Applicant:	Jay Lotthammer; City of Eden Prairie
Consultant:	Bill Alms; WSB
Project:	Nesbitt Preserve Park Splash Pad
Location:	8641 Center Way, Eden Prairie, MN 55344
Applicable Rule(s):	3, 4 and 5
Reviewer(s):	Dallen Webster and Louise Heffernan; Barr Engineering Co.

General Background & Comments

The City of Eden Prairie (City) is proposing the construction of a recreational splash pad water feature, site improvements, and associated paved trails at Nesbitt Preserve Park located at 8641 Center Way in Eden Prairie, MN. The project is a redevelopment project, as defined by the NMCWD rules, because the proposed land-disturbing activities include land-disturbing activity on a previously developed site. The project limits (Site) are directly east of the existing parking lot area along 8641 Center Way.

The project site discharges to an existing open water wetland southeast of the existing playground area (City Wetland #24-22-A). For the purpose of NMCWD rules analysis, the wetland located southeast of the proposed splash pad is identified as Wetland 1 in this report.

The project will include the following activities:

- Construction of a recreational splash pad water feature.
- Construction of impervious walking trails and paths.
- Construction of a surface stormwater filtration system that will provide water-quality treatment for runoff leaving a portion of the reconstructed site area.
- Site improvements for compliance with Americans With Disabilities Act (ADA) requirements, installation of concrete curb and gutter, bituminous and concrete pavement removals, utility improvements, grading, and landscaping.

Figure 1. Site Location.



The project site information includes the following:

- Total Site Area: 25.40 acres (1,106,424 square feet) Nesbitt Preserve Park
- Total Disturbed Area: 1.16 acres (50,441 square feet)
- Existing Site Impervious Area: 2.42 acres (105,415 square feet)
- Proposed Site Impervious Area: 2.74 acres (119,354 square feet)
- Total New (Additional) Impervious Area: 0.32 acres (13.2% increase) (13,851 square feet)
- Disturbed and Replaced Impervious Area: 0.05 acres (2,076 square feet)
- 2.0% of the existing site impervious area is to be disturbed and reconstructed
- ¹Regulated Impervious Area: 0.13 acres (5,476 square feet)
- 10,451 square feet of trail less is than 10-feet in width and bordered downgradient by a pervious area greater than 5-feet in width

¹ The regulated impervious area excludes the trails and sidewalks constructed within the site that do not exceed 10 feet in width and are bordered downgradient by a pervious area extending half the width of the trail or sidewalk in accordance with subsection 4.2.2c criteria.

Exhibits Reviewed:

- 1. Permit Application dated April 5, 2022 by applicant, received April 6, 2022. Email correspondence dated April 27, 2022, outlining seven items required to complete the application. Email correspondence dated June 10, 2022, identifying three outstanding items required to complete the application.
- 2. Plans dated March 31, 2022, with the most recent Sheet L4.0 addendum dated April 18, 2022, prepared by WSB.
- 3. Soil Boring Lots dated October, 20, 2021, completed by WSB.
- 4. Exempt Impervious Exhibit received May 19, 2022, prepared by WSB.
- 5. Stormwater Narrative dated March 31, 2022, prepared by WSB.
- 6. Existing and Proposed HydroCAD Models provided April 6, 2022 and May 19, 2022, prepared by WSB.
- 7. Level 2 Wetland Delineation Report dated May 9, 2022, prepared by WSB.
- 8. Joint Application Form dated May 10, 2022, prepared by WSB.

The application with the submittal items above is complete.

3.0 Wetlands Management

The district's Wetland Management Rule 3.0 applies to the project because on-site wetland(s) are either downgradient or disturbed by the project's land-disturbing activities and a permit under district Rule 4.0 is required (Rule 3.4). The Nine Mile Creek Watershed District (NMCWD) is the Local Government Unit (LGU) responsible for administering the requirements of the Wetland Conservation Act (WCA) in Eden Prairie.

A wetland boundary determination completed by WSB identified one wetland within the Site on City property. As identified by the May 9, 2022 WSB Level 2 Wetland Delineation Report, land disturbance activities are proposed upgradient of Wetland 1 (previously referenced). A Wetland Delineation Report was submitted to NMCWD, the LGU, requesting a wetland boundary and type, and an incidental wetland determination for Wetland 1.

A WCA Notice of Decision approving the wetland boundary and type determination and incidental wetland determination was issued on June 15, 2022. District rule 3.2.2a states the district's buffer requirements and stormwater treatment, sections 3.4 and 3.5, do not apply to incidental wetlands. The engineer agrees with the assessment. However, the WCA Notice of Decision recognizes the eastern portion of Wetland 1 as being regulated under the WCA. As identified by the provided site plans, the eastern portion of Wetland 1 is not however downgradient from or disturbed by land-disturbing activities, therefore the district's buffer requirements do not apply. The WCA Notice of Decision recommends that a change be made in mowing practices between the paved trail and the eastern edge of the wetland to prevent further wetland disturbance in this area (see Figure 2 below).

Figure 2. Wetland 1 Boundary.



4.0 Stormwater Management

The Nine Mile Creek Watershed District's Rule for Redevelopment, Rule 4.2.3, states, if a proposed activity will disturb more than 50% of the existing impervious surface on the site or will increase the imperviousness of the site by more than 50%, stormwater management will apply to the entire project site. Otherwise, the stormwater requirements will apply only to the disturbed, replaced and net additional impervious surface on the project site. Since the project will disturb less than 50% of the existing site impervious surface (2.0% to be disturbed) and will not increase the impervious surface at the site by more than 50% (13.2% increase proposed), applicable stormwater management criteria are required for the 50,441 square feet of disturbed area, including the 15,927 square feet of disturbed, replaced and net additional impervious surface.

Stormwater management for compliance with Rule 4.3.1 will be provided by a filtration basin to be located south of the proposed splash pad and existing play container. The stormwater management facilities will provide rate control, volume retention and water quality management for the regulated disturbed surfaces. As permitted by subsection 4.2.2c criteria, trails and sidewalks that do not exceed 10 feet in width and are bordered downgradient by a pervious area extending at least half the width of the trail or sidewalk do not require stormwater treatment and are excluded from the 15,927 square feet of disturbed, replaced and net additional impervious area resulting in 5,476 square feet (0.13 acres) of regulated impervious surface.

Rule 4.3.1b requires the 2-, 10-, and 100-year post development peak runoff rates be equal to or less than the existing discharge rates at all points where stormwater leaves the site. The

applicant used a HydroCAD hydrologic model to simulate runoff rates at all collection points where stormwater discharge leaves the site. The existing and proposed 2-, 10- and 100-year frequency discharges from the site are provided in the table below.

Existing and Proposed Peak Runoff Rates					
Modeled Discharge Location	10- year (c.f.s.)	100-year (c.f.s.)			
Wetland 1 Outlet (existing)	1.2	4.7	10.6		
Wetland 1 Outlet (proposed)	1.1	4.5	10.5		

Rule 4.3.1b is met.

The applicant has requested that the site be considered restricted under subsection 4.3.2 of the NMCWD rules. The soil borings completed by WSB identify soils with low permeability onsite. The geotechnical evaluation indicates groundwater was not encountered in the boring within the closest proximity to the proposed stormwater management facilities (B-2) to a depth of 14.5 feet, approximately elevation 851.2 M.S.L. Soil classification from boring B-2 indicates the underground soil to predominantly be sandy clay (CL), with one 1.5' foot layer of clayey sand (SC) recorded at the bottom of the boring. The engineer concurs with the soil boring analysis identifying soils predominately comprised of low permeability throughout the site, supporting a restricted site determination.

For restricted sites, subsection 4.3.2 requires rate control in accordance with subsection 4.3.1.a and that volume retention and water-quality management be provided in accordance with the following priority sequence: (a) Retention of at least 0.55 inches of runoff from the regulated impervious surface and treatment of all runoff to the standard in paragraph 4.3.1c; or (b) Retention of runoff on-site to the maximum extent practicable (MEP) and treatment of all runoff to the standard in paragraph 4.3.1c; or (c) Off-site retention and treatment within the watershed to the standards in paragraph 4.3.1c; or (c) Off-site retention and treatment within the watershed to the standards in paragraph 4.3.1a and 4.3.1c. Given the physical site limitations of the Site including predominately underlying clayey soils, it is not feasible to provide retention on-site of 1.1 inches of runoff from the regulated impervious surface. Based on the site limitations, the applicant proposes a shallow filtration basin. The volume retention achieved by the proposed filtration basin was determined based the permeability of the soils and the footprint available to achieve at least 0.55 inches of runoff from the regulated impervious surface.

In accordance with Rule 4.3.2a criteria, a retention volume of 251 cubic feet is required from the proposed 0.13 acres (5,476 square feet) of regulated impervious surface. A design infiltration rate of 0.06 inches per hour has been used, conforming with design infiltration rates in the Minnesota Storm Water Manual. The table below summarizes the volume retention required and volume retention achieved. The proposed project is in conformance with subsection 4.3.2a.

Volume Recention Gummary					
Required Volume Retention Depth (inches)	Required Volume (cubic feet)	Provided Volume Retention Depth (inches)	Provided Volume (cubic feet)		
0.55	251	0.63	287		

Volume Retention Summary

With an infiltration area of 500 square feet provided, the required volume retention is drawn down within the required 48-hours, complying with Rule 4.3.1a (ii).

The district's water quality criterion requires 60% annual removal efficiency for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS). The results of the MIDS modeling provided are summarized in table below. The engineer agrees with the modeling results and the project is in conformance with Rule 4.3.1c criteria.

Pollutant of Interest	Regulated Site Loading (Ibs./year)	Required Load Removal (Ibs./year)	Provided Load Reduction (Ibs./year)	
Total Suspended Solids (TSS)	40.4	36.4 (90%)	148.5 (>100%)	
Total Phosphorus (TP)	0.10	0.06 (60%)	0.54 (>100%)	

Annual TSS and TP Removal Summary

Rule 4.5.4d (i) requires three feet of separation between the bottom of an infiltration area and groundwater. The soil boring logs indicate that groundwater was not encountered in B-2, advanced to a depth of 14.5 feet, elevation 851.2 M.S.L. The following table provides a comparison of the bottom elevation of the infiltration area in relation to the elevation where groundwater was not encountered.

Proposed Stormwater Management Facility	Bottom Elevation of Facility M.S.L.	Elevation Groundwater Not Encountered M.S.L.	Separation Provided (feet)
Filtration Basin	859.4	851.2*	8.2

*Lowest elevation in boring B-2 where no groundwater was detected

The required three (3) feet of separation is provided between the bottom of an infiltration area and groundwater.

Rule 4.3.3 states that all new and reconstructed buildings must be constructed such that the low floor is at least two feet above the 100-year high-water elevation or one foot above the emergency overflow of a constructed facility. Additionally, a stormwater management facility must be constructed at an elevation that ensures no adjacent habitable building will be brought into noncompliance with a standard in subsection 4.3.3. Because no habitable buildings are proposed as a part of the project and the proposed filtration basin is not in proximity to any existing buildings, no habitable buildings are likely to be impacted by the stormwater management facility and Rule 4.3.3 criteria does not apply.

In accordance with Rule 4.3.1a (i), where infiltration or filtration facilities, practices or systems are proposed, pre-treatment of runoff must be provided. A sump manhole will provide the

required pretreatment of runoff prior to discharging to the filtration basin, complying with Rule 4.3.1a (i).

In accordance with Rule 4.3.4, a post-project chloride management plan must be provided that will, 1) designate an individual authorized to implement the chloride-use plan and 2) designate a MPCA certified salt applicator engaged in the implementation of the chloride-use plan for the site.

5.0 Erosion and Sediment Control

The district's requirements for erosion and sediment control apply to the project because more than 50 cubic yards of material will be disturbed and 5,000 square feet or more of surface area is altered, Rules 5.2.1a and b.

The erosion control plan prepared by WSB includes installation of perimeter control (silt fence and sediment control logs), a stabilized rock construction entrance, and storm sewer inlet protection. Temporary and permanent stabilization methods include seeding.

The contractor for the project will need to designate a contact who will remain liable to the district for performance under the district's Erosion and Sediment Control Rule 5.0 from the time the permitted activities commence until vegetative cover is established, in accordance with subsection 5.4.1e. NMCWD must be notified if the responsible individual changes during the permit term.

11.0 Fees

Because the property owner is a public entity, no fees are charged.

Rules 3.0, 4.0, and 5.0

12.0 Financial Assurances

Because the property owner is a public entity, the district's financial assurance requirements do not apply.

Sureties for the project are:

Findings

- 1. The proposed project includes the information necessary, plan sheets and erosion control plan for review.
- 2. The proposed project will conform to Rules 3, 4 and 5 with the fulfilment of the conditions identified below.
- 3. The proposed stormwater management facility will provide rate control and water quality management in accordance with subsections 4.3.1b-c criteria and volume retention in accordance with subsection 4.3.2a criteria.
- 4. In accordance with NMCWD Rule 4.3.5, the applicant must provide a maintenance and inspection plan that identifies and protects the design, capacity and functionality of the stormwater management facilities.

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Recommendation

Approval, contingent upon:

Compliance with the General Provisions (attached).

The applicant providing a name and contact information for the individual responsible for the erosion and sediment control at the site. NMCWD must be notified if the responsible individual changes during the permit term.

By accepting the permit, when issued, the applicant agrees to the following stipulations for closeout of the permit and release of the financial assurance after the project:

Per Rule 4.5.6, an as-built drawing of the stormwater management facility conforming to the design specifications, including a stage volume relationship in tabular form for the stormwater management facility, as approved by the district, must be provided.

The Nesbitt Preserve Park Splash Pad project must have an impervious surface area and configuration materially consistent with the approved plans. Design that differs materially from the approved plans will need to be the subject of a request for a permit modification or new permit, which will be subject to review for compliance with all applicable regulatory requirements.

Per Rule 12.4.1b, demonstration and confirmation that the filtration facility has been constructed or installed and are functioning as designed and permitted. Verification, through daily observation logs and photographs, must be provided showing the stormwater management facility used for volume retention have drawn down within 48 hours from the completion of two 0.55-inch (approximate) separate rainfall events.

If not previously submitted, submission of a plan for post-project management of Chloride use on the site. The plan must include 1) the designation of an individual authorized to implement the chloride use plan and 2) the designation of a Minnesota Pollution Control Agency certified salt applicator engaged in the implementation of the chloride-use plan for the site.

CONNECT TO EXISTING 2" WATER SERVICE WITHIN THE BUILDING, EXTEND THROUGH EXTERIOR WALK PROVIDE 2" PRESSURE VACUUM AT 24" ABOVE GRADE. COORDINATE BREAKER AND EXTEND PIPE TO CONNECTION WITH CITY OF EDEN 24" BELOW GRADE. PRAIRIE 240 LF - WATER SERVICE -WATER SERVICE PLAN PLAN 2 14.0 REFER TO SHEET L4.1 -FOR GRADING ENLARGEMENT ALTERNATE BID ITEMS INCLUDE: -GRADING, TREE REMOVAL, BITUMINOUS PAVEMENTS, CONCRETE WALK, 4 CONCRETE STEPS, ADA PARKING, CONCRETE WALK SITE FURNISHINGS, SEEDING, AND SITE RESTORATION (MH EXISTING CONNECT TO EXISTING -STORM STRUCTURE OVERALL GRADING AND UTILITY PLAN - MATCH EXISTING TRAIL L4.0

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