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Etelä-Karjalan Jätehuolto Oy

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# SOIL INVESTIGATIONS REPORT BIOGAS PLANT AREA

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Description Report on soil investigations performed in area of  
proposed biogas plant

Ref

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## 1. GENERAL

Ramboll Finland assigned by Etelä-Karjalan Jätehuolto Oy has performed survey and soil investigations in Kukkuroinmäki area of Lappeenranta considered for construction of a biogas plant. Objective of the investigations was to determine soil conditions for geotechnical design.

Previous soil investigations in the area were performed in 2002 by Pöyry.

Supplementary soil investigations on the site were implemented in August and September 2017. In addition to the topographic survey, the soil investigations included 6 weight sounding tests and groundwater level measurements in one groundwater pipe. The survey was implemented in the ETRS-GK28 coordination system and N2000 elevation system.

Locations of the investigations points, survey measurements, groundwater level and soundings are presented on the site layout drawing No. 1510035292.02. Cross-sections of the investigations are shown on the drawings No. 1510035292.07, 1510035292.08 and 1510035292.09.

## 2. SOIL AND GROUNDWATER CONDITIONS

The area proposed for the construction of the biogas plant are located on the site owned by Etelä-Karjalan Jätehuolto Oy in Kukkuroinmäki area, Lappeenranta. In the location of the investigation points, ground elevations vary between +51,30 and +54,30.

A pressure sewer pipeline locates in the eastern part of the site. There are no underground cables in the area.

A plot considered for the construction is in the undeveloped area cleaned from trees.

Based on the weight soundings, a surface layer consists of loose clay. The layer is approximately 2.0-2.6 m thick, and in the investigation point KP4 it extends up 10.6 m. In the investigation point KP3, the clay layer is overlapped by a peat layer of approximately 0.6 m thick. Below the clay layer there is a medium-dense clayey silt layer reaching the depth of 9.6...11.6 m from the ground surface. Below the clayey silt there is approximately 0...4.4 m thick medium-dense silt layer. The silt formation is underlaid by a bearing layer of coarse sand and moraine soil.

The soundings terminated in the depth of 15.40...20.50 m from the ground surface into stones or rock.

During the site investigations, groundwater surface was measured at the level of +51.01, about 2.9 below the ground level.

Run-off and melt waters are drained by an open ditch outside the site.

## 3. FURTHER STEPS

The objective of the site investigations was to provide data on soil conditions required for the design of the plant and considering the design status.

In terms of the plant location, structures and loads, the design is only drafted.

Site development recommendations shall be supplemented and specified in accordance with the selected location of the biogas facility and along with the design progress. Earthworks for the plant foundations will be presented in the relevant specification and quality assurance instructions.



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