

MEETING DATE: February 14, 2019

TITLE: Authorization to execute a contract with the University of Minnesota to assist in the evaluation of surface and groundwater interactions in South Minneapolis

RESOLUTION NUMBER: 19-018

PREPARED BY: Tiffany Schaufler

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REVIEWED BY: Administrator Counsel Program Mgr. (Name): Michael Hayman
 Board Committee Engineer Other

WORKSHOP ACTION:

<input type="checkbox"/> Advance to Board mtg. Consent Agenda.	<input type="checkbox"/> Advance to Board meeting for discussion prior to action.
<input type="checkbox"/> Refer to a future workshop (date):_____	<input type="checkbox"/> Refer to taskforce or committee (date):_____
<input type="checkbox"/> Return to staff for additional work.	<input type="checkbox"/> No further action requested.
<input checked="" type="checkbox"/> Other (specify): Final action requested on February 14, 2019	

PURPOSE or ACTION REQUESTED:

Authorization to execute a contract with the University of Minnesota to assist in the evaluation of surface water and groundwater interactions in South Minneapolis.

PROJECT/PROGRAM LOCATION:

South Minneapolis

PROJECT TIMELINE:

February – March 2019: Review synthesis and begin data analysis

PROJECT/PROGRAM COST:

Fund name and number: Planning, 200-2002-4320
Current Budget: \$55,000 (for 2019 contract services)
Expenditures to date: \$0
Requested amount of funding: \$16,859

SUMMARY:

Background

Since November 2017, the Minnehaha Creek Watershed District (District) has been participating in an evaluation to understand South Minneapolis resident’s concerns over high groundwater levels near Solomon Park and Lake Nokomis, and its impact on public and private infrastructure as well as residential structures.

**DRAFT for discussion purposes only and subject to Board approval and the availability of funds.
Resolutions are not final until approved by the Board and signed by the Board Secretary.**

Because groundwater and surface water management in Minneapolis falls under several jurisdictions, an inter-agency team was formed to work in partnership to evaluate and understand what is happening. Agencies participating in this effort include the District, MN Department of Natural Resources (DNR), the City of Minneapolis (City), the Minneapolis Park and Recreation Board (MPRB), and Hennepin County. The inter-agency team has also coordinated with the MN Department of Transportation, the Metropolitan Airports Commission, the Metropolitan Council, the City of Richfield, and the U.S. Geological Survey to better understand the regional significance of groundwater changes.

Over the past year, staff from the inter-agency team have met over 20 times to review existing data and to identify data gaps where more information is needed. After reviewing the data, the inter-agency team has generally concluded that the Twin Cities has experienced the wettest six-year period (2013-2018) since record keeping began in the 1870s. This record rainfall is occurring outside of the growing season, when soils are thawed but vegetation is not growing and therefore not able to uptake water, which results in an increase of groundwater recharge rates. Shallow bedrock geology in this area, coupled with the higher volumes of precipitation infiltrated into the shallow groundwater, is causing interaction of that groundwater with public and private infrastructure and private property. The inter-agency team also concluded that Lake Nokomis and Minnehaha Creek water levels are not principal drivers in the groundwater issues being experienced, as the lake and creek are 10-30 feet below the low floor elevations of the homes that have experienced issues.

The inter-agency team also concluded that additional groundwater observation wells would be helpful to better understand the area's groundwater. Beginning in fall 2017, six additional observation wells have been installed, or are currently being installed. The water level data provided by this network of observation wells will help the inter-agency team understand the groundwater system and how different aquifers may be interacting with each other and with surface waters.

In the next few months, the inter-agency team will be working together to synthesize all of the information assembled over the past year and summarize this work into one comprehensive document.

University of Minnesota Scope of Work

The District and University of Minnesota (UMN) have a history of collaboration. In 2013 the District and UMN partnered with the Mississippi Water Management Organization (MWMO) to explore opportunities to improve base flow in Minnehaha Creek via stormwater infiltration. [This multi-year research project](#) examined the interaction between Minnehaha Creek and shallow groundwater reservoirs to determine where the creek is receiving groundwater and where it is not. The District is proposing to build on this 2013 knowledge and contract with UMN to:

- Review and edit the information synthesized by the inter-agency team
- Define questions related to groundwater concerns and gather the data needed to answer them
- Identify any data gaps that still remain and suggestions on how to acquire the data

The UMN proposes to begin this work by the end of February 2019 at an estimated cost of \$16,859. Staff is recommending authorization to execute a contract with the University of Minnesota to review Nokomis area groundwater information to assist the inter-agency team in its effort.

ATTACHMENT:

1. University of Minnesota scope of work

RESOLUTION

RESOLUTION NUMBER: 19-018

TITLE: **Authorization to execute a contract with the University of Minnesota to assist in the evaluation of surface and groundwater interactions in South Minneapolis**

WHEREAS, the Minnehaha Creek Watershed District (MCWD) has been participating in an inter-agency team effort with the MN Department of Natural Resources (DNR), the City of Minneapolis (City), the Minneapolis Park and Recreation Board (MPRB), and Hennepin County, to better understand South Minneapolis resident concerns over higher groundwater levels near Solomon Park and Lake Nokomis; and

WHEREAS, the inter-agency team has met over 20 times during the past year to review existing data, identify data gaps where more information is needed, and synthesize and summarize all of the information assembled over the past year into one comprehensive document; and

WHEREAS, MCWD and the University of Minnesota (UMN) have a history of collaboration, including the 2013 partnership to examine base flow conditions in Minnehaha Creek and the interaction between flow regimes in Minnehaha Creek and shallow groundwater, and University partners have a strong understanding surface and groundwater systems within the region; and

WHEREAS, MCWD would like to build on the existing inter-agency efforts through a contract with the UMN to:

- Review, edit and expand on the inter-agency team’s synthesis and conclusions;
- Define additional questions related to groundwater concerns and gather the data needed to answer them;
- Identify data gaps that remain and provide suggestions on how to acquire the appropriate information; and

WEHREAS, the UMN has provided MCWD with a scope of services for evaluation of surface and groundwater interactions in South Minneapolis that will achieve the data review goals set forth by the inter-agency team.

NOW, THEREFORE, BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers hereby authorizes the District Administrator to execute a contract with the University of Minnesota, on advice of legal counsel, for review and evaluation of surface and groundwater interactions in South Minneapolis for an amount not to exceed \$16,859, and authorizes the District Administrator to use an additional contingency of 10 percent of the not-to-exceed as in his judgment circumstances require.

Resolution Number 19-018 was moved by Manager _____, seconded by Manager _____.
Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: _____.

Secretary

Date: _____

UNIVERSITY OF MINNESOTA

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To: James Wisker, Minnehaha Creek Watershed District

From: Joe Magner, UMN-Dept. of Bioproducts & Biosystems Engineering

Date: February 11, 2019

Subject: Evaluation of surface and groundwater interactions in South Minneapolis

This proposal is to assist MCWD in the evaluation of surface water and groundwater interactions in South Minneapolis. UMN staff will review information synthesized to date and perform further analysis and data gathering to help answer questions over groundwater concerns. Lastly, UMN will identify if data gaps exist and if they do, provide recommendations on how to acquire the necessary data to fill those gaps.

Scope Tasks

1. Documentation Review – Review work to date and conclusion from inter-agency team
 - a. Review and edit first draft of inter-agency synthesis
 - b. Review and edit final draft of inter-agency synthesis
2. Define questions related to groundwater concerns and gather the data needed to answer them – starting broadly and working down to site specific.
 - a. What is the source of groundwater in South Minneapolis?
 - b. When Minnehaha Creek is bank full does it have any impacts beyond the immediate riparian zone?
 - c. What are the effects of local infiltration BMPs on groundwater recharge in South Minneapolis?
3. Identify data gaps if defined questions above cannot be answered with available data
 - a. Provide recommendations on data to acquire

Scope Deliverables

1. Edits to first draft synthesis
2. Edits to final draft synthesis
3. Technical memorandum and graphics that explain the data in response to questions in Task 2
4. Identification of data gaps and recommendations on how to acquire the needed data

Scope Costs

The above tasks and deliverables include personnel costs, supplies and travel time. The total direct costs are \$16,859 (Personnel - \$16,269, Supplies & Travel - \$600).

If this proposal is acceptable, please sign and return.

Sincerely,
UMN-BEE



Joe Magner
Research Professor

Accepted By:
Minnehaha Creek Watershed District

James Wisker – MCWD Administrator

Date _____