



Title: Directing Public Hearing to Consider Ordering the Morningside Stormwater Improvement Project

Resolution number: 25-012

Prepared by: Name: Rebecca Neal
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Reviewed by: Name/Title: Becky Christopher, Policy Planning Director
Name/Title: Charles Holtman, District Legal Counsel

Recommended action: Directing public hearing for the Board's consideration of ordering the Morningside Stormwater Improvement Project

Schedule: February 13, 2025: Public Hearing, project ordering, and 2025 budget amendment
February 27, 2025: Approval of Funding Agreement
March 2025: City completes tree removal
May/June 2025: Construction start by City

Budget considerations: N/A

Past Board action: Res # 23-045: Approval of Agreement with Medina for Watershed-Based Implementation Funding for Morningside Project
[Res #23-073](#): Adoption of the Land & Water Partnership Program

Summary

Program Background

The Minnehaha Creek Watershed District (MCWD or District) is focused on the protection and improvement of natural resources in ways that support thriving communities. Since what happens on the land is the primary driver of the health of our natural resources, MCWD's Balanced Urban Ecology Policy (BUE Policy) recognizes that the District can deliver the most value to its communities by working in partnership with those who change the landscape. Since adopting its BUE Policy in 2014, and building its 2017 Watershed Management Plan (WMP) around the same principles, MCWD outlined its intention to remain responsive to opportunities created through land use change.

The [Land and Water Partnership \(LWP\) program](#) is designed to provide technical and financial resources to support partner-led projects that provide significant, regional water resource benefit. MCWD operates the program in a way that supports its principles of focus and flexibility outlined in its 2017 WMP, by maintaining focus on high-impact projects and ensuring the flexibility to develop creative partnerships and respond to partner opportunities.

Unlike a typical cost-share or grant program, the LWP program is designed to promote early coordination and collaborative project development. The program has an orderly process for partners to coordinate during concept development so that prioritized projects can be integrated into MCWD's budgeting process and Capital Improvement Plan (CIP) for funding. This process includes annual deadlines to submit a Notice of Interest to request support at feasibility and then at the implementation stage. Projects can also be considered outside of the program's annual

schedule when an opportunity needs to move forward more quickly. The District provides this option to partners in order to offer flexibility and service based on unique project needs.

Project Background

The Morningside Stormwater Improvement Project (project) opportunity was identified by the City of Medina (City) in 2022 and includes constructing a regional stormwater pond to treat approximately 76 acres of land and stabilizing three eroding ravines. The project is located within the Painter Creek Subwatershed, and runoff from these 76 acres drains to Lake Katrina, before ultimately discharging to impaired Jennings Bay (See Attachment 1). The initial concept design estimated a total phosphorous (TP) reduction of 30 pounds. The landowner of the property where most of the work is planned (1225 Maplewood Dr.) is proposing to subdivide his lot into three parcels and would also like to see the ravine erosion addressed. He has granted an easement to the City for the project.

MCWD serves as the convener for the Board of Water and Soil Resources' (BWSR) Watershed-Based Implementation Funding (WBIF) program and helps coordinate with partners in the watershed to identify project opportunities for funding through this state grant. In late 2022, the City of Medina submitted the project for consideration, and MCWD helped secure \$243,200 in WBIF funding and serves as the grant administrator. The City has committed \$180,000 for the project, totaling \$423,200 in secured funding.

In October 2023, the City completed a feasibility study and anticipated funding the project solely through WBIF and City funds. In July 2024, the City initiated design and re-engaged the District. After MCWD reviewed the feasibility study and provided guidance on permit requirements, the City applied for MCWD permits in September 2024.

Notice of Interest Submittal

As the City worked through the design process and refined its cost estimates, it identified that an additional \$100,000 would be needed for the project. The City submitted a Notice of Interest under the LWP Program on October 29, 2024, requesting funding support of \$100,000 in order to close this funding gap. The proposal at that time involved stabilizing one of the ravines as an open channel and placing the two other ravines into pipes. MCWD's [Waterbody Crossings & Structures Rule](#) is designed specifically to steer projects away from piping channels and prioritizes open channel stabilization alternatives. Since the City's goal is to begin tree removal in early 2025 and construction in May 2025, staff have coordinated closely with the City within an expedited timeframe to clarify the basis of the different design choices and develop alternatives in order to assess the proposal for MCWD rule conformance as well as for potential LWP funding eligibility.

Following a site visit and frequent coordination among the City, MCWD Permitting, Policy Planning, and the District Engineer, the District determined it would be feasible to maintain all three ravines as open channels and that this should be pursued as the minimal impact alternative. As staff worked with the City to refine the design, the City identified that an open channel design would require an additional cost increase to reinforce the main channel with sheet piles. On December 19, 2024, the MCWD Board of Managers reviewed this design in the Policy & Planning Committee (PPC) meeting and expressed its general support for the project while also emphasizing their desire to maintain all three ravines as open channels if possible, and to evaluate potential to reduce costs including assessing the need for sheet piling.

On December 30th, the City submitted their most recent project proposal, which includes a new design that stabilizes all three ravines as open channels, but still relies on sheet piling to reinforce a series of check dams in the main channel, a strategy which the City views as important for long-term stability (See Attachment 2). The City submitted a revised request for \$280,000 (39.5% of the total project cost) of LWP funding to close this increased funding gap. The project is estimated to achieve a TP load reduction of 36.1 lbs, including 14.6 lbs from the stormwater pond and 21.5 lbs from the ravine stabilization. The City would be responsible for all maintenance of the pond and stabilized channels.

Evaluation and Recommendation

Under the LWP program, staff have been evaluating requests for funding using the following four criteria categories, consistent with the [program implementation guidance](#): resource need, project benefits, cost effectiveness, and strength of the partner's coordination. Staff evaluated the City's request by applying these criteria, and then vetted the project through a cross-departmental team to inform the recommendation to the Board of Managers. The District Engineer has

reviewed the submittals and verified that the project is feasible and the water quality calculations and cost estimates provided by the City are reasonable (See Attachment 3).

MCWD staff have had several meetings with the City to advise and steer the design toward a proposal that meets MCWD rules and can be a potential candidate for LWP funding, and the City has been cooperative and receptive to feedback. Staff see value in this partnership and the project as it provides a significant amount of regional treatment in one of the District's focal geographies, and demonstrates the value of collaboration to develop the best design for the site to achieve multiple goals. The project's cost-benefit for a 25-year lifecycle is estimated to be \$1,149 per pound of TP removed each year and is well within the cost effectiveness range recommended by the District Engineer (\$500-\$2,000 per pound of TP removed annually). In addition, the TP removal for this project would be the largest yet of any project funded by the LWP program, and is similar to District-led projects such as the Arden Park Restoration and the East Auburn Pond Retrofit projects.

Based on staff's evaluation of the project, the Board's feedback at the December PPC meeting, and the City's work to update its design in line with the District's feedback, staff's recommendation is to provide LWP funding support of up to \$200,000 (28.2% of the total project cost).

The recommendation to fund part, but not all, of the City's request stems from coordination among MCWD staff, the District Engineer, and the City regarding the sheet piling, which accounts for \$170,000 of the \$280,000 funding request. The District Engineer has advised that the level of sheet piling proposed is likely not necessary for the long-term sustainability and effectiveness of the project. Staff have discussed this recommendation with the City, and the City indicated it can likely refine the design to reduce the amount of sheet piling needed. In order to allow the project to stay on schedule, the City and District agreed to proceed with Board review and request for a public hearing while the City finalizes their design.

Requested Action

The District may not commit levy funds to the Project until it has provided for a public hearing; considered the views of the District engineer, staff, and public; and formally ordered the project. In addition, District funding would be contingent on the Board's approval of an agreement with the City establishing terms and conditions for use of funds. Finally, because construction is proposed to occur in 2025, District support would require a budget amendment with funds coming from the District's Capital Finance fund.

Therefore, to initiate this process, staff are requesting that the Board direct the Administrator to notice a public hearing to consider ordering the Morningside Stormwater Improvement Project.

Supporting Documents

Attachment 1: Project Overview Map

Attachment 2: Proposed Site Plan

Attachment 3: District Engineer's Technical Memo



RESOLUTION

Resolution number: 25-012

Title: Directing Public Hearing to Consider Ordering the Morningside Stormwater Improvement Project

- WHEREAS, the Minnehaha Creek Watershed District (“District”) Watershed Management Plan (WMP), adopted pursuant to Minnesota Statutes §103B.231, outlines its intention to respond to opportunities created through land use change by means including opportunity-based projects, to target reduction of stormwater volume and nutrient loads to District surface waters;
- WHEREAS, to operationalize this commitment, the District developed the Land & Water Partnership (LWP) program, which offers technical and financial resources to partner-led projects based on a set of evaluative criteria and establishes an orderly process for such projects to be integrated into the District’s Capital Improvement Plan (CIP);
- WHEREAS, on November 27, 2023, by Resolution 23-073, the Board of Managers (“Board”) adopted the LWP program and directed that the program commence on January 1, 2024;
- WHEREAS, the City of Medina (“City”) has applied to the program, seeking financial assistance of \$280,000 to support implementation of the Morningside Stormwater Improvement Project (“Project”) to stabilize three eroding ravines and construct a stormwater pond to reduce total phosphorus (TP) loads to Jennings Bay;
- WHEREAS, District staff have evaluated the City’s request using the LWP program evaluation criteria, and recommends that the District contribute funding of \$200,000 for the Project’s construction (approximately 28 percent of eligible Project cost);
- WHEREAS, the District Engineer has reviewed the December 30, 2024 LWP – Morningside Stormwater Improvement Project Permit Application and Notice of Interest prepared on behalf of the City, as well as cost estimates provided by the City, and advises that the benefits assessment and cost estimate for the Project are reasonable;
- WHEREAS, certain matters remain outstanding before the City may determine that it is prepared to construct the Project, including finalizing design elements;
- WHEREAS, the Board has considered the unique timeline of the project and provided guidance to MCWD staff regarding the design, costs, and goals for the site;
- WHEREAS, the Board finds, on the basis of the recommendation and conclusions of District staff and the District Engineer, that it is appropriate to proceed toward consideration of Project ordering while the City progresses in its final Project development steps;
- WHEREAS, the District may not commit funds derived from *ad valorem* levy to the Morningside Stormwater Improvement Project until it has provided for public hearing; considered the views of the District engineer and staff, and comments provided; and formally ordered the project, all pursuant to Minnesota Statutes §103B.251;

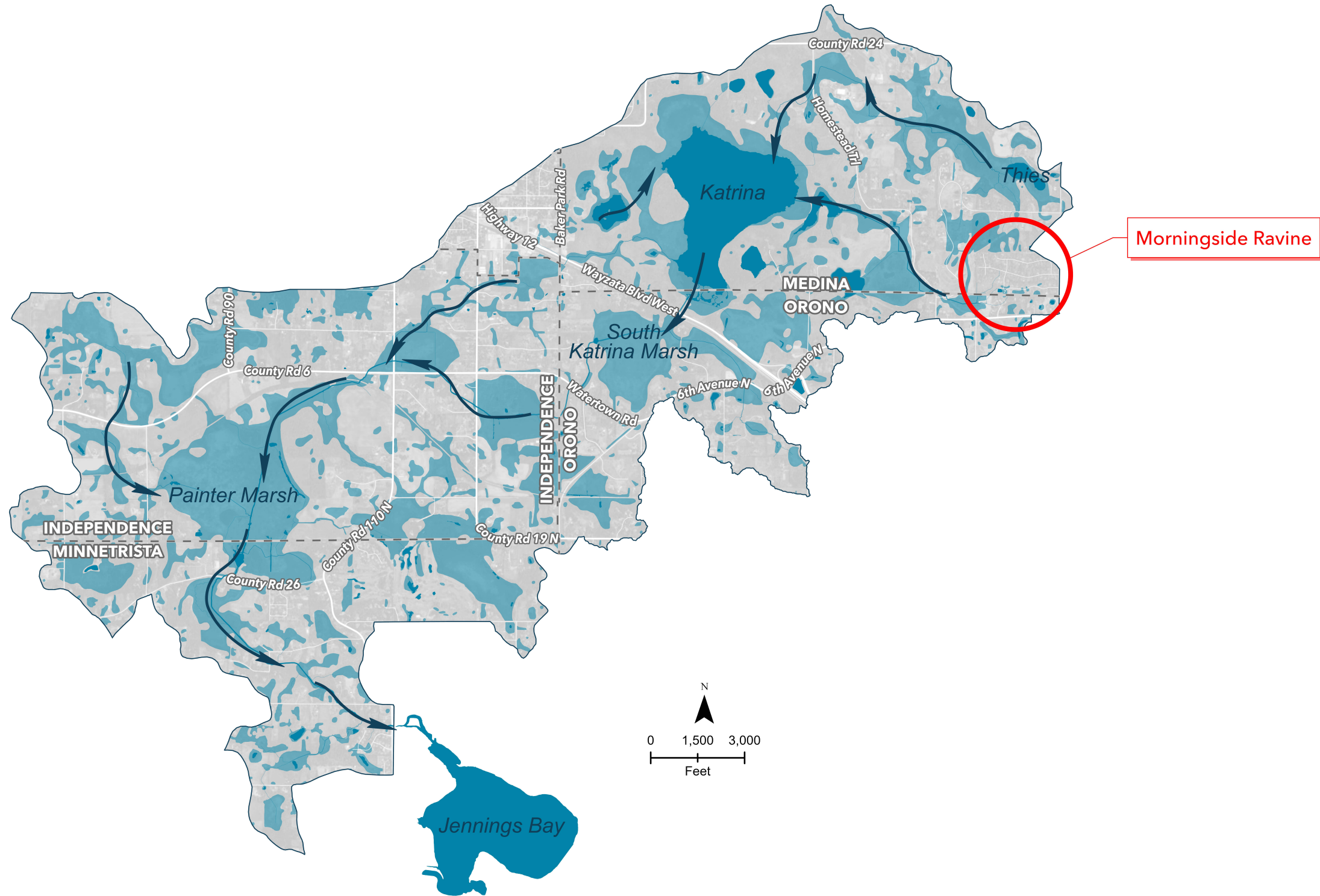
WHEREAS, in addition, District funding would be contingent on the Board's approval of an amendment to the 2025 budget and of an agreement with the City establishing terms and conditions for use of funds;

NOW THEREFORE BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers authorizes the District Administrator to notice a public hearing for the Board's consideration of ordering the Morningside Stormwater Improvement Project, in accordance with Minnesota Statutes §103B.251; and;

BE IT FURTHER RESOLVED that Board ordering of the Project and approval of LWP funding remains subject to conditions including finalizing certain design elements, amendment of the 2025 budget, and a Project funding agreement between the City and the District.

Resolution Number 25-012 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: 1/23/2025

Secretary Date: _____



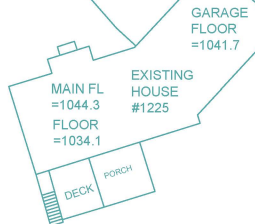
C:\ACCT\CDOS\WSB\025676-000\Project Files\CD\Plan\025676-000-C-GEN LAYOUT PLAN.dwg 1/9/2025 11:11:07 AM

CLEAN UP INITIAL SPILLWAY AND ADD RIPRAP AS DIRECTED BY THE ENGINEER

EXISTING DRAINAGE & UTILITY EASEMENT

1245 MAPLEWOOD DR

CONTRACTOR TO PLACE COMMON BORROW AND CL III RIPRAP PER DIRECTION OF THE ENGINEER TO RESTORE ERODED SLOPES



1225 MAPLEWOOD DR

EXISTING DRAINAGE & UTILITY EASEMENT

EXISTING LOT LINE

EXISTING 36" CMP

COVER PIPE WITH 1" OF COMMON BORROW

TEMPORARY CONSTRUCTION EASEMENT

FUTURE LOT LINE

RIM: 1015.59

SEPTIC MOUND

SEE SHEET PILING WEIR DETAIL ON SHEET 10

30 CY CL IV RIPRAP

FUTURE HOUSE PAD LFE MIN: 996.20

SHEET PILING WEIR. SEE DETAIL. TEMPORARY CONSTRUCTION EASEMENT

EXISTING DRAINAGE & UTILITY EASEMENT

EXISTING POND

OCS RIM = 1006.94 INV = 1002.32 (18" RCP) INV = 1002.59 (9" RCP) INV = 1004.57 (WEIR)

EXISTING OCS 5005 (INV=1002.32) AND MAINTAIN EOF ROUTE AT 1007.90 AND GRADE TO DRAIN TO PROPOSED POND

FUTURE WATERLINE

FUTURE SANITARY SEWER LINE

CONTRACTOR TO PLACE/STOCKPILE 4,000 CY OF CLEAN FILL AS DIRECTED BY ENGINEER. GRADE WITH SMOOTH TOP/SIDES, INCIDENTAL TO GRADING PAY ITEMS.

TEMPORARY CONSTRUCTION EASEMENT UP TO CONSTRUCTION LIMITS

FUTURE ROAD

FUTURE WATERLINE

FUTURE SANITARY SEWER LINE

FUTURE RIGHT OF WAY

AREA OF ENVIRONMENTAL SENSITIVITY AND RECEIVING WATERS

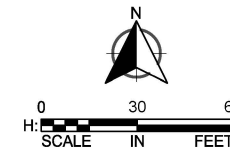
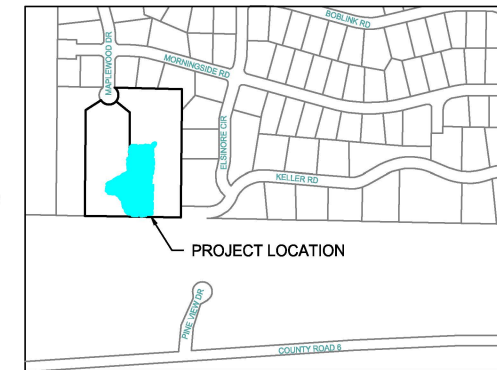
EOF EL=993.0 CL III RIPRAP

38 CY CL IV RIPRAP

EXISTING DRAINAGE & UTILITY EASEMENT

EXISTING LOT LINE

LOCATION



LEGEND

- CONSTRUCTION LIMITS
- PROPERTY LINE
- DRAINAGE AND UTILITY EASEMENT
- DRAINAGE AND UTILITY EASEMENT (TEMP)
- 1019- EXISTING CONTOUR (MAJOR)
- 1018- EXISTING CONTOUR (MINOR)
- 1018- PROPOSED CONTOUR (MAJOR)
- 1018- PROPOSED CONTOUR (MINOR)
- EXISTING STORM SEWER PIPE
- EXISTING STORM STRUCTURE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER STRUCTURES
- PROPOSED FES WITH RIPRAP
- TREE - EXISTING - TO BE REMOVED
- TREE - EXISTING - TO REMAIN
- FUTURE WATERMAIN
- FUTURE SANITARY SEWER
- RIP RAP (CLASS IV)
- RIP RAP (CLASS III)
- MAINTENANCE ACCESS
- CLEAN FILL STOCKPILE & STAGING AREA
- FILL AREA WITH 2' EXCAVATED SEDIMENT

NOTES

- RESTORE ALL POND EDGES AND WOODED AREAS WITH TYPE 33-261 SEED (35 LBS/AC) AND FERTILIZER TYPE 4 (150 LBS/ACRE), CATEGORY 20 ROLLED EROSION PREVENTION PRODUCT SHALL BE INSTALLED ALONG POND EDGES, BUFFERS, AND NON-MOWABLE SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.
- ALL SOILS DISTURBED DURING CONSTRUCTION ACTIVITIES WILL BE STABILIZED FOLLOWING SEED MIXES, FERTILIZER, AND STABILIZING COVER OUTLINED WITHIN THESE PLANS.
- IN THE EVENT THAT RESTORATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY EROSION STABILIZATION BMPs (I.E. HYDROMULCH 3884.B.2) MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME.
- CONTRACTOR RESPONSIBLE FOR THE DAMAGE TO STREETS, CONCRETE CURB AND GUTTER, SIDEWALKS, LAWN IRRIGATION SYSTEMS AND TRAIL.
- DAILY STREET SWEEPING REQUIRED DURING HAULING OPERATIONS.
- ALL STOCKPILES MUST HAVE DOWN GRADIENT PERIMETER SEDIMENT CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES. STOCKPILES TO RECEIVE TEMPORARY STABILIZATION IF UNWORKED FOR 7 DAYS
- DEWATERING/DEICING TO TAKE PLACE PRIOR TO EXCAVATION. ICE IS TO BE STOCKPILED ON SITE AND PUT BACK IN POND FOLLOWING THE EXCAVATION. DEWATERING PLANS MUST BE SUBMITTED AND APPROVED BY THE PROJECT ENGINEER 10 DAYS PRIOR TO PUMPING. PLANS MUST INCLUDE OPERATIONS FOR PREVENTING THE DISCHARGE OF TURBID WATER, AND MUST INCLUDE METHODS FOR CONTROLLING EROSION AND SCOUR.
- CONTRACTOR SHALL PERFORM ALL DEWATERING AND EXCAVATION ONSITE AND OFF OF ROADWAY, AND LOAD AND HAUL OUT USING ACCESS ROUTE.
- CONTRACTOR TO GRADE AROUND EXISTING STORM SEWER STRUCTURES AS DIRECTED BY THE ENGINEER.
- CONTRACTOR TO COORDINATE ACCESS LIMITS WITH THE ENGINEER IN THE FIELD.
- EXISTING GROUND CONTOURS DEVELOPED FROM PRE-DESIGN SURVEY. CONTRACTOR SHALL REMOVE TREES AS NEEDED TO ACCESS SITE AND AS APPROVED BY ENGINEER.
- MANAGEMENT LEVEL 3 INDICATES THAT SEDIMENT IS REGULATED MATERIAL NOT SUITABLE FOR REUSE.
- CONSTRUCTION STAGING IS ALLOWED ON FUTURE HOUSE PADS ON SOUTHERLY LOT.

REVISIONS

NO.	DATE	DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JACOB H. NEWHALL, P.E.
DATE: 12/30/2024 LIC. NO.: 49170

GRADING PLAN

MORNINGSIDE RAVINE STABILIZATION AND STORMWATER IMPROVEMENTS
CITY OF MEDINA

WSB PROJECT NO. 025676-000

SHEET 4 OF 13



SCALE: AS SHOWN
PLAN BY: CKJ
DESIGN BY: SMR
CHECK BY: KF

Reference: Technical Review | Medina, Morningside Ravine Project | Land and Water Partnership (LWP) Program's Notice of Interest Submittals

Reviewed Materials

- “Morningside Ravine MCWD LWP Funding Notice of Interest;” dated December 30, 2024; by WSB
- “Morningside Ravine Stabilization – Opinion of Probable Cost;” dated December 30, 2024; by WSB
- “Morningside Ravine Stabilization – Permit Application Memo;” dated December 30, 2024; by WSB
- “Morningside Ravine Stabilization – Response to Comments;” dated December 30, 2024; by WSB
- “Morningside Ravine Stabilization and Stormwater Improvements Plan Set;” – dated December 30th, 2024; by WSB
- “Morningside Ravine Stabilization and Stormwater Improvements Plan Set;” – dated January 9th, 2025; by WSB

LWP Program Considerations

Project Cost-Benefit

Feasibility level water quality calculations indicated that the project could remove up to 41.5 lb TP/yr. Updated water quality calculations indicate that the project could remove 36.1 lb TP/yr. 5.3 lb TP/yr are required under MCWD rules as a part of the subdivision, leaving 30.8 lb TP/yr as extra regional treatment. An updated Opinion of Probable Cost has been provided to reflect the proposed design as of December 2024. The Opinion of Probable Cost should be updated to include the costs associated with the January 2025 design updates (i.e. the existing pond outlet pipe extension) prior to finalizing funding decisions.

Based on the most recent Opinion of Probable Cost, which reflects the December 2024 design, the construction cost is estimated to be \$524,000 and the total cost, including 10% contingency and \$132,480 in indirect costs (slightly less than 30%), is estimated to be \$708,000. The O&M costs over the 25-year lifecycle of the project are estimated to be \$175,000. Therefore, the estimated lifecycle cost of project is \$883,000 and the cost benefit for the 30.8 lb TP/yr of regional treatment is \$1,149 lb/yr of TP removal.

Drainage Area & Regional Impact Potential

The submittal indicates that the proposed stormwater pond will receive runoff from a 76.2-acre residential drainage area. The submittal indicates that of the 76.2-acre drainage area, approximately 12.2 acres are impervious. Of the 12.2 acres of impervious area, 0.765 acres (0.145 acres of existing impervious and 0.620 acres of proposed future impervious) are directly associated with the proposed subdivision of 1225 Maplewood Drive and related future subdivision access roads. The majority of runoff from the contributing drainage area is untreated except for the approximately 24.8 acres (5.6 acres of impervious surface) already routed to the existing wet pond, located along the eastern tributary. The site drains to an unnamed Manage 1 wetland which drains to Katrina Lake. Katrina Lake discharges to Painter Creek which ultimately drains to Jennings' Bay of Lake Minnetonka.

Reference: Technical Review | Medina, Morningside Ravine Project | Land and Water Partnership (LWP) Program's Notice of Interest Submittals

The system relies on a combination of existing surface drainage, existing pipe drainage, new pipe drainage, and proposed step pools to direct water to the proposed pond.

Drivers of Cost

Per the Opinion of Probable Cost prepared by the City's engineer for the December 2024 design, the most significant driver of cost is the sheet pile(s), followed by excavation associated with the construction of the stormwater pond, followed by streambank stabilization components (slope protection and riprap). An updated Opinion of Probable Cost that reflects the January 2025 design should be reviewed prior to finalizing funding decisions.

Project Longevity

The pond will be added to the City's inventory and will be inspected by City Staff per MS4 requirements. It is anticipated that sediment accumulation will need to be removed every 25 years.

Per the project plans, it appears that the channel stabilization, construction of the step pools, and construction of the stormwater pond will occur within existing drainage and utility easements, except for portions of upland grading and construction of the eastern edge of the settling basin, which will occur within temporary construction easements. The plans indicate that long term maintenance access for the proposed pond has been included in the design. It appears the road extension associated with the proposed subdivision will be utilized for maintenance access to the proposed step pools. However, the plans do not clearly indicate the maintenance access from the proposed road extension to the proposed step pools.

Design Considerations

It is recommended that the following items be incorporated and/or considered:

- Consider design alternatives downstream of the settling basin (located at the end of the existing 36-inch pipe) to reduce the amount of sheet piling required.
- Provide updated H&H Modeling to accurately demonstrate flows out of the settling basin and out of corresponding plunge pools that will require sheet piling.
- Consider the use of non-limestone angular riprap for channel restoration and step pools to increase project longevity.

Regulatory Considerations

This section outlines current understanding of MCWD Rule triggers and provides high-level commentary based on the feasibility study.

The regional water quality project is located on two parcels (Hennepin County PID 2811823130042 and 2811823130041). The regulatory review includes the following scope of project components: streambank stabilization, construction of a regional wet pond, and subdivision of PID 2811823130042 into three parcels (and associated impervious surface improvements consisting of two additional single-family homes and access roads). This regulatory screening is based on the MCWD rules adopted April 11, 2024 and effective April 29, 2024 and is organized by rule.

Reference: Technical Review | Medina, Morningside Ravine Project | Land and Water Partnership (LWP) Program's Notice of Interest Submittals

Stormwater Management

The Stormwater Management Rule is triggered by the proposed subdivision of PID 2811823130042 into three parcels. As a result, MCWD staff have advised that PID 2811823130042 is considered the "site" for review of the Stormwater Management Rule. This project involves a site greater than 1 acre, proposes less than 1 acre of new and fully reconstructed impervious surface, and proposes less than 40% site disturbance. Current submittals indicate that there is about 0.145 acres of impervious surface on the parcel, and that an additional 0.620 acres will be added in the proposed condition. Therefore, the total amount of impervious surface on the site in the proposed condition will be 0.77 acres. This represents an impervious surface change of more than 50 percent on the site. MCWD rules require that volume control from the entire site's impervious surface and rate control must be provided.

The City's intent is for the proposed stormwater pond to provide the volume control and rate control required by the subdivision's impervious surface. Water quality modeling was required to demonstrate the portion of TP removals achieved by proposed pond that will be utilized to meet regulatory requirements for the subdivision (i.e. equivalent TP removals to infiltration of 1-inch over the impervious surface contained within the parcel to be subdivided). 14.6 lbs/yr of TP will be removed by the proposed stormwater pond. 5.3 lbs/yr is required to meet the regulatory requirements. The remaining 9.3lbs/yr of the TP removal will be utilized for regional stormwater treatment benefits.

Hydrologic and hydraulic (H&H) modeling is required for the swale conveying outflows from the existing stormwater pond to the proposed stormwater pond to determine the high-water level within the swale. The high-water level within the swale will be used to demonstrate sufficient freeboard and/or hydraulic disconnection is provided between the existing stormwater pond and the proposed homes.

We recognize the design had been updated to incorporate an open channel which is preferable to a piped channel. When future development occurs, the required 2 feet of vertical separation between the high-water level within the swale and the proposed homes may be achieved via additional fill to raise the surrounding grades, lowering the channel, or constructing a berm along the channel. We recognize these as potential solutions to provide sufficient freeboard which can be decided at a later point.

Stantec has been advised by MCWD that private landowner support for the project is contingent on the City providing stormwater treatment systems that are adequate to satisfy regulatory requirements for the subdivision and associated impervious surface.

Waterbody Crossings & Structures

The Waterbody Crossings & Structures Rule is triggered by the proposal to extend the piped outlet of the existing stormwater treatment pond. The outlet pipe extension will be placed along the eastern tributary. The applicant must demonstrate adequate hydraulic capacity will be maintained and demonstrate no increase in the upstream or downstream flood stage of the watercourse. The applicant must also provide 2 alternatives to the proposed solution and demonstrate why the proposed solution represents the minimal impact solution.

Shoreline & Streambank Stabilization

The Shoreline & Streambank Stabilization Rule is triggered by the proposal to stabilize eroded ravines. The MCWD rule promotes the use of vegetative and bio-engineering solutions, where feasible. The plans have been updated to satisfy rule requirements and bioengineering methods, such as native seed mixes along the top of the slopes and live stakes, have been incorporated into the design. Furthermore, the pipe extension along the ravine has been replaced with a step pool design which includes riprap check dams enforced with sheet pile.

Design with community in mind

Reference: Technical Review | Medina, Morningside Ravine Project | Land and Water Partnership (LWP) Program's Notice of Interest Submittals

Erosion Control

Compliance with the Erosion Control Rule will need to be demonstrated via erosion and sediment control plans. Compliance with this rule is typically determined by MCWD staff.

Other Rules

A Manage 1 wetland is located immediately downstream of the site. Based on review of project plans, it is not expected that the MCWD Floodplain Alteration or Dredging Rules will apply. The proposed drainage directs the impervious surface to the proposed pond and not directly to the wetland. Therefore, the Wetland Protection Rule is not triggered and wetland buffers are not required.

Procedural requirements will apply to the project, but financial assurances will not be required if the project is advanced by the City, as public entities are exempt from financial assurances and fees.

Conclusion

Based on available data, implementation of the proposed streambank stabilization and construction of the proposed stormwater pond is feasible. We have reviewed the anticipated costs and estimated benefits and, in general, find them to be reasonable. We agree with the basis provided for these estimated costs and TP removals. Based on our understanding of the site conditions, we believe the project could succeed with less sheet pile resulting in a lower overall cost. As system design and construction progress, it is recommended that the following be incorporated to increase project success:

- Implement agreements for system operations and maintenance expectations.
- Consider design alternatives to reduce the amount of sheet piling required.
- Provide updated H&H Modeling to accurately demonstrate flows out of the settling basin and out of corresponding plunge pools that will require sheet piling.
- Consider the use of non-limestone angular riprap for channel restoration and step pools to increase project longevity.
- Provide an updated Opinion of Probable Cost to include costs associated with design updates.

It is recommended a cost share be considered in which the City provides funding for the portion of the project that will provide stormwater treatment to meet regulatory requirements. It is also recommended freeboard concerns related to the future homes be addressed because MCWD has advised that private landowner support for the project is contingent upon the City providing stormwater treatment systems that are adequate to satisfy regulatory requirements for the subdivision and associated impervious surface.