**Request For Proposal for Lambert Creek engineering assistance**

**Please submit by: 12, noon, December 7, 2017**

**To: Stephanie McNamara, Administrator,** [**stephanie.o.mcnamara@vlawmo.org**](mailto:stephanie.o.mcnamara@vlawmo.org)

**VLAWMO, 800 County Road E, E, Vadnais Heights, 55127**

The Vadnais Lake Area Water Management Plan (VLAWMO) is looking for engineering assistance to gain a better understanding of the hydraulics and hydrology of Lambert Creek or County ditch 14 in Ramsey County. Lambert creek has a reach of about 4.5 miles with the headwaters in White Bear Lake and empting into Vadnais Lake, Vadnais Heights, and the reservoir for the St. Paul area water supply. VLAWMO has been the ditch authority since 1987 and has installed numerous best management practices along the creek. The ditch is being managed as a storm water conveyance under MN Chapter 103B as identified in the Comprehensive Water Plan for VLAWMO. See the map attachment.

Some of the modeling work may be used for updated FEMA mapping of specific segments of Lambert Creek in Special Flood Hazard Areas. Coordinating with DNR floodplain staff during model development is a required part of this scope.

Please indicate if you have worked on FEMA mapping. Areas within VLAWMO have been identified for updated FEMA modeling in the Twin Cities HUC8 Watershed. The work done on Lambert Creek should facilitate that effort.

Also attached is a summary of the historical work along the creek as well as a map of work done in 1981. Historical maps and other information are available on the VLAWMO website: [Lambert Creek](http://www.vlawmo.org/index.php?cID=609).

Scope of project:

1. Review records of the ditch to establish original ditch profile and capacity to the extent possible.
2. Review records of the ditch cleaning in 1987 to establish ditch profile and capacity to the extent possible. Clarify whether and where soil borings will be needed to establish original depth and contours of the ditch (in areas identified that could benefit from repair in the form of dredging, perform soil borings if further evidence of historical ditch profile is required by permitting agencies.) Produce map and shapefiles showing historical documentation.
3. Review area where high water concerns have been identified.
4. Produce an updated survey of the whole creek to cross-sections at regular intervals, identifying significant changes in morphometry, bridge/culvert crossings and other infrastructure will be surveyed and photographed. VLAWMO staff may assist if requested. Some areas are deep with tree cover. Channel survey should include top of bank, top of slope, channel centerline and additional channel shots as needed.
5. All data will be provided in a format consistent with BWSR drainage database requirements.
6. Utilize available information to produce a hydrologic and hydraulic model of Lambert creek and the branch ditches and updated current profile information for the creek. Calculate peak flood discharges in for 10%, 4%, 2%, 1%, and 0.2% annual chance events using a FEMA accepted hydrologic and hydraulic model, such as HEC-HMS, XP\_SWMM, or EPA-SWMM. Models and peak flow rates shall be calibrated and/or validated if reliable measured data is available.
7. Identify potential areas of maintenance needs and potential improvement practices
8. Provide a report or technical memo including a plan of recommend repairs, alternatives, costs and funding strategies. The plan may include a recommendation for routine ditch assessment including evaluation of existing structures along the creek. This would be used to identify and schedule future maintenance needs.
9. OPTION A: Provide new survey data, cross-sections and modeling of the Lambert Creek branch ditches. See the map for locations.
10. Add other optional features as you find appropriate.

Available information:

* 1926 and 1939 survey books with 1927 map identifying Ramsey County ditch 14 and its five branch ditches.
* 1980 Ramsey County *Engineer’s Report on County Ditch 14*
* 1987 scanned cross-section plans, survey, and map for the 1980s cleaning of the ditch
* TMDL Report 2012 – including Lambert Creek impairment for bacteria
* Flume gauging info collected bi-monthly or more during sampling season
* Pollutographs created with data from storm sampling events on several sites along the stretch of the Creek

Tentative schedule of proposed project (all items flexible):

* **December 13th, 2017** VLAWMO Board consideration of Lambert Creek engineering proposals
* **March 15th, 2018** Tasks 1 – 3: review historical information
* **April 15th, 2018** Task 4: complete field survey
* **June 1st, 2018** Tasks 5 – 7: modeling and identification of potential repairs or maintenance in time for 2019 budgeting
* **August 15th, 2018** Task 8: Technical Memo prepared

With questions contact either:

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