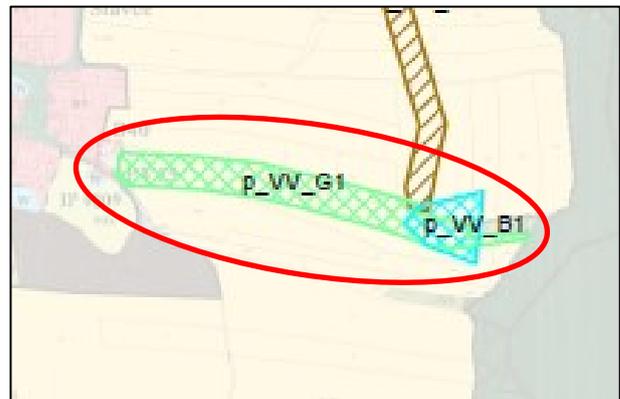
Place for solution SI-3 (village Vrábče, cadastral area Slavče):

On the territory in the Vrábče zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an infiltration belt (stabilization of concentrated runoff paths) to ensure flood protection. After assessing the given area, the author of this study agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area - grassing of the valley (p_SN_I3) is proposed for the implementation of the protective measure in question in the amendment of the zoning plan.



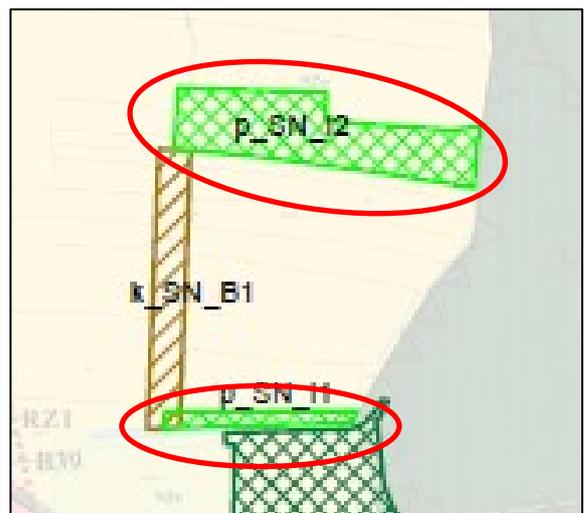
Place for solution SI-4 (village Vrábče, cadastral area Slavče):

On the territory of the Vrábče zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, the author of this study, after assessing the area, came to the conclusion that a more appropriate solution to flood risk in this locality would be to modify the flow to a nature close to it, especially because some space will be created for landscaping the stream and floodplain to increase the ability environment to slow down runoff and create floodplains that will reduce the potential consequences of surface runoff. Specifically, it is a directional adjustment of the flow, branching of the flow, stabilization of the riverbed or accompanying riparian vegetation. Therefore, for the implementation of the protection measure in question, a water and water management areas are proposed in the amendment to the zoning plan - modification of the flow line to a state friendlier to the countryside (p_VV_G1).



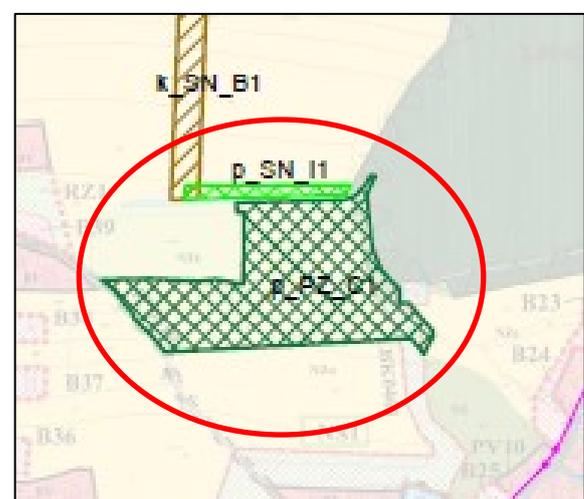
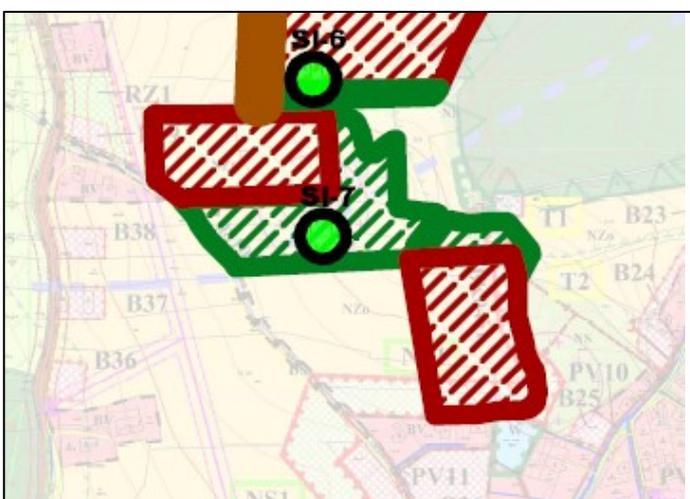
Place for solving SI-5 and SI-6 (village Vrábče, cadastral area Slavče):

On the territory of the Vrábče zoning plan included in the agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. However, after assessing the area, the author of this study concluded that a more suitable solution to the flood risk in this locality would be to stabilize the concentrated runoff paths, mainly due to easier and more accurate management of water runoff from the surrounding terrain. Specifically, it is a modification of the vegetation in the immediate vicinity of the stream, stabilization of the riverbed or modification of the accompanying riparian vegetation. Therefore, for the implementation of the protective measure in question, a mixed area of undeveloped area - grassing of the valley (p_SN_I1 and p_SN_I2) is proposed in the amendment to the zoning plan.



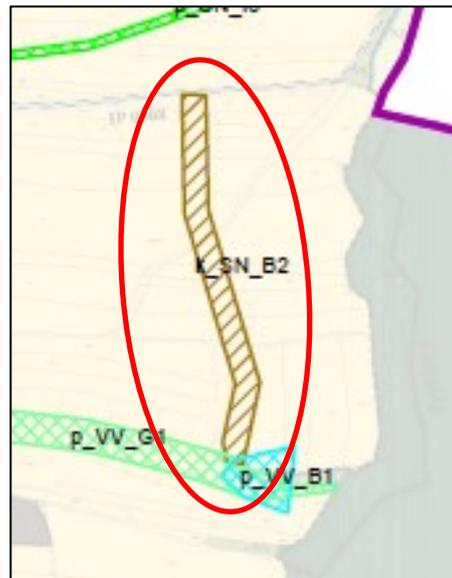
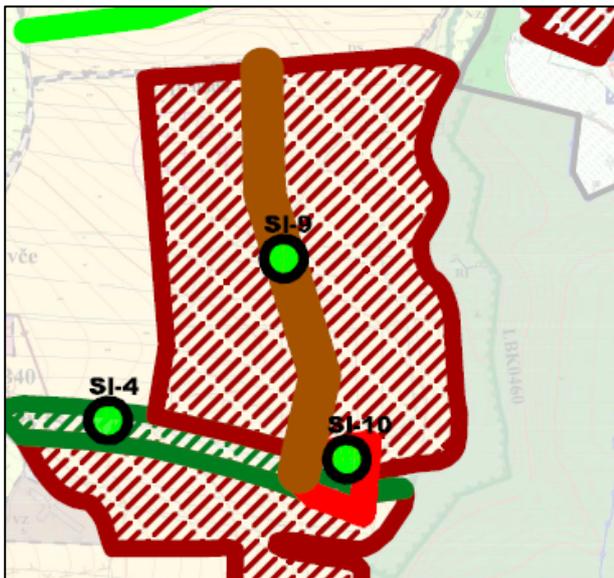
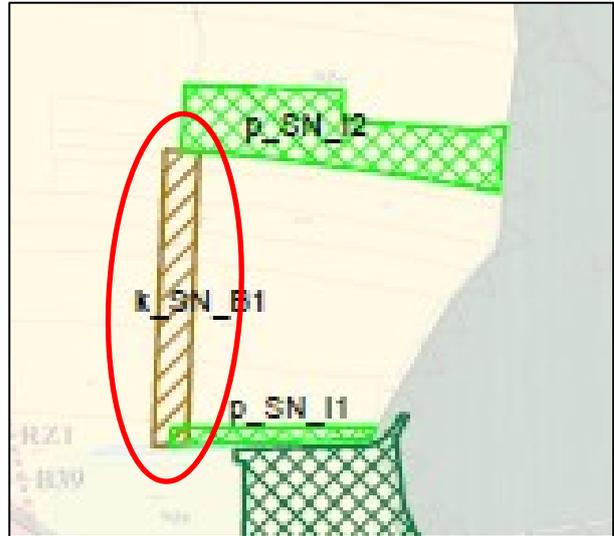
Place for solution SI-7 (village Vrábče, cadastral area Slavče):

On the territory of the Vrábče zoning plan included among agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of protective grassland to ensure flood protection. From the assessment of the given area, the author identifies with the VÚV proposal, but he proposed the transformation of arable land into an area of permanent grassland, which will enable a better creation of conditions for the implementation of the proposed protective grassing. Therefore, for the implementation of the protective measure in question, the area of the measure - the area of grassing (p_PZ_C1) is proposed in the amendment to the zoning plan.



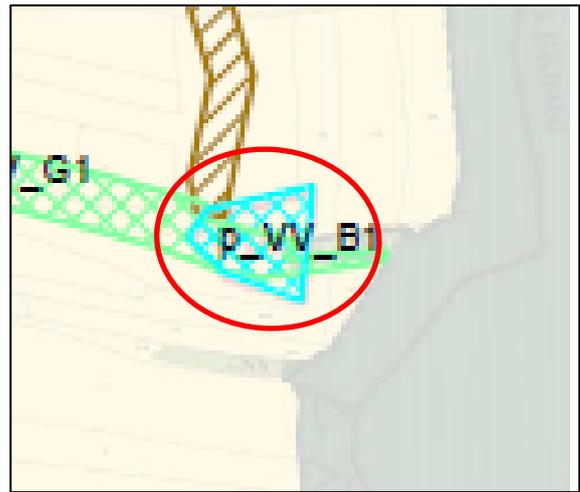
Place for solving SI-8 and SI-9 (village Vrábče, cadastral area Slavče):

On the territory of the Vrábče zoning plan included in the agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion limit to ensure flood protection. The author of this study, after assessing the area, agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area – a field border (k_SN_B1 and k_SN_B2) is proposed for the implementation of the protection measure in question in the amendment of the zoning plan.



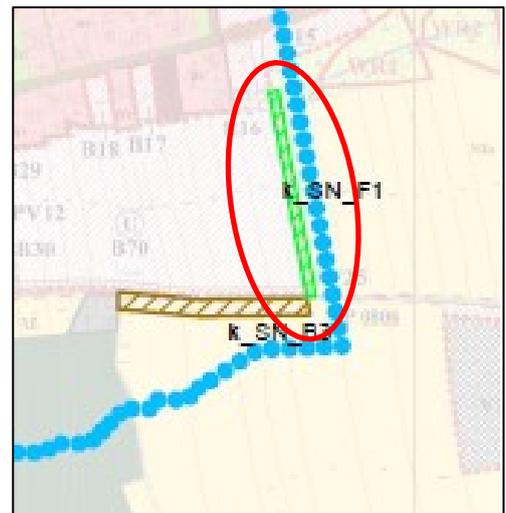
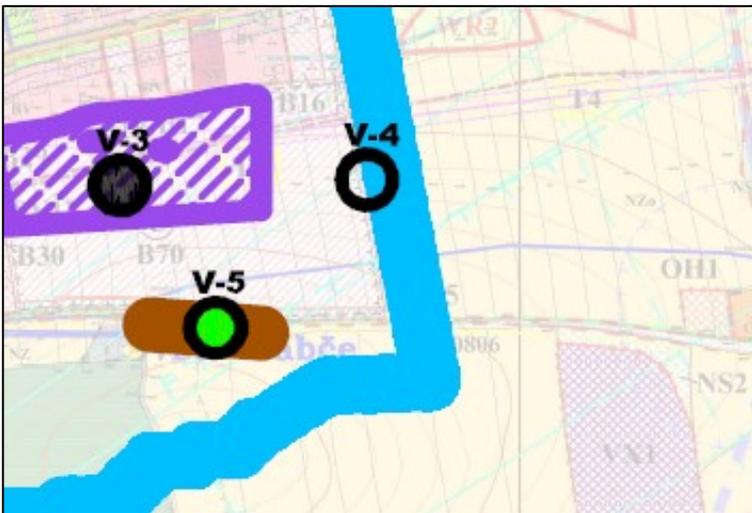
Place for solution SI-10 (village Vrábče, cadastral area Slavče):

On the territory of the Vrábče zoning plan included in the agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of a small water reservoir to ensure flood protection. The developer of this study, after assessing the area, agreed with the VÚV proposal, and therefore a water and water management area - a small water reservoir (p_VV_B1) is proposed in the change of the zoning plan for the implementation of the protective measure in question.



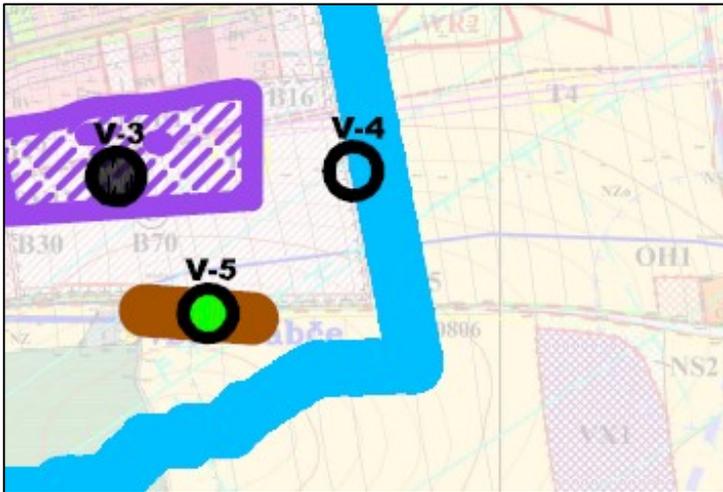
Place for solution V-4 (village Vrábče, cadastral area Vrábče):

In the area of the Vrábče zoning plan included among agricultural areas, measures to ensure flood protection in the form of a drainage ditch were added. After assessing the area, the author of this study decided to supplement the site in the change of the zoning plan with a mixed undeveloped area corridor – a ditch (k_SN_F1), which will help better drainage of water from adjacent fields and prevent water from torrential rains.



Place for solution V-5 (village Vrábče, cadastral area Vrábče):

On the territory of the Vrábče zoning plan included in the agricultural areas, the T. G. Masaryk Water Research Institute proposed the implementation of a protective measure in the form of an anti-erosion limit to ensure flood protection. The developer of this study, after assessing the area, agreed with the VÚV proposal, and therefore a mixed corridor of a mixed undeveloped area – a field border (k_SN_B3) is proposed in the amendment of the zoning plan for the implementation of the protection measure in question. This corridor is extended compared to the original design of the VÚV, based on the connection to the newly designed flood ditch (k_SN_F1) and the addition of the overall solution of flood protection measures in this locality.



Final summary of the proposed measures:

At the watershed divide between the Dehtářský brook and Brložský brook and Dubenský, Homolský brook (the upper Vltava river) river basins in the currently built-up area of the local part of Vrábče stop and in the local part of Slavče there is a spring area of Dehtářský brook, whose highest point of the horizon is closed by České Budějovice – Český Krumlov railway and the 2nd class road České Budějovice - Křemže. The built-up area and buildable areas listed in the local parts of the village are in direct contact with the wooded slopes of the deep valley notch of the stream. The terrain situation is modelled by the ridge of the forest massif of the Haberské Mountains (Mount Kluk) and the valley of the Dehtářský brook with integrated agricultural land. The agricultural areas between the local part of Vrábče-zastávka, Slavče and the locality of a hamlet called "U Konopů" are agro-technologically consolidated into one functional agricultural strip of land in arable culture. A substantial part of flood protection measures is proposed in this area and with regard to the built-up part of Vrábče-zastávka on the already proposed flood control measures for grassing the biocorridor (p_PZ_C1) around the perimeter of the currently built-up area and around the spring of Dehtářský brook. A significant amount of built-up and buildable areas in Vrábče-zastávka represents flood risks for rainfall and for that reason the proposal of the study of applicability of flood protection measures defines areas and corridors that meet the basic flood protection in the said scale of the zoning plan, especially prevention of topsoil from agricultural land directly into the riverbed of Dehtářský brook. The current emergency situation of topsoil washing during torrential rains and flood events has a very negative effect on the neighbouring villages - Lipí, Kvítkovice and Čakov.

The structure of flood protection measures from the spring area of the brook is as follows:

In the section of built-up area and buildable areas between the local part of Vrábče-zastávka and Slavče, changes of cultures on the lands of the integrated strip of ZPF land are proposed, which complements the proposed situation of bio-corridors and interaction elements according to the zoning plan of the municipality. Further continuation of flood protection is followed by grassing of the valley (p_SN_I1) in the locality "Do pařezi" and between the other grassed depressions of the agricultural strip of land, a flood barrier is proposed by the area of the field border (k_SN_B1) in the integrated strip of land. The continuation of the course of the stream is further between the built-up area of Slavče and the forest region. On the eastern edge of the village of Slavče, an anti-flood system is proposed in the form of a modification of the local stream line to a state friendlier to the countryside (p_VV_G1), as well as a storm of rainfall along the contour of a sloping agricultural strip of land in the form of a field border (k_SN_B2). These two lines connect in the

designed area of a small water reservoir (p_VV_B1). This situation is concluded by the proposal of grassing the valley (p_SN_I3). At the watershed divide on the edges of the buildable area of Vrábče-zastávka, flood protection measures are also proposed to prevent the consequences of surges from agricultural land in the form of a field border (k_SN_B3) and a ditch (k_SN_F1), these two measures complement stormwater for the protection of buildings in the local part of Vrábče-zastávka.

Based on the field survey, flood control measures k_SN_B3 (limit) and k_SN_F1 (ditch) were defined as part of the overall concept of flood control measures in the municipality of Vrábče. As the proposed flood control measures are defined outside the original solved area determined by the VÚV, the author adjusted, in this place, the field border of the solved area according to the proposed measures.

5. Public discussion of the second part of the study - objections raised

A public hearing on the second part of the study took place on 29 April, 2020, at 4 pm. The discussion was conducted online (due to measures of the Government of the Czech Republic in connection with the coronavirus pandemic). As a result of the public hearing, the following objections were delivered to the South Bohemia Regional Authority, which were subsequently decided (see below).

Objection No. 1: Petr Schmidt, 22 Lipí

Dear Madam,

I got acquainted with the results and proposals of the Study of the applicability of flood protection measures in cadastral area Lipí and I would object to the draft measure Li-14.

It is proposed to establish a small reservoir of about 2500 m² on Dehtářský stream in a place where there is an original, natural stream, sometimes meander and wetlands, a kind of small floodplain forest, i.e. exactly what needs to be protected and not disturbed. This is the last similar section of the stream, further from the level of the football field, the entire stream is already artificially levelled, which is a much worse condition for a rapid flood. In addition, only about 350 m from the considered place is a former (for more than 10 years drained) pond, which has a greater retention capacity, and its use during a flash flood would be much more advantageous. On the stream (in the place of the current footbridge-crossing) it would be enough to build a weir with a side overflow and about 50 m through to the pond.

Thank you in advance for your answer and I believe that the protection of preserved nature and landscape will be a priority for you as well.

Decision on the opposition: the objection is upheld

Grounds for the decision on the opposition:

After verification, as the developer of the incorporation of the draft measure into the ÚP, we state that the Li-14 site was, in our opinion, probably incorrectly located in the approved ÚP, from where this area was only taken over into VÚV studies and subsequently by the drafter, Štěpán studio. We agree with your opinion and the Li-14 measure will be moved upstream in our proposal to a more advantageous profile - a new area will be defined for a retention tank with a small constant level and flooding during the design flood with an area of about 2.0 ha - to take for the implementation of revitalization and nature-friendly measures - ponds, revitalization of the stream.

Objection No. 2: Jaroslav Mráz

I have a request whether it is possible to omit the requirement for grassing part of the land and the infiltration belt on the land kept in the LPIS under block no. 5502/21 in the cadastral area of Kvítkovice. Their location at the top of the valley is probably not the most effective, and in the case of the obligation to comply with the measures, there will be some degradation of the land by better grassing the better soil on a slight slope and leaving the opposite stony slope for growing crops. The soil on all the land in this place is basically weathered stone, i.e. quite permeable and interwoven with miles of drainage, so the retention of more water in the soil is worse even with the best will.

Thank you for your efforts in assessing my wishes.

Decision on the opposition: partially accepted

Grounds for the decision on the opposition:

The objection is understandable in light of the current system of providing agricultural subsidies, the system of providing subsidies for the ploughed area is actually the biggest obstacle to the implementation of anti-erosion measures, which are important both in terms of flood events and measures to retain water in the landscape. In the case of the land in question, we would at least insist on a grassy strip around the watercourse. If the owners (tenants) do not allow these adjustments and **there is no change in the system of providing agricultural subsidies with an emphasis on the care of the landscape**, this is a stalemate that the best study will not solve.

We attach to the above objection the reaction of VÚV:

The proposal for grassing part of block 5502/21 is also based on the already approved PSZ of the completed KoPU. In the solved part of the plot there are soils with a very low infiltration rate, soils prone to periodic wetting (HPJ 50) and permanent wetting (HPJ 67), which are suitable for grassing.

With regard to the unverified functional condition of drainage systems at the site and the effort to bring natural elements to the landscape, it would be appropriate to remove the pipeline and open the bed of an unnamed stream passing through the land. The proposed measures on the land of the entire slope are intended to prevent the occurrence of erosion and its transfer into the stream, and subsequently also the clogging of a nearby water reservoir with soil, especially during torrential rainfall.

Objection No. 3: Jana Minolová

Dear Madam,

I would like to find out whether the study and the proposed solutions in the plan envisage the modification of a pond located in the village of Hradce, cadastral area of Hradec near Homole, parcel number 1152.

During the spring thaw and also when it rains longer, the dam of the pond overflows over the road and floats a large amount of sand. In times of drought, on the other hand, it dries quickly, due to the leakage of the dam.

If there are no measures in this proposal for this pond, we would welcome it to be included in the project.

Decision on the opposition: the opposition is rejected

Grounds for the decision on the opposition:

The study and subsequent incorporation into the zoning plans does not deal with the technical condition of the existing water works. Your objection concerns a matter that is already above the details of the zoning plan and therefore cannot even be included in the RAINMAN project. In this case, it is probably neglected maintenance and inadequate objects on the waterworks. In this case, the solution is mainly up to the owner and possibly the road administrator, who could push the owner.

6. Proposal of changes to individual area planning documentation

Specific proposals for changes to spatial planning documentation are listed below in the sections always dedicated to a specific municipality.

MUNICIPALITY OF ČAKOV - change of the Čakov zoning plan

Change of the Čakov Zoning Plan (ZP)

Propositional part:

The Čakov zoning plan is amended as follows:

1. In Chapter B / CONCEPT OF DEVELOPMENT OF MUNICIPAL TERRITORY, PROTECTION AND VALUE DEVELOPMENT, at the end of the sentence " ÚP chiefly defines new areas - for housing, housing with small production, services, family farms (mixed residential areas), recreation, agricultural production and storage and technical infrastructure " wording "and flood protection " is added.

2. In Chapter C / URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, CONSTRUCTION AREAS AND THE SETTLEMENT GREENERY SYSTEM, the text "To achieve the required urban concept without jeopardizing its consequences," is added after the sentence "Requirements for the preservation of the said urban concept. after floods caused by torrential rains, the Čakov zoning plan also legally enshrines a comprehensive system of flood protection of the Čakovec settlement belonging to the Dehtářský potok river basin. The definition of new areas of changes in the landscape, or areas of corridors for the location of natural or technical elements of flood control measures, seems to be essential for the conception and functioning of flood control measures. These are mainly areas and corridors in the open countryside and near watercourses. Flood protection measures are mostly non-construction measures, in terms of built-up areas, only water management areas are defined for the protection of the territory, in which the construction of small reservoirs is envisaged. "

3. In Chapter C/ URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, REDEVELOPMENT AREAS AND GREEN-SHARE SYSTEM, the following lines are added below the line concerning the T9 area:

P_VV_B1	Water and water management areas – small water reservoir	Municipality Čakovec, realization only of a flood measure – small water reservoir
P_VV_B2		

4. In Chapter D / CONCEPT OF PUBLIC INFRASTRUCTURE AND OTHER CIVIL EQUIPMENT, INCLUDING THE CONDITIONS FOR THEIR LOCATION, the sentence "In the solution of the ZP, the watercourse routes and the existing water areas are maintained unchanged" will be deleted, and in Section 2.3. "Water areas and streams" are added, and after the text "(ZPF - arable, ZPF - permanent grassland and grazing area for hobby breeding of deer, mouflon and fallow deer)" the following text will be added: "Due to flood protection against the consequences of torrential rains, areas designated in the zoning plan are proposed exclusively for this protection. These are mainly corridors of a mixed undeveloped area (with a specified limit, infiltration belt, system of dams), agricultural areas - permanent grassland, water and water management areas (with a specified water small reservoir, modification of the flow to a friendlier-to-the-country state)".

5. In Chapter E) CONCEPT OF LANDSCAPE ARRANGEMENTS, INCLUDING THE DEFINITION OF AREAS AND SETTING OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, ANTI-EROSION MEASURES, ANTI-FLOOD PROTECTION, RECREATION, MINING AND QUARRYING ETC. the sentence "Gaps in the built-up area of settlements and land closely connected to the built-up areas of the municipality are used for new development." Will be followed by the text "Part of the solution of the landscape are anti-erosion and anti-flood measures and measures to increase the retention capacity of the landscape, which are included in the areas of changes in the landscape, or its realizations is possible within the permissible use of the relevant areas in the undeveloped area (grassing,

anti-erosion limits, possibly dry reservoirs) ", the title of the table " Overview and characteristics of the proposed areas of landscape changes" is changed to "Overview and characteristics of the proposed areas of changes in the landscape and other areas of interest (corridors)" and the following lines are added below the line of the table containing the NL2 area:

P_VV_G1	Cadastral area Čakovec	Water and water management areas - adjustment of the flow line to the near-nature state
P_VV_G2 P_VV_G3 P_VV_G4	Cadastral area Čakov	Water and water management areas - adjustment of the flow line to the near-nature state
P_PZ_C1	Cadastral area Čakovec	Agricultural areas – permanent grassland
K_SN_B1	Cadastral area Čakovec	Corridor of mixed undeveloped land - baulk
K_SN_CH1	Cadastral area Čakovec	Corridor of mixed undeveloped land – infiltration belt
K_SN_G1	Cadastral area Čakovec	Corridor of mixed undeveloped land – system of dams

Next, in part 4. Anti-erosion measures, the following sentence is deleted: "ÚP does not define any areas for the proposal of anti-erosion measures" and it is replaced by the sentence: "The area plan also enshrines a comprehensive system of flood protection caused by torrential rains, through measures to reduce the risk of floods in the area and measures to increase retention capacities in the area. These measures shall consist of corridors or areas of landscape change, or buildable areas, and shall, as a general rule, be defined as public benefit measures. "

In part 5. Measures against floods, the sentence "The area is not affected by floods" is deleted and replaced by the following: "For the overall protection of the administrative territory of the municipality, apart from the question of river floods, watercourses, another matter is substantial - protection against torrential rain, which not only contributes to the overall increase in water levels, but also causes damage in all places that are most vulnerable to erosion. To this end, measures to reduce these risks have been implemented in the zoning plan. "

4. In Chapter F) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE, DETERMINING THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, THE USE OF THESE AREAS AND DETERMINATION OF AREA ARRANGEMENTS, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION, the text "Areas with different uses cover the whole area completely and unambiguously the whole solved area and they are distinguished by colour and code in the graphic part. The following areas with different uses are distinguished in the ÚP "is changed to the text" Areas with different uses, or corridors, cover without exception and unambiguously the whole solved area and are clearly distinguished in colour and code in the graphic part. The ÚP distinguishes the following areas with different ways of use, or corridors with associated use: “. Next, the following text is added after the last bullet-point of the Forest Area (NL):

- **Agricultural areas - permanent grasslands (p_PZ_C)**
- **Water and water management areas - small water reservoir (p_VV_B)**
- **Water and water management areas - modification of the flow line to a friendlier-to-the-country state (p_VV_G)**
- **Mixed undeveloped area corridors - baulks (k_SN_B)**
- **Mixed undeveloped area corridors - infiltration belt (k_SN_CH)**

- **Mixed undeveloped area corridors - system of dams (k_SN_G)**

7. In Chapter F) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE, DETERMINING THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, USE OF THESE AREAS AND DETERMINATION OF THE CONDITIONS OF AREA ARRANGEMENT, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION, the following text is added to this part: Conditions of Use of Areas Solved by ÚP for the Use of Forest Areas:

- **Agricultural areas - permanent grasslands (p_PZ_C)**

Main use - changes in crops according to the purpose of the area - TTP, meadows, pastures

- **Water and water management areas - small water reservoir (p_VV_B)**

Main use - the establishment of small bodies of water

Permissible use - establishment of crossings and roads (dam body) - fords, culverts, bridges, area between maximum swell and constant level as TTP

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of shallow water zones - littoral, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings on the air side under the dam crown - (must allow maintenance), farm fishing

Unacceptable use - placement of any objects (permanent or temporary in the water area and the range of maximum swelling), including leaving objects in the flood (landfills, dumping sites, washable objects)

- **Water and water management areas - modification of the flow line to friendlier-to-the-country state (p_VV_G)**

Main use - establishment of water areas and streams, wet areas, riparian greenery

Permissible use - establishment of crossings and roads (assessment in terms of runoff conditions) - fords, culverts, bridges, floodplain area as TTP - creation of a flood zone by widening the cross section – shallow bank ledges with deep bank ledges (flow revitalization) to the floodplains and the immediate surroundings

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of ponds in the floodplain, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings - (defining of wider spill, stabilization of slope bank ledge), fish breeding...

Unacceptable use - placement of any objects (permanent or temporary in the spill area), including leaving objects in the floodplain (landfills, dumping sites, washable objects)

- **Mixed undeveloped area corridors - baulks (k_SN_B)**

Main use - baulks

Permissible use - grassing, hay production, use of technology - when using the technology there must be no changes in the transverse profile of the border, planting of suitable types of stands supporting biodiversity (e.g. linden, pear, sour cherry, plum, rosehip etc.) when defining the border line

Conditional use - possible modification of the transverse profile (e.g. counter-slope) - possibility of small temporarily wet areas - strengthening of runoff retardation and possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the ground profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the field border profile (landfills, dumping sites, etc.)

8. In Chapter G) DEFINITION OF PUBLIC BENEFIT CONSTRUCTIONS, PUBLIC BENEFIT MEASURES, CONSTRUCTIONS AND MEASURES TO ENSURE THE DEFENSE AND SECURITY OF THE COUNTRY AND SANITATION AREAS FOR WHICH THE RIGHTS OF LAND AND CONSTRUCTIONS CAN BE SEIZED part 2 changes as follows: The text “Public benefit measures, constructions and measures to ensure the defense and security of the country” will be deleted and the original text will be replaced by the following text:

Public benefit measures

The zoning plan defines, within the framework of flood protection, these following public benefit measures for which land rights can be expropriated:

- ***measures to reduce the risk of floods in the area (VK)***
- ***measures to increase the retention capacity of the territory (VR)***

Flood protection		
Designation	Cadastral area	Purpose
VK 1	Čakovec	Small water reservoir
VK 2	Čakovec	Small water reservoir
VK 3	Čakovec	Measure on watercourses (and in floodplains)
VK 4	Čakov	Measure on watercourses (and in floodplains)
VK 5	Čakov	Measure on watercourses (and in floodplains)
VR 1	Čakovec	Baulks
VR 2	Čakovec	Infiltration belt
VR 3	Čakovec	Regulation of torrent streams and gullies

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The subject of the change in the Čakov zoning plan is to ensure the protection of the Čakovec settlement in particular against the negative consequences of floods caused by torrential rain. For this reason, the Čakov zoning plan defines specific areas with different uses, or corridors, the use of which is limited almost exclusively to the implementation of the necessary flood protection measures.

The factual proposal of the solution is based on the Study of the applicability of flood control measures to the zoning plans and is described in more detail in Part II, especially in Part 4. The description of the proposed solution - for individual municipalities in the pilot locality (p. 54). *Note: in the real change of the Čakov zoning plan, the justification described in the mentioned part of the study should be copied into the*

change. There is no copy here, as this proposed change is part of the same document as the factual justification for the changes made in the territory.

Measures aimed at mitigating the consequences of torrential rains in the Čakov administrative area are also defined as public benefit measures, as these measures represent a public interest in the protection of buildable areas and the built-up area and it makes sense to provide them with (possible) expropriation of necessary land.

**KVÍTKOVICE MUNICIPALITY - change of the zoning plan of the
Kvítkovice municipality**

Change of the Kvítkovice zoning plan

Propositional part:

The Kvítkovice zoning plan is amended as follows:

1. COMPREHENSIVE URBAN DESIGN

Chapter B / Solution of the zoning plan

In Chapter Ba) Delimitation of the solved area, after the last paragraph of the chapter "In a more detailed scale 1: 2000, the solved area is the built-up area of the municipality and adjacent areas enabling further development of the municipality. This field border is marked in the graphic part." A new paragraph is inserted: *"Areas and flood protection measures are included in the more detailed scale 1: 2,000 of the Kvítkovice municipal office zoning plan. Their definitions are marked in the graphic part."*

In Chapter Bb) Basic assumptions and conditions for the development of the municipality and the conditions of their use, another paragraph is inserted after the last paragraph: *"Anti-erosion and flood control measures are designed for the Kvítkovice Municipal Office zoning plan in the form of non-construction nature and include grassing of land and valley of watercourses by expanding their areas to improve runoff conditions of torrential rainfall. "*

In Chapter Bd) Proposal for the division of the municipality into functional areas and conditions for their use, a new paragraph is inserted after the last sentence "When using the proposed areas, the functional content given by the zoning plan must be observed under the conditions specified by regulations" as follows: *"The existing and proposed functional areas in the existing ÚP of the municipality of Kvítkovice are supplemented by areas of anti-erosion and anti-flood measures."*

Chapter C / Mandatory part in the form of regulations

In the chapter "Design of public benefit constructions" after the point - cemetery, a new chapter is inserted:

"Proposal of public benefit flood protection measures" (for securing and stabilizing the valleys of concentrated runoff water in order to prevent their overflow).

- VR1 - Proposal for grassing the valley on the area p_SN_I1 along the drained watercourse of the stream flowing out of the ponds Hluboký and Paseky (Haberské Mountains). This measure is proposed in areas of mixed undeveloped area in the section of the stream below the 3rd class road between Kvítkovice and Čakovec in the direction of its outlet to the outlet of the Bojiště pond.
- VR2 and VR3 - Proposal for grassing and widening of the Dehtářský potok valley in the section from its mouth to the Kvítkovický pond in its length in the cadastres of Kvítkovice and Habří ending at the flow field border with Lipí a widening measure is proposed on the area p_SN_I2 and p_SN_I3 by grassing it in the required width needed for for storm water overflow according to flood events from previous years. "

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The subject of the change in the Kvítkovice zoning plan is to ensure the protection of the Kvítkovice settlement in particular against the negative consequences of floods caused by torrential rain. For this reason, the Kvítkovice zoning plan defines specific areas with different uses, or corridors, the use of which is limited almost exclusively to the implementation of the necessary flood protection measures.

The buildable and at the same time built-up area of the village has a concentrated position in connection with the historical floor plan of the village. The sloping terrain above the village is closed by the forest complex of the Haberské Mountains (along the 3rd class road, the border of the Blanský Forest Protected Landscape Area is declared). The paths of concentrated runoff of surface and storm water are historically defined here, i.e. at the northern edge of the cadastral area, under the dam of Kvítkovický pond and on the southern edge of cadastral area to the pond. The main recipient for cadastral area of the village is Dehtářský brook and Kvítkovický brook, through which its watercourse flows. Stabilization of concentrated runoff is solved by protective grassing together with the possibility of overflow on grassed lands both designed and existing. Situations on sloping terrain are threatened by erosion. By cultivating them with light agricultural technology, the incorporation of traditional farmyard manure into the soil will allow storm water to seep in and eliminate topsoil washing.

In the mutually sloping area along the valley of the Dehtářský brook, which is dominated by the water area of the Kvítkovický pond and an area of approx. 30 ha a complete revitalization is taken over and broadened on areas of mixed unbuilt-up area. It concerns changes in the cultures of areas defined for permanent grassing for the purpose of slowing down the concentrated outflow of surface waters and will enable their spillage into a larger area above the pond. The proposal extends ecological corridors along the lines of concentrated runoff.

Through agrotechnological and vegetation measures, it removes the erosion of topsoil and at the same time expands and complements the existing local biocorridors in the southern circle from the maximum overflow of the Kvítkovický pond.

The factual proposal of the solution is based on the Study of the applicability of flood control measures to the zoning plans and is described in more detail in Part II, especially in Part 4. Description of the proposed solution - for individual municipalities in the pilot locality (p. 61). *Note: in the real change of the Kvítkovice zoning plan, the justification described in the mentioned part of the study should be copied into the change. There is no copy here, as this proposed change is part of the same document as the factual justification for the changes made in the territory.*

The measures aimed at mitigating the consequences of torrential rains in the administrative territory of the municipality of Kvítkovice are also defined as public benefit measures, as these measures represent a public interest in the protection of buildable areas and built-up areas and it makes sense to secure (possible) expropriation of necessary land.

**MUNICIPALITY OF HABŘÍ - change of the zoning plan of the
municipality of Habří**

Change of the Habří zoning plan

Propositional part:

The Habří zoning plan is changed as follows:

1. In Chapter b/ CONCEPT OF DEVELOPMENT OF MUNICIPAL TERRITORY, PROTECTION AND VALUE DEVELOPMENT, in paragraph b)1. the basic concept of the development of the municipality in the section "The main goals and principles of development are:" under the indent "prepare quality development areas in connection with the existing urbanism of the settlement;" the indent "- respect flood protection in the area;" is added.
2. In chapter c /URBAN CONCEPT INCLUDING DEFINITION OF BUILT-IN AREAS, CONSTRUCTION AREAS AND SETTLEMENT GREENERY SYSTEMS to part (c) 1. urban concept at the end of the paragraph Basic idea of the development of the area and its area and spatial arrangement: the following text is added: "To achieve the required urban concept without endangering the consequences of floods caused by torrential rains, the Habří zoning plan also enshrines a comprehensive system of flood protection of the settlement and its cadastre belonging to the Dehtářský brook basin. The definition of new areas of changes in the landscape, or areas of corridors for the location of natural or technical elements of flood control measures, seems to be essential for the conception and functioning of flood protection measures. These are mainly areas and corridors in the open countryside and near watercourses. Flood protection measures are mostly non-construction measures. "
3. In chapter e) THE CONCEPT OF LANDSCAPE ARRANGEMENT, INCLUDING THE DEFINITION OF AREAS AND THE DETERMINATION OF CONDITIONS FOR CHANGES IN THEIR USE, THE TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, ANTI-EROSION MEASURES LANDSCAPE ACCESSIBILITY, FLOOD PROTECTION, RECREATION, MINING AND AND QUARRYING ETC., the following text is inserted: "Due to flood protection against the consequences of torrential rains, the zoning plan proposes areas intended exclusively for this protection. These are areas of a mixed undeveloped area (with a specified determination of the grassland of the valley and the border) and water and water management areas - modification of the flow line to the friendlier-to-the-countryside state). "
4. In Chapter e) CONCEPT OF LANDSCAPE ARRANGEMENT, INCLUDING THE DEFINITION OF AREAS AND SETTING OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, ANTI-EROSION MEASURES, FLOOD PROTECTION, RECREATION, MINING AND AND QUARRYING ETC. in para. e) 8 delimitation of areas of changes in the landscape the following text is included: "Furthermore, due to flood protection against the consequences of torrential rains, areas of changes in the landscape K2 to K5 are defined. These are areas of a mixed undeveloped area (with a specified determination of the grassing of the valley and the adjustment of the flow to the friendlier-to-the-countryside state). "
5. In Chapter f) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE WITH DETERMINATION OF THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, USE OF THESE AREAS AND SETTING OF THE TERMS OF SPATIAL ARRANGEMENT, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION the following is inserted after the text relating to the Area of Mixed Undeveloped Area (SNU):

Water and water management areas - modification of the flow line to the near-nature state (p VV G)

Main use - establishment of water areas and streams, wet areas, riparian greenery

Permissible use - establishment of crossings and roads (assessment in terms of runoff conditions) - fords, culverts, bridges, floodplain area as TTP - creation of a flood zone by widening the cross section

- shallow bank ledges with deep bank ledges (flow revitalization), slowing down the outflow of normal flows and transformation of flood flows by overflow to the floodplains and the immediate surroundings

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of ponds in the floodplain, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings - (definition of wider spill, stabilization of slope to shallow bank ledges), fish breeding...

Impermissible use - placement of any objects (permanent or temporary in the spill area), including leaving objects in the floodplain (landfills, dumping sites, washable objects)

Areas of mixed undeveloped area - grassing of the valley (p SN I)

Main use - grassing of the valley

Permissible use - grassing of TTP, use of technology - when using the technology there must be no changes in the transverse profile and damage to the stabilizing elements -, - threshold, degree of stone riprap...)

Conditional use - accompanying plantings, establishment of crossings - culverts, bridges (assessment of entrainment speeds in front of and behind the profile - design of ditch stabilization)

Unacceptable use - grazing (erosive effects on the transverse profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile (landfills, dumping sites, washable objects)

Mixed undeveloped area corridors - field border (k SN B)

Main use - field border

Permissible use - grassing, hay production, use of the technique - when using the technique there must be no changes in the transverse profile of the border, planting of suitable types of stands supporting biodiversity (e.g. linden, pear, sour cherry, plum, rosehip) when defining the border line

Conditional use - possible modification of the transverse profile (e.g. counter-slope) - possibility of small temporarily wet areas - strengthening of runoff retardation and possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the ground profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the field border profile (landfills, dumping sites, etc.)

6. In Chapter G) DEFINITION OF PUBLIC BENEFIT CONSTRUCTIONS, PUBLIC BENEFIT MEASURES, CONSTRUCTIONS AND MEASURES TO ENSURE THE DEFENSE AND SECURITY OF THE COUNTRY AND SANITATION AREAS FOR WHICH THE RIGHTS OF LAND AND BUILDINGS MAY BE EXPROPRIATED part g)2 "Public benefit measures, constructions and measures to ensure the defense and security of the country" changes by deleting the text "not defined" and replacing it with the following text:

The zoning plan defines, within the framework of flood protection, the following public benefit measures for which land rights may be expropriated:

- *measures to reduce the risk of floods in the area (VK)*
- *measures to increase the retention capacity of the territory (VR)*

Flood protection		
Designation	Cadastral area	Purpose
VR 1	Habří u Lipí	Bulks
VR 2	Habří u Lipí	Stabilisation of runoff pathways
VR 3	Habří u Lipí	Stabilisation of runoff pathways
VR 4	Habří u Lipí	Stabilisation of runoff pathways
VR 1	Habří u Lipí	Measure on watercourses (and in floodplains)

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The content of the change in the Habří near Lipí zoning plan is to ensure the protection of the settlement in particular against the negative consequences of floods caused by torrential rain. For this reason, the Habří near Lipí zoning plan defines specific areas with different uses, or corridors, the use of which is limited almost exclusively to the implementation of the necessary flood protection measure.

In the section of the watercourse on the areas p_SN_I1 (the original stream is currently piped) from the springs in the localities of Vobr and Cihelna at the foot of the steep wooded slopes of the Haberské Mountains, a protective grassing of the valley is proposed in the valley corridor extended on both sides into ZPF plots. The purpose is to stabilize the runoff in the required width of the valley to create a meandering stream. This measure, approximately 1 km long, will define intensively managed, mainly ploughed plots of land on both sides of the valley. It is proposed to change the zoning plan on land in arable culture to areas of permanent grassland.

The centred ameliorated agricultural strips in the areas of ZPF are in the centre of gravity between the stream of the brook and the built-up area of the village of Habří, significantly divided in a north-south direction by landscaping for the implementation of the mixed undeveloped area corridor (k_SN_B1). The purpose of this measure is to capture the erosion storms and their natural seduction by means of a field border (future road) into the watercourse of the future meandering stream, the so-called division of storm water so as not to endanger 3rd class road, especially before the mouth of the said watercourse into Panin pond. This will allow the distribution of torrents along the entire course of 3rd class road in the direction of the village of Lipí.

The factual proposal of the solution is based on the Study of the applicability of flood control measures to the zoning plans and is described in more detail in Part II, especially in Part 4. Description of the proposed solution - for individual municipalities in the pilot locality (p. 61). Note: in the real change of the Habří zoning plan, the justification described in the mentioned part of the study should be copied into the change. There is no copy here, as this proposed change is part of the same document as the factual justification for the changes made in the territory.

Measures aimed at mitigating the consequences of torrential rains in the administrative territory of the municipality of Habří are also defined as public benefit measures, as these measures represent a public interest in the protection of buildable areas and built-up areas and it makes sense to provide them with (possible) expropriation of necessary land.

**MUNICIPALITY OF LIPÍ - change of the zoning plan of the
municipality of Lipí**

Change of the Lipí zoning plan

Propositional part:

The Lipí Zoning Plan, in the current wording, is amended as follows:

1. In Chapter I.b. BASIC CONCEPT OF DEVELOPMENT OF THE MUNICIPALITY TERRITORY, PROTECTION AND DEVELOPMENT OF ITS VALUES - at the end of the sentence in Part I.b.1 "Natural values", the text "draft flood control measures," is added after the words "land intended for forest functions and water management solutions inclusive".
2. In Chapter I.c. URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, AREAS OF CONSTRUCTION AND THE SETTLEMENT GREENERY SYSTEM, is included in Part Ic1 Urban concept after the sentence breeding of livestock or pens, allowing the passage of small wildlife, etc." the following text is added: "To achieve the required urban concept without jeopardizing the consequences of floods caused by torrential rains, the Lipí zoning plan enshrines a system of flood protection of the settlement belonging to the Dehtářský brook basin. The definition of new areas of changes in the landscape, or areas of corridors for the location of natural or technical elements of flood control measures, seems to be essential for the conception and functioning of flood control measures. These are mainly areas and corridors in the open countryside and near watercourses. Flood protection measures are mainly measures of a non-construction nature; in terms of built-up areas, only water management areas in which the construction of small water reservoirs is envisaged are defined for the protection of the territory. "
3. In Chapter I.c. THE URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, CONVERSION AREAS AND THE SETTLEMENT GREENERY SYSTEM, in Part I.c.2. "Delimitation of buildable areas" below the line related to area DI. (MK) Areas of transport infrastructure - local and special-purpose roads are supplemented by the following lines:

„**P_VV_B** Water and water management area - small water reservoir

p_SN_E Mixed undeveloped area - dam "

Also, the following lines are added to the table "Overview of selected buildable areas" below the line concerning the VSZ.1.L area:

Lipí (684023)	p_VV_B1	Water and water management area – small water reservoir	2.106
Lipí (684023)	p_VV_B2	Water and water management area – small water reservoir	0.035
Lipí (684023)	p_VV_B3	Water and water management area – small water reservoir	0.091
Lipí (684023)	p_VV_B4	Water and water management area – small water reservoir	0.138
Lipí (684023)	p_SN_E1	Area of mixed undeveloped land - barrage	0.131
Lipí (684023)	p_SN_E2	Area of mixed undeveloped land - barrage	0.107

Also, in the line concerning area BZU.5.L/U, figure 2.77 changes to figure 2.679, and in the last line of the table (total area) figure 50.24 changes to 52.757

4. In Chapter I.d. CONCEPT OF PUBLIC INFRASTRUCTURE INCLUDING CONDITIONS FOR ITS LOCATION in part I.d.2 Water management solution after the paragraph "Watercourses and water areas" the following text is added:

„As another measure for water retention in the landscape, three small water areas. Area (p_VV_B1) in free landscape and areas (p_VV_B2, p_VV_B3) are proposed in the immediate vicinity of the buildable area BZU.5.L. On the eastern side, as part of the anti-flood measure, the area of a small water reservoir (p_VV_B4) is proposed in combination with the proposed measure of grassing the valley (p_SN_I1) and runoff by a local stream along the edge of the built-up area of Lipí to Dehtářský brook. The comprehensive proposed system of flood control measures is complemented by a system of designed boundaries, ditches and contour furrows, which direct and drain storm water from the surrounding hills away from the centre of the built-up area of the village. "

5. In Chapter I.e THE CONCEPT OF LANDSCAPE ARRANGEMENT, INCLUDING THE DEFINITION OF AREAS AND THE DETERMINATION OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, ANTI-EROSION MEASURES, FLOOD PROTECTION, RECREATION, MINING AND QUARRYING ETC., in part I.e.1. The concept of landscape arrangement, after the sentence "The target characteristic of the landscape is a landscape with an expected higher degree of urbanization with a higher share of built-up areas suitably incorporated into the landscape." the following text is added: "Part of the solution of the landscape in contact with the municipality is proposed flood control measures and measures to increase the retention capacity of the landscape, which are included in areas of changes in the landscape, buildable areas or their implementation is possible within the permissible use of relevant areas in undeveloped areas and their implementation is possible. (within the mixed undeveloped area corridors - dams, ditches, boundaries and overhangs, within the areas of mixed undeveloped area the grassing of valleys is proposed and within the water and water management areas small water reservoirs and the adjustment of the flow to the near-nature state are proposed). "
6. In Chapter I.e CONCEPT OF LANDSCAPE ARRANGEMENT, INCLUDING THE DEFINITION OF AREAS AND DETERMINATION OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, ANTI-EROSION MEASURES, FLOOD PROTECTION, MINING AND QUARRYING ETC., part I.e.4. Anti-erosion measures, flood protection is complemented by the following text "As another measure for water retention in the landscape, three small water areas. Area (p_VV_B1) in free landscape and areas (p_VV_B2, p_VV_B3) in the immediate vicinity of the buildable area BZU.5.L. On the eastern side, as part of the anti-flood measure, the area of a small water reservoir (p_VV_B4) is proposed in combination with the proposed measure of grassing the valley (p_SN_I1) and runoff by a local stream along the edge of the built-up area of Lipí to Dehtářský brook. The comprehensive proposed system of flood protection measures is complemented by a system of designed boundaries, ditches and contour furrows, which direct and drain storm water from the surrounding hills away from the centre of the built-up area of the village. "
7. In Chapter I.f. DETERMINATION OF CONDITIONS FOR THE USE OF AREAS OF DIFFERENT WAYS OF USAGE SPECIFYING THE PREDOMINANT PURPOSE OS USE (main use, if it is possible to determine it) THE PERMISSIBLE USAGE, IMPERMISSIBLE USAGE (INCLUDING DETERMINATION IN WHICH AREAS PLACEMENT OF BUILDINGS, EQUIPMENT AND OTHER MEASURES FOR IN § 18 par. 5 of the Building Act IS ELIMINATED),OR DETERMINING CONDITIONS FOR PERMISSIBLE USE OF THESE AREAS AND DETERMINING CONDITIONS FOR AREA ARRANGEMENT INCL. BASIC CONDITIONS FOR PROTECTION OF THE LANDSCAPE (SUCH AS HEIGHT CONTROL FOR CONSTRUCTION, THE NATURE AND STRUCTURE OF DEVELOPMENT, DEFINING AREAS FOR DETERMINING BUILDING SITES AND INTENSITY OF THEIR USE), at the end of the text of the paragraph Areas with different uses are divided into the following functional types and are marked as follows:

- **Water and water management areas - small water reservoir (p_VV_B)**
- **Water and water management areas - modification of the flow line to a friendlier-to-the-countryside state (p_VV_G)**
- **Areas of mixed undeveloped area - dam (p_SN_E)**
- **Areas of mixed undeveloped area - grassing of the valley (p_SN_I)**
- **Mixed undeveloped area corridors - baulks (k_SN_B)**
- **Mixed undeveloped area corridors - ditch (k_SN_F)**
- **Mixed undeveloped area corridors – contour furrow (k_SN_D)**

8. In Chapter F) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE WITH DETERMINATION OF THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, THE USE OF THESE AREAS AND DETERMINATION OF THE CONDITIONS OF SPATIAL ARRANGEMENT, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION, the following text is added to the Conditions of Use of Areas Solved by ÚP for the Use of Forest Areas section:

I.f.19. Water and water management areas - small water reservoir (p_VV_B)

The main use - the establishment of small bodies of water

Permissible use - establishment of crossings and roads (dam body) - fords, culverts, bridges, the area between the maximum swell and the constant level as TTP

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of shallow water zones - littoral, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings on the air side under the dam crown - (must allow maintenance), fish farming...

Impermissible use - placement of any objects (permanent or temporary in the water area and the range of maximum swelling), including leaving objects in the flood (landfills, dumping sites, washable objects)

I.f.20. Water and water management areas - modification of the flow line to the near-nature state (p_VV_G)

Main use - establishment of water areas and streams, wet areas, riparian greenery

Permissible use - establishment of crossings and roads (assessment in terms of runoff conditions) - fords, culverts, bridges, floodplain area as TTP - creation of a flood zone by widening the cross section - shallow bank ledges with deep bank ledges (flow revitalization), slowing down the outflow of normal flows and transformation of flood flows by overflow to the floodplains and the immediate surroundings

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of ponds in the floodplain, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings - (definition of wider spill, stabilization of slope to shallow bank ledges) , fish breeding...

Impermissible use - placement of any objects (permanent or temporary in the spill area), including leaving objects in the floodplain (landfills, dumping sites, washable objects)

I.f.21. Areas of mixed undeveloped land - dam (p SN E)

Main use - dam

Permissible use - establishment of crossings - fords, culverts, bridges, occasional flooding as TTP

Conditional use - possible level adjustment (e.g. counter-slope) - possibility of constant level - possible groundwater subsidy (especially on crystalline outcrops), strengthening of biodiversity, establishment of inflow facilities for side retention tanks, permanent water areas - division of flows, accompanying plantings outside the dam body - (must allow maintenance)

Impermissible use - placement of any objects (permanent or temporary in the profile and the extent of possible swelling), including leaving objects in the profile (landfills, dumping sites, washable items)

I.f.22. Areas of mixed undeveloped area - grassing of the valley (p SN I)

Main use - grassing of the valley

Permissible use - grassing of TTP, use of technology - when using the technology there must be no changes in the transverse profile and damage to the stabilizing elements -, - threshold, degree of stone riprap...)

Conditional use - accompanying plantings, establishment of crossings - culverts, bridges (assessment of entrainment speeds in front of and behind the profile - design of ditch stabilization)

Unacceptable use - grazing (erosive effects on the transverse profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile (landfills, dumping sites, washable objects)

I.f.23. Mixed undeveloped area corridors - limit (k SN B)

Main use - field border

Permissible use - grassing, hay production, use of the technique - when using the technology there must be no changes in the transverse profile of the border, planting of suitable types of stands supporting biodiversity (linden, pear, sour cherry, plum, rosehip) when defining the border line

Conditional use - possible modification of the transverse profile (e.g. counter-slope) - possibility of small temporarily wet areas - strengthening of runoff retardation and possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the ground profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the field border profile (landfills, dumping sites, etc.)

I.f.24. Mixed undeveloped area corridors - ditch (k SN F)

Main use - ditch

Permissible use - grassing, hay production, use of technology - when using the technology there must be no changes in the transverse profile of the ditch, establishment of crossings - culverts, bridges (assessment of drift speeds before and after the profile - design of ditch stabilization - stone dump plantings - (must allow maintenance of the ditch), possible levelling (e.g. counter-slope) - possibility of small ponds - possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the transverse profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile (landfills, dumping sites, washable objects)

I.f.25. Mixed undeveloped area corridors - overpass (k SN D)

Main use - contour furrow

Permissible use - grassing, hay production, use of the technique - when using the technique there must be no changes in the transverse profile of the contour furrow

Conditional use - accompanying plantings (must allow maintenance of the contour furrow), possible adjustment of the level (e.g. counter-slope) - possibility of small temporarily wet areas - strengthening of runoff retardation and possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the ground profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile of landfills (landfills, dumping sites, washable items)

9. In Chapter I.g. DEFINITION OF PUBLIC BENEFIT CONSTRUCTIONS, PUBLIC BENEFIT MEASURES, CONSTRUCTIONS AND MEASURES TO ENSURE THE DEFENSE AND SECURITY OF THE STATE AND SANITATION AREAS FOR WHICH RIGHTS TO LAND AND CONSTRUCTIONS MAY BE EXPROPRIATED in Part I.g.2 The definition of public benefit measures specifically after the VPO7 measure is supplemented by the following text

VPO 8	PPO.5.L	Barrages
VPO 9	PPO.6.L	Barrages
VPO 10	PPO.7.L	Increasing the retention capacity of existing channels and floodplains by restoration
VPO 11	PPO.8.L	Small retention reservoir
VPO 12	PPO.9.L	Small retention reservoir
VPO 13	PPO.10.L	Small retention reservoir
VPO 14	PPO.11.L	Small retention reservoir
VPO 15	PPO.12.L	Increasing the retention capacity of existing channels and floodplains by restoration
VPO 16	PPO.13.L	Baulks
VPO 17	PPO.14.L	Baulks
VPO 18	PPO.15.L	Baulks
VPO 19	PPO.16.L	Baulks
VPO 20	PPO.17.L	Drainage ditches; swales
VPO 21	PPO.18.L	Baulks
VPO 22	PPO.19.L	Baulks
VPO 23	PPO.20.L	Baulks
VPO 24	PPO.21.L	Stabilisation of runoff pathways
VPO 25	PPO.22.L	Furrow

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The content of the change in the Lipí zoning plan is to ensure the protection of the seat particularly against the negative consequences of floods caused by torrential rain. For this reason, the Lipí zoning plan defines specific areas with different uses, or corridors, the use of which is limited almost exclusively to the implementation of the necessary flood protection measures.

The factual proposal of the solution is based on the Study of the applicability of flood control measures to the zoning plans and is described in more detail in Part II, especially in Part 4. Description of the proposed solution - for individual municipalities in the pilot locality (p. 69). Note: in the real change of the Lipí zoning plan, the justification described in the mentioned part of the study should be copied into the change. There is no copy here, as this proposed change is part of the same document as the factual justification for the changes made in the territory.

The basic principle of flood control measures in cadastral area Lipí is the drainage of storm water from extremely sloping non-grassed agricultural land, which is in contact with the simultaneously built-up area and buildable areas in the entire north-south length of the eastern edge of the village. Equally important for protection against torrents and floods are flood protection measures from the opposite western side of the village along the entire floodplain of the Dehtář stream. Measures in this area are also of local significance, as they correct the flow of the stream and its tributaries from the Haberské Mountains. In the whole range of proposed anti-flood measures for the protection of the municipality of Lipí, these are mainly extensions and modifications of line corridors in the mainly undeveloped area and modifications of water areas, i.e. streams friendlier to the nature. The extension of the line corridors includes a system of overhangs, infiltration belts, boundaries and grassing of valleys, and it is determined by a specialist to the scale of the zoning plan. In practice, this means that the definition of the width will be further determined on the basis of other stages of project documentation needed for their implementation.

Unforested slopes in localities below the municipal forest "Na Kotlovech" represent, due to their elevation above the northern edge of the built-up area of the village, a considerable range of areas that are not protected from erosion and torrential rains. In this area, an anti-flood measure of the field border type (k_SN_B5) is proposed on the area, and in the slope below this area, a flood-type measure (k_SN_D1) is proposed. These linear anti-flood landscaping in the required length just below the top of the slopes will divert the main influx outside the built-up area of the village.

In the continuation of the terrain relief to the east by the 3rd class road above the municipality, a line flood control measure is proposed - field border (k_SN_B6). Towards the south, the sloping area along the eastern edge of the development of the village decreases in terraces, which are secured by flood protection measures as follows: under the 3rd class road, the adjustment of the flow line to the nature close to nature p_VV_G2 is proposed along the entire length of the local watercourse. In the continuation of the terraced arrangement of the village terrain, the grassing corridors of the p_SN_I1 valley with a small water reservoir p_VV_B4 and the continuation of the k_SN_B7 field border corridor are further designed in a linear arrangement. To reduce the flood risk in the buildable area of the eastern edge of the village, the areas of small water reservoirs p_VV_B2 and p_VV_B3 and their capacity increase for

retaining water floods are proposed, including the protective grassing of the p_SN_I1 valley above their catchment area. This measure is in areas of undeveloped land.

In contrast to the draft of the existing zoning plan, the study in the south-eastern part of the area proposes a new water and water management area for a small water reservoir p_VV_B1. This area was created on the basis of a comment submitted after a public hearing. Based on it and after a thorough local investigation, it was stated that the location of the water area in the existing valid zoning plan is incorrect, and therefore it was proposed to place the new water area further upstream into a more favourable profile. Here a new area will be defined for a retention reservoir with a small constant level and a flood during the passage of a design flood with an area of about 2.0 ha - the area of possible flooding can then be taken to carry out revitalization and nature-friendly measures - pool, stream revitalization.

Flood protection measures are proposed in the valley floodplain of the Dehtářský brook along the western edge of the currently built-up area of the village in order to divide large monocultural areas of the ZPF, to slow down the outflow from the tributaries of the Haberské Mountains. It is a system of execution of consecutive corridors of grassy boundaries k_SN_B1, k_SN_B2, k_SN_B3, k_SN_B4, which direct the outflow of torrents to the newly built dams p_SN_E1 and p_SN_E2 and further in the direction of the original watercourse its extension in the corridor for ditch k_SN_F1 to the embankment before This measure is related to no less important investment in water and water management areas, namely the modification of the flow to the nature close to the state p_VV_G1 in order to reduce the flow of rainwater towards the valley Dehtářský stream in the vicinity of the built-up area and over the 3rd class road at the entrance to the village.

Measures aimed at mitigating the consequences of torrential rains in the administrative territory of the municipality of Lipí are also defined as public benefit measures, as these measures represent a public interest in the protection of buildable areas and built-up areas and it makes sense to provide them with (possible) expropriation of necessary land.

**MUNICIPALITY OF HRADCE - change of the zoning plan of the
municipality of HRADCE**

Change of the zoning plan of Hradec

Propositional part:

The zoning plan of Hradec, as amended, is changed as follows:

1. To Chapter 2 CONCEPT OF DEVELOPMENT OF MUNICIPAL TERRITORY, PROTECTION AND DEVELOPMENT OF ITS VALUES at the end of the sentence in part b) "Natural values and conditions of their protection" after the words "Landscape natural values of the whole territory are increased," the following is added: "to ensure protection of these values, slowing flows water floods in the bed of the Dehtářský brook, a small water reservoir with a retention capacity is designed (a substantial part of its area is in the neighbouring part of Lipí and about 1/10 of its area from parts of the dam extends into the cadastral area of Hradce). "
2. In Chapter 3 URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, CONSTRUCTION AREAS AND SETTLEMENT GREEN SYSTEMS, in part b) "Definition of buildable areas, reconstruction areas and green system", the sentence "The following are proposed anti-flood measures in the landscape - retention reservoir WWTP), landscaping and drainage (integrated sewerage) "is followed by: " These measures are supplemented by the design of part of the water and water management area - a small water reservoir with retention capacity on the Dehtářský stream. Part of its area extends into the cadastral area Hradce from cadastral area Lipí.
3. In Chapter 4 CONCEPT OF PUBLIC INFRASTRUCTURE, INCLUDING THE CONDITIONS FOR ITS LOCATION in Part 4b) "Concept of technical infrastructure", the last sentence in the paragraph "Sewerage" "Rainwater will be preferentially accumulated and infiltrated on its own land" the following sentence is added: to protect the area on the border between cadastral area Lipí and cadastral area Hradce from the floods on the Dehtářský brook, a small water reservoir with a retention capacity of p_VV_B1 is designed. "
4. In Chapter 5 "CONCEPT OF LANDSCAPE ARRANGEMENTS INCLUDING AREA DEFINITION AND SETTING OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, ANTI-EROSION MEASURES, FLOOD PROTECTION, RECREATION, MINING AND QUARRYING ETC" in part 5d) "Defining areas for anti-erosion measures and flood protection" after the sentence "Ponds are also designed near the new WWTP with retention function" the following sentence is inserted: "For the stabilization of land on the slopes of the valley of the Dehtářský brook, a retention reservoir p_VV_B1 was designed in order to capture and slow down water inflows on the stream".
5. In Chapter 6, "SETTING THE CONDITIONS FOR THE USE OF AREAS OF DIFFERENT WAYS OF USE SPECIFYING THE PREDOMINANT PURPOSE OF USE (MAIN USE, IF IT IS POSSIBLE TO DETERMINE IT), THE PERMISSIBLE AND IMPERMISSIBLE USE (INCLUDING DETERMINATION IN WHICH AREAS PLACEMENT OF BUILDINGS, EQUIPMENT AND OTHER MEASURES FOR THE PURPOSES REFERRED TO IN § 18 PARAGRAPH 5 OF THE BUILDING ACT IS ELIMINATED), OR DETERMINATION OF CONDITIONALLY PERMISSIBLE USE OF THESE AREAS AND DETERMINATION OF CONDITIONS OF SPATIAL ARRANGEMENT INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION" at the end of the text in para. 6a) "Delimitation of areas with different uses" under point "XII - water and water management areas", complements, extends and changes to:

XII. Water and water management areas - small water reservoir (p_VV_B)

6. In Chapter F) "SETTING THE CONDITIONS FOR THE USE OF AREAS OF DIFFERENT WAYS OF USE, SPECIFYING THE PREDOMINANT PURPOSE OF USE AS THE PERMISSIBLE, IMPERMISSIBLE OR CONDITIONAL USE OF THESE AREAS, INCL. THE BASIC CONDITIONS OF LANDSCAPE PROTECTION" in section 6a) " Delimitation of areas with different uses " the following text is added:

XII. Water and water management areas - a small water reservoir (p_VV_B).

Main use - the establishment of small bodies of water

Permissible use - water areas, water works, landscape greenery, accompanying greenery, grasslands together with the establishment of crossings and roads (dam body) - fords, culverts, bridges, overflows, etc.

Conditional use - special-purpose and pedestrian paths, cycle paths (only along the banks and dams to the necessary extent), technical infrastructure only related to the function of the water surface, possible groundwater subsidies, strengthening biodiversity, creation of shallow water zones.

Impermissible use - placement of any objects (permanent or temporary in the water area and the range of maximum swelling), including leaving objects in the flood (landfills, dump sites, washable objects)

7. In Chapter 7 "DEFINITION OF PUBLIC BENEFIT BUILDINGS, PUBLIC BENEFIT MEASURES, CONSTRUCTIONS AND MEASURES TO ENSURE DEFENSE AND SECURITY OF THE COUNTRY, AND AREAS FOR SANITATION, FOR WHICH LAND AND STRUCTURES THE RIGHTS MAY BE EXPROPRIATED" in Part 7a) the list of VPO is complemented with point H1 - small water tank with retention capacity (p_VV_B1)

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The reason for proposing a public benefit measure for the retention of storm water in the valley of the Dehtářský brook is the specific delimitation of the area of a small water reservoir. It is functionally designed to capture surface runoff and transform flood waves. It is important to protect buildings and land along the banks of the Dehtářský brook at the beginning of the formation of floods below its spring. It is also about capturing transported, i.e. all erosive sediments.

**MUNICIPALITY OF VRÁBČE - change of the zoning plan of the
municipality of VRÁBČE**

Change of the zoning plan of Vrábče

Propositional part:

The Vrábče zoning plan is amended as follows:

1. Chapter b / BASIC CONCEPT OF DEVELOPMENT OF MUNICIPAL TERRITORY, PROTECTION AND DEVELOPMENT OF ITS VALUES at the end of the sentence "ÚP Vrábče bindingly defines mainly new areas - for housing, mixed residential, civic amenities, production and storage, recreation, mixed production, public spaces and technical infrastructure." The following is added: "and flood protection".
2. In Chapter c / URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, CONSTRUCTION AREAS AND THE SETTLEMENT GREEN SYSTEM, the sentence "For the Vrábče Municipal Office is respected the existing use of unstopable land, including natural limits and ÚSES.", is followed by this text: "To achieve its required urban concept without its risks following floods caused by torrential rains, the Vrábče zoning plan also enshrines a comprehensive system of flood protection of local parts of the Vrábče-zastávka and Slavče settlement belonging to the Dehtářský brook basin. The definition of new areas of changes in the landscape, or areas of corridors for the location of natural or technological elements of flood control measures, seems to be essential for the conception and functioning of flood control measures. These are mainly areas and corridors in the open countryside and near the water flow of the Dehtářský stream in its source area. Flood protection measures are mostly of non-construction type. As a flood protection measure, water and water management areas are defined in the form of a small water reservoir and modifications of the flow of the stream to a nature close to it for the protection of the area. "
3. In Chapter c / URBAN CONCEPT, INCLUDING THE DEFINITION OF BUILDABLE AREAS, CONVERSION AREAS AND SETTLEMENT GREEN SYSTEM, the following lines are added under the line concerning the T14 area:

Areas of flood neasures		
Designation	Cadastral area	
P_VV_B1	Vrábče	Municipality Vrábče, realisation only of a flood merasure – a small water reservoir

4. In Chapter D / CONCEPT OF PUBLIC INFRASTRUCTURE INCLUDING CONDITIONS FOR ITS LOCATION in the paragraph "Water areas and watercourses", the text "In the zoning plan, watercourse routes and water areas are maintained unchanged, except for the proposed stabilization reservoirs under the village Vrábče along the watercourse and the proposed water areas under the urbanized area for the retention and retardation of runoff in morphologically suitable profiles. " is replaced by: "In order to achieve a functional layout of the area at the beginning of the Dehtářský brook basin, it is absolutely necessary to eliminate the main local risks resulting from sudden storm water caused mainly by precipitation." For this, the valid zoning plan is supplemented by a system of flood protection of the seat in the local part of Vrábče-zastávka and all free ungrained and unforested areas along the terrain notch of the existing stream. These are mainly areas and corridors in the open countryside in the immediate vicinity of the Dehtář watercourse. Flood protection measures are mainly the measures

of a non-construction nature and their system is supplemented by the delimitation of the area of water and a small water reservoir, including the change of the culture of agricultural areas to permanent grasslands. "

5. In Chapter E) THE CONCEPT OF LANDSCAPE ARRANGEMENTS, INCLUDING THE ARRANGEMENT OF AREAS AND THE DETERMINATION OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, FLOOD PROTECTION, RECREATION, MINING AND QUARRYING ETC., in part 1. Concept of arranging landscape the sentence "For new development uses areas in the currently built-up area, which have not yet been built, or vacant land between existing buildings serviceable from public spaces and local roads." Is supplemented by the following text: "Part of the landscape solution is erosion and flood measures aimed at better retention abilities of the landscape, which are included in the areas of changes in the landscape. Their implementation is possible within the permissible use of relevant areas in undeveloped areas (change of ZPF culture to permanent grassland, grassing of valley areas, corridors of border areas, grassy ditches and areas for areas for flow line modifications to the friendlier-to-the-countryside state, including the area of a small reservoir) ".
6. In Chapter e) THE CONCEPT OF LANDSCAPE ARRANGEMENT, INCLUDING THE DEFINITION OF AREAS AND THE DETERMINATION OF CONDITIONS FOR CHANGES IN THEIR USE, TERRITORIAL SYSTEM OF ECOLOGICAL STABILITY, LANDSCAPE ACCESSIBILITY, FLOOD PROTECTION, RECREATION, MINING AND QUARRYING ETC., in the part Flood Measures the sentence "Measures against floods are not proposed in ÚP Vrábče." Changes to the text "The solution of ÚP includes anti-erosion and anti-flood measures and measures to increase the retention capacity of the landscape, which are defined in the graphic part of area planning documentation."
7. In Chapter f) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE WITH DETERMINATION OF THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, USE OF THESE AREAS AND DETERMINATION OF SPATIAL ARRANGEMENTS, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION the text "Areas with different uses fully and unambiguously cover the entire area and are distinguished in the graphic part by colour and code. "is changed to the text" Areas with different uses, or corridors, cover the whole area completely and unambiguously and are distinguished in colour and code in the graphic part. "Furthermore, the sentence" The following areas are distinguished with different uses" is replaced by the sentence "The following areas are distinguished in different ways of use, or corridors with assigned use", and the following is added after the last bullet-point of the Forest Area (NL):
 - **Agricultural areas - permanent grasslands (p_PZ_C)**
 - **Water and water management areas - small water reservoir (p_VV_B)**
 - **Water and water management areas - modification of the flow line to a friendlier- to-nature state (p_VV_G)**
 - **Areas of mixed undeveloped area - grassing of the valley (p_SN_I)**
 - **Mixed undeveloped area corridors – baulks (k_SN_B)**
 - **Mixed undeveloped area corridors - ditch (k_SN_F)**
8. In chapter f) DETERMINATION OF CONDITIONS FOR THE USE OF AREAS WITH DIFFERENT METHODS OF USE WITH DETERMINATION OF THE PREVIOUS USE, PERMISSIBLE, IMPERMISSIBLE, OR CONDITIONAL USE, USE OF THESE AREAS AND DETERMINATION OF THE CONDITIONS OF SPATIAL

ARRANGEMENT, INCLUDING THE BASIC CONDITIONS OF LANDSCAPE PROTECTION, the following text is added to the section Conditions of the use of areas solved by the use of forest areas:

- **Agricultural areas - permanent grasslands (p PZ C)**

Main use - changes in crops according to the purpose of the area - TTP, meadows, pastures

- **Water and water management areas - small water reservoir (p VV A)**

Main use - the establishment of small bodies of water

Permissible use - establishment of crossings and roads (dam body) - fords, culverts, bridges, the area between the maximum swell and the constant level as TTP

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of shallow water zones - littoral, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings on the air side under the dam crown - (must allow maintenance), fish farming...

Impermissible use - placement of any objects (permanent or temporary in the water area and the range of maximum swelling), including leaving objects in the flood (landfills, dump sites, washable objects)

- **Water and water management areas - modification of the flow line to the friendlier-to-nature state (p VV B)**

Main use - establishment of water areas and streams, wet areas, riparian greenery

Permissible use - establishment of crossings and roads (assessment in terms of runoff conditions) - fords, culverts, bridges, floodplain area as TTP - creation of a flood zone by widening the cross section - shallow bank ledges with deep bank ledges (flow revitalization), slowing down the outflow of normal flows and transformation of flood flows by overflow to the floodplains and the immediate surroundings

Conditional use - possible subsidy of groundwater (especially on crystalline outcrops), strengthening of biodiversity - creation of ponds in the floodplain, establishment of inflow facilities for side retention reservoirs, permanent water areas - division of flows, accompanying plantings - (definition of wider spill, stabilization of slope to a shallow bank ledge) , fish breeding...

Impermissible use - placement of any objects (permanent or temporary in the spill area), including leaving objects in the floodplain (landfills, dump sites, washable objects)

- **Areas of mixed undeveloped area - grassing of the valley (p SN I)**

Main use – field border

Permissible use - grassing of TTP, use of the technology - when using the technology there must be no changes in the transverse profile and damage to the stabilizing elements (threshold, degree of stone riprap...)

Conditional use - accompanying plantings, establishment of crossings - culverts, bridges (assessment of entrainment speeds in front of and behind the profile - design of ditch stabilization

Unacceptable use - grazing (erosive effects on the transverse profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile (landfills, dump sites, washable objects)

- **Mixed undeveloped area corridors - baulks (k SN B)**

Main use - baulks

Permissible use - grassing, hay production, use of the technique - when using the technique there must be no changes in the transverse profile of the border, planting of suitable types of stands supporting biodiversity (e.g. linden, pear, sour cherry, plum, rosehip) when defining the border line

Conditional use - possible modification of the transverse profile (e.g. counter-slope) - possibility of small temporarily wet areas - strengthening of runoff retardation and possible groundwater subsidy (especially on crystalline outcrops)

Unacceptable use - grazing (erosive effects on the ground profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the boundary profile (landfills, dump sites, etc.)

- **Mixed undeveloped area corridors - ditch (k SN F)**

Main use - ditch

Permissible use - grassing, hay production, use of the technology - when using the technology there must be no changes in the transverse profile of the ditch, establishment of crossings - culverts, bridges (assessment of entrainment speeds before and after the profile - design of ditch stabilization – stone riprap...)

Conditional use - accompanying plantings - (must allow maintenance of the ditch), possible adjustment of the level (e.g. counter-slope) - the possibility of small ponds - possible groundwater subsidy (especially on the crystalline outcrops)

Unacceptable use - grazing (erosive effects on the transverse profile from grazing cattle), placement of any objects (permanent or temporary in the profile), including leaving objects in the profile (landfills, dump sites, washable objects)

9. In Chapter g) DEFINITION OF PUBLIC BENEFIT BUILDINGS, PUBLIC BENEFIT MEASURES, CONSTRUCTIONS AND MEASURES TO ENSURE THE DEFENSE AND SECURITY OF THE COUNTRY AND SANITATION AREAS, FOR WHICH THE RIGHTS TO LAND AND STRUCTURES MAY BE EXPROPRIATED the following is added to the section Public benefit measures under the line concerning measure NS1:

Flood measure		
Designation	Cadastral area	Purpose
VK 1	Slavče	Increasing the retention capacity of existing channels and floodplains by restoration
VK 2	Slavče	Small retention reservoir
VR 1	Slavče	Stabilisation of runoff pathways
VR 2	Slavče	Baulks
VR 3	Slavče	Stabilisation of runoff pathways
VR 4	Slavče	Baulks
VR 5	Slavče	Stabilisation of runoff pathways
VR 6	Vrábče	Baulks
VR 7	Vrábče	Drainage ditches; swales

EXPLANATORY STATEMENT (only comprehensive justification of the solution adopted):

The content of the change in the Vrábče zoning plan is to ensure the protection of the settlement against the negative consequences of floods caused by torrential rain. For this reason, the Vrábče zoning plan defines specific areas with different uses, or corridors, the use of which is limited almost exclusively to the implementation of the necessary flood protection measures. On the substations between the catchment area of Dehtářský brook and Brložský brook, Dubenský and Homolský brook (upper Vltava river) in the currently built-up area of the local part of Vrábče-zastávka and in the local part of Slavče there is a spring of Dehtářský brook, the highest point of the river basin horizon Krumlov and the 2nd class road České Budějovice - Křemže. The built-up area and buildable areas listed in the local parts of the village are in direct contact with the wooded slopes of the deep valley notch of the stream. The terrain situation is modelled by the ridge of the forest massif of the Haberské Mountains (Mt. Kluk) and the valley of the Dehtářský brook with integrated agricultural land. The agricultural areas between the local part of Vrábče-zastávka, Slavče and the locality of the settlement "U Konopů" are agrotechnically consolidated into one functional agricultural strip of land in arable culture. A substantial part of anti-flood measures is proposed in this area and with regard to the built-up part of Vrábče-zastávka it follows up on the already proposed anti-flood measures for grassing the biocorridor (p_PZ_C1) around the perimeter of the currently built-up area and around the spring of Dehtářský brook. A significant amount of built-up and buildable areas in Vrábče stop represents flood risks for rainfall, and for that reason the proposal of the study of applicability of flood protection measures defines areas and corridors that meet the basic flood protection in the said scale of the zoning plan, especially prevention of topsoil from agricultural land directly into the riverbed of Dehtářský brook.

The current emergency situation of topsoil washing during torrential rains and flood events has a very negative effect on the neighbouring villages Lipí, Kvítkovice and Čakov.

The structure of flood protection measures from the source of the stream is as follows:

In the section of built-up area and buildable areas between the local part of Vrábče-zastávka and Slavče, changes of cultures on the lands of the integrated strip of land ZPF are proposed, which complements the proposed situation of biocorridors and interaction elements according to the municipal zoning plan. Further continuation of flood protection is followed by the grassing of the valley (p_SN_I1) in the locality "Do pařeží" and between the other grassed depressions of the agricultural strip of land, a barrage of torrential rainfall with a boundary surface (k_SN_B1) in a complete strip of land is proposed. The continuation of the course of the stream is further between the built-up area of Slavče and the forest region. On the eastern edge of the village of Slavče, an anti-flood system is proposed in the form of a modification of the local stream line to the friendly-to-nature state (p_VV_G1), as well as a storm of rainfall along the contour of a sloping agricultural strip of land in the form of a field border (k_SN_B2). These two lines connect in the designed area of a small water reservoir (p_VV_B1). This situation is concluded by the proposal of grassing the valley (p_SN_I3). At the substation on the edges of the buildable area of Vrábče zastávka, flood control measures are also proposed to prevent the consequences of torrents from agricultural land in the form of a field border (k_SN_B3) and a ditch (k_SN_F1). These two measures complement the protection against storm water from the permanently ploughed large-scale cultivated land of the ZPF and will serve to protect the development in the local part of Vrábče-zastávka.

The factual proposal of the solution is based on the Study of the applicability of flood control measures to area plans and is described in more detail in Part II, especially in Part 4.

Description of the proposed solution - for individual municipalities in the pilot locality (p. 77).
Note: in the actual change of the Vrábče zoning plan, the justification described in the mentioned part of the study should be copied into the change. There is no copy here, as this proposed change is part of the same document as the factual justification for the changes made in the territory.

Measures to mitigate the consequences of torrential rains in the administrative territory of the municipality of Vrábče are also defined as public benefit measures, as these measures represent a public interest in the protection of buildable areas and built-up areas and it makes sense to provide them with (possible) expropriation of necessary land.

7. Summary

The solutions of flood protection measures, proposed in this pilot locality, are focused on supplementing and modifying mainly the undeveloped area of the local landscape.

At the Lipí locality, there is a more extensive collision with the conceptual solution of the zoning plan - the proximity of large settlements and the resulting planned higher urbanization of the area.

Proposals in zoning plans even in the case of a collision of the "k" type can be implemented using a suitable solution, especially in terms of runoff conditions (infiltration, retention tanks, catch ditches, minimization of paved areas,...). The collision with the VÚV proposal should be understood as a warning of the need for the above solutions - so that the draft zoning plan meets the assumptions of the VÚV study in the above-mentioned ways, which would be incorporated into the regulations for design areas. ***From the point of view of the design of the ZP, even this collision has no significant impact on the elaborated conceptual solution - the measures proposed by the VÚV can be ensured in the subject areas which are designed for development by a suitable solution of these areas to achieve the objectives of the VÚV study.***

Within the discussion of all localities, the current system of agricultural subsidies (area subsidies) seems to be (for the proposed solutions of agrotechnical and technical measures on agricultural land) wrong in principle. This system basically prevents greater fragmentation of the agricultural landscape and, together with the ownership and user relations to the land, is the biggest obstacle to the implementation of anti-erosion and anti-flood measures, as well as measures against drought.

For these reasons, it is problematic to enforce measures such as field borders and small reservoirs in agricultural areas.

The direct connections between the needs of built-up areas of local municipalities and the protection of agricultural and water management values of the landscape are addressed here. Specific proposals are defined on the basis of endangered areas, for which specific flood protection measures of a surface or line (corridor) character are dimensioned.

The basis is the prevention of erosion runoff on modified and managed agricultural strips of land, according to the VÚV proposal. This proposal was concretized and adjusted according to the actual needs and requirements of individual municipalities and supplemented with some water management measures. In most cases, it is a matter of preventing the recurrence of the main problems of erosion washing and subsequent flood damage by a suitable design of a flood protection solution. These solutions are mutually dependent, however, they can also be implemented separately, according to the specific needs of individual municipalities. However, in order to achieve maximum protection, it is necessary to build the entire proposed complex of flood protection measures. Only partial protection can be achieved by implementing partial measures.

The overall coordination of individual municipalities with landowners, farmers and at the same time coordination between the municipalities themselves is essential. Such coordination can bring high efficiency, especially in reducing the costs incurred in the implementation of individual measures, and also in improving the effectiveness of individual proposed measures.

8. Attachments - Stage II.

- Total
 - a – Basic division of territory 1:15000
 - b – Main drawing 1:15000
 - c – Drawing of public benefit buildings, measures and sanitation 1:15000
 - d – Design measures that cannot be included in the ÚPD 1:15000

Changes in the ÚPD of municipalities

- Čakov
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000
- Kvítkovice
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000
- Habří
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000
- Lipí
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000
- Hradce
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000
- Vrábče
 - a – Basic division of territory 1:5000
 - b – Main drawing 1:5000
 - c – Drawing of public benefit buildings, measures and sanitation 1:5000

Design measures that cannot be included in the ÚPD (Agrotechnical measures)

- Čakov 1:5000
- Kvítkovice 1:5000
- Habří 1:5000
- Hradce 1:5000
- Lipí 1:5000

- Vrábče

1:5000

LIST OF USED ABBREVIATIONS:

ÚP – zoning plan

RP – regulation plan

CHKO – protected landscape area

VÚV – T. G. Masaryk Water Research Institute

AGT – agrotechnical measures

VENP – exclusion of erosively dangerous crops

TTP – permanent grassland

ZPF – agricultural land fund

VN – high voltage electricity

DSO - Stabilisation - Stabilisation of runoff pathways

RAINMAN Key Facts

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RAINMAN website &
newsletter registration: www.interreg-central.eu/rainman



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