



Memorandum

To: Bassett Creek Watershed Management Commission (BCWMC)
From: Barr Engineering Co.
Subject: Item 6C: Consider Approving Updated 90% Design Plans for Four Seasons Mall Area Water Quality Improvement Project (2013 CIP NL-2) – Plymouth, MN
BCWMC September 21, 2023 Meeting Agenda
Date: September 13, 2023
Project: 23270051.58 2023 623

6C Consider Approving Updated 90% Design Plans for Four Seasons Mall Area Water Quality Improvement Project (2013 CIP NL-2) – Plymouth, MN

Summary:

Proposed Work: Above-and-beyond stormwater quality improvements and wetland restoration

Basis for Review at Commission Meeting: 90% CIP review

Impervious Surface Area: No change

Recommendations: Conditional approval

Project Proposer: City of Plymouth

Project Schedule: Construction is planned during fall 2023 with final turf restoration anticipated during spring 2024. Wetland mitigation will involve longer term monitoring and maintenance per the City's plan with the USACE.

At its July 2023 meeting, the Commission approved an agreement with the City of Plymouth to design and construct the CIP components of the Four Seasons Area Water Quality Improvement Project with reimbursement from this project's BCWMC CIP funds. At that meeting it was noted that 90% design plans would be updated from plans originally submitted by the city in December 2022. A review of the updated 90% plans is presented here.

Background

The Four Seasons Mall area is located in the southwest corner of Highway 169 and Rockford Road as shown on the location map. This area drains through the North Branch of Bassett Creek which flows through a degraded wetland, under Highway 169 and into Northwood Lake on the east side of the highway. Northwood Lake is impaired due to high nutrients. Several development submittals have been reviewed by the BCWMC for this site.

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Plymouth Project

At their September 2013 meeting, the BCWMC conditionally approved 90% plans for the Four Seasons Mall Area Water Quality Improvement Project– BCWMC 2013 CIP Project NL-2 – that included restoration of a channel west of the mall and creation of a stormwater pond. The project was not built due to residents’ concerns with tree loss.

Agora Development

At their August 2016 meeting, the Commission received a presentation on the stormwater management components of a redevelopment project (named Agora) on the Four Seasons Mall site. At the time, the Commission was asked to consider providing funding (in the ballpark of \$500,000) toward stormwater management features that would go “above and beyond” pollutant removal requirements for the redevelopment. The Commission moved forward with exploring a partnership with Rock Hill Management through an agreement with the City of Plymouth and directed Commission staff to continue to gather and assess additional information for further consideration including technical and legal issues.

At their December 2016 meeting, the Commission received a presentation on four alternatives for possible stormwater management features for the redevelopment. The Commission provided conditional approval to provide funds from the BCWMC CIP budget as a financial contribution towards Alternative 4, which would have removed an estimated 109 pounds of phosphorus above and beyond the BCWMC’s requirements at the Agora development in Plymouth.

At its January 2017 meeting, the Commission directed the administrator and legal counsel to develop an agreement with Rock Hill Management for the Commission’s consideration and on January 30, 2017, the developer’s consultant submitted the Agora project for BCWMC review.

At its February 2017 meeting, the Commission 1) conditionally approved the Agora development project as part of the BCWMC project review program, 2) approved an agreement with Rock Hill Management, which required that the CIP project remove at least 100 pounds of total phosphorus (TP) above-and-beyond the BCWMC requirements for the Agora development project, and 3) approved a separate agreement with the City of Plymouth to allow the developer access to a city-owned parcel to construct the wetland restoration project and to ensure ongoing maintenance of the CIP project components. The agreements were executed later in February 2017.

At its August 2017 meeting, the Commission conditionally approved 90% design CIP plans for the Agora project. However, at their April 2018 meeting, Plymouth Commissioner James Prom informed the Commission that the Agora project had fallen through due, in part, to a change in market demand for some of the intended uses.

Dominium Development

At its December 2019 meeting, the Commission received a presentation from Dominium Development and Acquisition, LLC on redevelopment plans for the Four Seasons Mall site. At its April 2020 meeting, the Commission conditionally approved Dominium’s Four Seasons Mall Redevelopment Project and the 90% plans for the Water Quality Improvement Project (2013 CIP NL-2). As with the Agora development, the developer was required to provide at least 100 pounds total phosphorus removal “above and beyond” water quality requirements. However, the approved project was not built due to external circumstances.

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Plymouth Water Quality Improvement Project

At its August 2021 meeting, the Commission reviewed the Technical Advisory Committee's recommendation to implement the Four Seasons CIP project ahead of the future development. The Commission approved entering into an agreement with the City of Plymouth to construct the previously approved Four Seasons Mall Area CIP stormwater best management practices that were included as part of the Dominion development, pending the following two conditions:

1. No BCWMC funding will be used to create storage or water quality benefits that would be required of any proposed development.
2. The current impervious surface area of 11.93 acres be set as the "existing condition" upon which future stormwater management requirements would be based, with a sunset clause of 20 years.

An initial agreement was drafted but was not brought to the Commission due to on-going discussions with Plymouth.

At its December 2022 meeting, the Commission approved the 90% design CIP plans to construct the 2013 CIP NL-2 without the redevelopment of the Four Seasons Mall property. However, the approved project was not built, and the project was redesigned due to comments from other permitting agencies.

Revised Plymouth Water Quality Improvement Project: General Project Information

The City of Plymouth has completed the process of demolishing the Four Seasons Mall (BCWMC 2022-18) as conditionally approved by the Commission at its November 2022 meeting. Building demolition and removal from the site was completed on January 18, 2023. While the redevelopment planning process continues, the City would like to move forward with the construction of the BCWMC's 2013 CIP NL-2 to remove at least 100 pounds of TP.

The remainder of this memorandum summarizes review of the latest CIP NL-2 project (revised 90% design plans), including floodplain management, wetland management, rate control requirements, erosion and sediment control requirements, water quality requirements, and above-and-beyond water quality improvements (the CIP project components).

Floodplain

The proposed water quality improvement project includes work in the Bassett Creek 1% (base flood elevation, 100-year) floodplain. The January 2023 BCWMC Requirements for Improvements and Development Proposals (Requirements) document states that *projects within the floodplain must maintain no net loss in floodplain storage and no increase in flood level at any point along the trunk system* (managed to at least a precision of 0.00 feet). The 1% (base flood elevation, 100-year) floodplain elevation of the North Branch of Bassett Creek (North Branch) in this reach is 892.9 feet NAVD88.

The proposed project will result in a net increase in floodplain storage of approximately 0.70 acre-feet from pre-demolition condition. In addition, the Four Seasons Mall demolition project increased the existing floodplain storage by 2.48 acre-feet. The final floodplain storage for this area will be assessed as part of the future development submittal.

It is our understanding that the City of Plymouth is requesting that the BCWMC’s floodplain analysis of the future development be based on the pre-demolition existing conditions floodplain storage.

Wetlands

The City of Plymouth is the local government unit (LGU) responsible for administering the Wetland Conservation Act; therefore, BCWMC wetland review is not required.

Rate Control

The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC rate control review is not currently required. Rate control for the former mall site will be assessed as part of the future development submittal.

Water Quality

The proposed project does not create one or more acres of new or fully reconstructed impervious surfaces; therefore, BCWMC water quality review is not required. Water quality treatment for the former mall site will be assessed as part of the future development submittal.

Above-and-Beyond Water Quality Treatment

As noted in the Background section, the Commission conditionally approved a financial contribution towards a previous submittal for redevelopment of the Four Seasons Mall Area site for providing stormwater treatment, specifically TP removal, “above and beyond” BCWMC requirements. The above-and-beyond treatment goal was set at 100 pounds of TP removal.

The current proposed CIP best management practices (BMPs) on the Four Seasons Mall site will treat stormwater from the site and off-site areas with a small stormwater pond (Northwest Pond), vegetated swale, a large stormwater pond (South Pond), and a wetland restoration as shown in the Proposed BMPs figure provided by the applicant.

There are two primary differences between the current proposed BMPs and the BMPs in the plans approved by the Commission in December 2022: 1) the forebay for the South Pond was removed due to permitting agency comments, resulting in a modified pond footprint and 2) the outlet pipe between the vegetated swale and the pond was modified because of the changed pond footprint. Because the BMPs are in a treatment train system (a series of BMPs that treat stormwater), the loading and removals for the downstream BMPs changed compared to the previous submittal, but the site still achieves more than the 100 pounds of total phosphorus removal treatment goal.

Table 1 summarizes the estimated annual TP loading to each proposed BMP and the TP removals provided by each proposed BMP on the site, not including the wetland restoration. The TP loading is based on the “existing conditions” impervious surface area of 11.93 acres (the amount of impervious surface on the Four Seasons Mall site before demolition).

Table 1: Proposed Water Quality Treatment and Pollutant Removals for the Development Site

Device	TP Loading (lbs/year)	TP Removal (lbs/year)	TP Removal (%)
Northwest Pond (WP) ¹	11.3	3.9	34.4
Vegetated Swale (CRSP)	207.7	6.2	3.0
South Pond (NP)	200.1	4.6	2.3
TOTAL ²	214.8	14.7	6.8

¹ Runoff from this BMP is routed to the North Branch of Bassett Creek. As part of the proposed project, low flows from the North Branch of Bassett Creek are diverted onto the proposed project site for water quality treatment in the South Pond.

² Total loading may not be a direct sum of the individual BMPs due to the routing of outflow from one BMP to another.

The proposed project includes restoring the existing wetland to the south of the development site. As in previous reviews, the BCWMC Engineer estimated the water quality treatment potential and TP removal efficiency for the wetland restoration based on guidance from the Minnesota Stormwater Manual, rather than on water quality modeling. (The P8 model was not a sufficient model to estimate TP removal from the restored wetland because past monitoring and modeling of the existing wetland indicated that P8 did not properly account for resuspension or internal phosphorus sources, especially considering the high potential for short-circuiting and the higher proportion of soluble phosphorus). Table 2 summarizes the annual TP loading and removals for the wetland restoration.

Table 2: Proposed Water Quality Treatment and Pollutant Removals for the Wetland Restoration

Device	TP Loading (lbs/year)	TP Removal (lbs/year)	TP Removal ¹ (%)
Wetland (From South Pond: NP)	195.6	24.8	12.7
Wetland (From West and Direct)	193.6	73.6	38.0
TOTAL	389.2	98.4	25.3

¹ TP removal efficiency for the wetland restoration is based on guidance from the Minnesota Stormwater Manual.

Table 3 summarizes the total annual above-and-beyond TP removals. The total exceeds the above-and-beyond treatment goal of 100 pounds of TP removal.

Table 3: Above-and-Beyond Total Phosphorus Removal

Water Quality Components	TP (lbs/year)
TP Removal Provided by Onsite BMPs	14.7
TP Removal Provided by Wetland Restoration	98.4
Total Above-and-Beyond TP Removal Provided	113.1¹

¹ The 90% design plans reviewed by the Commission in December 2022 resulted in 118.1 pounds of annual TP removal.

Erosion and Sediment Control

The proposed project results in more than 10,000 square feet of land disturbance; therefore, the proposed project must meet the BCWMC erosion and sediment control requirements. Proposed temporary erosion and sediment control features include rock construction entrances, silt fence, bioroll logs, and storm drain inlet protection. Permanent erosion and sediment control features include erosion control blanket and stabilization with seed and mulch.







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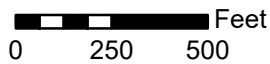
Recommendation

Conditional approval based on the following comments:

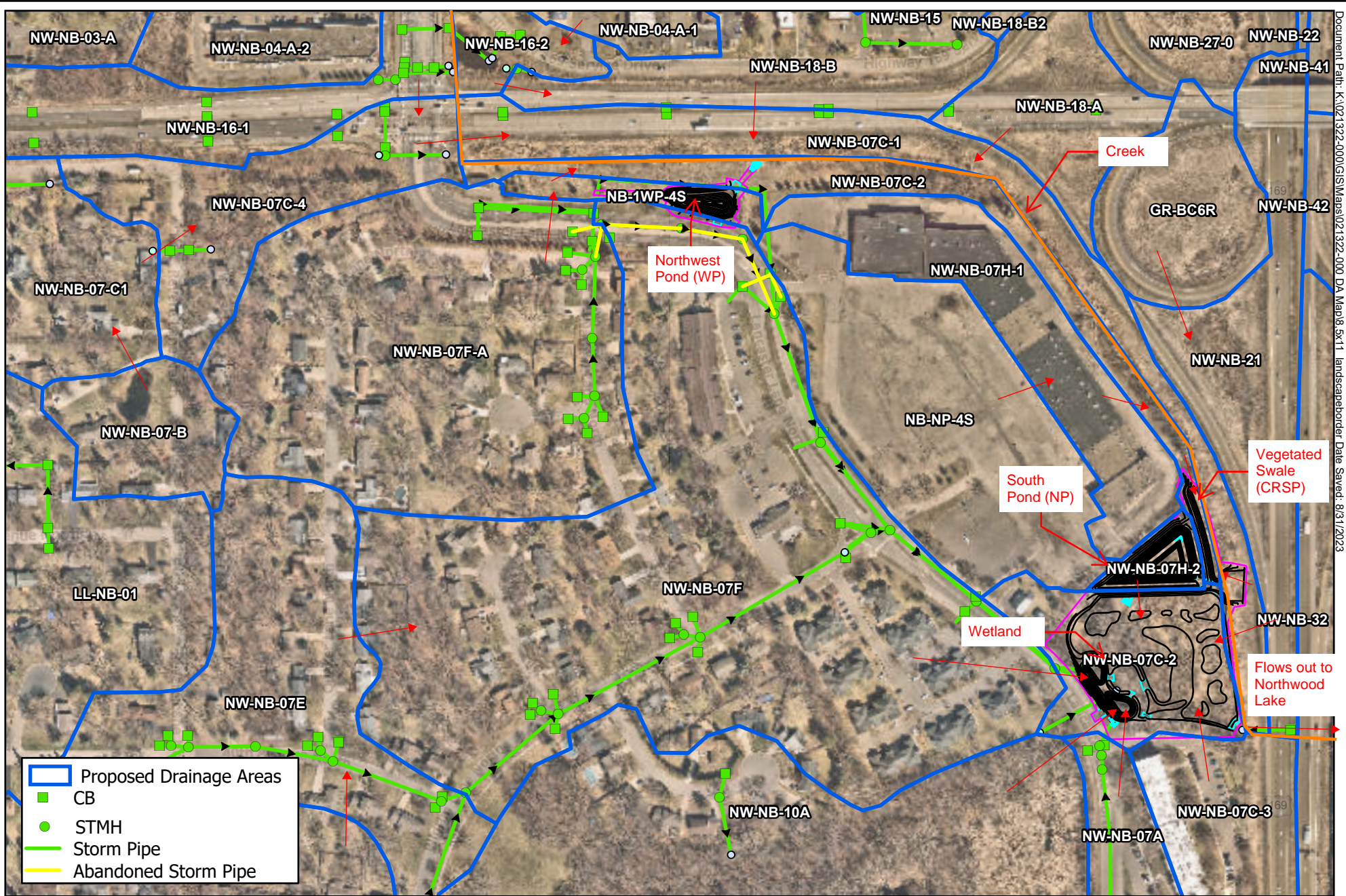
1. Sheet 5: It is difficult to distinguish the contours from the extent/border of the riprap emergency overflow for Basin NP. To clarify the extent of the emergency overflow and proposed elevations, a zoomed in drawing or additional details of the emergency overflow and riprap limits should be included on the drawings.
2. Sheet 6: To clarify the flow path through the western side of the restored wetland, spot elevations of the riprap overflow sections and elevations between the graded pools should be included on the drawings.



-  Project Location
-  Municipality
-  BCWMC Legal Boundary
-  Major Subwatershed
-  BCWMC Hydrologic Boundary
-  Bassett Creek



CIP NL-2
 FOUR SEASONS
 WATER QUALITY
 IMPROVEMENT PROJECT
 Plymouth, MN
 LOCATION MAP



Proposed BMPs
 Four Seasons Water Quality Project
 City of Plymouth, MN

