Estimation Amount Of Snow Deposits On The Road

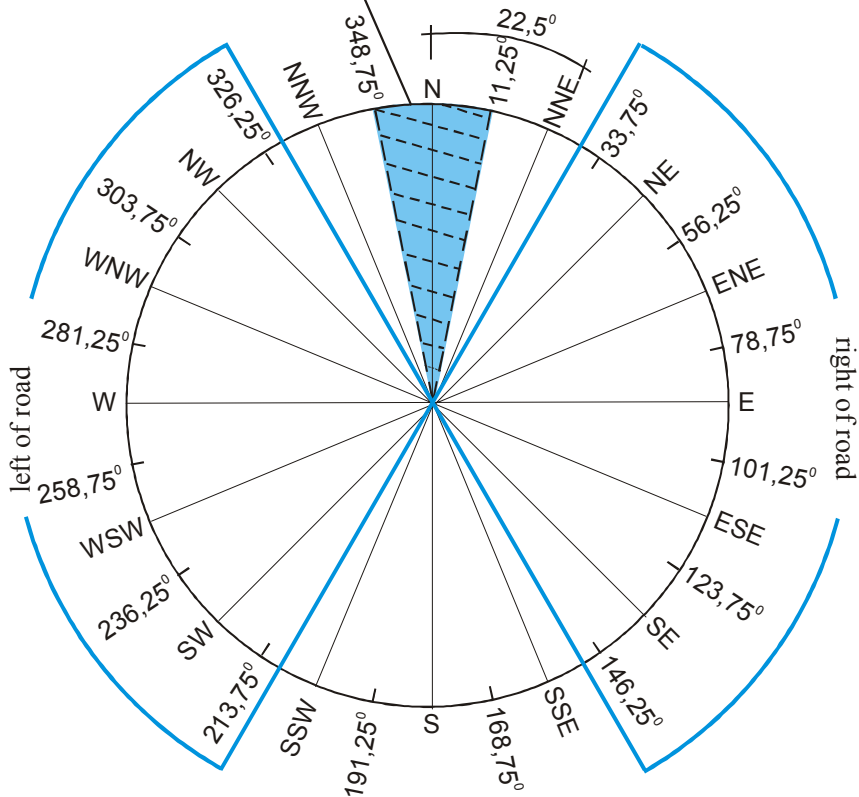Olga V. Gladysheva ID:14

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Calculation the Volume of Snowbring

Snowbring from direction North

left of road

right of road

Formulas of calculation the volume:

of snow transfer

$$W_t = \frac{t}{m} \sum_{i=1,(V>5)}^{m} C \cdot V_i^3 = I_c \cdot t,$$

of the snowbring to highway from one direction

$$W_{sb} = W_t \cdot \sin(\alpha_r - \alpha_i),$$

of the snowbring to one side of the highway

$$W_b = \sum_{i=1}^{7} W_{sb,i} \cdot \sin(\alpha_\partial - \alpha_i),$$

Models of Quantitative Evaluation of Snow Dependence of Roads:

- **Model of Quantitative Evaluation of Snow Deposits on Embankments**

- **Model of Quantitative Evaluation of Snow Deposits in Open Ditches**

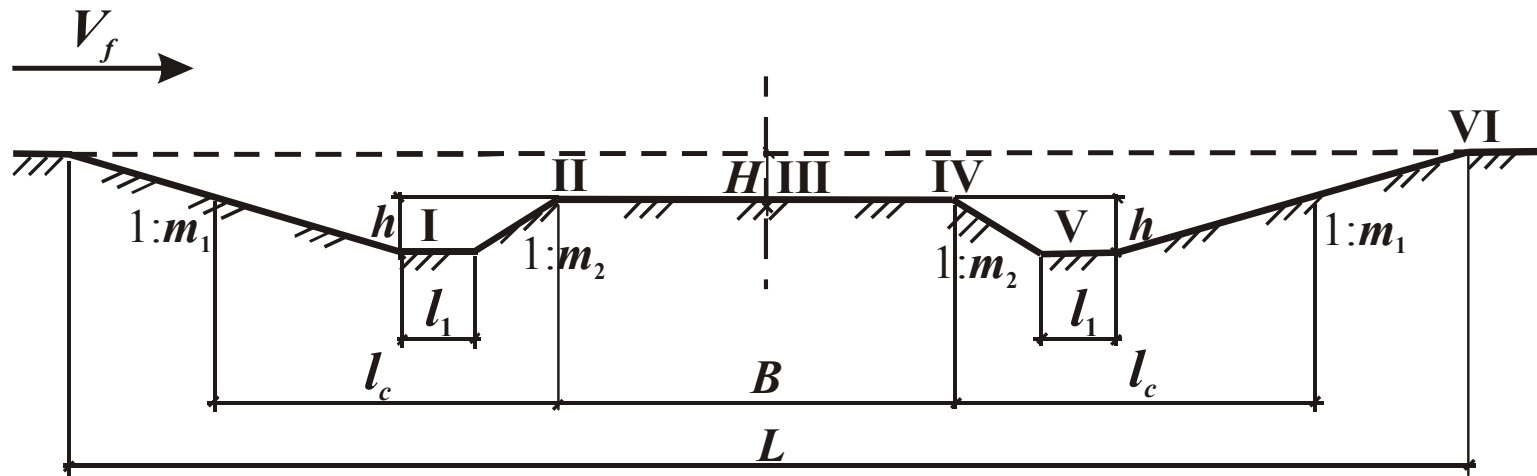- **Model of Quantitative Evaluation of Snow Deposits in Closed Ditches**

Model of Quantitative Evaluation of Snow Deposits on Embankments
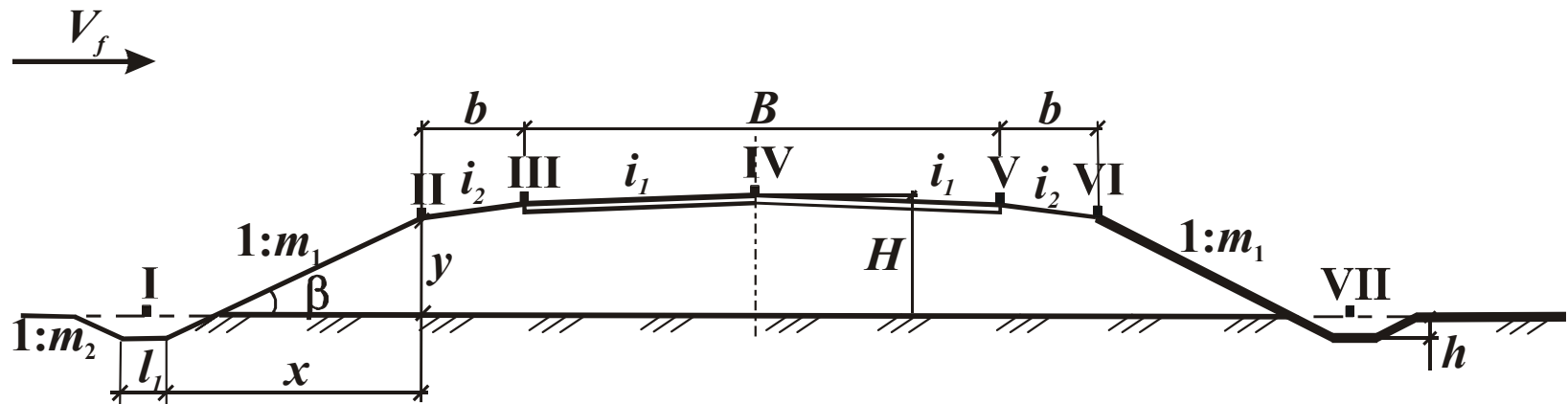
Formula of calculation quantity of snow deposits on the road surface of embankments

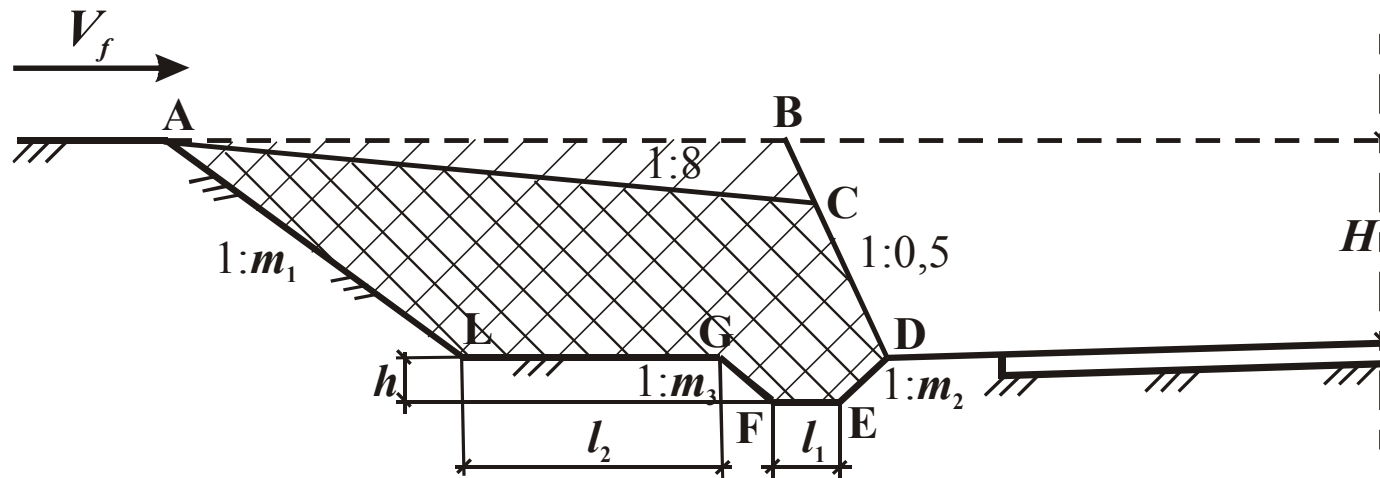$$Q_d = Q_d^{III} + Q_d^{IV} + Q_d^{V} + Q_d^{VI}.$$

Model of Quantitative Evaluation of Snow Deposits in Open Ditches

Formula of calculation quantity of snow deposits on the road surface of open ditches

$$Q_d = Q_d^{III} + Q_d^{IV}.$$

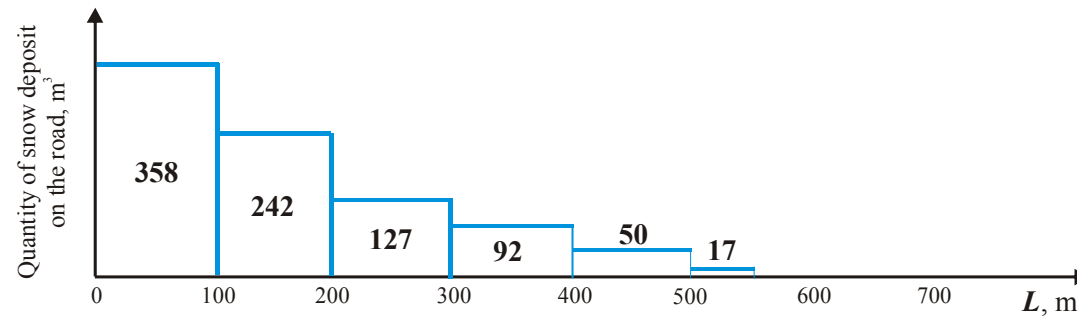# Model of Quantitative Evaluation of Snow Deposits in Closed Ditches

Formula of calculation quantity of snow deposits on the road surface of closed ditches
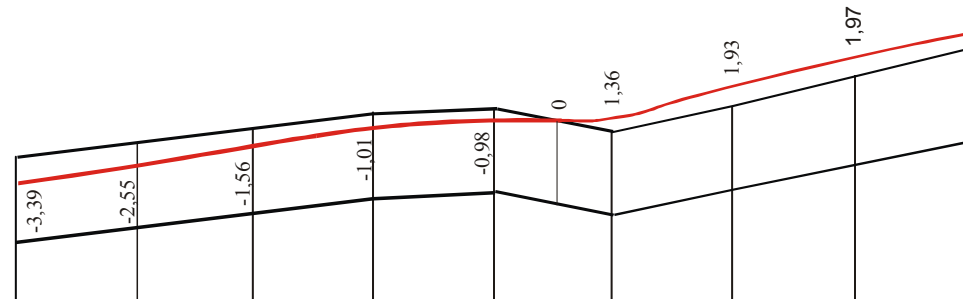
$$Q_d = W_b - Q_{sl,cuv}.$$

Example of Calculation for a Site of Road

a) diagram of change of quantity of snowstorm deposits on the road surface

b) initial data for calculation quantity of snowstorm deposits

a)

Quantity of snow deposit on the road, m^3

358   242   127   92   50   17

0   100   200   300   400   500   600   700 L, m

b)

-3,39   -2,55   -1,56   -1,01   -0,98   0   1,36   1,93   1,97

Volume of snowbring, m^3/m	83						
Technical class of road	II						
Road direction	SSE						
Type of cross-section	Closed ditch		Opened ditch		Embankment		
Stake	1	2	3	4	5	6	7