

February 7, 2022

Ms. Laura Jester
BCWMC Administrator
Keystone Waters, LLC
16145 Hillcrest Lane
Eden Prairie, MN 55346

Subject: Medley Park Stormwater Improvement Project
City Project 20-26; BCWMC CIP Project ML-12
50% Design Plans

Dear Laura:

Enclosed please find Barr Engineering's correspondence dated February 2, 2022 along with the 50% design plans for the Medley Park Stormwater Improvement Project. These items are being submitted for consideration at the BCWMC meeting scheduled for February 17, 2022.

Please call me at 763-593-8034 if you have any questions regarding the enclosures.

Sincerely,



Jeff Oliver, P.E.
City Engineer

Enclosures

C: Eric Eckman, Environmental Resources Supervisor

February 2, 2022

Mr. Jeff Oliver, P.E., City Engineer
City of Golden Valley
7800 Golden Valley Road
Golden Valley, MN 55427

**Re: 50% Design Plans - Medley Park Stormwater Improvement Golden Valley Project 20-26,
BCWMC CIP project ML-12**

Dear Mr. Oliver:

Attached please find the 50% design plans for the Medley Park Stormwater Improvement project. The project (BCWMC CIP project ML-12) will be funded by several sources including the Minnesota Board of Water and Soil Resources (BWSR) Clean Water Fund Grant, the BCWMC's ad valorem levy (via Hennepin County) for CIP projects, and funding from the City of Golden Valley. Per the cooperative agreement between the City of Golden Valley and the BCWMC, the city is to construct the project, and the plans and specifications are subject to approval by the Commission. Also, per the agreement, the 50% design plans for this project must be submitted to the BCWMC for review and approval. If the attached 50% plans meet the city's approval, we recommend submitting them, along with this letter, to the BCWMC for inclusion in the meeting packet for their February 17, 2022 meeting. Barr staff will present the 50% plans to the BCWMC at the meeting and answer any questions from the BCWMC.

The remainder of this letter presents information about the feasibility study, the design features of the project, and approval/permitting needs.

Feasibility Study Summary and Selected Project

The BCWMC's *Medley Park Stormwater Treatment Facility Feasibility Study* (Barr Engineering, June 2021) examined the feasibility of three different concepts for stormwater improvements in the western portion of Medley Park, owned by the City of Golden Valley. The three conceptual designs evaluated during feasibility all included stormwater runoff diversion from existing stormwater infrastructure and investigated various layouts of stormwater ponds, biofiltration basins, and Medley Pond expansion/ dredging to balance flood storage management and water quality treatment. This project will reduce flood elevations within Medley Park and surrounding neighborhoods (i.e., Kings Valley townhomes) and increase pollutant removals from watershed runoff, which ultimately drains to Medicine Lake.

The feasibility report recommended the implementation of Concept 3, which consists of creating a design that maximizes flood storage volume, while providing pollutant removal through the addition of two stormwater ponds and the expansion and dredging of the existing Medley Pond. The additional flood volume provided by the stormwater ponds is approximately 8.3 acre-feet.

The feasibility report estimated that project implementation (Concept 3) would reduce the 25-year peak flood elevation within Medley Park and the neighborhood south of Medley Park by 0.6 feet, eliminating the risk of

flooding of all at-risk homes for the 25-year storm event (predicts the removal of 6 at-risk structures from flooding). The reduction of the 50-year (0.6 feet) and 100-year (0.5 feet) peak flood elevations results in the removal of 5 and 3 at-risk structures, respectively. During the feasibility study, we estimated at-risk low opening elevations based on LiDAR.

The concept would reduce the annual total phosphorus load to Medicine Lake by 17.0 pounds per year. Additionally, the concept would restore approximately 1.1 acres of wetland and prairie habitat in Medley Park along with 1.5 acres of restored open water area.

At their June 2021 meeting, the Commission approved the final feasibility study for this project, supporting implementation of Concept 3, and the Commission ordered the project at their September 2021 meeting. Design began in early October 2021.

Design features – 50% plans

The project design is underway. In addition to comments from the City of Golden Valley staff and the public during the feasibility study, the 50% design incorporates recent comments and direction from City of Golden Valley staff based on the overall design and maintenance needs. The 50% design generally preserved all the components identified as part of Concept 3, with refinements made as part of the final design process. The 50% design plans will also be used to start the permitting process (discussed in the following section).

The table below compares the flood mitigation volume developed, reduction in number of at-risk structures, the increase in total phosphorus removal, restored wetland and prairie areas, and restored open water area, as presented in the feasibility study and the 50% design plans.

	Flood Mitigation Volume Developed	At-Risk Structures (exist/prop) ¹	Additional Total Phosphorus Removal	Restored Wetland and Prairie Area	Restored Open Water Area
Feasibility Study (June 2021)	8.3 acre-ft	25-yr: 6/0 (5/0 after survey) 100-yr: 20/17 (17/11 after survey)	17.0 lb/yr	1.1 acres	1.5 acres
50% Design Plans	8.8 acre-ft	25-yr: 5/0 100-yr: 17/12 ²	16.4 lb/yr	1.2 acres	1.5 acres

¹ In January 2022, eight at-risk structures were surveyed to better define low opening elevations. These eight structures were selected based on proposed flooding depths for the 50-year storm event (less than 0.25' of flood depth). During feasibility, low opening elevations were determined from LiDAR. The existing at-risk structures presented for "50% Design Plans" and those in the parentheses under "Feasibility Study" reflect the results of the survey.

² One of these structures is at-risk during the 100-year event due to a degraded private homeowners association (HOA) pipe downstream of the structure. Once this pipe is repaired by the HOA, the structure will no longer be at-risk for the 100-year event.

The current 50% design results in the removal of one less at-risk structure during the 100-year event than feasibility due to hydrologic timing of the subwatershed peak flows. However, this structure is at-risk during the 100-year event due to a degraded private homeowners association (HOA) pipe downstream of the structure. The city is in the process of notifying the private HOA of this degraded pipe. When the pipe is repaired and pipe

capacity is restored, XPSWMM modeling indicates that this structure is no longer at-risk for the 100-year event under proposed conditions.

Additionally, the current 50% design results in slightly less annual total phosphorus removal (0.6 pounds) due to minor stormwater pond design modifications. These include:

- Increasing the storm sewer culvert diameters between the ponds to address city maintenance concerns, allow for pond equalization, and reduce velocities over the emergency overflow berms between the ponds.
- Slightly decreasing the open water area of the North Pond and Medley Pond and increasing the open water area of the South Pond to address city concerns regarding maintenance and park aesthetic.

To compensate for some of the loss in water quality treatment from feasibility, we increased the normal water depths of the North and South ponds from the feasibility study. In the 50% design, both ponds have depths of 5.5 feet, compared to 5- and 4-foot depths for the North and South ponds in the feasibility study, respectively. The stormwater pond depths were increased to enhance water quality treatment, while avoiding expansion into the programmable areas of Medley Park (e.g., ice skating rink, baseball field). By increasing the water depths from feasibility, the overall water quality volume between the three ponds is greater than the water quality volume of the feasibility study (4.9 ac-ft in 50% design vs. 4.6 ac-ft in feasibility). Additional water quality treatment cannot be achieved without expanding into programmable areas of Medley Park or increasing the depths of the stormwater ponds beyond the natural bottom (elev. 894), which was determined during feasibility through sediment cores. The current modeled TP removal of 16.4 lb/yr is 96.5% of the estimated feasibility removal of 17.0 lb/yr.

Similar to the feasibility study, the main components of the 50% design include:

1. Protecting the pedestrian bridge north of Medley Pond.
2. Diverting the existing stormwater channel into a constructed stormwater pond by constructing a berm at the mouth of the existing channel and installing a 60" culvert that connects the stream diversion to the new stormwater pond. This diversion also includes a protected overflow for when flows exceed the pipe capacity into the North Pond.
3. Dredging Medley Pond to a bottom elevation of 894 ft MSL, landfilling approximately 1,500 cubic yards of contaminated sediment, and expanding Medley Pond to increase the open water area.
4. Constructing two new stormwater ponds (open water areas with wetland fringe) downstream of the stream diversion. Both stormwater ponds have a normal water level at 899.5 ft MSL controlled by the most downstream pipe discharging to Medley Pond.
5. Increasing the total open water area in Medley Park by 1.0 acres from existing conditions through the expansion of Medley Pond and the installation of two new stormwater ponds. The total open water area under 50% design is 1.5 acres.
6. Increasing the total flood mitigation volume by 8.8 acre-feet to a total of 21.8 acre-feet (up to the 100-year flood elevation) through the expansion of Medley Pond and the excavation and regrading of the western portion of Medley Park.

7. Increasing the total water quality volume by 4.6 acre-feet to a total of 4.9 acre-feet through the expansion of Medley Pond and the excavation and regrading of the western portion of Medley Park to include two new stormwater ponds.
8. Restoring a variety of habitat types (wetland, upland prairie, pollinator species) and replanting trees to mitigate the removal of 9 existing trees. The 50% design does not include a restoration plan, but we have begun conversations with city staff regarding tree replacement and relocation.
9. Replacing disturbed trails with a looped, ADA-compliant paved trail above elevation 906 (above the 10-year flood elevation) and around the perimeter of the proposed ponds. There is an emergency overflow across the trail between Medley Pond and South Pond for any instance when the pipe capacity under the trail is exceeded.
10. Using up to 10% of the existing ice-skating rink area to allow for additional flood mitigation volume.

The drawings are at a 50% design stage, which means there are several details yet to be worked out before the design is final and ready for bid. Additionally, the 50% plans will be provided to the residents around Medley Park at a public open house event for review and comment to further inform the 90% design development. Any comments received from the BCWMC will also be addressed in the 90% design drawings.

Approvals/permit requirements

In addition to BCWMC approval of the plans, other permits/approvals will be required for this project, including the following:

- MPCA Construction Stormwater General Permit
- MPCA Guidance for Managing Dredged Material
- Compliance with the Minnesota Wetland Conservation Act (WCA)
- City of Golden Valley Right-of-Way Permit
- City of Golden Valley Stormwater Permit

We anticipate that the permitting process could take 2-3 months. As a result, we will submit the permit applications in mid-April to begin the permitting review process, with the permitting process anticipated to be complete by July 2022. The plan is to post this project for bid in mid-July 2022.

Recommendations

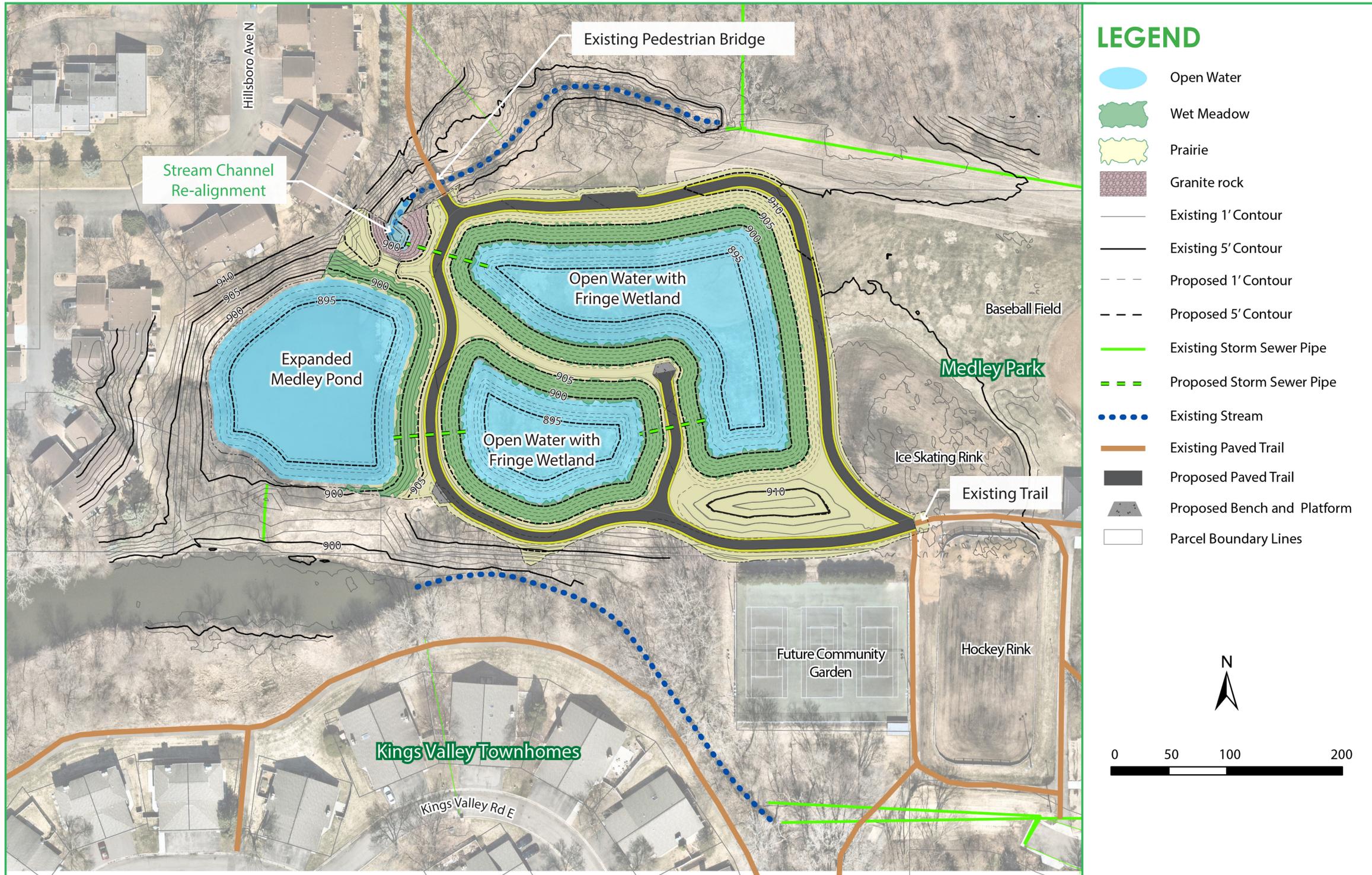
We recommend that the city request 1) BCWMC approval of the 50% drawings, and 2) BCWMC authorization for the city to proceed with design, permitting and contract documents and bring 90% design plans to a future Commission meeting.

If you have any questions, please contact me at 952-842-3690 or kturpin-nagel@barr.com.

Sincerely,



Katie Turpin-Nagel, P.E.
Water Resources Engineer



LEGEND

- Open Water
- Wet Meadow
- Prairie
- Granite rock
- Existing 1' Contour
- Existing 5' Contour
- Proposed 1' Contour
- Proposed 5' Contour
- Existing Storm Sewer Pipe
- Proposed Storm Sewer Pipe
- Existing Stream
- Existing Paved Trail
- Proposed Paved Trail
- Proposed Bench and Platform
- Parcel Boundary Lines

50% Design Summary

- Additional Flood Storage Created:**
8.8 acre-feet
- Improved Water Quality:**
Additional 16.4 lbs/yr phosphorus removed
- Restored Wetland and Prairie habitat:**
1.2 acres total
- Open Water Area:**
1.5 acres total
- Tree Removal Estimate**
9 trees total
- At-Risk Flooded Structures (existing/proposed):**

25-yr	50-yr	100-yr
5/0	10/6	17/12