

TITLE: Approval of the City of Hopkins Regional Stormwater Plan for the stormwater facility at Cottageville Park and approval of an easement affording Hopkins all rights necessary to meet its inspection and maintenance obligations for the Cottageville Park stormwater management system.

RESOLUTION NUMBER: 17-XXX

MEETING DATE: February 9, 2016

PREPARED BY: Renae Clark

E-MAIL: rclark@minnehahacreek.org

TELEPHONE: 952-641-4510

REVIEWED BY: Administrator Counsel Program Mgr.
 Board Committee Engineer Other

WORKSHOP ACTION:

<input checked="" 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 type="checkbox"/> Other (specify):	

PURPOSE or ACTION REQUESTED:

1. Approval of the City of Hopkins Regional Stormwater Plan for the stormwater facility at Cottageville Park pursuant to MCWD Stormwater Rule, paragraph 7.
2. Approval of an easement affording Hopkins all rights necessary to meet its inspection and maintenance obligations pursuant to the Cooperative Agreement between MCWD and the City of Hopkins Cottageville Park Stormwater Management and Park Improvement Project as amended.

PROJECT/PROGRAM LOCATION:

Blake Road and Lake St. NE, Hopkins MN

PROJECT TIMELINE:

October 2015 Phase 1 construction complete

PROJECT/PROGRAM COST:

Fund name and number: Cottageville Park 3146

PAST BOARD/COUNCIL ACTIONS:

July 15, 2010: Resolution 10-058 Approval of Cooperative Agreement between MCWD and City of Hopkins
September 9, 2010: Resolution 10-083 Approval of purchase for 427-429 Blake Road, Hopkins
December 10, 2010: Resolution 10-082 Approval of Purchase Agreement for 415 Blake Road and 1303, 1305 Lake Street, Hopkins
February 27, 2014: Resolution 14-018 Approval of Concept Design and concurrence of project schedule and process presented by staff

**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.**

March 27, 2014: Resolution 14-023 Ordered Capital Project

April 10, 2014: Resolution 14-027 Approval of Cooperative Agreement amendment, approval of BWSR grant agreement, and authorization of design contracts with Wenck Associates and Hart Howerton.

June 3, 2014: City Council Action to approve final project design and solicitation of bids for construction

June 12, 2014: Resolution 14-50 Approval of final design; Authorization to solicit bids for construction; and Approval of permit 14-208

July 31, 2014: Resolution 14-085 Rejection Rejecting Bids for Construction of Phase 1 of Cottageville Park in Favor of Completing Design for Phase 2 and 3 Reissuing the Request for Bids

December 2, 2014: City Council Action to approve new final project design and solicitation of bids for construction

December 11, 2014: Resolution 14-101 Approval of final design and authorization to solicit bids for Cottageville Park, phase 1

January 29, 2015: Resolution 15-005 Authorization to Award Bid for Construction of Cottageville Park Phase 1 Project and to Enter Into Construction Oversight Contracts

SUMMARY:

In 2010, in response to the City of Hopkins, MCWD purchased 427-429 Blake Road, 415 Blake Road, 1303 and 1305 Lake Street and entered into a cooperative agreement with the City to naturalize and stabilize the creek channel, provide regional stormwater treatment to address the Minnehaha Creek and Lake Hiawatha TMDLs, restore the riparian ecosystem, expand and develop the park, and integrate community park amenities with the riparian system for public recreation and education purposes. As part of the agreement, with MCWD approval authority over design elements, Hopkins agreed to fund the design, construction and maintenance of Cottageville Park as well as regional stormwater management facilities to be constructed in part on MCWD land. Pursuant to the agreement, the City will maintain its own park property as well as the stormwater management facilities located on MCWD land. The MCWD will maintain the native vegetation, riparian buffer zone improvements and signage on its land.

The regional stormwater management system treats 22.1 acres of stormwater that drains to Minnehaha Creek. Paragraph 19 of the cooperative agreement states that with input of the MCWD and Hopkins engineers, the MCWD Board of Managers will determine the pollutant load reduction resulting from the project. On the basis of relative contributions to the costs of stormwater management improvements, the MCWD will receive credit for 68% and Hopkins will receive credit for 32% of the pollutant load reduction for the purpose of meeting load allocations in the MDWD's watershed plan as well as any other water quality related purpose. The attached Memorandum dated July 7, 2016 from Wenck Associates summarizes the pollutant load reduction resulting from the project.

August 17, 2016 Oxford Green, LLC applied for a MCWD Erosion Control and Stormwater Management permit for the redevelopment of 6 parcels for a 51 unit housing complex adjacent to Cottageville Park located at the intersection of Blake Road and Oxford Street in the City of Hopkins. MCWD staff have deemed the application complete and on December 2, 2016 Permit 16-455 was issued for Erosion Control for the demolition.

To meet the District's Stormwater Management Rule the applicant has proposed an on-site BMP and the City of Hopkins has negotiated the sale and transfer of a large portion of their stormwater credits to offset District Stormwater Rule requirements for rate, volume and abstraction. MCWD Stormwater Rule, Paragraph 7: Regional Stormwater Management requires District approval of a regional subwatershed plan which provides for an annual accounting to the District of treatment capacity created and utilized by projects within the drainage and treatment area of the plan and the facility must be subject to a maintenance document satisfying the requirements of section 11: Maintenance. A memorandum dated January 19, 2017, from Wenck Associates specifies Operations, Maintenance and Monitoring Recommendations for the Cottageville Park, Phase 1 Stormwater Treatment System. The memo is incorporated by reference to the December 27, 2016

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Draft Regional Stormwater Management Plan from the City of Hopkins. The effectiveness monitoring recommended in the January 19, 2016 Operations and Maintenance Memorandum is not required of the City through existing cooperative agreements. Wet weather grab sampling estimated to cost \$3,000 annually is recommended to be implemented by the District beginning in 2017.

ATTACHMENTS:

1. **Wenck Technical Memo, July 7, 2016: Cottageville Park Abstraction Credits**
2. **City of Hopkins Memorandum, December 27, 2016: Cottageville Park Regional Stormwater Management Plan**
3. **Wenck Technical Memo, January 19, 2017: Operations, Maintenance and Monitoring Recommendations for Cottageville Park, Phase1 Stormwater Treatment System**
4. **Draft City of Hopkins resolution to adopt a regional stormwater plan and transfer of stormwater credit from the Cottageville Park Stormwater Management System to Project for Pride and Public Living, LLC.**

RESOLUTION

RESOLUTION NUMBER: 17-XXX

TITLE: Approval of the City of Hopkins Regional Stormwater Plan for the stormwater facility at Cottageville Park and approval of an easement affording Hopkins all rights necessary to meet its inspection and maintenance obligations for the Cottageville Park stormwater management system.

- WHEREAS, the Minnehaha Creek Watershed District (MCWD) has adopted a *Comprehensive Water Resources Management Plan (WRMP)* in accordance with Minnesota Statutes §103B.231;
- WHEREAS, the District's *Water Resources Management Plan* includes a Land Conservation Program;
- WHEREAS, the District's *Water Resources Management Plan* established Minnehaha Creek as a key conservation area with goals of collaborating to create and preserve natural stream corridors, provide buffers, supplement other program activities, increase stormwater runoff abstraction, provide flood control, and promote public education and access;
- WHEREAS, the Board of Managers adopted a policy "In Pursuit of a Balanced Urban Ecology in the Minnehaha Creek Watershed District" to guide the MCWD's planning and watershed management activities, integrating its water resource implementation efforts with urban planning, through innovation, partnership and a sustained geographic focus;
- WHEREAS, the Minnehaha Creek/Lake Hiawatha Total Maximum Daily Load Study identified the area between West 34th Street and Meadowbrook Lake as generating the highest pollutant load per unit area when compared to other reaches of Minnehaha Creek;
- WHEREAS, the MCWD established the area between West 34th Street and Meadowbrook Lake as a priority area for capital project improvements, aimed at stormwater improvement and streambank restoration;
- WHEREAS, the WRMP provides that the Land Conservation Program will help accomplish these goals by connecting or expanding existing public lands, undertaking a restoration project, or by leveraging redevelopment opportunities, and further provides for capital spending within the Minnehaha Creek corridor (e.g., 5.8.2 and 5.8.5) to restore streambank stability and reduce stormwater volumes and nutrient loading to the creek, including construction of infiltration basins and devices, wetland restoration, reforestation, vegetation, and stormwater detention;
- WHEREAS, in 2010 the District under the Land Conservation Program budget acquired fee title to properties at 415 Blake Road, 1303 and 1305 Lake Street NE, and 427-429 Blake Road ;
- WHEREAS, in September 2010 the Board of Managers approved a Cooperative Agreement with the City of Hopkins to coordinate corridor improvements, including the city's design and construction of a stormwater treatment facility on the District's properties; integrated park improvements to those properties and the adjoining Cottageville Park; and further cooperation to expand public benefits within the purposes and powers of each partner, including economic and housing development, public facilities and water resource protection and conservation;

WHEREAS, in April 2014 the Board of Managers approved an amendment to the Agreement revising the roles and responsibilities of the City and District with respect to the design, construction, maintenance and funding of the improvements, in summary, allowing for the District to design and construct the improvements and for the City to reimburse the District for those costs not covered by grand funds;

WHEREAS, pursuant to paragraph 16 of the first amendment of the Agreement, Hopkins will maintain the facilities in perpetuity in accordance with Exhibit A of the Agreement and applicable requirements of its municipal stormwater system (MS4) permit;

WHEREAS, pursuant to paragraph 18 of the first amendment of the Agreement, when the water resource improvements are complete, the MCWD will deliver to Hopkins and easement for filing in county land records affording Hopkins all rights necessary for it to meet its inspection and maintenance obligations under paragraph 16;

WHEREAS, On August 17th, 2016 Oxford Green, LLC applied for a MCWD Erosion Control and Stormwater Management permit for the redevelopment of 6 parcel located at the intersection of Blake Road and Oxford Street in the City of Hopkins;

WHEREAS, the Oxford Green, LLC project is located within the drainage area treated by the regional stormwater management system in Cottageville Park constructed as part of the September 2010 Cooperative Agreement as amended in 2014;

WHEREAS, the Technical Memo from Wenck Associates dated July 7, 2016 determines the pollutant load reduction resulting from the project;

WHEREAS, paragraph 19 of the Agreement assigns 68% pollutant load reduction credit to MCWD and 32% to Hopkins for the purpose of meeting load allocations in the MCWD's watershed plan as well as any other water quality related purpose;

WHEREAS, Hopkins has negotiated the transfer stormwater credits to Oxford Green LLC for the purpose of meeting MCWD Stormwater Rule requirements;

WHEREAS, MCWD Stormwater Rule paragraph 7 allows the applicant to comply with this rule provided there is an approved regional subwatershed plan which provided for annual accounting to the District of treatment capacity created and utilized by projects within the drainage area and that there is a maintenance plan in place in accordance with paragraph 11;

NOW, THEREFORE, BE IT RESOLVED that the MCWD Board of Managers hereby approves Hopkins Regional Stormwater Plan for the stormwater facility at Cottageville Park pursuant to MCWD Stormwater Rule, paragraph 7.

BE IT FURTHER RESOLVED that the MCWD Board of Managers authorizes the Board President to execute a an easement affording Hopkins all rights necessary to meet its inspection and maintenance obligations pursuant to the Cooperative Agreement between MCWD and the City of Hopkins Cottageville Park Stormwater Management and Park Improvement Project as amended.

Resolution Number 17-XXX was moved by Manager _____, seconded by Manager _____.
Motion to adopt the resolution _____ ayes, _____ nays, _____ abstentions. Date: __.

Secretary Date: _____

Technical Memo



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To: Renae Clark, *Planner & Project Manager*, Minnehaha Creek Watershed District
From: Erik Megow, Wenck Associates, Inc.
CC: Chris Meehan, Wenck Associates, Inc.
Date: July 7, 2016
Subject: Cottageville Park Abstraction Credits

This memo summarizes stormwater treatment provided by the Cottageville Park underground filtration BMP.

Constructed in the summer of 2015 Cottageville Park is a community park which was also designed to provide regional stormwater treatment. The project was a joint project between the City of Hopkins and the Minnehaha Creek Watershed District (MCWD). Associated stormwater benefits achieved through the project were allocated 32% to the City of Hopkins and 68% to MCWD.

Stormwater routed to the site is treated through the use of underground storage in conjunction an iron-sand filter before discharging to Minnehaha creek. The underground storage is located under the open lawn area in the park allowing for access for future maintenance. The watershed that is directed to park is 22.1 acres and is 58% impervious (12.3 ac). Figure 1 shows the watershed directed to the Cottageville Park.



Figure 1. This figure shows the Cottageville BMP contributing watershed and areas.

Stormwater benefits achieved by the project include rate control, phosphorus removal and volume abstraction through filtration.

In regards to rate control the project provides rate control for the entire watershed with existing landuse through the implementation of the BMP. Assignment of the reductions was based on the decrease in flow and the associated benefits assignment.

Table 1. Rate Control Summary

Storm Event (Yr)	Pre Project (cfs)	Post Project (cfs)	Reduction (cfs)	Rate Control Credit	
				MCWD (68%) (cfs)	Hopkins (32%) (cfs)
2	14.2	8.6	5.6	3.8	1.8
10	22.1	17.7	4.4	3.0	1.4
100	38.1	35.6	2.5	1.7	0.8

The Park removes 25 of the 28lbs (89%) of phosphorus produced by the contributing watershed (1.5-inch event). Table 2 provides a breakdown of the phosphorus load reductions and credit assignments.

Table 2. Phosphorus Removal Summary

	Pre Project (lbs)	Post Project (lbs)	Reduction (lbs)	Phosphorus Credit	
				MCWD (68%) (lbs)	Hopkins (32%) (lbs)
Phosphorus Load (lbs)	28	3	25	17	8

The BMP is designed to filtrate the first 0.46 ac-ft of runoff from the direct watershed. Filtration is given a 50% credit according to the MCWD rules resulting in the project having an abstraction credit equivalent to 0.23 ac-ft. This abstraction credit is equivalent to the treatment of 2.76 ac of eligible impervious. Table 3 provides a summary of the abstraction provided and the assigned benefits.

Table 3. Abstraction Summary

	Abstraction Volume (ac-ft)	Filtration Volume (ac-ft)	Impervious Surface Treatment (ac)
Project Overall	0.23	0.46	2.76
MCWD (68%)	0.16	0.32	1.92
Hopkins (32%)	0.07	0.14	0.84

As shown in all the tables there are credits in rate, phosphorus reduction and abstraction that can be assigned to future land use changes in the watershed for each partner.

In summary the project provides a significant stormwater benefit to Minnehaha Creek and will serve as critical piece of infrastructure in managing stormwater from this watershed into the future.

Memorandum

To: Minnehaha Creek Watershed District
CC: Mike Mornson, City Manager
From: Nate Stanley, City Engineer
Date: December 27, 2016
Re: Cottageville Park Regional Storm Water Management Plan

The City of Hopkins has collaboratively worked with the Minnehaha Creek Watershed District (MCWD) to expand and revitalize Cottageville Park over the last few years. As part of the effort, an underground storm water treatment system was constructed in the park to capture storm water that previously flowed to Minnehaha Creek untreated. As a result of the project, a storm water benefit credits for Rate, Volume, and Phosphorus control were assigned to the City of Hopkins.

The benefit assigned to the City is explained in a Technical Memorandum prepared by Wenck Associates, dated July 7, 2016 which calculates the stormwater treatment credits that the City can use to meet permitting requirements on future improvements. Table 1 provides the Rate Control credit available from the system, Table 2 provides the Abstraction Volume credit available from the system, and Table 3 provides the Phosphorus Removal credit available from the system. The catchment areas within which development can utilize the system's treatment capacity are delineated in Figure 1 of the document. The document is attached to this memorandum and shall serve as a reference in regards to credit calculation.

The City can either apply available credits to public improvement projects or transfer the credits to private parties to facilitate redevelopment. In either case the City and MCWD need to have a system in place to track credit usage to keep tabs on the total amount of credits available, knowing where and what credits have been applied to, and provide documentation of usage to meet MCWD permitting requirements.

To officially transfer credits the City Council will need to approve by resolution. A copy of the resolution specifying the amount of credits and details of what they are being used for will be furnished to the MCWD to serve as an official record of the transfer. The City and MCWD will keep a file to track credit usage and any remaining balance for a specific storm water benefit credit held by the City. The City will provide an annual accounting of treatment capacity utilized by projects or land-disturbing activities within the catchment area of the treatment system. Compensation for transfer of storm water treatment credits between the City and a private party will be negotiated between said parties.

The underground storm water treatment system will be maintained by the City of Hopkins in accordance with the attached Operations, Maintenance, and Monitoring Recommendations included as part of the Cooperative Agreement for the Cottageville Park Stormwater Management and Park Improvement Project between the City and MCWD. As a part of this Agreement, the MCWD will provide the easement necessary for the City to perform this maintenance.

Technical Memo



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To: Renae Clark, Planner - Project Manager
Minnehaha Creek Watershed District

From: Mike Panzer, PE, Wenck Associates, Inc.

Date: January 19, 2017

Subject: Operations, Maintenance and Monitoring Recommendations for Cottageville Park,
Phase 1 Storm Water Treatment System

The storm water treatment system collects and temporarily stores runoff from a 1-inch rainfall in an underground pipe gallery. The stored water is pre-treated by four sump/baffle manholes design to collect grit and debris. The pre-treated water is stored in the pipe gallery, which is headered to a 60-inch diameter HDPE pipe. The header pipe contains a sand/filter media containing 5% iron particles by weight. The filtered water is collected by an 8-inch diameter perforated drain pipe and discharged at a slow rate to Minnehaha Creek via a low-profile outlet with a stone veneer. Overall, the system reduces peak runoff rates, treats raw storm water and removes significant fractions of sediment, debris, Total Phosphorus and ortho-phosphorus. To maintain treatment effectiveness, regularly scheduled maintenance is required along with basic monitoring design to indicate when filter media has lost most of its bonding capability for ortho-phosphorus removal. The balance of this memorandum contains recommendations for maintenance activities and monitoring.

1. Pre-treatment System

Cleanout Manhole Nos. 1, 2, 3 and 5 include a baffled sump. The baffle breaks some of the mass momentum and increases removal of sediment. The sump provides sediment storage for periodic removal. These four manholes should be inspected for sediment accumulation at least once per season, preferably late summer or fall. Accumulated sediment and debris should be removed by a vacuum-truck.

Any damage to the baffle or other structure should be noted for future repair.

Estimated Annual Cost: \$3,000

2. Filtration System

The filter system is contained in a 60-inch diameter HDPE pipe header on the southerly end of the 30-inch pipe gallery. Water drains from the gallery and filters vertically through 12 inches of sand mixed with 5% iron filings by weight and then into a coarse aggregate layer containing an 8-inch perforated PVC pipe. The filtered water drains via the 8-inch perforated PVC to a solid pipe and ultimately to Minnehaha Creek via a low-profile outlet structure. The iron filings provide bonding sites for dissolved phosphorus that otherwise remains in the water. The sand provides a finer degree of sediment removal (and thus phosphorus in particulate form).

The filter will deplete its bonding capacity and sediment will eventually clog the sand. Thus, the filter media should periodically be removed and replaced with fresh sand and iron. Maintenance would involve removing the overburden at each end of the 60-inch diameter header pipe; cutting access holes in the top of the header; mechanically removing the spent filter media, coarse aggregate and perforated pipe; reinstalling the perforated PVC with a protective fabric sock; reinstalling 2 feet of washed sand with 10% iron content by weight; welding accesses shut; replacing the salvaged overburden and repairing any damage to vegetation.

Estimated Cost: \$20,000 per event

3. Monitoring Filtration Effectiveness

The only way to know how well the system is working, and/or estimate when it is time to replenish iron/sand media bonding capacity is to monitor flow coming in and leaving the treatment train. There are a couple options for this and the latter option (wet weather grab sampling) is recommended to avoid significant equipment costs, maintenance, etc.

a. Instrumentation

Install auto-samplers in the four manholes that pass untreated inflow into the system. These would have to be removed each fall and reinstalled each spring. Configure to sample at some interval when there is measurable flow.

Install a flow meter downstream of the 60-inch diameter HDPE header and an auto-sampler in one of the downstream manholes.

The flow-weighted concentrations of the inflow can then be compared to the concentration of the total outflow.

This system would have to be periodically visited by a technician to collect samples, supply near sample bottles, maintain batteries, download flow data, repair any malfunctions, and install/remove equipment. Confined space protocol would apply.

Samples should be initially tested for Total Phosphorus, ortho-P and TSS

Estimated Costs:

Year 1	\$50,000
Year 2-5	\$12,000 annually
Year 6	\$25,000
Year 7-10	\$15,000 annually

b. Wet Weather Grab Sampling

Once or twice a year during a runoff event, a technician would simply grab a discreet sample from each of the four manholes that pass untreated flow and a sample at the outlet of the system. The average inflow concentration could then be compared to the outflow concentration. No dedicated equipment

Rena Clark
Planner – Project Manager
Minnehaha Creek WD
January 19, 2017



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would be used. This would provide a snapshot estimate of performance. If inflow concentrations of ortho-phosphorus are similar to the outflow, it would be a strong indicator to replace the filter media.

Samples should be initially tested for Total Phosphorus, ortho-P and TSS

Estimated Annual Cost: \$3,000

4. Annual Report

An annual report should be written documenting inspections, photos taken, observations made, samples collected, estimate of precipitation distribution of the event sampled, testing results, calculations of flow-weighted concentrations, average concentrations, flow measurement, maintenance performed, volume estimates of sediment and debris removed, and the condition of gallery and header pipes.

**CITY OF HOPKINS
HENNEPIN COUNTY, MINNESOTA**

RESOLUTION NO. 2017-XXX

**RESOLUTION APPROVING TRANSFER OF CREDIT
FOR STORM WATER ABSTRACTION FROM THE
COTTAGEVILLE PARK STORM WATER MANAGEMENT SYSTEM**

WHEREAS, the City of Hopkins (City) and Minnehaha Creek Watershed District (District) partnered to construct an underground storm water treatment system in Cottageville Park, and

WHEREAS, construction of the system created a storm water abstraction benefit credit for each party that can be used or transferred to other parties to satisfy District storm water permitting requirements, and

WHEREAS, a Technical Memorandum prepared by the District engineer, Wenck Associates, Incorporated dated July 7, 2016 calculates the total storm water rate control, volume control, and phosphorus removal benefit for the City and the District, and

WHEREAS, the City has negotiated with Project For Pride in Living, LLC (PPL) to transfer 2,679 cubic feet of storm water abstraction credits and 0.25, 0.27, and 0.26 CFS rate control credits for the 1-, 10-, and 100- Year storm events respectively for their use to satisfy District storm water permitting requirements for the Oxford Village project, and

WHEREAS, as compensation for the storm water abstraction credits PPL will pay the City \$66,841.05,

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Hopkins, Minnesota:

The Mayor and City Manager are hereby authorized to approve the transfer of storm water abstraction credits owned by the City to PPL.

Adopted by the City Council of the City of Hopkins, Minnesota, this 7th day of February, 2017.

By _____
Molly Cummings, Mayor

ATTEST:

Amy Domeier, City Clerk