

"REDUCING THE IMPACTS OF CLIMATE CHANGE IN THE CADASTRAL AREA OF KOSTICE"

In December 2022, the municipality of Kostice, in cooperation with DSO Region Podluží, started preparations for the project "Reducing the impacts of climate change in the cadastral area Kostice", which co-financing was requested under the subsidy program "Environment, Ecosystems and Climate Change" supported by the Norway Grants 2014-2021, Call No. 4B Stavanger. The total cost of the project is 20,308,865.77 CZK. In April 2023, the municipality of Kostice was allocated a subsidy in the total amount of 19,773,514.03 CZK.

As part of the project, which is based on the document "Adaptation Strategy of the Podluží Region to Climate Change", the implementation of the following measures was proposed:

- construction of a new water reservoir in the cadastral area Kostice
- establishment of landscape greenery
- blue-green infrastructure in the locality Padělky and near grave yard.

These measures aim to fulfill objective 1.1 "Strengthen resistance to extreme hydrological phenomena in the built-up area and in the countryside", where drought, flash floods, storms and heat waves are a real threat.

THE IMPLEMENTATION OF THE CONSTRUCTION OF THE WATER RESERVOIR

aims to increase biodiversity in the area, which also extends to the built-up part of the village. The new water reservoir will serve as a protection against drought, the water area will improve the microclimate in the surrounding areas in the summer months, and will lead to an improvement in the water management and aesthetic function of the landscape. The inflow to the reservoir is designed only from groundwater, the total water area is 2,2 ha.



The project documentation was prepared by Alcedo NATURA KONCEPT s.r.o. from Jindřichův Hradec, the contractor of the construction was the company Kavyl, spol. s r.o. from Mohelno. The construction lasted a total of 222 days, the final inspection of the work took place on March 8, 2024.

IMPLEMENTATION OF THE ESTABLISHMENT OF LANDSCAPE GREENERY aims to reduce



negative effects such as drought, wind erosion, storms, heat waves, etc. The three planned windbreaks are designed to prevent the strong wind erosion that the soil in the addressed area suffers from. In addition to damage to residents' property, there is also a deterioration of air quality due to dust particles and a gradual deterioration of the upper soil horizon.

The plantings were designed as semi-blowing windbreaks from native plant species (sessile oak, English oak, silver birch, field maple, bird cherry, narrow-leaved ash, heart-leaved linden and white poplar, from bushes, shrubs privet, dogwood, rose

hip and euonymus), after consultation with local hunters, the plantings are supplemented with wood apple and pear trees. The target height of the windbreaks will be 20-25 m. The trees are placed in temporary forestry fences for a period of 5-7 years to prevent damage by animals. After that, the fences will be removed, the agricultural landscape will be made accessible and its habitability will be improved, and biodiversity in the area will be supported by increasing food and shelter opportunities for game animals and small animals. The planting was supplemented by the installation of crutches for predators as a prevention against breaking of newly planted trees, but especially to support the occurrence of predators with their irreplaceable role in the agricultural landscape ecosystem.

A total of 675 trees and 606 bushes were planted here. The newly established area is 23,397 m².



BLUE-GREEN INFRASTRUCTURE IN THE LOCALITY PADĚLKY

More frequent droughts and heat, torrential rains and floods, or even weather extremes such as the tornado that swept through neighboring municipalities in 2021 are a major challenge for the future. One of the solutions offered is the creation of resilient settlements that do not heat up in the summer, do not dry out, where the buildings blend with the greenery and where every raindrop is retained and used in the place.



The development in the municipality of Kostice is historically very dense with houses closely adjacent to each other and copying the street. There is little space for greenery, and the application of the principles of blue-green infrastructure would require the relocation of existing technical networks. Therefore, when in 2022 the municipality of Kostice created 28 new building plots in the Padělky locality, not only a road and a cycle path with a pavement were laid out, but also areas for planting greenery. In the new residential area, the principles of blue-green infrastructure are applied on municipal land, which aims to mitigate weather extremes and improve water management. The blue component, i.e. rainwater, will be collected from paved surfaces and slowly infiltrated in places suitable for this purpose: in manholes and in rain beds in the street. At the same time, suitable tree species, perennial beds and varied meadow lawn mixtures will be planted in these areas. Part of the rainwater is captured in a retention tank using the storm sewer and will be used to water the trees and greenery in this location.



A good concept of greenery for new development in the municipality means a higher quality of living. Due to the connection to the rural agricultural landscape, tree species that are native and typical of the countryside and at the same time better resistant to extreme weather fluctuations were selected for planting. In a sufficiently wide unpaved area, it was possible to plant large-crowned trees that provide shade (e.g. plane trees, oaks, sophoras, lindens, celtics), and in a narrower street profile, smaller cultivars of rowan and hawthorn.

Between the road and the pavement, beds with perennials were applied in combination called an extensive perennial bed with self-regulation, which is less demanding on maintenance and at the same time is very varied and attractive throughout the growing season. Species that have a wide ecological amplitude and tolerate both dry periods without rain and occasional waterlogging are selected. It is appropriate to build on the rural character of the settlement and establish flower beds from species of traditional rural

front gardens and species attracting pollinators.

One of the reasons to plant a new street before new family houses are built is mainly motivational and educational. The aim is to show young families and other inhabitants of the municipality how important it is to manage water, how trees in municipal buildings improve the microclimate of the street and how they can cool the street space.

The greenery of the new district is followed by a quiet zone with mature trees by the grave yard wall and a new bike path to the elementary school.



The project documentation for the establishment of landscape greenery and planting in the locality Padělky was prepared by the company PROateliér from Břeclav, the planting was carried out by the company Florstyl s.r.o. from Kunovice in autumn 2023, the work was taken over on November 30, 2023.