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Republic of Latvia

Cabinet

Regulation No. 406

Adopted 3 June 2008

Methodology for the Determination of Surface Water Body Protection Zones

*Issued pursuant to
Section 59, Paragraph one of
the Protection Zone Law*

1. These Regulations prescribe the methodology for the determination of surface water body protection zones.
2. Surface water body protection zones shall be determined along pronounced contours in nature, for example, relief (pronounced locations of the change of height of the land surface), roads, streets, boundaries of forest sections, cross-rides, ditches, boundaries of cultivated meadows and arable land fields, boundaries of built-up or landscaped territories or along an imaginary line, taking into account the requirements specified in Section 7 of the Protection Zone Law.
3. The protection zone of a surface water body, the shore line of which has been artificially transformed (moulded, secured with artificial fixtures), shall be determined in a zone, which is not less than 10 metres wide from the transformed shore line or the outer edge of the fixture. If a dam forms the shore line, the protection zone shall be determined in accordance with Section 7, Paragraph four of the Protection Zone Law.
4. In determining a protection zone, hydrotechnical structures protruding into the water (for example, flow dams, moles, boat piers) shall not be taken into account.
5. The width of the protection zone in locations endangered by erosion shall be determined, taking into account the potential processes of coastal erosion. In the referred to locations the situation shall be evaluated on site and, where appropriate, new boundaries of the protection zones shall be determined.
6. The protection zone of a surface body object with a clearly pronounced high-pitched main shore line shall be determined from the upper edge thereof if the slant of the shore line slope is more than 25-30 degrees or the flooding territory borders on the foot of the main shore line.
7. A protection zone along water bodies with a flooding territory if it is narrower than the minimum width of the protection zone specified in Section 7, Paragraph two of the Protection

Zone Law shall be determined in accordance with the minimum width specified in the Law by including the flooding territory in the protection zone. Both the flooding territories and the border of the surface water body protection zone shall be graphically determined in the territorial spatial plan of the local government.

8. Regional environmental boards of the State Environmental Service shall take into account the requirements specified in this Regulation by issuing the conditions for the development of the territorial spatial plan of the local government, as well as issuing an opinion regarding the conformity of the referred to plan to the issued conditions in accordance with the regulatory enactments regarding the territorial spatial planning of the local governments.

9. In specifying the flooding territory in a spatial plan, the following shall be taken into account:

9.1. signs of regular flooding definable in the landscape, for example, distributaries and old rivers, remaining traces of the flooding, pools and puddles, excessive wetness of the soil, wet-loving plants and formations typical to flood-lands, alluvial soil on alluvial and limnic sediments, alluvial material (sand, sludge, remains of water plants);

9.2. boundaries of regularly overflowing territories definable in the landscape which have formed due to the direct impact of water or economic activity, such as a pronounced border in the relief, dam, berm, bank; and

9.3. impact of the existing infrastructure, hydrotechnical and civil construction on the humidity regimen of the flood-land and natural vegetation in the territories where the humidity regimen has partially or completely changed. In such cases the protection zone shall be determined up to a pronounced delimiting structure (road or railway, polder dam, flood protection dam, edge of a heaped-up territory or another technical obstacle which interrupts the natural flood-land).

10. If it is not possible to specify the overflowing territory according to the features referred to in Paragraph 9 of these Regulations, the engineering calculations referred to in this Chapter and Annex 1 to these Regulations shall be used.

11. If the overflowing territory is determined using engineering calculations, it shall be assumed that the repetition frequency of the flooding is at least once in ten years (with a 10% probability of flooding). Topographic maps with the accuracy of the scale provided for in the regulations regarding spatial planning and the hydrological data of the Latvian Environmental, Geological and Meteorological Agency shall be used for the calculations.

12. If hydrological calculations of the Latvian Environmental, Geological and Meteorological Agency, which have been made using methods of mathematical statistics, are not precise due to insufficient observations or such observations have not been performed at all, the methods of calculation referred to in Cabinet Regulation No. 631 of 23 August 2005, *LBS 224-05 "Amelioration Systems and Hydrotechnical Structures"* shall be used for determination of a surface water body protection zone pursuant to Annex 1 to these Regulations and, where appropriate, supplementary observations of temporary water level, as well as additional survey of areas shall be performed for the clarification of data.

13. Where appropriate, a surface water body protection zone shall be marked with informative signs on site in accordance with Annex 2 to these Regulations. The layout of informative signs on site shall be determined by the respective local government.

Prime Minister

I. Godmanis

Minister for the Environment

R. Vējonis

Methods of Calculation for Determination of the Flooding Territory of a Water Body

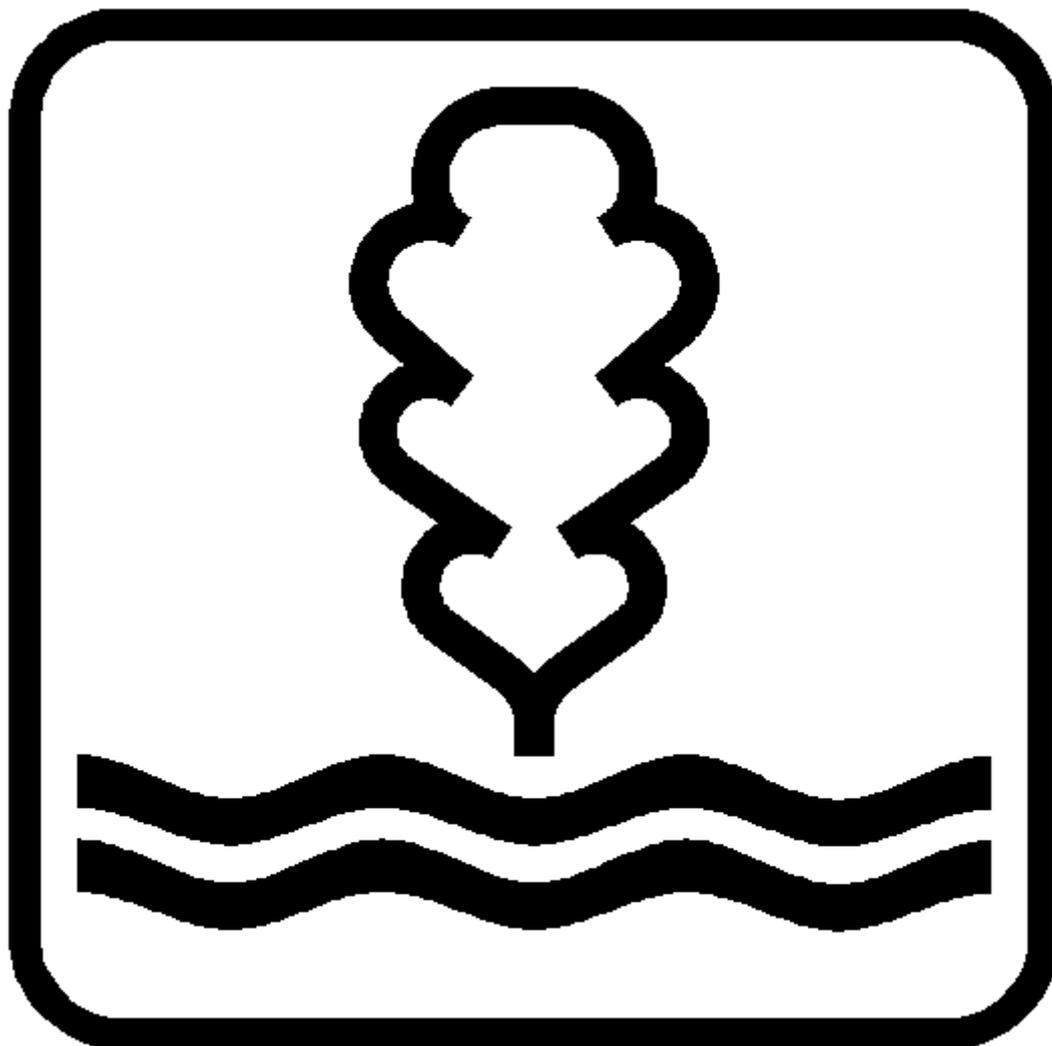
1. Methods of calculation in accordance with Cabinet Regulation No. 631 of 23 August 2005, *LBS 224-05 "Amelioration Systems and Hydrotechnical Structures"* may be used for determination of the flooding territory of a surface water body.
2. Calculated flow rate Q (m³/s), water levels H (m), speed of flow v (m/s) and discharge modules (l/s x ha) shall be used for determination of the flooding territory of a surface water body, taking into account the annual probability of exceeding in percentage.
3. Calculated water level of the flooding territory of a surface water body shall be determined with a probability at least once in 10 year (with a 10% probability of overflow).
4. If the Latvian Environmental, Geological and Meteorological Agency has at the disposal thereof mathematically sufficient direct data row of hydrometric observations, which has been processed using statistical methods and which is regarding the water levels at different flow rates observed in the surface water body within the boundaries of the particular local government, it may be used directly, in determining the level of overflow of the flooding territory and transferring it to the plan of the local government (a corresponding step of bench mark and the slope of the surface of water shall be used).
5. If the Latvian Environmental, Geological and Meteorological Agency does not have at the disposal thereof mathematically sufficient direct data row of hydrometric observations, which has been processed using statistical methods:
 - 5.1. and does not have data regarding water levels at different flow rates observed in the surface water body within the boundaries of the particular local government, but such observations have been made above or below the particular site or above or below the territory of the local government, water levels at different flow rates in the territory of the local government may be obtained through interpolation, using maps and the slope of the water level and transferring to the plan of the local government (a corresponding step of bench mark and the slope of the surface of water shall be used);
 - 5.2. and if the direct hydrometric observations in the watershed area have not been performed, temporary observation posts shall be arranged or empirical formulas and isoline maps, which have been drawn up in aggregating the results of observations performed throughout Latvia, shall be used.
6. If the border of the flooding territory of a surface water body is determined, using a calculation, data regarding the topography of the main bed and flood-lands, unevenness of the bed, nature of the water flow (even, unfixed or turbulent), as well as information regarding different hydrotechnical structures and the impact of operation thereof shall be necessary.

7. Hydraulic calculations for complicated beds and bed systems shall be performed, using mathematic modelling (for example, hydrodynamic model MIKE FLOOD is suitable for modelling of flooding territories and preparation of flood maps, including in formats compatible with ESRI ArcGIS).

Minister for the Environment

R.Vējonis

Informative Sign for Marking of Surface Water Body Protection Zones



1. Main sign – white square with rounded corners in a blue frame, blue stylised outline of an oak leaf and a wave pictogram.
2. Dimensions of the sign 600 x 600 mm or 400 x 400 mm.
3. Colour of the sign if ORACAL self-adhesive films are used for making of the signs, – dark blue (King Blue 049) and white (White 010).
4. The advisable technology of making of informative signs – cutting from ORACAL self-adhesive films or utilising screen printing.

Minister for the Environment

R.Vējonis