



Thames River

PHOSPHORUS REDUCTION COLLABORATIVE

Project Progress – May, 2021

Chippewa First Nation Tile Capture

Site:

The site is situated on a grain farm operated by a local farmer. A municipal drain outlet that services about 70 acres on several farms provides a flow of tile water to be filtered for phosphorus removal. The fields receive commercial fertilizers, and the testing is on phosphorus that runs into the system.



Partners:

The design and technology to intercept tile water was developed by ESSRE Consulting Inc. and the installation has been done by [GAPS Ontario](#).

Description:

An underground tank containing lava rock and sponge materials take water from an underground municipal drain. In September 2021, a new product, Zeolite, mined in northern British Columbia was substituted into the tank for a year long test. As the water rises through the tank, phosphorus is absorbed, and the outflow of water empties into an open municipal drain.

GAPS is monitoring the site, and taking samples after significant rainfalls. The sorbent material is removed annually and the phosphorus flushed and recovered under laboratory conditions and analysed for re-use as a fertilizer.

Progress:

ESSRE operates this site with two surface water capture opportunities with Hickenbottom structures and one tile water opportunity treated with sorbent material. An Ontario Ministry of Agriculture, Food and Rural Affairs engineer calculated catchment areas for the three structures using newly acquired LiDAR data. Water flow sensors were installed to measure the 2021-22 flows and compare results to other calculation methods using rainfall data. The January to June 2021 water flow data will be reported in the final report. ESSRE presented data on the sorbent capacity of various materials and contrasted it with other BMPs to determine cost effectiveness. The preliminary calculations were presented at a PRC webinar in January 2021 and is available [here](#).