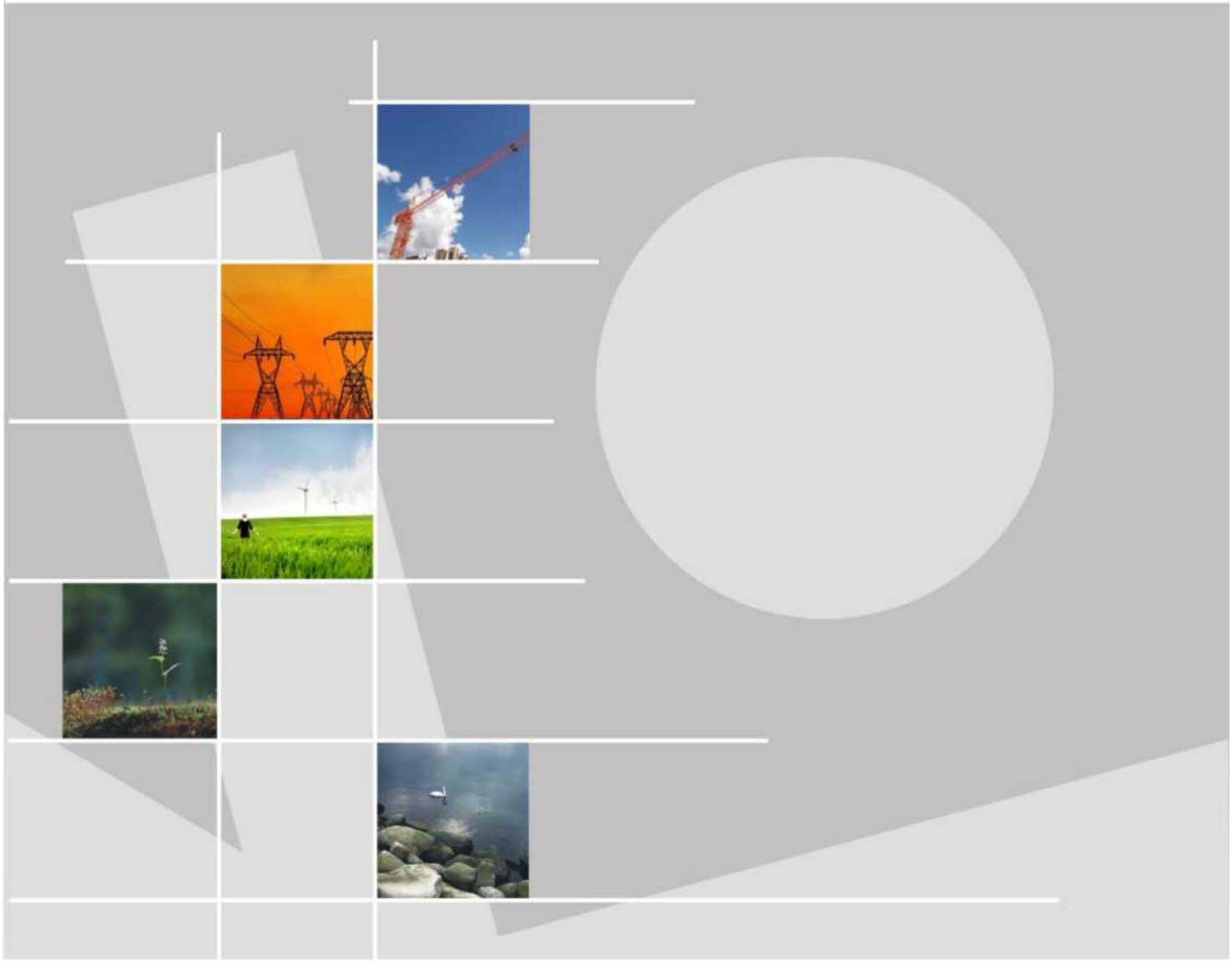
Planuojamos ūkinės veiklos organizatorius

UAB „Vilniaus vandenys“



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UAB Sweco Lietuva

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Subsurface exploration permit No 1325341
Licence No VSL-86 for public health activities of a legal person

Vilnius

REPORT

CONTENTS OF THE REPORT

1 INFORMATION ON PLANNING ECONOMIC ACTIVITIES ORGANIZERS

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2 DESCRIPTION OF THE FAB

2.1 Name of the FSU

Name of the proposed economic activity: Reconstruction and operation of Švenčionys wastewater treatment plant.

According to Annex 2 to the Law on EIA of the Republic of Lithuania, the planned economic activity falls under point 14: "&en;...> change or extension of the proposed economic activity, including reconstruction of existing structures, modernisation or replacement of production process and technological equipment, change of production method, quantity (volume) or type of production, introduction of new technologies and other changes which may have a negative impact on the environment, except in the cases referred to in point 10 of Annex 1".

It should be noted that the implementation of the reconstruction of the PŪV, the WWTP of Švenčionys, is listed in the 2017 Nemunas River Basin District Programme of Measures as one of the proposed methods for reducing point and urban pollution.

Currently, 213 business customers and 1371 households use the services of Švenčionys NEB. According to data provided by Švenčionys District Municipality, 163 new users will be connected to Švenčionys wastewater treatment plant by 2020. The special plan for water supply and waste water management of Švenčionys District Municipality also provides for the connection of another

551 new consumers to the Švenčionys waste water collection networks.

In particular, Švenčionys wastewater treatment plant has been operating in Cirkliškis village for many years, in the 1980s Švenčionys WWTP productivity was designed with two parallel technological lines - 2000 m3/day. At the beginning of the 21st century, one of the two technological lines was abandoned due to reduced waste water flow and natural obsolescence of the structure, resulting in a current capacity of 1000 m3/pfor existing WWTPs.

It should be noted that the Švenčionys waste water treatment plant currently in operation is completely outdated, in critical condition, and therefore its reconstruction is necessary.

During the PŪV, it is planned to increase the capacity of the wastewater treatment plant from the existing 1000 m3/dto 1080 m3/dand to reconstruct and construct new LWTPs that would ensure the required operational efficiency of the Švenčionys wastewater treatment plant.

After the reconstruction, the productivity of the WWTP is expected to reach 1080 m3/day. In addition, letter No (19-2)-D8-2806 of the Ministry of the Environment sets out the requirement to increase the efficiency of the treatment of existing waste water from Švenčionys NWW, therefore, during the reconstruction, technologies ensuring better treatment of waste water will be implemented.

2.2 Physical characteristics of the FeBOs

The PFM will be carried out on a plot of land currently owned by the State, where the existing old waste water treatment plants are currently operated.

It should be noted that the land plot formation procedures are currently being carried out. The intended purpose of the land parcel being formed shall be another use of the land parcel - areas of transport and engineering networks, the area of the land parcel being analyzed shall be approximately 2.42 ha.

According to the general plan of the territory of Švenčionys district, the area of the FSU under analysis is included in the agricultural territory (Figure 3.1).

Construction period of the facility

During the construction of the site, it is planned to remove a plant soil with a thickness of about 0.20 m. The plant soil will be pushed into piles in such a way that engineering networks will not be flooded, the interests of third parties will not be violated and further construction works will not be hindered. Plant soil will be stored throughout the construction period without mixing it with other soils.

Intended to be dismantled: bioponds, existing effluent discharger, open sludge storage sites.

It should be noted that the planned reconstructed facilities will be known only during the technical design, after the contractor has carried out an analysis of the condition of the structures and facilities.

The exact scope of the demolition and reconstruction works will be known during the technical project.

Required equipment and engineering infrastructure:

- **Technological building:** (Infrastructure required: heating and ventilation, plumbing, power supply, aborator equipment, video surveillance equipment, fire safety alarms, automation and control, etc.);
- **Preliminary (mechanical) waste water treatment chain:** (Infrastructure required: electricity supply, heating and ventilation, automation and control);
- **Premises of the Orapučiai:** (Infrastructure required: electricity supply, heating and ventilation, automation and control);
- **Biological wastewater treatment chain:** (Infrastructure required: electricity supply, heating and ventilation, automation and control);
- **Sludge treatment unit:** (Sludge pumping station, sludge compaction and drainage Installations, sludge tanks, mechanical equipment, necessary infrastructure: electricity supply, heating and ventilation, automation and control);
- **Outdoor engineering networks: connection of**incoming waste water, discharger of treated waste water, metering unit of treated waste water; the incoming waste water reception chain; access road to the NEB.

2.3 Nature of the proposed economic activity: Production, Technology and Capabilities

The existing Švenčionys city wastewater treatment plant and centralized wastewater networks supply wastewater from the city's residents and local industrial enterprises. As mentioned above, according to the data provided by UAB Vilniaus vandenys, the waste water disposal and treatment service is used by 213 business customers and 1371 households. It is planned to connect 163 new users by 2020. Based on the solutions provided for in the special plan for water supply and wastewater management infrastructure of Švenčionys District Municipality, additional development of the domestic wastewater collection system is provided for. After the political decision to implement the solutions provided for in the special plan, about 1000 more residents would be connected to Švenčionys NGO. Statistics Lithuania indicates that the size of the household in Švenčionys district is 1.8 inhabitants, therefore, the estimated number of residents who currently use the waste water treatment service is 2468.

Current situation

The capacity of existing Švenčionys WWTPs is 1000 m3/p.The WWTPs operating at Švenčionys WWTP (see Figure 2.1) are completely outdated, in critical condition, and therefore their reconstruction is necessary to ensure a safe and efficient waste water treatment system. A diagram of the current situation of the waste water treatment plant is attached in Annex 1.

Contamination of waste water accepted for treatment shall aim at: $BOD_{7:}$ 488 mg/l; 980 for COD; Suspended substances: 417 mg/l; Total nitrogen (Nb) 117 mg/l; Total phosphorus (Pb): 15 mg/l.

The treated effluent from existing bioreservoirs is discharged into the adjacent Mera-Bouna river.

After implementation of the PFM

During the farm, it is planned to install a new technological building, which would include a dispatching room, domestic premises, mechanical workshops, a laboratory, a sludge dewatering bar. It is also planned to install a wastewater reception point with a flow meter, the function of identifying the license plates of the vehicle transporting the wastewater, a pH-meter and a redox meter.

During the PŪV, the planned productivity of the IWT is 1080 m3/d; Average hourly flow is expected - 45 m^3/h; Maximum hourly flow rate in dry conditions: 135 m3/h; The efficiency of the preliminary (mechanical) cleaning chain is 270 m^3/h; The required volume(s) of the flow equalisation tank(s) shall be designed to be – 675 m^3;

The design pollution of incoming waste water remains unchanged compared to the current situation: BOD_7: 488 mg/l; 980 for COD; Suspended substances: 417 mg/l; Total nitrogen (Nb) 117 mg/l; Total phosphorus (Pb): 15 mg/l.

During the PFM, a new waste water discharge is planned to discharge treated waste water into the Mera-Kūna River. The exact location of the prom will be known during the technical project.

Figure 2.1 NEBs currently operating at Švenčionys wastewater treatment plant

Wastewater treatment technology. Various aspects were taken into account when selecting the wastewater treatment technology. In addition to the obvious statutory requirement to dispose of organic and biogenic materials, the design of Švenčionys wastewater treatment plant takes into account the following:

- the process must be stable, although there are significant variations in daily ingress and contaminant concentrations;
- operating costs shall be kept to a minimum;
- investment costs must ensure an economic effect;
- the sludge management system must be as simple as possible;
- the environmental impact (noise, electricity consumption, odour) must be minimised.

One of the technologies that meets all these criteria is the Sequencing Batch Reactor (SBR). In batch reactors, biological waste water treatment processes take place at appropriate time intervals in a single tank. Therefore, this type of plant requires less space on the plot and lower investment costs for construction, since there is no need to build a separate settling device, as is the case with classical aeration plants.

The SBR system is very flexible because the duration of all cleaning phases (anaerobic, anoxic and aerative) can be easily changed and adjusted. Therefore, this type of equipment is well suited for the treatment of uneven and fluctuating sewage flows and loads. This technological system is able to cope with different loads, in contrast to classical aeration units, where the volumes of all zones are strictly limited. This aspect is very relevant for Švenčionys city wastewater treatment plant, as it is not clear how often wastewater will be delivered from the surrounding extraction pits. Biogenic materials are also disposed of in SBR-type installations. The proposed SBR system discards primary precipitators.

In the SBR wastewater treatment plant, the need for operators is minimal, since all the work of the treatment plant is automated and controlled with the help of a computer. The operator clearly sees on the screen what the cleaning phase is now, how long it takes and when it will end.

Each waste water treatment cycle in the SBR consists of six steps:

Filling + mixing	The untreated effluent is injected into the reactor and mixed with the active sludge in the reactor.
Filling + Cleaning	Filling continues. The mixing shall be stopped. The aeration begins.
Cleaning	Filling shall be stopped. The aeration continues.
Precipitation	The aeration shall be stopped. The reactor ideally performs the function of a precipitator.
Peeling	When the settling is completed, the water is discarded and the excess sludge is removed. Water is always discharged to a predetermined level in the reactor.
Waiting	The reactor is waiting for the next portion of sewage to be injected into it.

The SBR technology almost always uses a system of at least two reactors. Two reactors are also planned to be used at the Švenčionys wastewater treatment plant. Reactors operate alternately throughout the day. Several features of the SBR system:

- Aeration system, which only needs to be adapted for 8-12 hours of work per day (while in normal systems of activated sludge, aeration occurs continuously).
- All cleaning processes take place in one tank, which is a unique feature of the SBR system.
- Discharge of treated waste water with interruptions. Other links will be adapted accordingly.
  hydraulic capacity.

The Švenčionys waste water treatment system would consist of the following parts:

- Receiving tank for incoming waste water;
- Preliminary (mechanical) cleaning;
- Leveling reservoir upstream of reactors;
- Two SBR reservoirs that operate alternately;
- Sewage sludge compaction and drainage chain.

It should be noted that the projected technological scheme does not contain primary precipitators. The levelling tank will fully perform part of the functions of the primary precipitators related to the levelling of the flow and pollutants. Most of the fats, petroleum products and other larger carriers will be removed in the mechanical cleaning chain.

The main reasons for abandoning primary precipitators are to ensure maximum organic pollutant content in the biological chain and to facilitate sludge management. When using a precipitator, it is necessary to stabilize the precipitate sludge. In small waste water treatment plants, aerobic stabilization or lime stabilization is the most common method, but the operational costs of both methods are quite high.

Without the use of a precipitator, the sludge will be partially stabilised in the biological treatment chain, as nitrogen removal requires a high sludge age. Therefore, in small treatment plants, and especially when using the SBR system, the primary precipitator is abandoned in order to avoid additional costs for the treatment of primary sludge.

Receiving tank for incoming waste water. Waste water will be discharged into this reservoir from the city's drainage pits. Hand gratings with slots of no more than 20mm shall be designed in the incoming sewage tank. From the incoming waste water reservoir, the waste water will flow to the local waste water pumping station and will be pumped into the waste water pressure line upstream of the pre-treatment circuit. It should be noted that only after the implementation of the project will it be known how often wastewater will be delivered from the surrounding extraction pits, however, according to preliminary data, the Švenčionys wastewater treatment plant is expected to serve no more than 1-2 vehicles with incoming wastewater per hour, i.e. up to 10 commercial

vehicles per day. The capacity of the incoming sewage tank will be known during the technical design.

Pre-treatment (mechanical) plants The mechanical treatment plant links will be located in a single technological unit and integrated in a single complex pre-treatment plant. This complex unit is connected on one side (inlet) to the incoming sewage collector and on the other side (outlet) to the pipe, the effluent of which will be transferred to the biological treatment chain. The complex pre-treatment (mechanical) plant will consist of the following parts:

- Mechanical automatically controlled carrier holding device (grotto) with equipment for washing, pressing and loading of the removed carrier into a container in a closed polyethylene bag/sleeve.
- Aerated sand trap with removal sand dewatering, sand washing and container loading equipment.
- Equipment for grease retention, collection and degreasing.

Mechanical treatment plants are calculated on the basis of the maximum design hourly flow rate (270 m^3/h).

To ensure reliability, two mechanical treatment plants are designed, each with a capacity of approximately 50 % of the total waste water flow. One backup (manual) grille is also provided on the turn-by-turn line. Each line is capable of ensuring the hydraulic permeability of the maximum hourly flow rate. The distance between the bars of the hand grille will be 10 mm. Manually cleaned emergency grilles are intended for use when the main mechanical grilles are not functioning or need to be repaired.

Integrated grating-sand degreasing unit. Pre-cleaning complex plants in which grease is retained, sand and grease are removed. This equipment will be installed in a technological building.

Despite the fact that the complex unit has its own internal ventilation, the room in which the grids and other mechanical cleaning equipment will be installed will be forced to ventilate. A damper will be provided in front of the gratings and sand traps to direct the flow of waste water through the bypass line (through the hand gratings).

Carriers held in a tumble sieve are delivered via a screw through a washing machine and, after draining, are pushed into containers. Three skimmings and three sand containers with wheels will be presented. The capacity of the containers will be adjusted during the technical design.

Washing water from the tumble sieve and the carrier (skimming) press drains into the levelling tank. The treated effluent passes through the drum sieve into the aerated sand traps.

Aerated sand trap. Gravel, sand and fat will be removed in sand traps. Sand traps shall be designed according to the surface load and retention time and the sedentary speed of the sand particles. A sand trap aerated by a horizontal flow is designed. At least 80% of particles ≥ 0,2 mm in diameter shall be retained.

Sand traps will hold about 0.24 m3 of sand per day, accepting that there is 120 liters of sand per

1000 m3 of wastewater. The sand retained in the sand trap will be pushed by a screw conveyor to a sand washing facility, where organic pollutants will be washed out from the mass retained in the sand trap and returned to the cleaning process, and the washed sand will be drained by the conveyor and loaded into containers. Three containers of sand and three containers of debris will be provided. Drained, stored in containers sand and scrap will be given to waste managers in accordance with the procedure established by legal acts.

Leveling reservoir. After aeration, the waste water from the sand trap enters the levelling tank. The purpose of the levelling reservoir is to even out the uneven flow of incoming waste water and, in particular, the unevenness of pollutants. The expected volume of the levelling reservoir shall be two and a half hourly maximum flow rates or seven hourly average flow rates, i.e. 675 m^3.

Biological treatment plants Biological wastewater treatment plants - Periodic Operation Reactors (PRRs) are designed. Two SBR reactors are being designed. The effluent from the levelling tank will be delivered to the SBR reactors by separate submersible pumps. One pump is provided for each SBR reactor. The spare pump is stored in the wastewater treatment plant warehouse. The volume of the SBR reactor will be known during the technical design.

Excess sludge reservoir. Excess sludge from each SBR reactor will be pumped into the excess sludge reservoir. From the excess sludge tank, sludge will be supplied to the mechanical sludge compaction unit, and after the mechanical sludge compaction, the concentration of sludge dry matter will be about 4% - that is, about 14.7 m^3 of compacted sludge per day. The compacted sludge will be fed into an intermediate tank of compacted sludge. As the sludge compaction and dewatering plant will operate 5 days a week, the amount of sludge supplied to the mechanical sludge drainage plant will be about 21 m^3 per day. In the tank of excess and compacted sludge, the removal of clarified water to the levelling tank is designed. Cleared sludge water is removed by a self-tapping tube, due to the difference in the height of the projected water surfaces in the tanks. In order to prevent sludge from settling in the tanks, a stirrer is designed to periodically stir the mixture of excess sludge. Two intermediate sludge tanks (excess sludge and compacted sludge) are foreseen in case of failure of mechanical sludge compaction or drainage plants, these tanks will perform the function of an emergency tank, so in the wastewater treatment plant it will be possible to store excess uncondensed sludge in intermediate sludge tanks for another week until the compaction or drainage plant is repaired. The volume of the designed excess sludge tank will be adjusted during the technical design.

Mechanical compaction and drainage of sludge. Excess sludge will be mechanically compacted and drained at Švenčionys wastewater treatment plant. A compactor will be used for mechanical compaction of sludge and a centrifuge will be used for drainage. After mechanical dehumidification, the dry matter content of the sludge is ≥ 20%, which amounts to about 2.5 m3 of dehumidified sludge per day. The sludge treatment chain will normally operate for 40 hours per week (5 days 8 hours per day).

Management of drained sludge. The drained sludge from the centrifuge will be loaded into a sludge container via a conveyor. To this end, two 10 m3 containers of the PEC type shall be provided.

It is important to note that sludge storage sites at Švenčionys wastewater treatment plant are not foreseen. The dehydrated sludge will be fed directly into containers of dehydrated sludge, which, once filled, will be handed over to waste managers in accordance with the procedure laid down by legal acts.

The treated wastewater will be discharged by a new projected discharger into the nearby Mera - Body river. The exact location of the treated effluent discharger will only be known during the technical design. The preliminary technological PFM scheme is attached in Annex No 3.

2.4 Use of raw materials and chemicals

Construction period of the facility

Various building materials will be used for the construction of PŪV objects and the construction of the territory: sand, gravel, crushed stone, concrete, reinforced concrete, metal and other structures, elements, various reinforcements, etc. Fuel (petrol, diesel and/or liquefied gas) will be used for the vehicles and machinery used during construction.

The amount of raw materials, machinery for construction and installation works and materials required for the above-mentioned works will be determined in the construction work technology project prepared by the construction contractor.

Period of operation of the facility

Chemical reagents will also be required for the operation of technological facilities. Preliminary reagent consumption is shown in Table 2.1.

Table 2.1 Chemical preparations used in AFM

Name of the substance or preparation	Current consumption per year, t	Classification and labelling of a substance or preparation according to the CLP Regulation	
		Signal word	Hazard and precautionary statements, category
1	2	3	4
Iron sulphate solution	80	Caution	Cat. 4, H302 Harmful if swallowed; Cat 2, H315 Skin irritation; Cat. 2, H319 Causes severe eye irritation;
Polymer for sludge compaction	1,0	* the manufacturer and the active substances will be known only during the technical design.	
Polymer for sludge dehumidification	1,7	* the manufacturer is being revised and the active substances will only be known during the technical design.	

2.5 Extent of use of natural resources, soil, biodiversity and potential for regeneration.

Period of construction of the PFM object

A small amount of natural resources will be used during the reconstruction and construction of the FSU (e.g.: sand, gravel, water). During the reconstruction of the object, a certain amount of water can be used for the domestic needs of employees and for the reconstruction of objects.

The exact amounts of natural resources for the implementation of PŪVs will be determined in the construction work technology project prepared by the construction contractor.

Period of activity of the PFM object

UAB Vilniaus vandenys has a fully equipped water supply system, so the water will be used from the existing centralised water supply system for staff and reconstruction needs. Preliminary data indicate that the water will be used for the technological process of washing equipment, preparing a solution of polymers for sludge dewatering and for the household needs of workers.

According to preliminary data, water consumption is expected to be 0.3 m^3 /d (0.04 m^3/h),about 110 m^3/year, when water is used for household needs of LSU employees during LSU.

The technology process will require about 20.0 m^3/d (2.5 m^3/h), i.e. 7300 m^3/year of water, during the operation of the FSU. It should be noted that the exact quantities of water during the operation of the FSU will be known only at the time of the technical design.

2.6 Data on energy, fuel and fuel consumption

Construction period of the facility

During the construction and reconstruction, electricity and water will be supplied from the electricity and water supply networks operated in the territory of UAB Vilniaus vandenys.

Period of operation of the facility

Technological installations would consume up to 446395 kWh of electricity per year. It should be noted that the exact amounts of electricity resources will be known during the technical project.

2.7 Generation, planned quantity and management of hazardous, non-hazardous and radioactive waste.

During the construction and reconstruction of the facility, various waste will be generated and managed in accordance with the Rules on the management of construction waste, approved by Order No D1-637 of the Minister for the Environment of the Republic of Lithuania (Official Gazette 2007, No 10-403).The preliminary quantities of waste generated by the facility during its operation are presented in Table 2.2.

Table 2.2: Waste generated during the operation of an FSU

Technologin is a process	**Waste**						**Storage of waste at the facility**		**Waste management works envisaged**
	Let's call it	**Quantity**		**Aggregate state**	**Code by list of wastes**	**Dangerous**	**Storage conditions**	**Maximum content in t**	
		m^3/d	m^3/m						
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**4**
Sand trap	Sand	0,24	88	K	19 08 02	Non-hazardous	Bags/containers	1,0 t	Transfer ma waste manager ms
Detention in bars	Dropping	0,2	73	K	19 08 01	Non-hazardous	Bags/containers	1,0 t	
	Fat	0,03	10	S		Non-	Container	1,0t	
Drainage of mechanical sludge	Sludge	2,5	913	P	19 08 05	Non-hazardous	2 Sealed closed containers	20 m^3	

Sand deposited in sand traps will be dehumidified by a sand conveyor and diverted to a sand drying container, which is then transported to waste managers in bags. Mechanically drained sludge will be stored in 2 sealed containers, each with a capacity of 10 m^3, filled containers will be handed over to waste managers in accordance with the procedure laid down by legal acts.

2.8 Waste water generation, its preliminary quantity and contamination, its management.

Waste water generation, its preliminary quantity and contamination, its management.

Domestic waste water The use of water for the domestic needs of the LSU staff during the PFM will result in the generation of domestic waste water. According to preliminary data, the expected water consumption is 0.3 m^3/d (0.04 m^3/h), about 110 m^3/year. Domestic wastewater will be taken to a levelling reservoir in the wastewater treatment plant's technology. The resulting domestic waste water will be treated in accordance with the requirements of Order No D1-236 of the Minister for the Environment of 17 May 2006 approving the Waste Water Management Regulation (as subsequently amended).

Industrial waste water: Industrial wastewater is formed during washing of premises, equipment. The industrial waste water generated during the farm will be transferred to a levelling tank in the waste water treatment plant's technology, from which it enters a biological treatment plant, where the waste water will be treated to the specified parameters. According to preliminary data, industrial wastewater will form - 20 m^3/d (2.5 m^3/h), 7300 m^3/year.

Surface sewage networks Surface waste water will comply with paragraph 18 of the Surface Waste Water Management Regulation approved by Order No D1-193 of the Minister for the Environment of the Republic of Lithuania of 2 April 2007: The pollution of surface run-off discharged into the environment may not exceed: the average annual concentration of suspended solids is 30 mg/l and the maximum instantaneous concentration is 50 mg/l; annual average concentration of petroleum products: 5 mg/l, maximum instantaneous concentration: 7 mg/l; the concentration of other substances harmful to the aquatic environment may not exceed the MRLs for priority hazardous substances referred to in Annex I, hazardous substances and other controlled substances referred to in Annex II to the Waste Water Management Regulation approved by Order No D1-236 of the Minister for the Environment of the Republic of Lithuania of 17 May 2006 approving the Waste Water Regulation (Official Gazette 2006, No 59-2103), except where this Regulation or other legal acts lay down different requirements for the discharge of surface water.

Total area of the plot in question: Fsk-2,42 ha.
Hard coverings Fd: 0,0194 ha;
Roofing area Fv: 0.032 ha;
When designing surface wastewater management systems, the construction technical regulation STR 2.07.01:2003 must be followed when calculating the design flow of surface wastewater. ‘Water supply and sewerage: Building engineering systems Outdoor engineering networks”, approved by Order No 390 of the Minister for the Environment of the Republic of Lithuania of 21 July 2003 on Construction Technical Regulation STR 2.07.01:2003 ‘Water supply and sewerage sewer. Building engineering systems Field engineering networks’.
The actual storm water load (Wf) shall be measured by metering devices and, where not available, calculated as follows:

$$Wf = 10 \times Hf \times ps \times F \times K,\ m^3/\text{month or other reporting period},$$

where:

Hf = actual precipitation in the previous month or other reporting period - 6901 mm (according to the data of the Lithuanian Hydrometeorological Service under the Ministry of Environment);
ps is the surface run-off factor:
ps=0,85 for roof coverings;
ps=0,83 for hard, watertight, coatings;
F = area excluding green areas without water collection infrastructure and utilised agricultural area, ha;
K is the surface run-off factor depending on whether snow is removed from the site. If the snow is removed K=0.85, if it is not removed K=1.
Rainfall from hard coverings:
Wf = 10 x Hf x ps x F x K = 10 x 690 x 0.83 x 0.0194 x 1 = 111.1 m^3/m = 0.304 m^3/d = 0.013 m^3/h.
Amount of rainwater from the areas of roofing areas:
Wf = 10 x 690 x 0.85 x 0.032 x 1.0 = 187.7 m^3/m = 0.51 m^3/d = 0.02 m^3/h.

Total annual average rainfall:
Wb = 298.8 m3/year.

Indicative maximum permissible annual suspended solids content:
DLTyears=(30 x 298.8)/10^6 =0.009 t/m

Indicative maximum annual quantity of petroleum products:
Indicative annual quantity of petroleum products after refining:
DLTyears=(5 x 298.8)/10^6 =0.0015 t/m
Surface effluent from hard coverings will be collected in a levelling tank, surface effluent will be collected from roofs - taken to green areas. Precise solutions for surface wastewater collection systems will be known during the technical project.

2.9 Chemical pollution generation

2.9.1 Impact on air quality

Air effects during the construction period of the PFM

During construction, there may be a temporary, localised and marginal increase in air pollution due to emissions from internal combustion engines (CO, NO_2, SO_2, PM_{10}, VOCs) from vehicles to be used in construction. The likely effects of pollution are local, short-term and negligible. Emissions of these pollutants are not expected to exceed the maximum levels and have no significant impact on ambient air and public health.

Air effects during the lifetime of the PFAs

As mentioned earlier, the reconstruction of the WWTP is planned on the existing site of Švenčionys wastewater treatment plant.

According to literature, the largest emissions to ambient air occur on the site of a waste water

1 http://www.meteo.lt/en/climate-districting

treatment plant during sludge treatment. Biodegradation of organic matter in sewage sludge creates an unpleasant odour and greenhouse gas emissions problem: during sludge storage, ammonia (NH_3), sulphur hydrogen (H_2S), methane (CH_4) and carbon dioxide (CO_2) are released.

After the construction of new waste water treatment plants, the excess sludge generated on the site of the existing treatment plant will be stabilized, the tank will be sealed, closed, aeration elements will be installed in the tank, which will keep the right amount of oxygen in the sludge and prevent it from decomposing, so that pollutants will not be emitted into the ambient air.

Stabilized, compacted and drained sludge will be transferred to waste managers for further processing in accordance with the procedure established by legal acts.

After the implementation of the FBOs, no more than 10 vehicles per day, i.e. up to 1-2 per hour, are expected to be served by vehicles with incoming waste water, so the impact on air due to pollution caused by transport will be negligible.

2.9.2 Soil impact

Soil impacts can occur during the following phases of the planned activities: during the construction of new facilities and the reconstruction of existing ones, during the normal operation of facilities or during emergencies.

Impact during the construction period of the PFM

The greatest impact on the fertile soil layer during the construction and reconstruction of FSUs will be the construction of new facilities and the reconstruction of existing facilities in their vicinity. Physical impact on the soil caused by the reconstruction of the FSU includes excavation, pushing down of the soil during the construction of the objects, possible mixing and compaction (compression) of the soil layers.

The fertile soil layer in the area of construction of new objects and, where necessary, in the areas of reconstruction, will be pushed down and excavated already before starting construction or reconstruction works. Dead soil will be poured in places of temporary storage of the soil. During construction, the area of vulnerable soil and the amount of soil to be removed will be assessed during the preparation of the technical project.

No soil contamination is expected during the construction of the FSU. Under normal operating conditions of a waste water treatment plant, soil contamination is not possible. The soil can only be contaminated in emergency situations.

It should be noted that after the reconstruction works, the fertile soil layer will be used for the management of well-being.

Impacts during the lifetime of the PFAs

Only a small part of the area will be newly built. At the sites of the dismantled buildings, the soil will be restored (afforested lawn) or otherwise rehabilitated. Such arrangement of the site will prevent soil erosion and possible pollution. It should be noted that the implementation of PEAs will reduce the likelihood of potential accidents due to worn-out WWTPs.

2.9.3 Effects on waters

As mentioned earlier, wastewater from the Švenčionys wastewater treatment plant will continue to be discharged into the Mera-Kūna river.

The annual load according to N and P under which the permissible effect on a flowing water body will not be exceeded is calculated according to the formula:

$$T_n = \frac{1.1 \cdot C_{rivers(MRL)} \cdot Q_{waste\ water} + 0{,}1 \cdot C_{rivers(MRL)} \cdot Q_{rivers}}{1000}\ [t/year]$$

Here:

T_n = annual load N or P at which the permissible impact on the receiving water body will not be exceeded, t/year;

$C_{rivers(MRLs)}$- N or P MRLs in the receiving body (requirements for good status of the receiving body), mg/l;

MRL values that are indicated in the methodology for determining the status of surface water bodies are accepted for calculations:

$C_{rivers(MRL,BN)}$ =3.0 mg/l; $C_{rivers(MRL,BP)}$ = 0,1 mg/l;

$Q_{waste\ water}$ - the amount of waste water discharged (planned to be discharged) per year, thousand m^3/year;

$$Q_{sewage}=1080\ m^3/d \cdot 365=394200\ m^3/year = 394.2\ thousand\ m^3/year$$

Q_{rivers}- the average multi-year runoff of the receiver at the point of discharge, thousand m3/year. On the basis of the data provided by the Lithuanian Hydrometeorological Service (certificate No 5.58-5)-B8-74 of 4 January 2018, attached as Annex 4, we accept the average multi-year run-off of the receiver.

$$River\ Q=7253280 m^3/year = 7253.28\ thousand\ m^3/year$$

Permissible annual total nitrogen load:

$$T_{BN} = \frac{1.1 \cdot 3 \cdot 394.2 + 0.1 \cdot 3 \cdot 7253.28}{1000} = 3477\ t/me\ tus;$$

Permissible annual load of total phosphorus:

$$T_{BP} = \frac{1.1 \cdot 0.14 \cdot 394.2 + 0.1 \cdot 0.14 \cdot 7253.28}{1000} = 0{,}162\ t/me\ tus;$$

Average annual acceptable concentration of total nitrogen B_N without adverse effect on the river Mera-Bois:

$$C_{BN} = \frac{T_{BN}}{Q_{N\text{-}otefce}} = \frac{3{,}477 \bullet 1000 \bullet 1000 \bullet 1000}{394.2 \blacksquare 1000 \blacksquare 1000} = 8{,}820 \text{ m}^3/\text{i}$$

Average annual acceptable concentration of total phosphorus B_P without adverse effect on the river Mera-Bois:

$$C_{BN} \quad \frac{T_{BP}}{Q_{N\text{-}Otec}} \quad \frac{0.162 \blacksquare 1000 \blacksquare 1000 \blacksquare 1000}{394.2 \blacksquare 1000 \blacksquare 1000} \quad 0{,}411 \; mg/i$$

The maximum BOD concentration in the average daily or instantaneous waste water sample at which the tolerable effect on the receiver is not yet exceeded shall be calculated as follows:

$$\frac{1.1 \bullet C_{\_\_} \bullet Q_{, \; rivers(MRL)} - Q_{NuoteU} \perp_{rivers(MRL)} Q_{rivers}}{Q_{sewage}} + 360. \; C_{sewage} \bullet o \quad [mg/l];$$

Here:

C_{sewage} - maximum Concentration of OBD_7 in the average daily or instantaneous effluent mg/l in a sample at which the tolerable effect on the receiver is not yet exceeded;

$C_{rivers(MRL)}$- MRL according to BOD_7 in accompaniment (requirements for accompaniment status), mg/l;

$River\ C_{(MRL,BOD7)}$ =2,3÷3,3 mg/l; (from the Methodology for determining the status of surface water bodies approved by Order No D1-533 of 4 August 2016); The following shall be accepted for calculation:

$River\ C_{(MRL,BOD7)}$ =3.3 mg/l;

$Q_{for\ waste\ water:}$ maximum hourly discharge rate to be calculated for discharged waste water (on dry days), m3/h.Debt is accepted on the basis of an actual analysis of the volume of incoming waste water – 135 m3/h;

Q_{rivers} - the minimum summer-autumn water flow of 80% probability for the 30 driest days in a row at the point of discharge, m^3/s (calculated in accordance with the Description of the Procedure for Calculation of Environmental Water Flow, approved by Order No D1-382 of the Minister for the Environment of 29 July 2005 (Official Gazette 2005, No 94-3508)). The minimum summer-autumn water flow probability of 80% for the 30 driest days in a row can be determined by the persons who have the right to design hydrotechnical structures and/or carry out hydrological measurements/calculations. Debt is accepted according to the data provided by the Lithuanian Hydrometeorological Service - Q_{rivers}= 0.1 m^3/s;

$$C_{sewage} \quad \frac{1.1 \bullet 3.3 \bullet 135 + 360 \bullet 3.3 \bullet}{135} \quad = 4{,}51 \text{ mg/l} = 1{,}78 \text{ t/year};$$

In accordance with letter No(19-2)-D8-2806 of the Ministry of the Environment of 11 April 2017 (Annex

5), the waste water treatment plant located in Švenčionys District Municipality must comply with the requirements for BOD7 and general nitrogen set out below, and the value of total phosphorus has been adopted in accordance with the provisions of the waste water regulation.

Parameter	Units of measurement	Meaning
OBD7	mgO2/l	12
Total nitrogen	mg/l	17
Total phosphorus	mg/l	2,0

Calculation of mixing in the river Mera – Body:

The mixing shall be calculated on the basis of the formula:

Mixing = (Q_{sewage} * C_{DKL} + Q_{river}*$C_{background}$)/Q_{sewage} + Q_{rivers}

According to Lithuanian hydrometeorology, the average flow rate per second of the Mera-Kūna river is 0.23 m^3/s (average annual flow rate is 7,253,280 m^3/s).

According to the state river monitoring data provided by the Environmental Protection Agency, the average background pollution of the Mera-Kūna river in 2016 was:

- BOD_7 – 1.85 mg/l
- BN = 3,074 mg/l
- BP = 0,174 mg/l

BOD_7 mixing

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	0,23 m^3/s
C_{DLK} - indicators of treated waste water, mg/l	12 mg/l
Background C - river background pollution, mg/l	mg/l
BOD_7 mixing	**2,37 mg/l**

Mixing according to BN

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	0,23 m^3/s
C_{DLK} - indicators of treated waste water, mg/l	17 mg/l
Background C - river background pollution, mg/l	3,074 mg/l
Mixing according to BN	**3,792 mg/l**

Blending by BP

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	0,23 m^3/s
C_{DLK} - indicators of treated waste water, mg/l	2,0 mg/l

$C_{background}$ - river background pollution, mg/l	0,174 mg/l
Blending by BP	**0,268 mg/l**

It should be noted that the methodology for determining the status of surface water bodies is applied when assessing the status of surface water bodies for which water protection objectives have been set. Assessing the current situation, the nearest water body for which water protection objectives have been set is the Žeimena River, therefore, in further calculations, the impact of the discharge of waste water into the Žeimena River by the FSU on the ecological status of this river was assessed.

According to the monitoring data of the Environmental Protection Agency, the average annual flow of the Žeimena river is measured at two points: Žeimena at Kaltanėnai and Žeimena at Pabradas, the lowest average flow rate, which was measured in Žeimena at Kaltanėnai at 5.05 m^3/s, was accepted for the calculations to assess the worst-case scenario.

- BOD_7: 1,80 mg/l;
- BN: 0,431 mg/l;
- BP = 0.031 mg/l.

According to the methodology for determining the status of surface water bodies, the Žeimena river has a very good ecological status according to BOD_7 (1.80 mg/l), BN (0.431 mg/l), BP (0.031 mg/l). According to the data provided by the Environmental Protection Agency on the state monitoring of rivers, it can be stated that the status of the Žeimena river is very good. For further calculations, these data have been used as river background pollution values.

BOD_7 mixing

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	5.05 m^3/s
C_{DLK} - indicators of treated waste water, mg/l	12 mg/l
$C_{background}$ - river background pollution, mg/l	mg/l
BOD_7 mixing	**mg/l**
The state of the Žeimena river after mixing	**Very good**

Mixing according to BN

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	5.05 m^3/s
C_{DLK} - indicators of treated waste water, mg/l	17 mg/l
$C_{background}$ - river background pollution, mg/l	0,431 mg/l
Mixing according to BN	**0,851 mg/l**
The state of the Žeimena river after mixing	**Very good**

Blending by BP

Q_{sewage} - average flow, m^3/s	0.0125 m^3/s
River Q — average flow, m^3/s	5.05 m^3/s

C_{DLK} - indicators of treated waste water, mg/l	2,0 mg/l
Background C - river background pollution, mg/l	0,031 mg/l
Blending by BP	**0,036 mg/l**
The state of the Žeimena river after mixing	**Very good**

Taking into account the results of the mixing calculation, the planned quantities of treated waste water discharged into the Mera-Kūna river will not lead to changes in the ecological status of the Žeimena river, i.e. after the implementation of the FEA, the status of the Žeimena river will remain unchanged (very good).

2.10 Odour pollution generation and prevention.

Odour pollution generation (emissions of odour, calculations of pollutants, compliance with limit values) and its prevention.

The current situation.

The WEEE of the cleaning plant currently in operation is outdated and odours on the site are not controlled. The main sources of odour in the existing waste water treatment plant are primary waste water treatment plants, open sludge storage sites and bioponders. There are currently no odour control and prevention measures at the facility.

Post-operation fragrances

It should be noted that after the implementation of the FBOs, the main sources of existing odours - open sludge storage sites and bioponds - will be dismantled.

Once the FBO is implemented, odours will be controlled by means of biological filters, which will use active aeration, odours will not develop, as aerobic processes will take place, when the sludge is constantly saturated with oxygen, and denitrification and anaerobic processes in the tank will not remain for a long time due to active recirculation.

The source of FeBO odours – primary waste water treatment plants – the gutters, gratings, conveyors, grating and sand washing/drainage facilities and other spaces where the waste water or the unwashed gratings contained in the waste water come into direct contact with the ambient air in the technological building will be sealed and provision will be made for the local interruption of air into biofilters.

To stabilize the sludge, aeration elements will be installed, which will keep the right amount of oxygen in the sludge and prevent it from rotting. It is also important to mention that sludge dehumidification plants will be installed inside the technological building.

With the help of biofilters, the overall efficiency of reducing unpleasant odours is expected to be up to 85-95%, i.e. it will not exceed the requirements of HN 121:2010 of 8 OUE/m3 in the immediate living environment.

Based on the experience of operating more efficient wastewater treatment plants (compared to

PSUs), with the introduction of biofilter technologies2 (i.e. the installation of sealed lids for tanks handling untreated wastewater and sludge and the installation of biofilters for primary wastewater treatment plants), the odour level in accordance with the requirements laid down in HN 121:2010 reaches 8 OUE/m^3 at a distance of 200 m from the PSU parcel boundary.

The main characteristics of the planned biofilters are as follows: retention time of the treated air in the filler: 1-2 minutes; Hydrogen slufide - the main component that emits an unpleasant odor in the sewage treatment plant, its retention efficiency in the biofilter will be about 99 %. During the technical project, biofilters will be selected, the technical parameters of which will ensure compliance with the requirements set out in HN 121:2010 'Odour concentration limit in the air of the living environment' and will not exceed 8 OUE/m^3 at the nearest living environment.

All tanks and reservoirs located outdoors according to the technology will be sealed. The receiving tank of the incoming wastewater will also be covered.

It should be noted that in the waste water treatment plant, in accordance with the requirements of the technological process, the concentration of odour in the air of the residential environment for 200 m (Statybininkų g. 120) will not exceed 8 OUE/m^3.

2.11 Physical pollution generation (noise, vibration, light, heat, ionizing and non-ionising (electromagnetic) radiation and emissions from stationary noise sources, calculations of pollutants, compliance with limit values) and its prevention.

2.11.1 Noise

Air effects during the construction period of the PFM

Noise levels are expected to increase during construction and reconstruction works, but will not have a significant impact on the environment as the noise will be short-lived and will only increase in the area of ongoing works. The nearest residential houses from the object are located about 200 m in the south-east direction - at Statybininkų g. 120, 230 m in the north-east direction - Lauko g. 6 A. The noise generated by the ongoing works will be minimal, therefore, the increased noise level during the ongoing works will not have a negative impact on residential areas and the natural environment.

Impacts during the lifetime of the PFAs

The wastewater treatment plant will use a variety of pumps, mixers and two blowers (one working, the other - reserve) - this is a noisy equipment. It should be noted that pumps and mixers will be installed underground, submerged under water, as a result of which the noise emitted by them will be minimal.

The blowers will be covered with noise-absorbing enclosures (the operating blower is expected to emit about 80 dBA) and will be installed in a technological building.

It should be noted that the air blower noise level will decrease due to the distance from the noise source to the assessed point at a distance of about 25 dBA 200 m from the technological building (Figure 2.2), it is also important to mention that the air blowers will be installed in the technological

Environmental Impact Assessment of Reconstruction and Operation of2 Vilnius Waste Water Treatment Plant;

building. The walls of technological buildings of similar wastewater treatment plants are Sandwich-type with a certain degree of thermal insulation, which also has noise insulation properties. According to various manufacturers, wall insulation additionally absorbs 20-40 dBA. The technical characteristics of the thermal insulation of a technological building will be known only during the technical design.

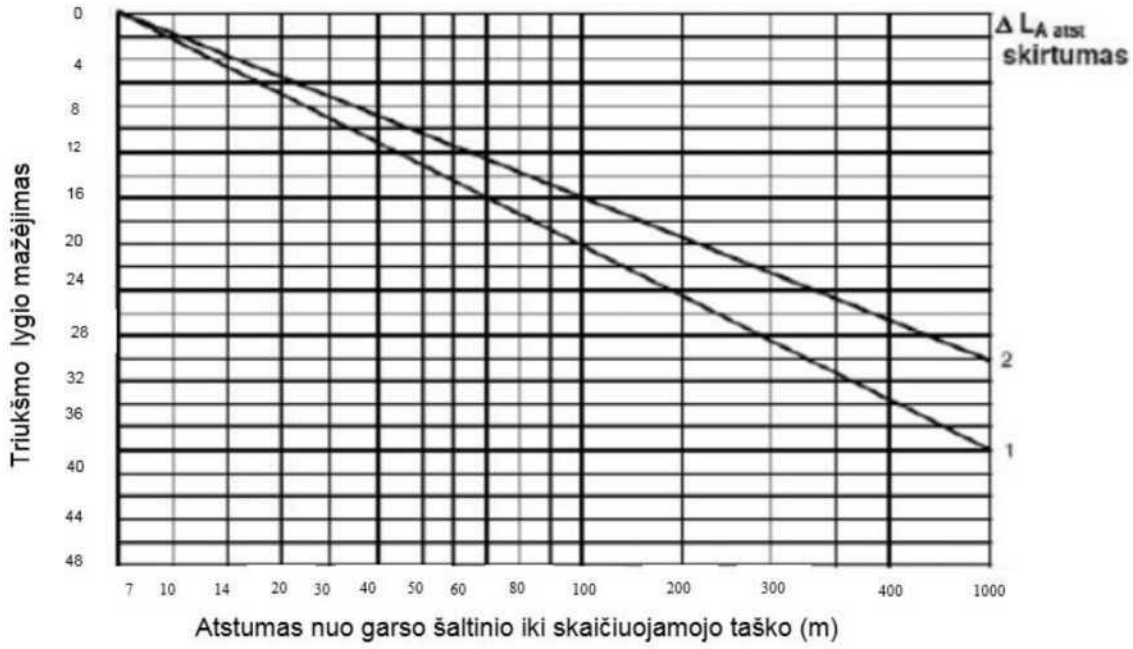


Figure 2.2 Calculation of dBA reduction based on distance from sound source (source: E. Maciunas. 1999)

It is important to note that the assessment of the selection of thermal insulation material for the walls of the technological building (by adopting a minimum of 20 dBA) and the distance to the nearest residential environment (a reduction of 25 dBA in 200 m) will ensure that the sound pressure level of the technological installations of the FeBOs in residential buildings and/or public use will not exceed the limit values laid down in HN 33:2011 'Noise limit values in residential and public buildings and their surroundings' (No V-604 of 13 June 2011) and will reach approximately 35 dBA during all periods of the day, without taking into account landscaping, green areas and other natural noise reduction objects.

Noise from mobile vehicles will be negligible (1-2 HGVs per hour, up to 10 HGVs per day), so the current flow of street vehicles will remain the dominant source of noise.

The planned economic activity will not cause additional significant negative effects due to vibration, light, heat, ionising or non-ionising (electromagnetic) radiation.

2.12 The generation of biological pollution and its prevention.

The implementation of ERUs reduces the likelihood of bio-pollution, as existing existing operational ERUs are worn out and there is an increased probability of accidents. After the reconstruction of the waste water treatment plant and the application of the sludge management method (stabilisation, compaction and drainage of sludge), the level of microbiological contamination will be minimised.

The treated sludge will be delivered to certified waste management companies in accordance with the procedure laid down by legal acts.

The implementation of FABs would lead to the management of waste water according to strict technological principles that will ensure the prevention of bio-pollution. The staff will be trained and fully master the computerized management system and technological process in order to react in a timely manner to possible failures and take preventive measures. It should be noted that the staff supervising the facility will also be instructed on how to behave in the event of failures and accidents.

2.13 Risk and probability of vulnerability of LFAs to extreme events and emergencies prevention.

There is no likelihood of fires or other extreme situations (accidents) in the case of proper operation of WWTP facilities. No risk due to the planned economic activity or impact on the population is expected. The management of the operation process of the NEB facilities is planned to be automatic, while the maintenance of the facilities will be carried out by UAB Vilniaus vandenys.

As mentioned above, in order to ensure the reliability of the technology, two mechanical treatment plants are being designed, each with a capacity of approximately 50 % of the total waste water flow. One backup (manual) grille is also provided on the turn-by-turn line. Each line is capable of ensuring the hydraulic permeability of the maximum hourly flow rate. The distance between the bars of the hand grille will be 10 mm. Manually cleaned emergency grilles are intended for use when the main mechanical grilles are not functioning or need to be repaired.

It should be noted that once the PFM has been implemented, working and operating instructions will be drawn up, which will clearly set out how service personnel are to behave in the event of an emergency. The staff will be trained and fully master the computerized management system and technological process in order to react in a timely manner to possible failures and take preventive measures.

2.14 Risks of the planned economic activity to human health

There is no likelihood of fires or other extreme situations (accidents) in the case of proper operation of WWTP facilities. No risk due to the planned economic activity or impact on the population is expected. The management of the operation process of the NEB facilities is planned to be automatic, while the maintenance of the facilities will be carried out by UAB Vilniaus vandenys. No negative impact on human health is expected from the implementation of the PFAs, as the old NEBs will be reconstructed. Once the FBO is implemented, odours will be controlled by means of biofilters and the concentration of odours in the living environment will not exceed 8 OUE/m3.

During construction, there may be a temporary, localised and marginal increase in air pollution due to emissions from internal combustion engines (CO, NO_2, SO_2, PM_{10}, VOCs) from vehicles to be used in construction. The likely effects of pollution are local, short-term and negligible. Emissions of these pollutants are not expected to exceed the maximum levels and have no significant impact on ambient air and public health. The impact of air pollution during operation is negligible, and 1-2 heavy vehicles per hour, i.e. up to 10 vehicles per day, will arrive in the area during the PFM.

The selection of noise-absorbing hoods and thermal insulation material for the walls of a technological

building, as well as the distance to the residential environment, will ensure that the sound pressure level of technological installations in residential buildings and/or public use will not exceed the limit values set out in HN 33:2011 'Noise limit values in residential and public buildings and their surroundings' (No V-604 of 13 June 2011) and will reach – 35 dBA at the nearest residential environment.

2.15 Interaction of the planned economic activity with other economic activities carried out

The development of new economic activities in adjacent areas is not expected to be directly conditioned by the PFM. The timing and order of the planned economic activity will be known during the technical project. It should be noted that the construction and reconstruction will take place in stages, thus ensuring the uninterrupted operation of the facility.

2.16 Time limits and order of performance of the planned economic activity (e.g. preparation of the territory)

construction, start of construction of structures, installation of technological lines, remediation of the territory).

The technologically outdated cleaning plant will be modernised, the project is worth EUR 3 million, it will also be managed and the part of the investment not covered by the EU (50%) will be financed by UAB Vilniaus vandenys. The completion of the project is scheduled for 2019.

3 PLACE FOR PLANNING ACTIVITIES

3.1 Functional zoning of the FEA area, adjacent plots of land or areas and use of the area
Regulation. Information on the engineering infrastructure of the area, urbanised areas, existing structures and the distances of these areas and/or structures from the location of the proposed economic activity.

Address of the location of the FSU: In Cirkliškis village, Švenčionys district municipality, there is an area of Švenčionys wastewater treatment plant currently in operation.

The planned economic activity will be carried out on a plot of land currently owned by the State, on which the old treatment plants are currently operated. The land plot formation procedures are currently being carried out. The intended purpose of the land parcel being formed shall be another, the method of use of the land parcel shall be the areas of transport and engineering networks, the area of the land parcel being analysed shall be approximately 2.42 ha. According to the general plan of the territory of Švenčionys district, the area under analysis is included in the agricultural territory.

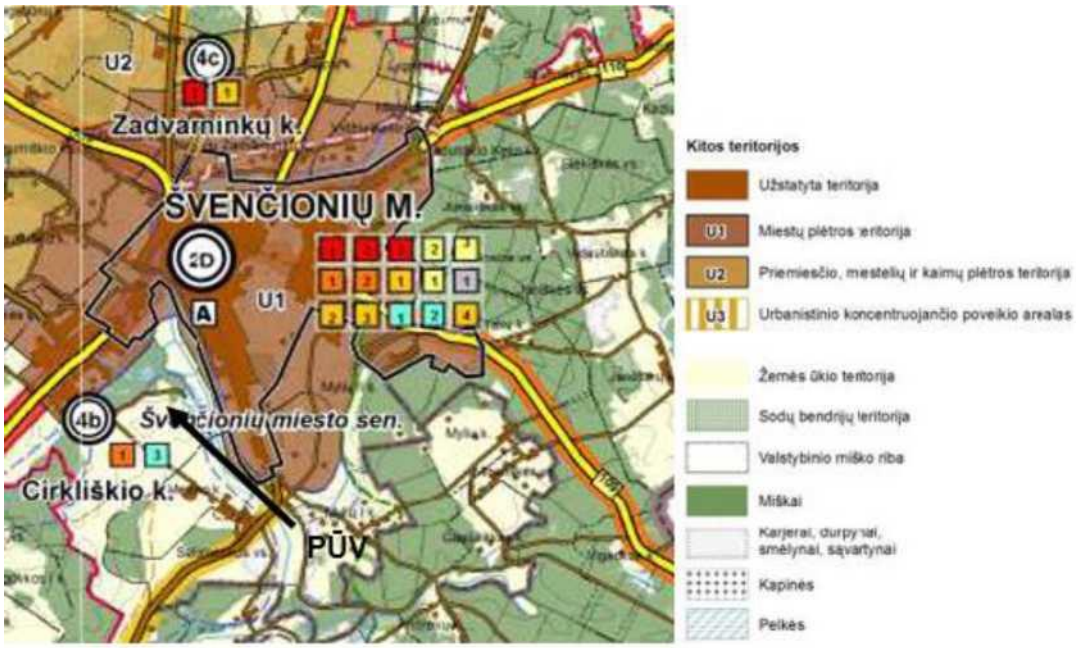


Figure 3.1 Extract from the General Plan of the Territory of Švenčionys District

It should be noted that the FEA technology complies with paragraph 64 of the 'Approval of special conditions for land and forest use' by closing mechanical and/or biological and/or chemical waste water treatment plants with a capacity of up to 5000 m^3, therefore no ASA is foreseen.

The nearest educational institutions: Association "Švenčionių Perkūnas" (Pakalnės str. 30) - 700 m north-easterly from the border of the parcel formed by the FSU; Švenčionys crèche-kindergarten "Gandriukas" (Sodų str. 30), which is located 1.0 km north-east of PŪV; Force sports club "Grifas" located at a distance of 1.4 km in a north-eastern direction from the farm; Švenčionys Vocational Training Centre (Liepų al. 2). Švenčionys Social Services Centre (Stoties g.16) is 800 m from the border of the PŪV parcel in the northern direction.

Administration of the ward of Cirkliškis (Liepų al. 1) - at a distance of 900 m to the north-west of the parcel formed by the farm.

The consultations polyclinic of Švenčionys district central hospital and Švenčionys district hospital (Partizanų str. 4) are located at a distance of 890 m in the north-eastern direction from the boundaries of the plot formed by PŪVs.

The shopping centre (Vilniaus g. 37) is 1.2 km northwards from the boundaries of the parcel formed by PŪV.

Figure 3.2 Contiguity of FABs

The nearest residential houses from the object are about 200 m in the south-east direction - Statybininkų g. 120, 230 m in the north-east direction - Lauko g. 6 A.

The majority of the contiguous parcels of LFAs are used for agricultural purposes, with the exception of parcel No 4400-2105-3521, which is adjacent to the area in the north-western direction, which is used for forest land.

3.2 Information on land located in the FEA area and adjacent land parcels or areas

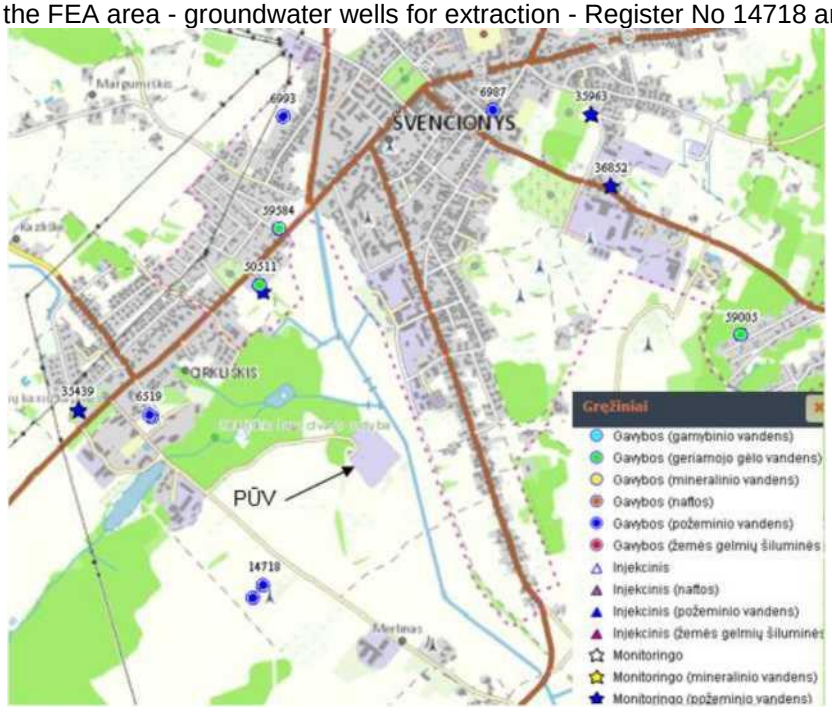
deep-sea resources, soil; geological processes and phenomena, geotopes

The nearest mineral deposit to be exploited is the 'Myliai' sand and gravel deposit (registration No 1354), which is 1.11 km southwards from the area of the FEA. Nearest exploited gravel quarries Jančiūnai (registry No 1355) and Jančiūnai II (registry No 1358) are located at a distance of 4.5 km and 3.40 km in a north-easterly direction from the boundaries of the PŪV parcel.

The nearest exploitable water site is Cirkliškis (registry No 4020) located at a distance of 0.99 km to the north-west from the boundaries of the FEA area. The Švenčionys water site (registration No 116) is located 2.4 km north-east of the boundaries of the FSU area. The Zadvarninkai water site (registration number 4027) is located 3.0 km north of the boundaries of the FEA area. It should be noted that, according to the Geolis information system, no SAZ has been established for all the water sites listed. The VAZ is established for the Švenčionys water site (registry No 116), the closest distance from the boundaries of the parcel of the FEA territory is 1.1 km in a north-easterly direction.

The closest water sites, mineral deposits in relation to the FSU parcel are presented in the overview scheme in Annex No 2.

The nearest drinking water wells from the boundaries of the FSU area are located at a distance of 1 km in the north-western direction of registers 50511 and 59584. The closest groundwater wells for extraction are registered No 6519 and No 33877, which are located 1 km north-west of the boundaries of the FEA area. In a south-westerly direction, at a distance of 1 km from the boundaries of the parcel of land of the FEA area - groundwater wells for extraction - Register No 14718 and No 14725.



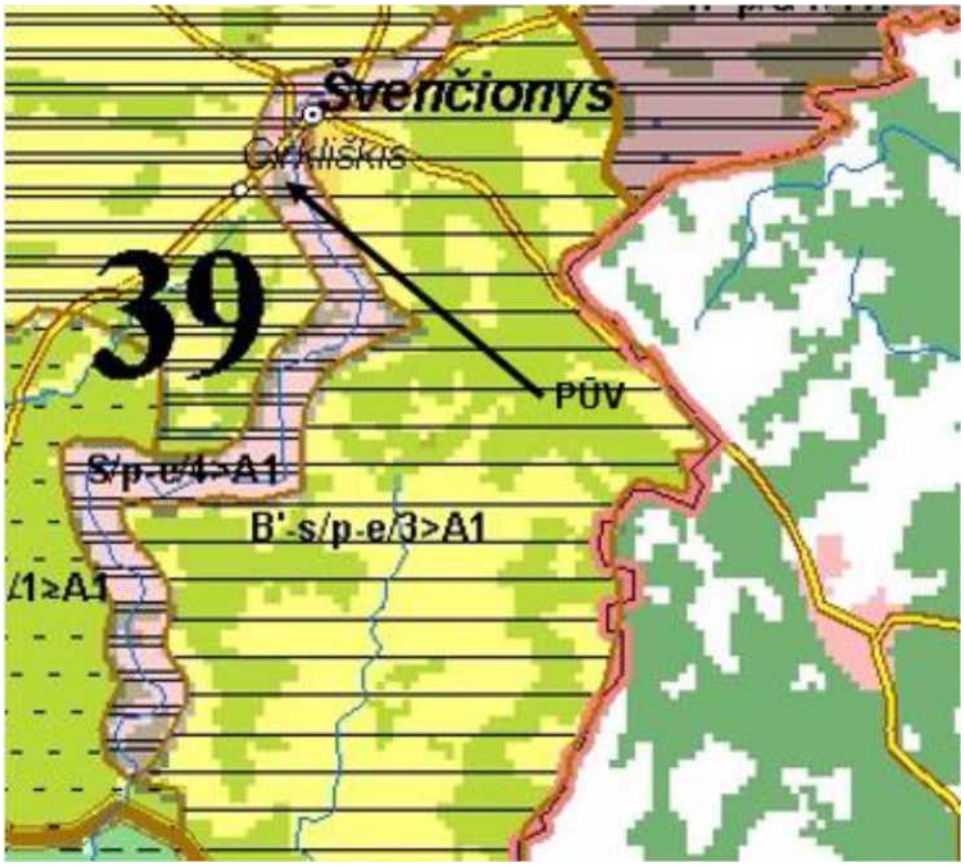
3.3 Figure 7.1 Extract from the drawing of wells of the Lithuanian Geological Survey

There are no geological processes and geotopes in the area of the FEA and its immediate surroundings.

3.3 Information on the territory of the proposed economic activity and adjacent land parcels or the landscape of the territories, its characteristics

According to the data of the Lithuanian Landscape Physiomorphotopes Map, the area of FEA analysed falls within the area of Physiomorphotopes S/p-e/4>A1 (Figure 3.4). General LFA area

'Natural nature of the landscape' means the landscape of valleys (S) as a complement to the physiogenic foundation



– wetlands (p). Predominant stands are pine and spruce (p-e). Landscape inculturation character – agrarian landscape (4). Complementary architectural features of the landscape are ethnoculturality (A1).

3.4 Figure 7.1 Extract from the map of Lithuanian landscape physiomorphotope structure

According to the Lithuanian landscape biomorphotope map, the territory of the FSM belongs to the structure of the mosaic small horizontal biomorphotope. Vertical biomorphotopes structure of the area under assessment – average transition agro-complexes and/or wetlands (forest areas <500 ha).

According to the Lithuanian landscape technomorphoto map, FSUs fall into the type of large-scale urbanisation agro-area technogenisation with an infrastructure network density of between 2.001 and 7.381 km/sq.km. The type of urban structure of a technomorphotope is radiant.

The landscape of the FEA area is classified as V1H2-d according to its visual structure, which is

characterised by a slight vertical cleavage (wavy and orchard valley landscapes with

videotope complexes at level 2) (V1), and the landscape of semi-open spaces (H2), for the most part, is predominant. The spatial structure of the landscape does not have an expressed interest (d).

According to the map of the Lithuanian landscape geochemical toposystem, FSUs fall into the low-buffer geochemical toposystem, which according to the type of migratory structure is balanced flows.

In accordance with the General Plan of the City of Švenčionys, part of the analysed areas of FEA fall under the migration corridor M2, where the existing landscape stability is maintained and strengthened. 'Migration corridors' means valleys, ravines and dubaclones, other areas where intensive circulation of material, energy and natural information flows and migration of plant and animal species takes place.

M t-orders and protects the existing natural character of the kraftovarstych

M2 Supports and enhances existing

M2 Supports and enhances existing

Figure 8.5 Extract from the drawing of the nature framework solutions of the general plan of

The provisions of Order No D1-96 of the Minister of the Republic of Lithuania of 14 February 2007 approving the provisions of the natural framework shall apply to PFAs. Activities forming technical means for the natural formation of plant communities and animal populations and their migration routes, as well as activities that maintain and strengthen the ecological balance of the landscape, shall be permitted and promoted in the areas of the natural framework.

It should be noted that the implementation of PFAs is planned on the existing site of the waste water treatment plant, where activities have been carried out for several years. The reconstruction of an existing waste water treatment plant and the introduction of NWTPs will allow for a safe and reliable waste water treatment process, i.e. the implementation of FEAs will contribute to the site's objective of maintaining and enhancing the existing natural landscape.

It is important to note that the areas of the waste water treatment plant indicated in part of the drawing of the General Plan are currently being exploited sludge storage sites, which will be dismantled after the implementation of the FEA. A large part of the FEA area will be grassed, maintained and managed.

Reconstruction of Švenčionys urban waste water treatment plant to ensure that discharges meet modern environmental requirements is one of the solutions of the Švenčionys city master plan for water treatment.

Economic activities in the areas of the natural framework may be carried out only after the impact of these activities on the natural landscape and biodiversity has been assessed in accordance with the procedure laid down by legal acts, after various measures have been provided for and implemented to compensate for the anthropogenic impact, preserve or restore the natural landscape and biodiversity.

3.4 Information on the LFA area and adjacent plots or areas protected areas

LFAs do not form part of, and do not border, the European ecological network Natura 2000 or other protected natural areas (see Figure 3.6 and Annex 2). The short characteristics of the natural areas protected in the immediate vicinity of the PFA site are given in Table 3.1.

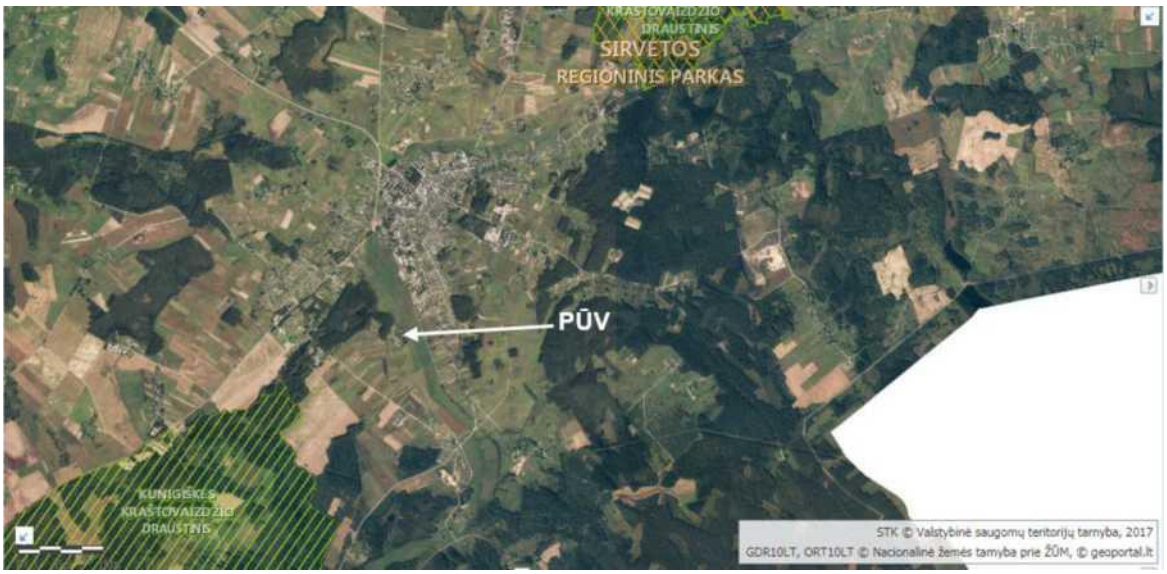


Figure 3.6 Extract from the map of the State Cadastre of Protected Areas of the SBGS of the Republic of Lithuania

Table3.1: Protected natural areas closest to the FSM area (http://stk.am.lt)

Protected natural area	**Short characteristics of the protected natural area**	**Minimum distance from the farm parcel boundary up to protected natural**
Kunigiskes Landscape Reserve (0230100000027)	Area, ha: 856,216225, the purpose of the establishment is to preserve the landscape of the moraine hill countryside of the western part of the Švenčionys Highlands.	1,42 km south-west of PŪV
Sirvėta Regional Park (0700000000018)	Area, ha: 8754,658636. Purpose of establishment: to preserve the moraine divide of Švenčionys region landscape, his natural the ecosystem and the values of cultural heritage. Protected territories or their	3,90 km west of PŪV
Sirvėta Landscape Reserve (0230100000145)	Area, ha: 2483,413586. Purpose of establishment: Preserve a high-definition orthogonal dubaclone with a challenging hydrographic Bruce, Setikio, Sirvėta, Scatters, Kantisgine flow-through lake system, Lukšiškiai diaphragm and seed spur, a variety of natural biotopes with Ordinary cardboard, spotted and white Mayon, otter and white hare habitats, unique calcareous lakeside marshes, in the lakes there are often calcareous outcrops and peculiar planned structures in the town of Kantisgino with valuable folk architecture complexes Protected territories or their part international relevance: BAST.	3,90 km north-east of FSU

3.5 Information on the presence of biological material in the FEA area and adjacent land parcels or areas

diversity

According to the data of the Information System for Protected Species (hereinafter - SRIS), there are no biotopes, protected sites and vegetation sites in the territory of the FSU and its adjacent areas. SRIS extract No SRIS-2018-13177818 is attached as Annex No 6.

3.6 Information on buffer zones and coastal buffer strips for water bodies, floods zones, karst region, groundwater sites and their protection zones.

According to the data of the Flood Hazard and Risk Map, the FSM area being analysed and the nearest adjacent FSM areas are not included in the water bodies protection zones, coastal protection strips and flood zones.

The WWTP installations are planned in the existing waste water treatment plant site. In order to

avoid negative and severe ecological consequences, it is necessary to install modern waste water treatment plants, which would significantly reduce or prevent the possibility of an accident occurring. From the point of view of environmental protection, there are no exceptionally sensitive areas in the area of planned economic activity.

It should be noted that the implementation of FEAs in the Nemunas River Basin District Programme of Measures 2017 is listed as one of the proposed measures to reduce point and urban pollution.

3.7 Information on past pollution of the FEA area and adjacent plots or areas, if any the economic activity did not comply with environmental quality standards;

No information on past pollution of the PFA area was available at this stage of the assessment.

3.8 Location of the land plot or territory of the FSU for recreation, resorts, residential, for areas of public utility, industry and warehousing, engineering infrastructure

According to the general plan of the territory of Švenčionys district, the area under analysis and its adjoining areas fall within the agricultural territory.

The majority of the contiguous parcels of LFAs are used for agricultural purposes, with the exception of parcel No 4400-2105-3521, which is adjacent to the area in the north-western direction, which is used for forest land.

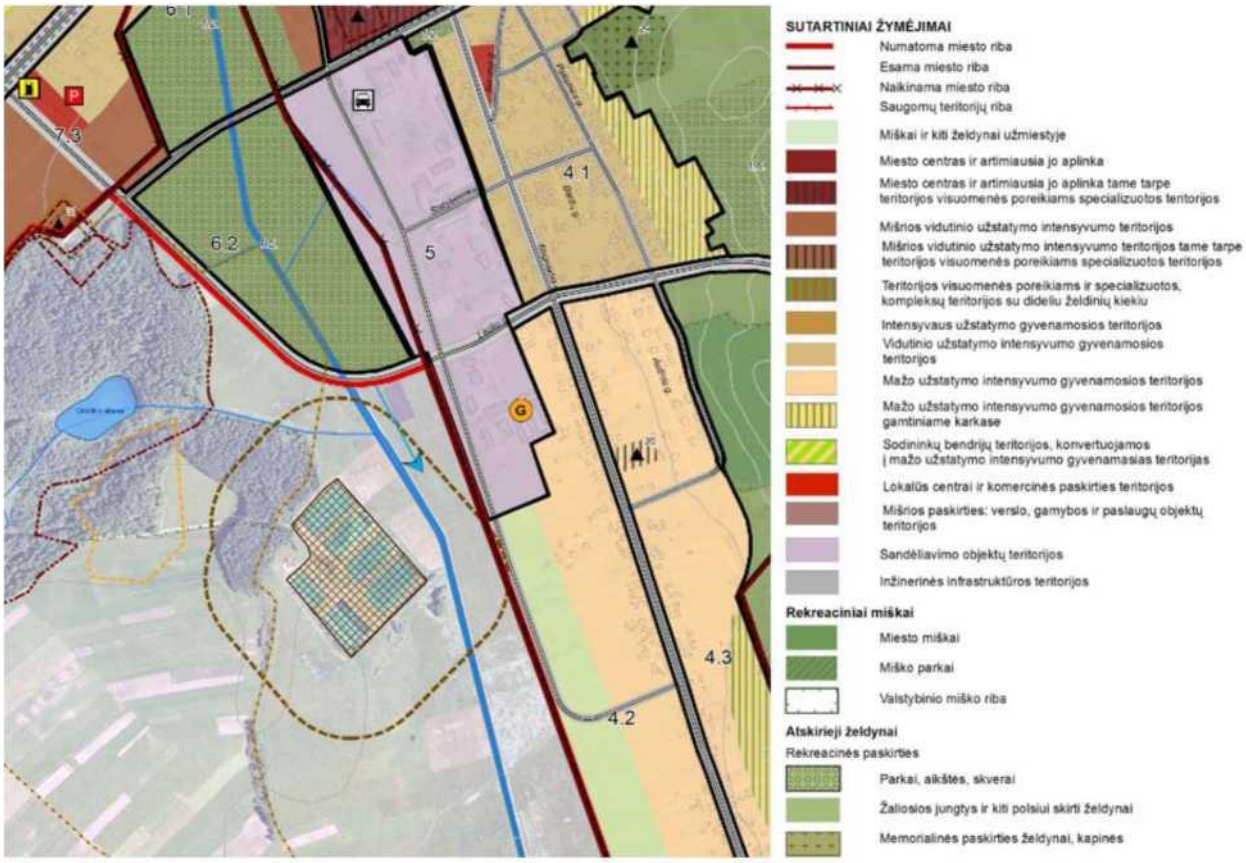


Figure 3.7 Extract from the drawing of the Territorial Regulation of the General Plan of the City of Švenčionys

According to the drawing of the territorial regulation of the Švenčionys City Master Plan (Figure 3.7),

the nearest storage areas are located approximately 190 m north-east of the boundaries of the PFM parcel.

The residential area is separated from the activities of the FEA by the area of rural forests and other green areas, which is approximately 160 m eastwards from the boundary of the parcel of the FEA.

The nearest living environment from the object is about 200 m in the south-east direction - Statybininkų g. 120, 230 m in the north-east direction - Lauko g. 6 A.

The nearest recreational environment is about 350 m northwards from the boundary of the PFM parcel.

Nearest public facilities: Association "Švenčionių Perkūnas" (Pakalnės str. 30) - 700 m north-easterly from the border of the parcel formed by the FSU; Švenčionys crèche-kindergarten "Gandriukas" (Sodų str. 30), which is located 1.0 km north-east of PŪV; Force sports club "Grifas" located at a distance of 1.4 km in a north-eastern direction from the farm; Švenčionys Vocational Training Centre (Liepų al. 2). Švenčionys Social Services Centre (Stoties g.16) is 800 m from the border of the PŪV parcel in the northern direction.

Administration of the ward of Cirkliškis (Liepų al. 1) - at a distance of 900 m to the north-west of the parcel formed by the farm.

The consultations polyclinic of Švenčionys district central hospital and Švenčionys district hospital (Partizanų str. 4) are located at a distance of 890 m in the north-eastern direction from the boundaries of the plot formed by PŪVs.

The shopping centre (Vilniaus g. 37) is 1.2 km northwards from the boundaries of the parcel formed by PŪV.

3.9 Information on the land plot or territory of the proposed economic activity

Immovable Cultural Property

There are no cultural heritage properties in the territory of the PŪV, the nearest cultural heritage properties are the Cirkliškis Mound with the settlement (code 24130) and the Cirkliškis Manor Homestead (code 705), which are 150 m northwest of the PŪV. The minimum distance between the farmstead and the Cirkliškis Manor Homestead (code 705) is 35 m.

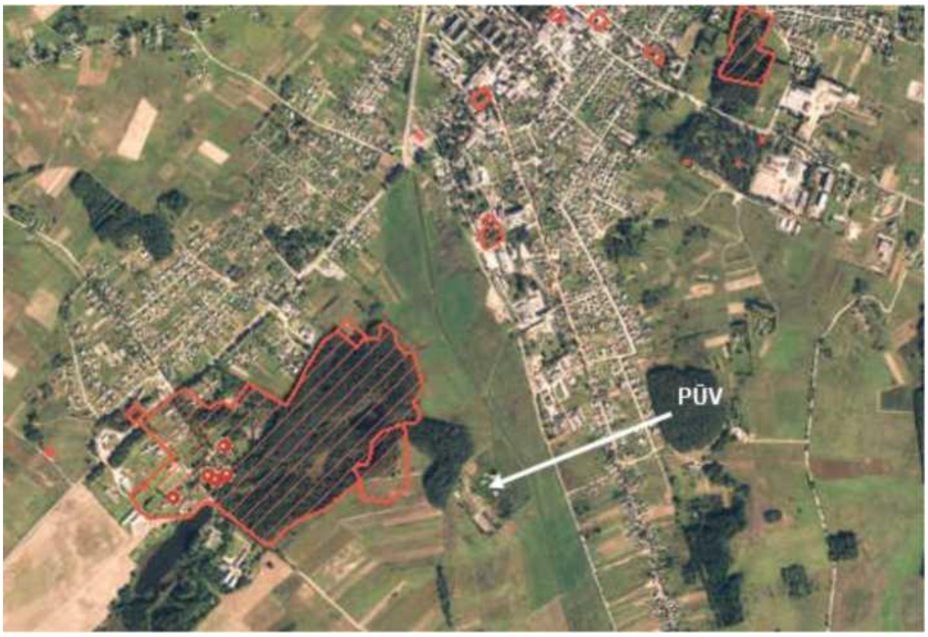


Figure 3.8 Extract from the Register of Cultural Property

Characteristics of the cultural heritage properties closest to the site and the distance from the boundary of the plot of land of

Table3.2. Cultural heritage assets within a radius of 2 km closest to the FSU territory (http://kvr.kpd.lt/#/)

Value of cultural heritage	Nature of valuable properties of cultural heritage property	Minimum distance from the farm parcel limits up to cultural heritage, km
Cirkliškis mound with settlement (code 24130)	Archaeological (determining materiality); Landscape; The complex consists of: 1. The mound of the Cirkliškis mound with the settlement, headed by Perkūnkalnis (3424); 2. settlement of Cirkliškis mound with settlement (24131);	0,19 miles north Western in the direction from the FSU
Cirkliškis Manor Homestead (code:	Archaeological (determining materiality); Architectural (determining significance rare); Fine art (determining significance is important); Historical	0,19 miles north Western in the direction from the FSU

Value of cultural heritage	Nature of valuable properties of cultural heritage property	Minimum distance from the farm parcel limits up to cultural heritage, km
	(Determining materiality is important); Landscape; Plantations (determining significance is important); The complex consists of: 1. Cirkliškis Manor House (22167); 2. Cirkliškis manor homestead ice cream (22168); 3. Cirkliškis Manor Homestead Office (22169); 4. Cirkliškis Manor Warehouse (22170); 5. Cirkliškis manor homestead forge (22171); 6. Cirkliškis Manor Homestead Park (22172);	
Tombs of the partisans of the Battle of	Historical (determining materiality important); Memorial (determining significance is important);	0,68 miles north Western in the direction from the FSU
the Second World War Soviet the Union soldiers place of burial	Historical (determining materiality typical);Memorial (determining materiality typical);	1,3 miles north Western in the direction from the FSU
Place and grave of the massacre of Jews in	Historical (determining materiality important); Memorial (determining significance is important);	1,5 miles north Western in the direction from the FSU
House (code: 16699)	Architectural (determining significance is important);	0.93 km northwards from the FSU
St. Casimir's Church of St Casimir Trinity Orthodox Church (code:	Architectural (determining significance is important); Fine arts (leading to rare significance); Sacred (determining significance is important);	1.5 km in a northerly direction from the FSU
Building (code 2150)	Architectural (determining significance typical);	1.9 km in a northerly direction from the FSU
House (code: 10566)	Architectural (determining significance is important);	1,84 km northwards from the FSU
Building (code 12275)	Architectural (determining significance typical);	1.9 km in a northerly direction from the FSU
Building (code 2151)	Architectural (determining significance typical);	1.9 km in a northerly direction from the FSU
House (code: 10564)	Architectural (determining significance is important);	1.9 km in a northerly direction from the FSU
Building (code 12276)	Architectural (determining significance is important);	1.9 km in a northerly direction from the FSU

Value of cultural heritage	Nature of valuable properties of cultural heritage property	Minimum distance from the farm parcel limits up to cultural heritage, km
Building (code 11228)	Architectural (determining materiality typical);Historical (determining materiality important);	2.0 km in a northerly direction from the FSU
The Old Jewish Cemetery in Švenčionys (code 21967)	Historical (determining materiality typical);Memorial (determining materiality typical);	2.0 km in a northerly direction from the FSU
Lithuanian soldiers, the June 1941	Historical (determining materiality important);Memorial (determining materiality important);	1.5 km in a northerly direction from the FSU
the Book Carrier Stanislovas Tomb of Vaiškūnas (code	Historical (determining materiality important); Memorial (determining significance is important);	1.5 km in a northerly direction from the FSU
the Book Carrier Adam - Mykolas Tomb of Padleckas (code	Historical (determining materiality important); Memorial (determining significance is important);	1.5 km in a northerly direction from the FSU
Monument to the soldiers of the German Empire during the First World War (code 39179)	Art (determining significance important);Historical (determining materiality is important);Memorial (Determining materiality is important);	1.6 km northwards from the FSU
Lithuanian curry tomb (code: 12635)	Historical (determining materiality important);Memorial (determining materiality important);	1.6 km northwards from the FSU
Book carrier Michael Tomb of Vaiškūnas (code	Historical (determining materiality important);Memorial (determining materiality important);	1.6 km northwards from the FSU
Composer, pedagogue Tomb of Antanas Šerėnas (code: 2579)	Historical (determining materiality important);Memorial (determining materiality important);	1.7 km northwards from the FSU

Value of cultural heritage	Nature of valuable properties of cultural heritage property	Minimum distance from the farm parcel limits up to cultural heritage, km
Priest, professor, public figure John Toast tomb (code 2572)	Art (determining significance typical);Historical (determining significance typical); materiality is important);Memorial (Determining materiality is important);	1.7 km northwards from the FSU
Doctor, public figure Alexander Symbolic tomb of Rym (code: 2578)	Historical (determining materiality important);Memorial (determining materiality important);	1.7 km northwards from the FSU
Residents of Švenčionys, Nazism victims tomb (code: 16644)	Historical (determining materiality important);Memorial (determining materiality important);	1.7 km northwards from the FSU

4 TYPE AND DESCRIPTION OF THE POSSIBLE ENVIRONMENTAL IMPACT

4.1 Impacts on public health and the environment

It should be noted that the FEA technology complies with paragraph 64 of the 'Approval of special conditions for land and forest use' by closing mechanical and/or biological and/or chemical waste water treatment plants with a capacity of up to 5000 m^3, therefore no ASA is foreseen.

Noise

A temporary and short-term increase in noise and vibration levels during construction work or during the transportation of equipment is possible. Typical construction works lead to a short-term local increase in noise and vibration. During the construction works, noise and vibration will be limited by controlling working hours and the movement of construction transport along the respective transport route, using technically sound equipment that will comply with the requirements of STR 2.01.08:2003 "Management of noise emission in the environment by equipment for use outdoors".

The wastewater treatment plant will use various pumps, mixers - this is a noisy equipment. It should be noted that pumps and mixers will be installed underground, submerged under water, as a result of which the noise emitted by them will be minimal. The blower will be covered with a noise-absorbing hood (about 80 dBA) and will be installed in a technological building.

During operation, the noise and vibration levels in the area analysed will be negligible due to the use of low-noise and low-vibration electromechanical equipment. It is expected that the sound pressure level of technological equipment in residential and/or public buildings will reach 35 dBA at all times

of the day and will not exceed the limit values laid down in HN 33:2011 'Noise limit values in residential and public buildings and their surroundings' (No V-604 of 13 June 2011).

The planned economic activity will not cause additional significant negative effects due to vibration, light, heat, ionising or non-ionising (electromagnetic) radiation.

Scents

During the technical design, the technical characteristics of the biofilters will be selected, which will ensure that the concentration of odours in the nearest living environment will not exceed the value set by HN 121:2010 - 8 OUE/m^3.

All tanks and reservoirs located outdoors according to the technology will be sealed. The receiving tank of the incoming wastewater will also be covered.

In a waste water treatment plant, in accordance with the requirements of the technological process, the concentration of odour in the air of the living environment will not exceed the value set out in HN 121:2010 'Odour concentration limit in the air of the living environment'.

Impact on the social environment, the local labour market and the demography of the local population

The local labour market will not be affected by the FSU. The impact of PFM on the labour market in the area will have a marginal positive impact during the construction and reconstruction period by creating temporary jobs in the construction sector.

The demographics of the population (birth, mortality, emigration/immigration, etc.) will not be affected by the planned economic activity.

4.1.1 Impacts on biodiversity

The FBO will be located on the existing site of the waste water treatment plant and no impact on biodiversity is expected. On the contrary, the implementation of FABs is listed in the 2017 Nemunas River Basin District Programme of Measures as one of the proposed measures to reduce point and urban pollution.

4.1.2 Impact on protected areas and Natura 2000 sites of the European ecological network

The PFAs in question will not have a negative impact on existing biodiversity.

4.1.3 Effects on soil and subsoil

The physical effects resulting from the planned reconstruction of the waste water treatment plant include soil excavation, pushing down, possible mixing and compaction (compression) of soil layers during the construction of the facilities. During the construction of the cleaning plant and subsequent reconstructions, the natural soil layer was removed in places. Currently, a large part of the territory is occupied by wastewater treatment plant infrastructure buildings and structures, asphalt concrete, concrete blocks, crushed stone coatings and access roads. Soil impacts can occur during the following phases of the planned activities: during the construction of new facilities and the reconstruction of existing ones, during the normal operation of facilities or during emergencies. The

greatest impact on the fertile soil layer during the construction and reconstruction of FSUs will be the construction of new facilities and the reconstruction of existing facilities in their vicinity.

During construction, when installing new coatings and mining operations, it is necessary to preserve the fertile soil layer, temporarily storing it near the excavations and later using it for site management. During construction, technically sound machinery must be used and the generated waste must be removed from the construction site in a timely manner, thereby minimising the potential impact on the soil.

All earthworks must be carried out in accordance with STR 1.07.02:2005 ‘Earthworks’ and DT 5-00 ‘Safety and health rules in construction’.

It is planned that during the construction works and the operation of the object, the subsurface may be affected only due to factors of technogenic origin. It is possible to have a mechanical effect when during the construction of the object it will be deepened into the surface layer of the subsurface by partially overheating, resettling and pouring it with a new soil. During the reconstruction, the impact on the groundwater aquifer horizon would be minimal, i.e. it can be expressed only by temporary hydrodynamic changes without residual phenomena in the upper part of the underground hydrosphere. Chemical exposure is unlikely, except in emergencies. The impact of the operation of Švenčionys wastewater treatment plant in normal operating mode on the ground

There will be no depths. In emergency situations, in cases of significant overground spillage of dangerous substances, there is a possibility that part of the pollutants spilled on surfaces not covered with impermeable coatings may enter the ground, which could contaminate the soil and groundwater in the aeration zone.

4.1.4 Effects on waters

After the implementation of FBOs, new treatment plants will reduce the likelihood of emergency pollution of surface deposits, improve the conditions of public well-being and the general state of the environment.

It should be noted that the implementation of the reconstruction of the PŪV, the WWTP of Švenčionys, is listed in the 2017 Nemunas River Basin District Programme of Measures as one of the proposed methods for reducing point and urban pollution.

4.1.5 Air and climate impacts on air and climate (e.g. ambient air quality, microclimate);

The effects on ambient air resulting from the construction of the planned economic activity will be temporary and local: will manifest itself on the construction site and in its immediate surroundings and will last for the duration of the construction works.

The main sources of ambient air pollution are internal combustion engines of vehicles and servicing equipment, the main pollutants are VOCs, NO_2 , CO_2, PM_{10} (particulate matter with a diameter of > 10 µg/m^3) and may increase air dust pollution during dry periods when running machinery on the access road to the construction site. It should be noted that during construction there will be a short-term impact on ambient air quality.

The environmental impact during construction will be limited by the use of technically sound equipment. During the implementation of the project, the provisions of the legal acts regulating construction and operation work will be complied with.

During the operation of the FSU, air pollution will be negligible - after the construction of a new waste water treatment plant, the excess sludge generated on the site of the existing treatment plant will be stabilized, the tank will be sealed, closed, aeration elements will be installed in the tank, which will keep the right amount of oxygen in the sludge and prevent it from rotting, so that pollutants will not be emitted into the ambient air.

After the implementation of the FBOs, no more than 10 vehicles per day, i.e. up to 1-2 per hour, are expected to be served by vehicles with incoming waste water, so the impact on air due to pollution caused by transport will be negligible.

4.1.6 Effect on the landscape

The construction and reconstruction of the PFM is planned on the existing site of the waste water treatment plant, where similar activities are carried out, therefore the PFM will not have a negative impact on the existing landscape.

4.1.7 Impact on material values

The expected increase in noise and vibration due to the construction of the planned economic activity will be temporary and local: will manifest itself on the construction site and in its immediate surroundings and will last for as long as the construction works are carried out, so that the PŪV will not adversely affect material values. The planned economic activity will not cause additional

significant negative effects due to vibration, light, heat, ionising or non-ionising (electromagnetic) radiation.

4.1.8 Impact on cultural heritage values

The values of cultural heritage will not be adversely affected by FEAs.

4.2 Potential significant impact on interactions between previously identified factors

Potential significant effects The interaction between the factors referred to in paragraph 35 of the Procedure after the implementation of the PEA is not foreseen.

4.3 Potential impact on the above-mentioned emergency factors

In case of proper operation of wastewater treatment plant facilities, there is no likelihood of fires or other extreme situations (accidents). No risk due to the planned economic activity or impact on the population is expected. During economic activity, no technological equipment and processes create preconditions for accidents and harmful emissions. The management of the waste water treatment plant operation process is planned to be automatic, and the maintenance of the plant will be carried out by UAB Vilniaus vandenys. With proper operation and maintenance, the probability of an accident is minimal.

4.4 Application of preventive measures

During the construction and operation of the PFM facility, it is planned to apply the following measures to avoid and/or reduce the environmental impact:

- Technically sound machinery must be used during the construction of the PFM and the waste generated must be removed from the site in a timely manner, thereby minimising the potential impact on the soil.
- to preserve the soil layer removed during the construction works of the FeBO until the completion of the construction works and to use it for environmental management (well-being management) works;
- The blower designed for the operation of the FSU will be installed in a technological building with noise suppression hood.
- Scents from primary treatment plants will be controlled with the help of biofilters. All tanks and tanks, which according to technology are located outside, will be tightly covered. The receiving tank of the incoming wastewater will also be covered.
- The management of the operation process of the waste water treatment plant facilities will be automatic and the maintenance of the facilities will be carried out by the operator of UAB Vilniaus vandenys, who will regularly check the operation of the facilities.

5 LIST OF LITERATURE

1. UAB Vilniaus vandenys http://www.vv.lt/en/about/

2. Law of the Republic of Lithuania on Environmental Impact Assessment of Proposed Economic Activities,
approved on 15 August 1996 under No I-1495 (as subsequently amended).

3. Order No D1-845 of the Minister for the Environment of 16 October 2017
the approval of the description of the procedure for selecting the proposed economic activity for the purposes of environmental impact assessment'

4. Underground register. https://www.lgt.lt/epaslauga/elpaslauga.xhtml

5. Rules on the management of construction waste approved by Order No D1-637 of the Minister for the Environment of 29 December 2006 (ŽŽ., 25 January 2007, No 10-403, as subsequently amended).

6. Order No D1-236 of the Minister for the Environment of 17 May 2006 approving the Waste Water Management Regulation (as subsequently amended).

7. Surface Waste Water Management Regulation, VŽ, 14 April 2007, No 42-1594, TAR, 16 October 2015, No 15667.

8. Hygiene Standard HN 33:2011 'Noise limit values in residential and public buildings and their surroundings', approved by Order No V-604 of the Minister for Health of the Republic of Lithuania of 13 June 2011 (as subsequently amended).

9. Law on Noise Management of the Republic of Lithuania, approved by No IX-2499 of 26 October 2004 (as subsequently amended).

10. Lithuanian Geological Survey, https://www.lgt.lt/epaslaugos/elpaslauga.xhtml

14. Website of the State Service for Protected Areas: http://vstt.lt

15. SRIS (Protected Species Information System) database (https://epaslaugos.am.lt/)

16. Lithuanian rivers of the Republic, lakes and ponds Cadastre (UETK): https://uetk.am.lt/portal/startPageForm.action;jsessionid=9954663C1975220833D3195AB134D83B

17. 22 December 1994 Protection of Immovable Cultural Heritage of the Republic of Lithuania Law No I-733 (as subsequently amended).

18. the Cultural Heritage Department under the Ministry of Culture of the Republic of Lithuania Website: http://kvr.kpd.lt/#/

ACCESSORIES
ANNEX No 1 ESAMA RESOURCES STATEMENT SCHEME

ANNEX No. 2 OVERVIEW SCHEME AND CRD EXPENDITURE SCHEME

ANNEX No 3 TECHNOLOGICAL SCHEME FOR ANIMALS

ANNEX NO 4 LHMT 2017-01-03 CERTIFICATE NO V1-30/18

ANNEX No 5 LRAM 11/04/2017 WRITTEN NR, (19-2)-D8-2806

ANNEX NO. 6 RIS STATEMENT NO. SRIS-2018-13177818

ANNEX No. 7 DECLARATION AND QUALIFICATION DOCUMENTS BY PRODUCERS