

Permit Application Review

Permit No. 2020-27  
Received complete: March 26, 2020

Applicant: Randy Anhorn; Nine Mile Creek Watershed District Administrator  
Consultant: Barr Engineering Company  
Project: Discovery Point Building Addition  
Location: 12800 Gerard Drive: Eden Prairie  
Rule(s): 4,5  
Reviewer: BCO

### **General Background & Comments**

The project proposes the construction of a 500 square foot building addition to the Nine Mile Creek Watershed District's office and water resource center, Discovery Point, located at 12800 Gerard Drive in Eden Prairie. The lot is 232,712 square feet in area (5.34 acres).

NMCWD has previously reviewed and approved a permit ( #2014-18) under its rules adopted in 2008<sup>1</sup> for the renovation of the existing single family residential structure and the construction of a 2,470 square foot building addition, with a basement, for the new office and water resource center for the Nine Mile Creek Watershed District, Discovery Pointe, that triggered NMCWD stormwater-management requirements. The approved storm water plan provided the following for rate control, volume retention and water quality management:

- An overall reduction in the on-site impervious area by 2,406 square feet.
- A cistern to collect a portion of the roof runoff. The water is used for irrigation.
- An infiltration basin, rainwater garden, located in the northwest corner of the building footprint. A second infiltration area located south of the existing building, in front of the entryway area. An infiltration area located in the low lying area adjacent to the western property line.

All of these best management practices (BMP's) are in place and functioning. The northwest rainwater garden BMP is to be relocated and reconstruction as part of the building addition construction.

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<sup>1</sup> The operation of the common scheme of development provision in the NMCWD rules is limited to work that has taken place since the substantially revised NMCWD rules were adopted in March 2008.

Under paragraph 4.2.5 of the NMCWD rules, “[a]ctivity subject to [the stormwater] rule on a parcel or adjacent parcels under common or related ownership will be considered in the aggregate, and the requirements applicable to the activity under this rule will be determined with respect to all development that has occurred on the site or on adjacent sites under common or related ownership.” The common scheme of development provision requires the changes to impervious surface and resulting runoff within the District property be considered in the aggregate with the prior impervious disturbance and redevelopment that has been permitted by the District since 2008.

The project site information is:

- Total Site Area: 5.34 acres (232,712 square feet)
- Site Impervious Area (prior to 2014): 16,863 square feet
- Post Permit #2014-18 Impervious Area: 14,457 square feet
- Aggregate Decrease in Impervious Area (prior to present proposal): 2,406 square feet
- Proposed Project New Impervious Area: 500 square feet
- New Site Impervious Area total: 14,957 square feet
- Total net reduction of impervious area: 1906 square feet
- Aggregate % decrease in Impervious Area (2008 –Present including Project): 11.3%

As noted, all work on the property since 2014 has resulted in a decrease of the site impervious area by 11.3%, and a disturbance of more than 50 percent of the existing (2014) impervious area, the storm water requirements of Rule 4.3 have been applied to the total site impervious area of 14,957 square feet. Stormwater management was provided for the majority of the property impervious under the 2014 permit, leaving only the disturbed and replaced impervious property proposed for this project (500 square feet) and some impervious area that also will drain to the same stormwater-management facility to be analyzed under this permit.

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 5000 square feet or more of surface area will be disturbed, Rule 5.2.1a and b.

Erosion control is to be installed at the limits of construction.

### **Exhibits**

1. Permit Application dated March 27, 2020.
2. Plans dated January 1, 2020 prepared by Barr Engineering Company.
3. Storm Water Management Plan dated August, 2019, prepared by Barr Engineering Company.
4. Geotechnical Report dated October 18, 2012 prepared by Braun Intertec.

## 2.0 Floodplain Management and Drainage Alterations

County Ditch 34 is located north of the site. The 100-year frequency flood elevation of County Ditch 34 is approximately 860 M.S.L. at the location where the Gerard Drive Trail intersects the trail that is riparian to the Cardinal Creek Conservation Area. This is approximately the location of the western property line extended. City of Eden Prairie property separates the site from the Conservation Area. Elevation 907 M.S.L. is the lowest elevation that site work for the building addition and basin reconstruction is proposed. The elevation of the existing structure and proposed building addition is 910.2 M.S.L. No work or encroachment is proposed within the floodplain of County Ditch 34.

## 3.0 Wetlands

There are no wetlands on the site nor is the property contiguous with the wetland areas within the Cardinal Creek Conservation Area. The buffer area between the District's site and the Cardinal Creek Conservation is on City of Eden Prairie property.

## 4.0 Stormwater Management

The storm water management plan for volume retention (through infiltration), rate control, and water quality management consists of: (1) a reduction of the on-site impervious area, (2) a cistern to collect a portion of the roof runoff to be used for irrigation, (3) an infiltration basin, rainwater garden, located in the northwest corner of the building footprint and a second infiltration area south of the building footprint, in the area of the front entryway; and (4) an infiltration area to be located in the low-lying area adjacent to the western property line. The northwest basin will be relocated/reconstructed based on the footprint of the proposed building addition. In addition to runoff from the additional 500 square feet of new impervious area for the building addition, the redesigned basin will provide treatment for 1,270 square feet of existing roof that drains to the northwest basin that is being redesigned and reconstructed as part of the project. Therefore, the analysis below addresses the 1,770 square feet of impervious that will drain to the new basin.

The following table is a summary of the flow rates for the 2, 10 and 100 year frequency storm events discharging from the northwest rainwater garden for existing (current) conditions and the redesigned basin that includes the runoff from the proposed building addition:

<b>Frequency</b>	<b>Existing Discharge c.f.s.</b>	<b>Proposed Discharge c.f.s.</b>
2 year	<1.0	<1.0
10 year	<1.0	<1.0
100 year	<1.0	<1.0

Given these measurements at the basin discharge, the discharge rate at the property boundary is the same or less than under present conditions.

The volume retention requirements have changed since 2014 from a retention of 1.0 inch of runoff from the impervious area to 1.1 inches of retention. An infiltration volume of 162 cubic feet is required from the 1,770 square feet of the proposed site imperviousness. Soil borings taken indicate on-site soils as poorly graded sand (SP) and silty sand (SM). If necessary in the area where infiltration is proposed, soil corrections will be made to remove confining layers encountered and backfilled with a sandy material. An infiltration rate of 0.45 inches/hour has been used which is typical of an SM soil type material identified in the Minnesota Storm Water Manual. An area of 90 square feet is required for an inundation depth of 1.8 feet (the actual inundation depth proposed is 1.0 feet) to be drawn down within 48 hours using this infiltration rate. The reconstructed northwest basin will provide a volume of 233 cubic feet (162 cubic feet required) and an area of 327 square feet (90 square feet required).

For water quality management, an annual removal efficiency of 60% for total phosphorus (TP) and 90% annual removal efficiency for total suspended solids (TSS) is required to meet NMCWD requirements. The results from a MIDS calculator shows the reconstructed basin will provide an annual removal efficiency of 88% for total phosphorus (0.07 lbs.) and 91% of total suspended solids (13.3 lbs.).

The soil boring logs indicates that groundwater was not encountered to elevation 888.7 M.S.L. The bottom elevation of the reconstructed northwest rainwater garden will be 907.0 M.S.L. – a separation of 18.3 feet. The District requires a minimum separation of 3 feet between the bottom of the infiltration area and groundwater.

The calculated 100-year frequency flood elevation (based on Atlas 14 precipitation) for the reconstructed basin is 907.7 M.S.L. The finished floor elevation of both the existing District office building and the proposed building addition is 910.2 M.S.L. The low opening elevation for the structure is also the same as the finished floor elevation, 910.2 M.S.L. District criteria, Rule 4.3.2, states, a minimum separation of 2 feet is required between both the low floor and low opening elevations and the calculated flood elevation of an adjacent stormwater BMP. A separation of 2.5 feet will be provided.

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 erosion and sediment control plan, as shown on the landscape, includes silt fence at the limits of construction. The project contact is Randy Anhorn, District Administrator Nine Mile Creek Watershed District.

**11.0 Fees**

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

Rules 2.0-6.0 ..... \$0

## **12.0 Sureties**

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

Sureties for the project are: \$0

## **Findings**

1. The proposed project includes the information necessary, plan sheets and erosion control plan, for review.
2. Rules 4 and 5 are met.

## **Recommendation**

Approval, contingent upon:

1. General Conditions

By accepting the permit, when issued, the applicant agrees to the following stipulations:

1. Per Rule 4.5.8, an as-built drawing of the project conforming to the design specifications as approved by the District must be submitted.
2. 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. It is required that the chloride-management plan has been provided and approved by the District's Administrator.

## **Board Action**

It was moved by Manager \_\_\_\_\_, seconded by Manager \_\_\_\_\_ to approve permit application No. 2020-27 with the conditions recommended by staff.

