

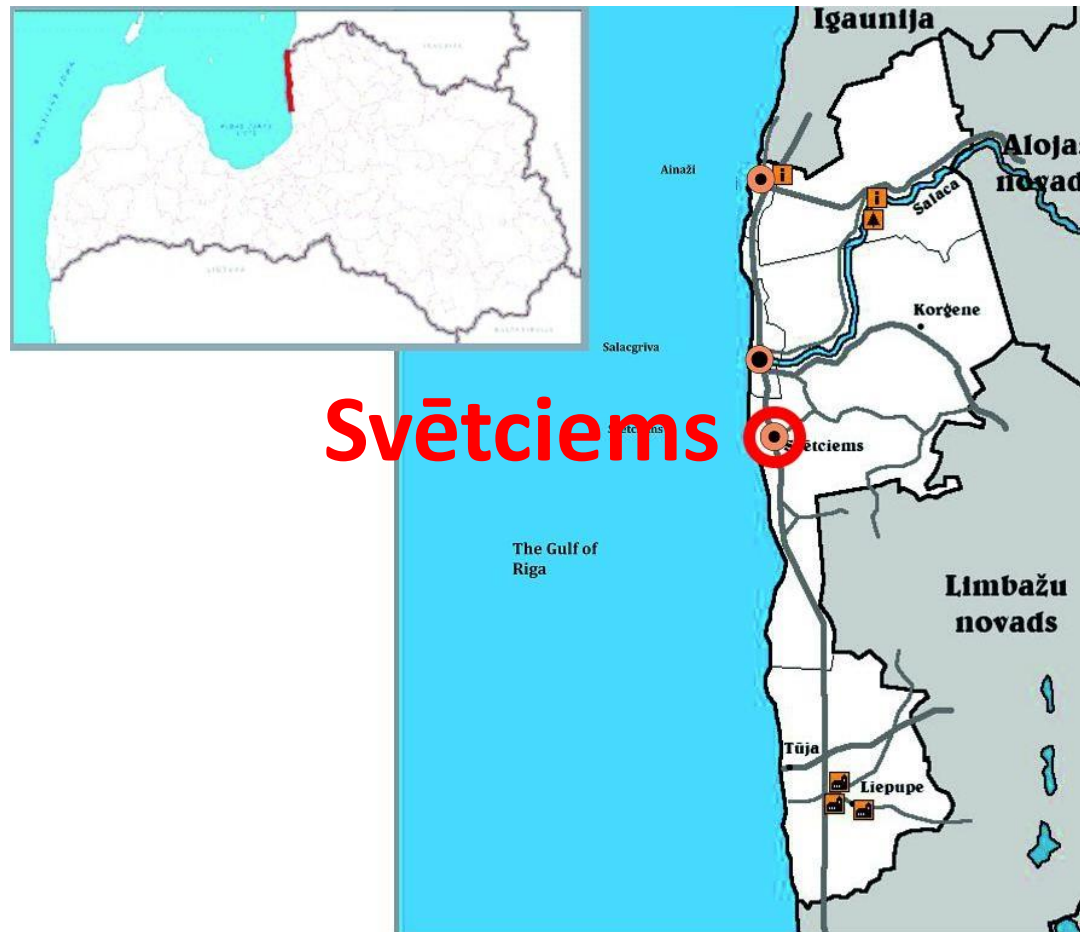
# VillageWaters WP3 workshop

## Pilot evaluation - Svētciems

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# Information about the pilot - situation



# Information about the pilot - territory

- Definition of the territory: **WWTP of Svētciems, Salacgrīva parish**
- Water bodies on the territory: **Svētupe river, salmonid waters**
- Protected Areas: **in territory of Northern Biosphere Reserve**
- Owner: **Salacgrīva Municipality**
- Operator: **Salacgrīva Ūdens, municipal utilities company**



# Information about the pilot – loads (1/3)

- Population of Svētciems as per 2016: **427**
- Connected to municipal water supply system: **408**
- Connected to municipal wastewater evacuation system: **361**
- Public institutions:  
**kindergarten – 33 children, 9 nursery teachers**  
**library – 2 librarians**
- Industries: **none**
- Average water consumption: **85 l/person/day**
- Daily hydraulic load on WWTP: **30.7 m<sup>3</sup>**

# Information about the pilot – loads (2/3)

Influent wastewater analyses March 2017

Pollutant	Concentration	Units of measure
BOD <sub>5</sub>	140	mg/l
COD	420	mg/l
Suspended solids	1 260	mg/l
N <sub>total</sub>	56	mg/l
P <sub>total</sub>	7.5	mg/l

Average Potable water consumption: **30.7 m<sup>3</sup>/day**

Daily hydraulic load on WWTP: **41.6 m<sup>3</sup>/day**

# Information about the pilot – loads (3/3)

Daily load on WWTP, according to influent wastewater analyses March 2017

Pollutant	Concentration	Units of measure
BOD <sub>5</sub>	5.8	kg/day
COD	17.5	kg/day
Suspended solids	52.5	kg/day
N <sub>total</sub>	2.3	kg/day
P <sub>total</sub>	0.3	kg/day

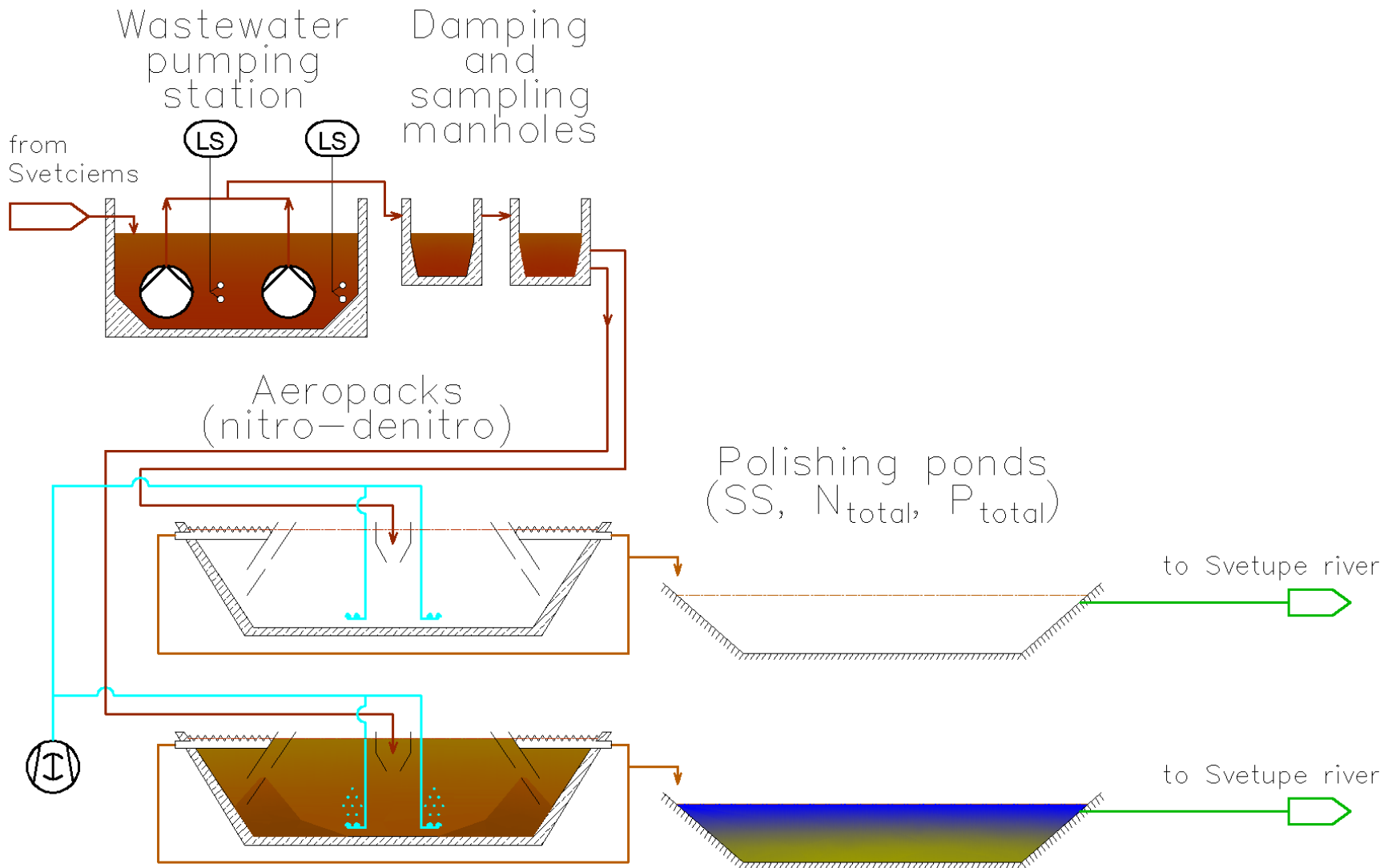
Average Potable water consumption: **30.7 m<sup>3</sup>/day**

Daily hydraulic load on WWTP: **41.6 m<sup>3</sup>/day**

# Information about the pilot – old WWTP (1/5)

- Year of construction: **1984,  $Q_n = 2 \times 100 \text{ m}^3/\text{day}$**
- Type of WWTP: **2 × BIO100 aeropacks + biological polishing ponds**
- Treated water discharge: **Svētupe river**
- Power consumption: **123 kWh/day (air blower only)**
- Processing of excessive sludge: **evacuated to Salacgrīva WWTP**

# Information about the pilot – old WWTP (2/5)



Baltic Sea Region

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# Information about the pilot – old WWTP (3/5)

Effluent water after aeropack, according to analyses March 2017 (mg/l)

Pollutant	Concentration after aeropack (mg/l)	Efficiency (%)
BOD <sub>5</sub>	72.8	48
COD	176.4	58
Suspended solids	264.6	79
N <sub>total</sub>	42.56	24
P <sub>total</sub>	6.8	9

# Information about the pilot – old WWTP (4/5)

Effluent water after polishing pond, according to analyses March 2017 (mg/l)

Pollutant	Concentration after aeropack (mg/l)	Efficiency (%)
BOD <sub>5</sub>	3.4	95
COD	43	76
Suspended solids	5.2	98
N <sub>total</sub>	3.6	92
P <sub>total</sub>	4.3	37

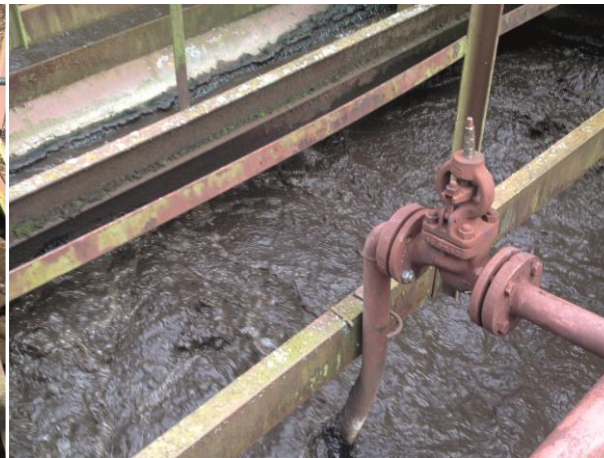
# Information about the pilot – old WWTP (5/5)

Comparing the efficiency of aeropacks and polishing pond

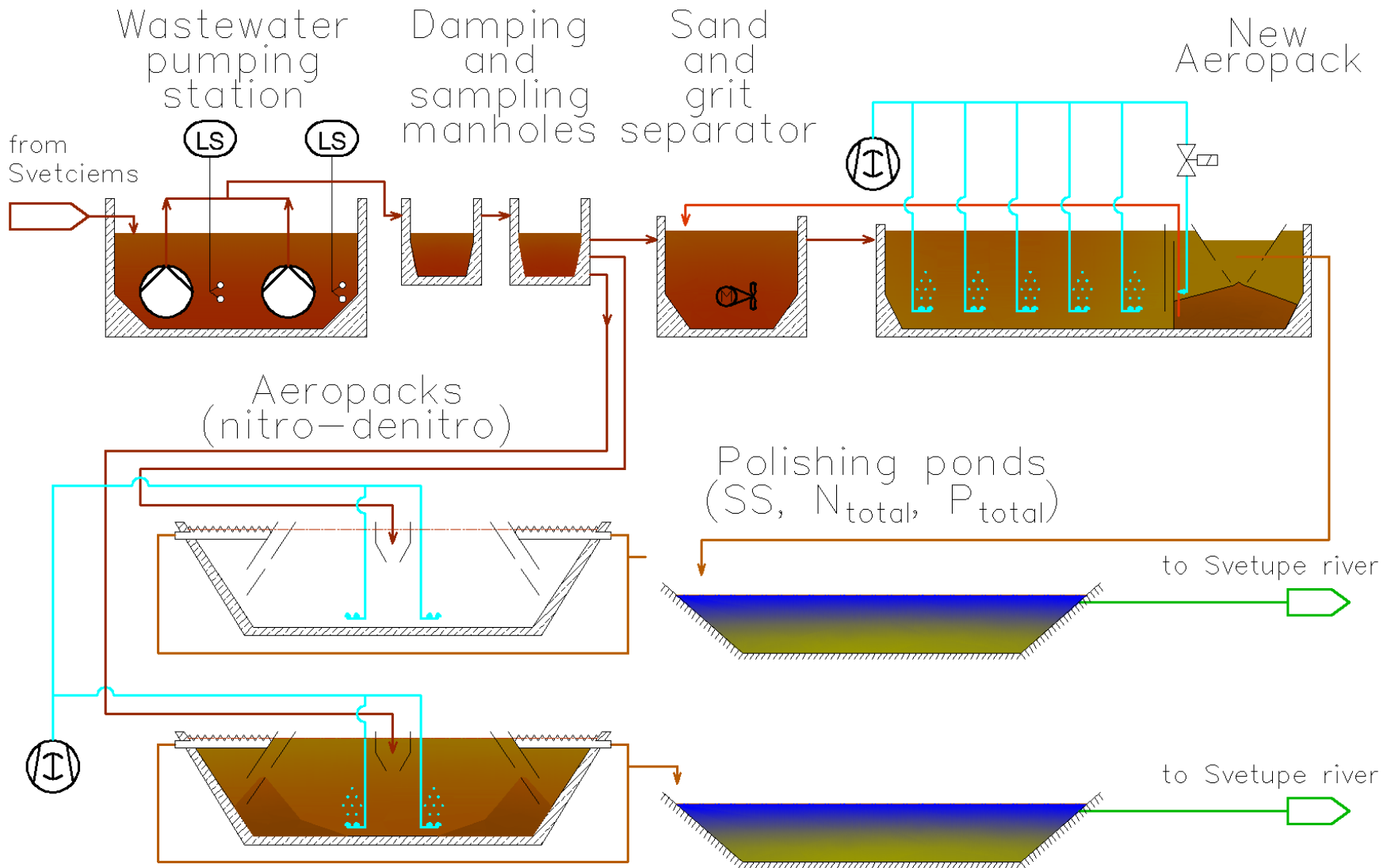
Pollutant	Efficiency of aeropack (%)	Efficiency of polishing pond (%)
BOD <sub>5</sub>	48	95
COD	58	76
Suspended solids	79	98
N <sub>total</sub>	24	92
P <sub>total</sub>	9	37

# The problem

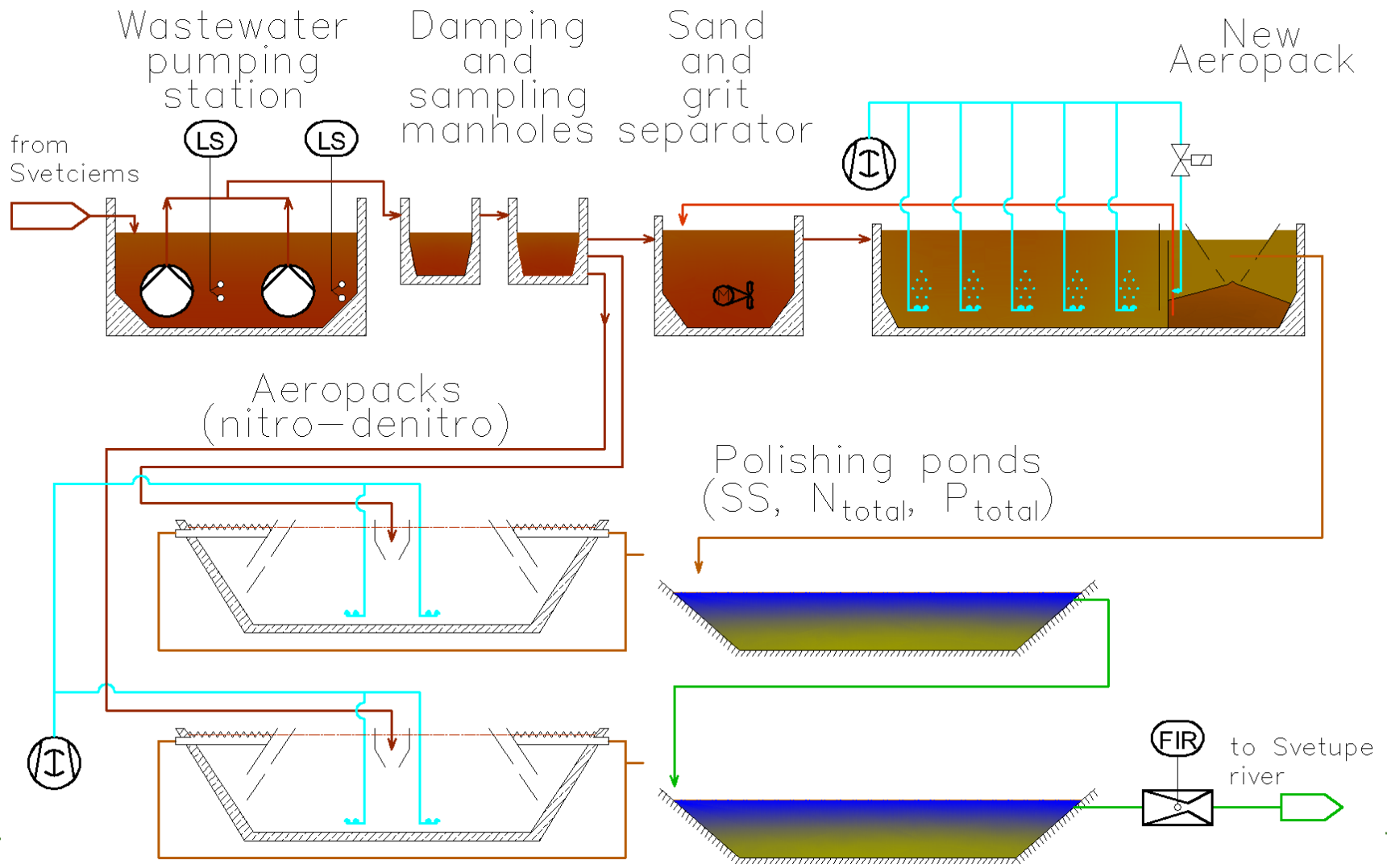
- Aeropack **does not provide** sufficient treatment efficiency
- Polishing pond is main treatment unit, it **is overloaded** and there is a big risk of one-shot flushing of the pollutants, collected in the pond to Svetupe river



# Proposed solution – step 1



# Proposed solution – step 2



# Expected results

- Estimated volume of investments: 72 000 EUR
- Year of construction: **2018, Qn = 40 m<sup>3</sup>/day**
- Type of WWTP: **1 × aeropacks with extended primary clarifier + biological polishing ponds (old ones treated)**
- Treated water discharge: **Svētupe river**
- Power consumption: **70 kWh/day**
- Processing of excessive sludge: **evacuated to Salacgrīva WWTP**
- Lifecycle: **30 years**
- Social impact: **decreasing of WW cost**

# Progress as per February 2018

- Performed feasibility study
- WWTP is under development of design papers
- Designer company “EkoStandarts Tehnoloģijas”