



## Memorandum

**To:** Bassett Creek Watershed Management Commission (BCWMC)  
**From:** Barr Engineering Co.  
**Subject:** Item 4F – Ridgedale Executive Apartments – Minnetonka, MN  
BCWMC November 14, 2018 Meeting Agenda  
**Date:** November 6, 2018  
**Project:** 23270051 2018 2173

### 4F Ridgedale Executive Apartments – Minnetonka, MN BCWMC 2018-28

#### Summary:

**Proposed Work:** Redevelopment of commercial parking lot into a 78-unit apartment complex

**Basis for Review at Commission Meeting:** Use of alternative best management practices not included in the Minnesota Stormwater Manual (hydrodynamic separators and membrane filters)

**Impervious Surface Area:** Decrease 0.09 acres

**Recommendation:** Conditional Approval

#### General Background & Comments

The proposed project is located in the Crane Lake subwatershed in Minnetonka, MN. The project includes the demolition of an existing one-story building and existing parking lot and construction of a 78-unit apartment building, parking lot, stormwater management system, and other associated site work, resulting in 2.9 acres of disturbance (grading). The proposed project reduces impervious surfaces by 0.09 acres, from 2.25 acres (existing) to 2.16 acres (proposed), and creates 1.86 acres of reconstructed impervious surfaces.

#### Floodplain

The proposed project does not involve work in the BCWMC 100-year floodplain.

#### Wetlands

The proposed project appears to involve work in or adjacent to wetlands. The City of Minnetonka is the local government unit (LGU) responsible for administering the Wetland Conservation Act, therefore BCWMC wetland review is not required.

#### Stormwater Management

The August 2017 BCWMC Requirements for Improvements and Development Proposals (Requirements) document states that projects that contain more than one (1) acre of new or fully reconstructed impervious area must manage stormwater such that peak flow rates leaving the site are equal to or less than the existing rate leaving the site for the 2-, 10-, and 100-year events, based on Atlas 14 precipitation

amounts and using a nested 24-hour rainfall distribution. As discussed below, the proposed peak flows meet the BCWMC requirement.

In existing conditions and proposed conditions, stormwater runoff flows generally to the south and west to the existing stormwater pond through existing catch basins and storm sewer. In proposed conditions, the best management practices (BMPs) provide negligible detention, however the reduction of impervious area slightly reduces runoff rates in proposed conditions. **Table 1** summarizes the existing and proposed peak discharges from the project area to the existing stormwater pond.

**Table 1: Summary of Existing and Proposed Peak Discharge Rates**

Storm Event	Existing Peak Discharge (cfs)	Proposed Peak Discharge (cfs)
2-year	11.9	11.7
10-year	18.3	17.9
100-year	33.4	32.9

## Water Quality Management

The BCWMC Requirements document states that projects that contain more than one (1) acre of new or fully reconstructed impervious area must treat stormwater in accordance with the BCWMC water quality performance goals. If the BCWMC water quality performance goal is not feasible and/or is not allowed for a proposed project, then the project proposer must implement BCWMC flexible treatment options. As shown below, the proposed stormwater management system meets BCWMC water quality requirements.

The proposed project results in 1.86 acres of new/fully reconstructed impervious surfaces. Flexible Treatment Option (FTO) #2 was selected for the proposed project due to the presence of tight clay soils that are not conducive to infiltration. FTO #2 requires that the project provide 60% removal of total phosphorus (TP). The proposed SciClone Hydrodynamic Separators and Kraken Membrane Filters are proprietary systems, therefore the applicant provided third-party laboratory testing and field study results of expected TP removal efficiencies for these BMPs, and then used the "other" feature in the minimal impact design standards (MIDS) calculator to quantify the overall TP removals for the proposed project.

**Table 2** summarizes the annual TP loading and TP removals for the proposed BMPs provided by the applicant. Modifications required by the comments may reduce the anticipated TP removals for the BMPs, but it is expected that the overall project will continue to meet the BCWMC water quality requirements.

**Table 2: Summary of TP Removal and TP Removal Efficiency for Proposed BMPs**

BMP	TP Loading (lbs/year)	TP Removal (lbs/year)	Percent Removal (%)
SciClone Hydrodynamic Separator and Kraken Membrane Filter (Subwatershed 1A)	1.34	1.13	84
SciClone Hydrodynamic Separator and Kraken Membrane Filter (Subwatershed 1B)	1.88	1.58	84
Kraken Membrane Filter (Subwatershed 1C)	0.31	0.22	72
Disconnected Impervious Surface (Subwatershed 1D)	0.41	0.06	14
Kraken Membrane Filter (Subwatershed 1F)	0.20	0.14	72
<b>Total</b>	<b>4.12</b>	<b>3.14</b>	<b>76</b>

## Erosion and Sediment Control

The proposed project involves more than 200 cubic yards of cut or fill and/or 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 silt fence, biorolls, inlet protection, and rock construction entrances. Permanent erosion and sediment control features include stabilization with seed, mulch, disc anchoring, erosion control blankets, and sod.

## Recommendation





Conditional approval based on the following comments:

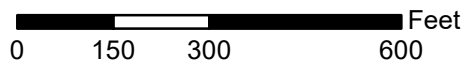
1. The MIDS calculator must be modified as follows to demonstrate that the proposed project meets BCWMC water quality goals (or flexible treatment options):
  - a. The existing and proposed drainage divides shown on Sheet DA1 and Sheet DA2, respectively, differ for the existing two story building to the south of the proposed redevelopment. Clarify whether the roof drainage routing will be modified as part of the proposed project or revise the drainage divides to match between existing and proposed conditions at this location.
  - b. The submitted MIDS calculator file includes a “stormwater disconnection” BMP, but the total site areas in the MIDS calculator file do not include the areas from the “stormwater disconnection” watersheds shown in drawing DA2. These areas must be included in the total site area or an explanation must be provided as to why these areas were not included.
  - c. The design flows and filter area loading rates for the proposed SciClone Hydrodynamic Separators and Kraken Membrane Filters must be provided to confirm the assumed TP removal efficiencies.
2. The outlet pipe to the existing stormwater pond must be extended to at or below the normal water level of the pond. Alternatively, adequate erosion protection and/or armoring must be provided between the outlet and the normal water level of the pond to limit erosion and channelization.
3. Outlet velocities at FES 1 exceed 8 feet per second when the pipe is flowing full. Modifications must be made to reduce outlet velocities to below 8 feet per second.
4. Sheet SW1.3, Section *Temporary Erosion Control Seeding, Mulching & Blanket: Mulch* must require that temporary or permanent mulch be uniformly applied by mechanical or hydraulic means and stabilized by disc-anchoring or the use of hydraulic soil stabilizers.
5. A maintenance agreement must be established between the owner and the City of Minnetonka for the SciClone Hydrodynamic Separators and Kraken Membrane Filters. The maintenance agreement must include a plan for cleaning and/or replacement of the filter media.
6. Revised plans (paper copy and final electronic files) and supporting documentation must be provided to the BCWMC Engineer for final review and approval.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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-  Project Location
-  Bassett Creek
-  WMC Boundary
-  Major Subwatershed



BCWMC #2018-28  
 RIDGEDALE EXECUTIVE  
 APARTMENTS  
 Minnetonka, MN

LOCATION MAP