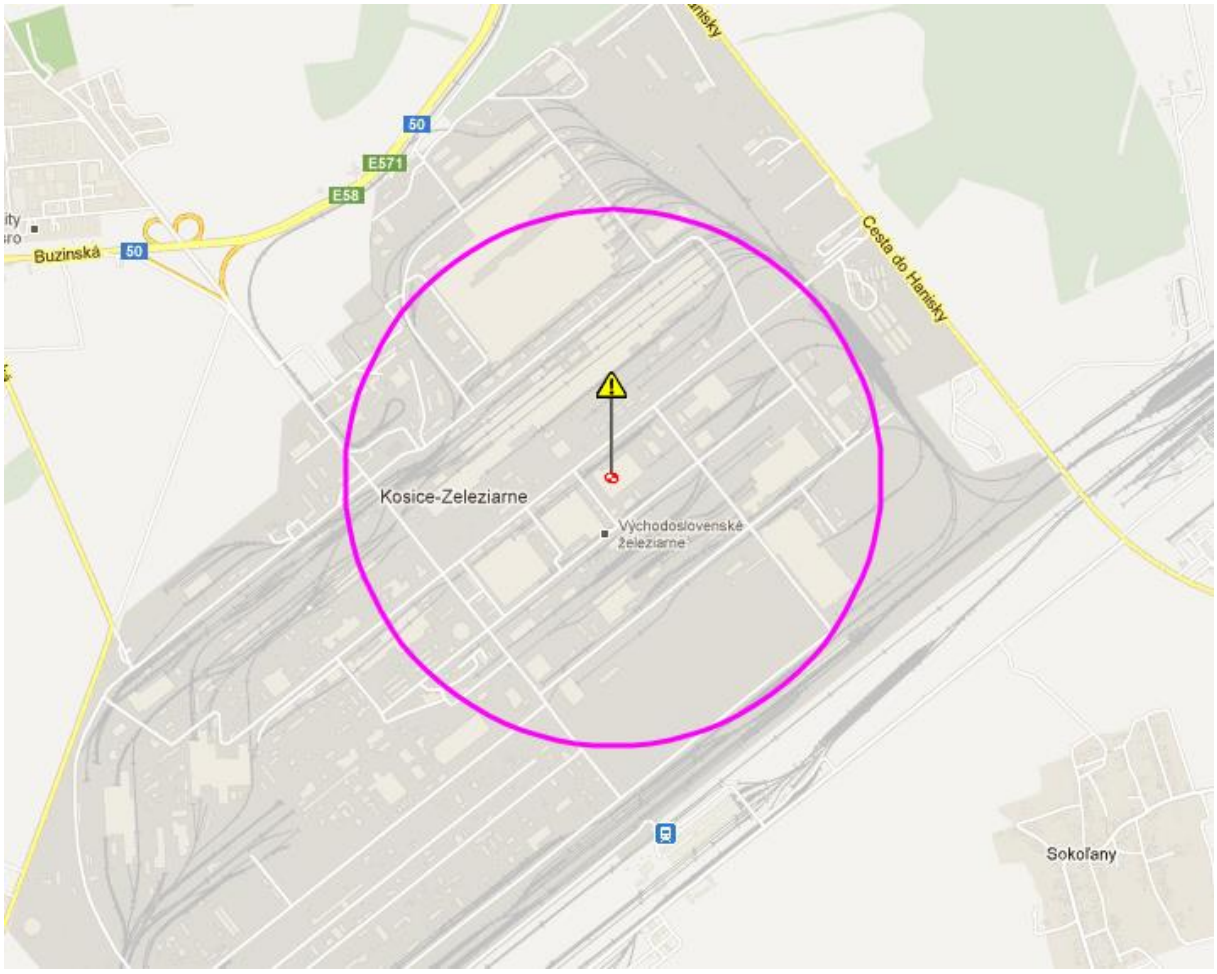
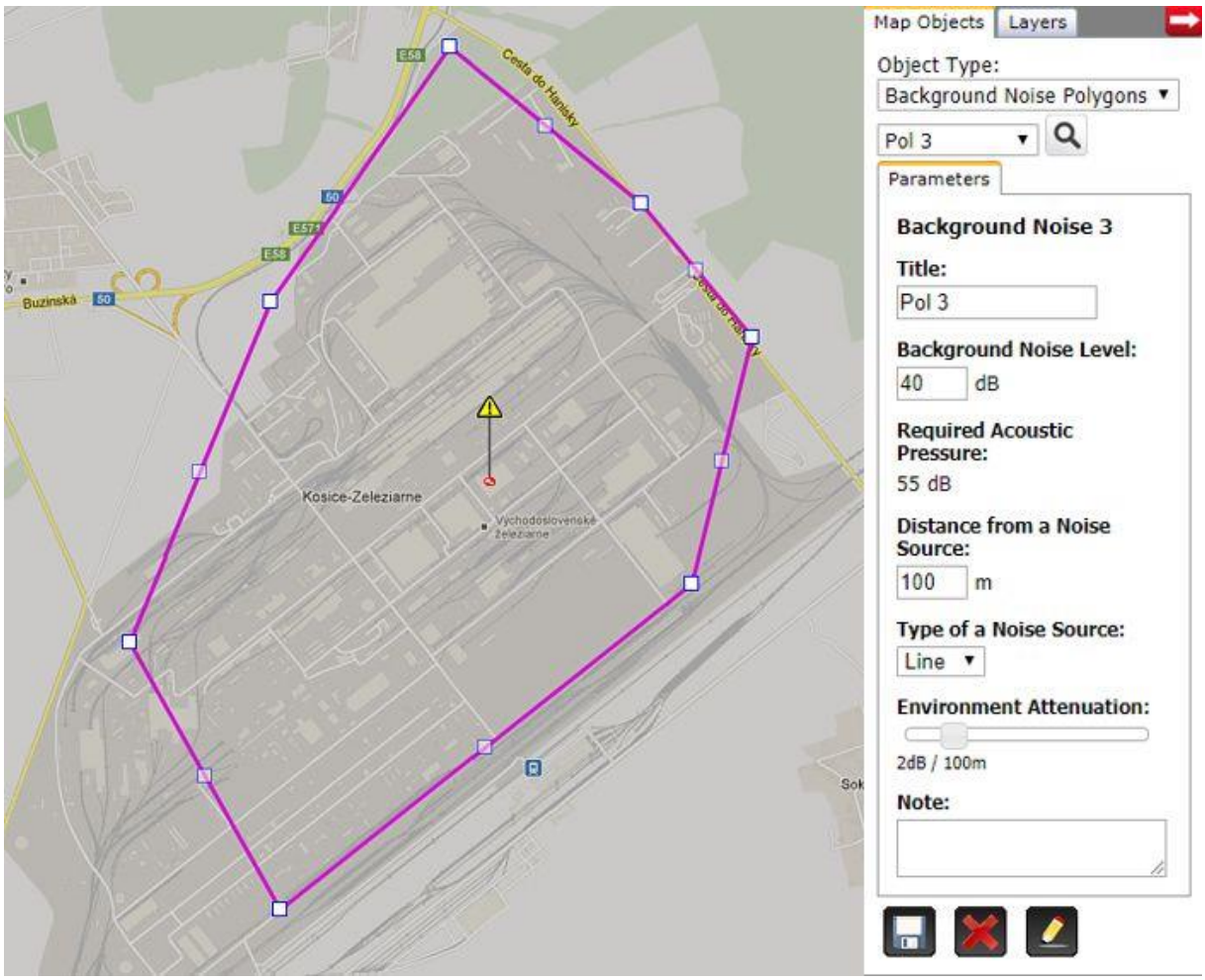
Exterior Acoustic Project
Electronic Sirens

A demo project to show how to create a simple local warning system on the premises of an industrial plant. The goal of the project is to specify the number and approximate location of electronic sirens for the optimal acoustic coverage of an endangered area of the plant.

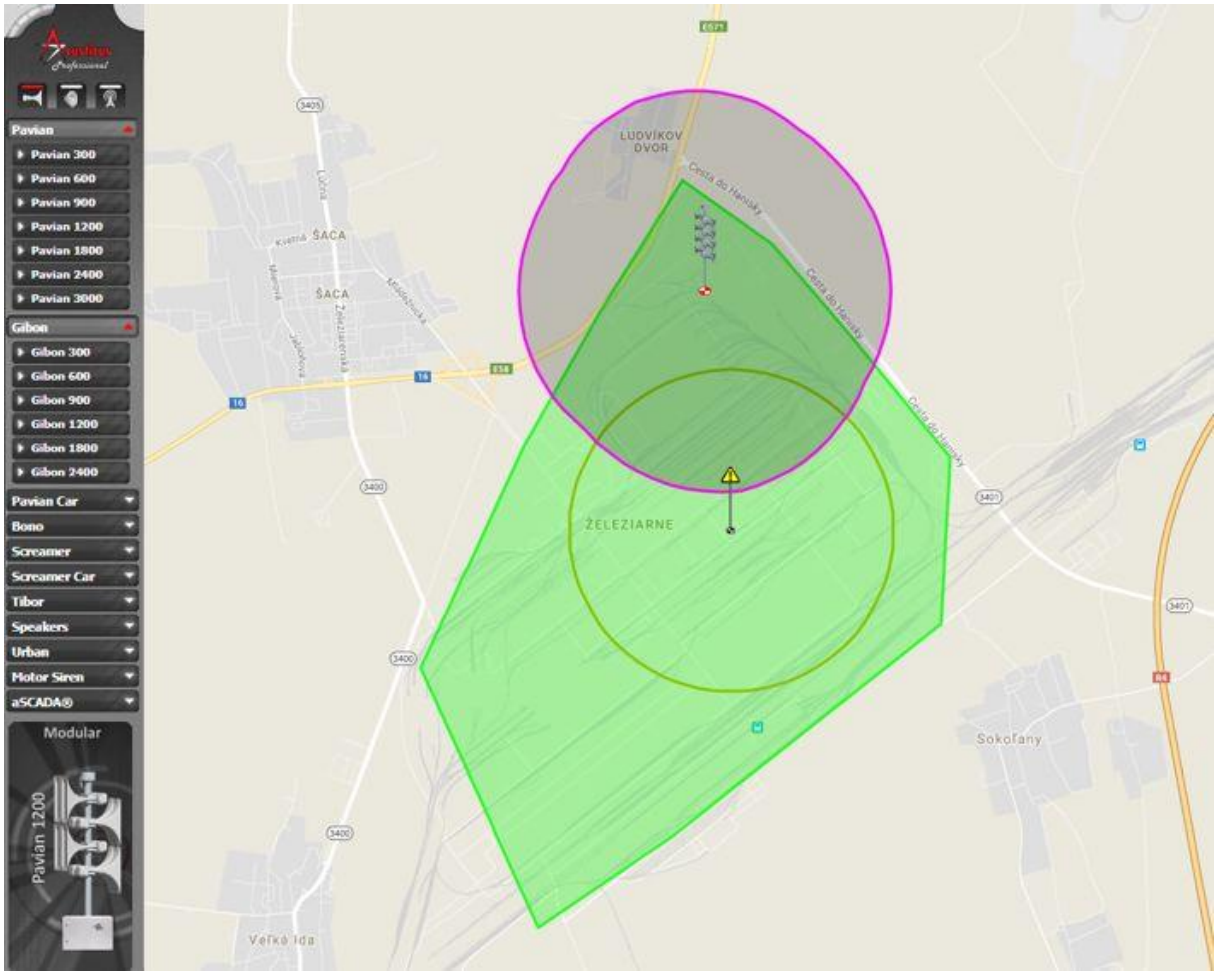
Firstly, we have to define the endangered area; by clicking on the *"Add Endangered Area"* icon in the toolbox, and by subsequent clicking on the map, the predefined area of a circular shape will open. By pressing the *ESC* key or the right button of the mouse, the process of adding new areas of danger will be cancelled, and we can carry on with our work.



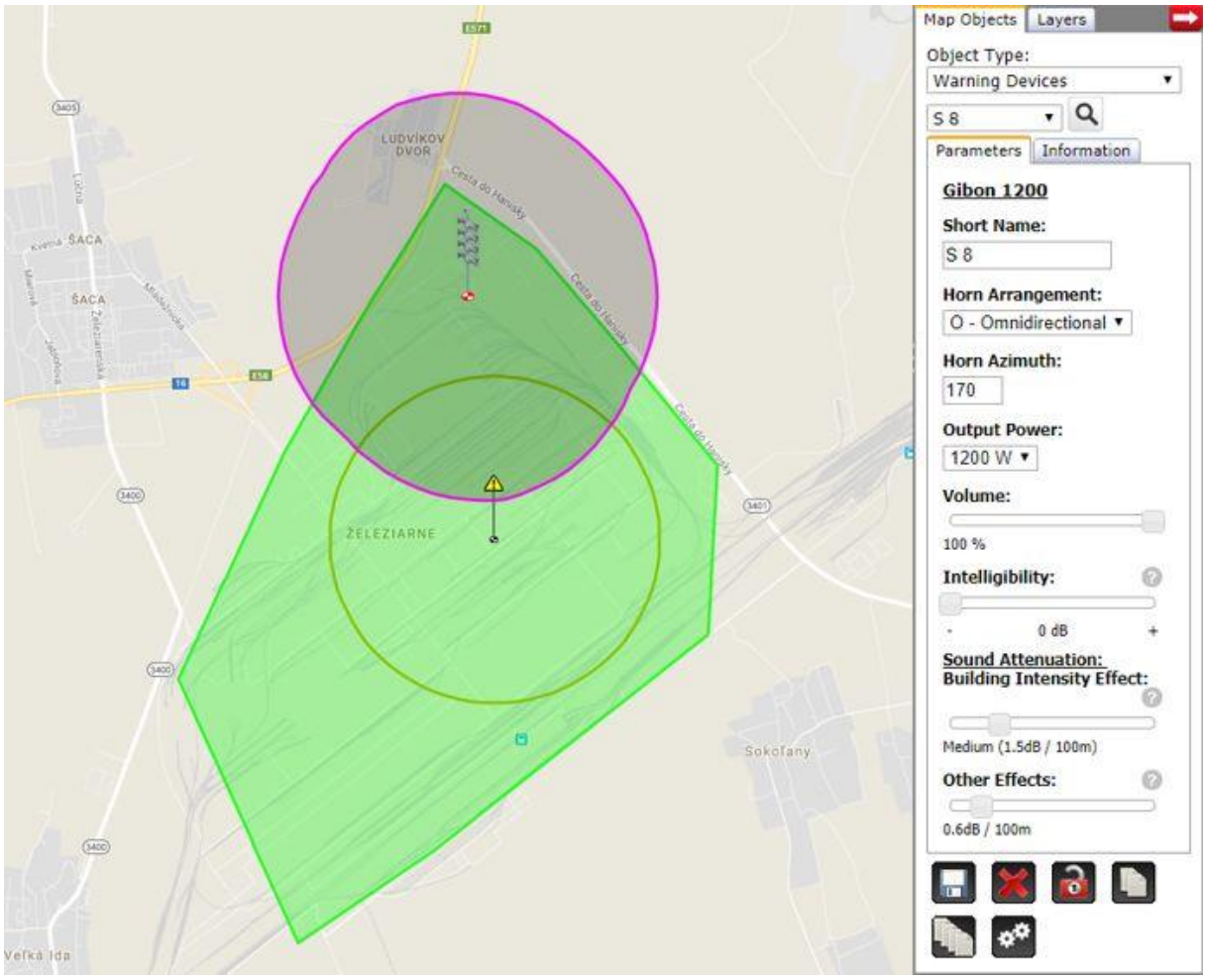
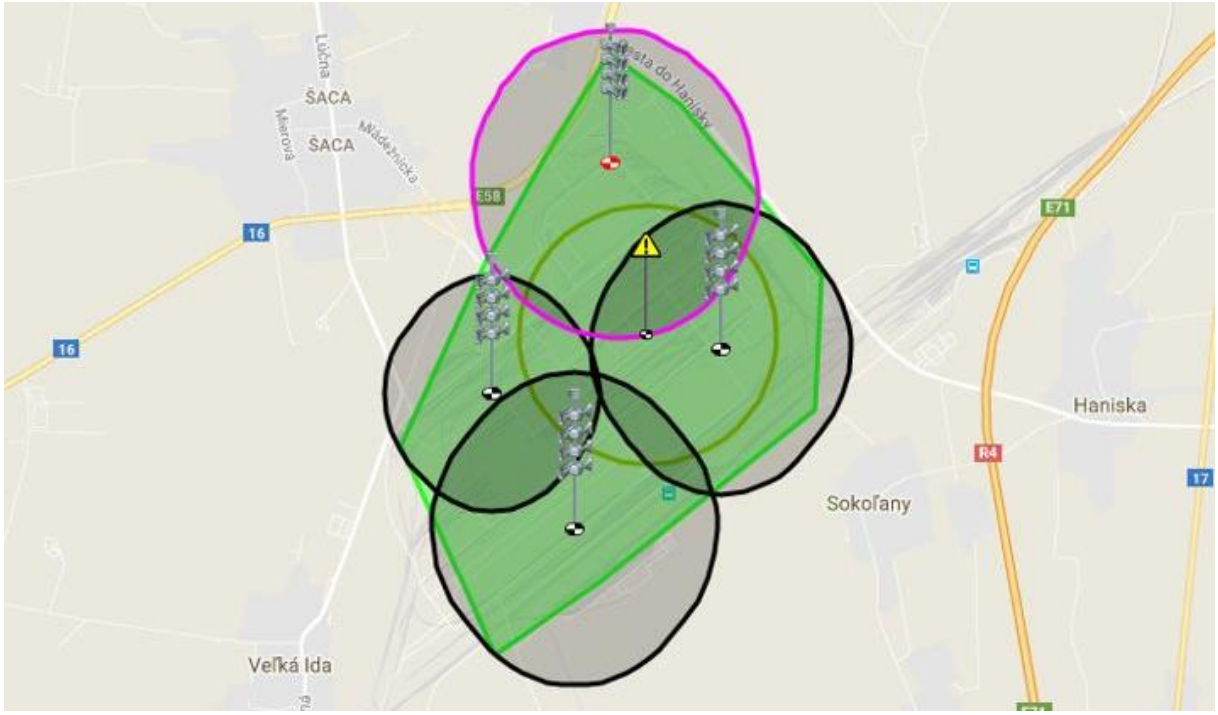
In most cases, the area of danger is of a circular shape. This time, however, we are going to create an irregularly-shaped polygon of the area of danger that would copy the part of the premises to which sound is distributed. With the cursor on the endangered area icon , press the left button of the mouse. You will thus activate the selection, which is indicated by the change in the dart board colour under the icon from black to red , and by the change in the colour of the area border to violet. Tick the *"Polygonal"* option in the characteristics box on the right side of the screen to select a polygonal shape of the area of danger, and save the changes by clicking on the *"Save"* icon. Then, click on the *"Edit"* icon, and by repeated clicking on the map, create demarcation points of the endangered area. The created points can be subsequently moved anywhere on the map. Once the required shape of the area is created, the changes must be saved by clicking on the *"Save"* icon .



Secondly, we need to add individual electronic sirens. For several reasons, it is generally recommended to use sirens with an output of 1,200 W. In special cases, it is also possible to use more powerful sirens. As we are going to create an integrated warning system and the sirens need to be connected directly to a sophisticated network of sensors, we decided to opt for the highest series of the Pavian sirens. Click on the *Pavian 1200* button, which can be found in the left bar, listing the company products (the number next to the name of a specific product indicates its output in Watts). To add new sirens, click on the map. To cancel the siren adding process, press the *ESC* key, or the right button of the mouse.



We can adjust parameters of each single siren in the right box characteristics box. The parameters we mostly adjust are radiation characteristics (F - Unidirectional, 8 - Bidirectional or O - Omnidirectional), influenced by the layout of sound baffles placed on columns and the azimuth i.e. setting of directions, in which the acoustic pressure should be radiated. Any change must be confirmed by its saving, i.e. by clicking on the *"Save"* icon .



In the same way, we add new sirens, change their position on the map and edit their characteristics until the coverage of the area by acoustic signals meets our requirements. The prepared acoustic project is used as the basis for the preparation of an implementation project.