November 11, 2016

Mr. Stephen Wensman
Planning Director
City of Lake Elmo
3800 Laverne Avenue North
Lake Elmo, MN 55042

Re: The Royal Golf Club Residential Development (EAW)

Dear Mr. Wensman:

Thank you for submitting a copy of the Environmental Assessment Worksheet (EAW) for the proposed The Royal Golf Club Residential Development. The proposed project is located within the Valley Branch Watershed District (VBWD). I offer the following comments on behalf of the VBWD. The numbers correspond to the numbers in the EAW.

9. Land Use

Descriptions

a.ii Plans (Page 6): While the site does not lie within a Minnesota Department of Natural Resources planned conservation corridor, the site is within an existing, somewhat connected, natural greenway corridor, as shown on Figure 20 of VBWD's March 2013 *Results of Minnesota Routine Assessment Method (MNRAM) for Evaluating Wetland Function* (attached).

a.iii Zoning, Floodplains (Pages 9–11): The VBWD recently completed more detailed modeling of the Downs Lake watershed that used current climate and topographic data. The modeling results and statistical analysis found the 1%-annual-chance (100-year) flood level of Downs Lake to be Elevation 893.8. The VBWD will regulate to this flood level instead of the FEMA base flood elevation of 893.0.

VBWD Rule 5, Standard 3, limits fill in lakes, ponds, and storage sites so that the cumulative effect of all possible filling will not raise the 100-year flood level more than 0.1 foot. Flood-storage replacement is allowed to conform to this VBWD rule, but wetlands should not be filled or drained to provide the flood-storage replacement.

Structures will need to have their minimum floor elevations at least 2 feet higher than the adjacent water bodies' VBWD-adopted 100-year flood level, as required in VBWD Rule 5, Standard 2.

Easements covering all portions of the property that lie below the 100-year flood elevation of lakes, wetlands, ponds, lowlands, and streams will need to be dedicated to the VBWD, as required in VBWD Rule 5, Standard 3.

VALLEY BRANCH WATERSHED DISTRICT • P.O. BOX 838 • LAKE ELMO, MINNESOTA 55042-0538
www.vbwd.org

Based on Figure 7 of the EAW, it's unclear if the proposed fill below the Down's Lake 100-year flood level is being mitigated accurately and if the proposed homes will have minimum floor elevations that are in compliance to VBWD rules.

Compatibility

9.b and 9.c. As noted in the EAW, the site is currently zoned for public and quasi-public open space, rather than residential use. Much of the adjacent land is either open parkland or used for residential housing with lots of at least 1 acre. The proposal is to create lots 0.4 to 0.75 acres. The EAW states that the project is designed to preserve considerable forested buffers adjacent to roadways. This will help hide the more densely developed lots from the existing, adjacent land, but the conversion of forest to impervious surface will significantly change the character of the area and decrease the natural habitat of the existing wildlife corridor. Additional mitigation measures should be identified, evaluated, and implemented, including but not limited to increasing the width of the corridor between Lake Elmo and the golf courses and configuring the lots to preserve trees and other natural features.

11. Water Resources

Description

a.i Surface Water (pages 13-15)

This section of the EAW does not mention the VBWD's Project 1007 system that runs through the site. Project 1007 directs outflows from the northern two-thirds of the VBWD south and east to a storm sewer pipe along Interstate 94, which ultimately discharges to the impaired Wild and Scenic St. Croix River. Approximately 20 square miles drains through this site. Maintaining this conveyance through the site is critical. Project 1007 is mentioned in the Stormwater section of the EAW on page 18.

Effects

b.3.ii Stormwater (pages 17-20)

Without seeing details, no determination can be made on the adequacy of the size and location of stormwater management facilities (ponds and infiltration areas) shown on Figure 7. Based on the concepts shown on the figure, additional infiltration areas will be needed to treat runoff from all impervious surfaces. For example, no stormwater management facility is shown near Rose Lake, and it's unlikely that the entire site will be graded or equipped with storm sewer pipes to convey the runoff to the proposed tiny infiltration area shown near the Lake Elmo outlet channel. However, as noted in the EAW, a VBWD permit will be required and the project will be reviewed for conformance to the VBWD rules and regulations when a permit application is submitted.

The VBWD will need to have unlimited access to all stormwater management facilities. The facilities depicted at the northeast corner of the site are shown on the golf course rather than in the residential subdivision. This could be problematic.

The project shows several cul-de-sacs. The VBWD encourages the developer to work with the City of Lake Elmo to limit the amount of impervious surface for streets and cul-de-sacs. Please see the attached factsheets. Reducing the amount of impervious surface will reduce the construction cost to the developer, reduce the maintenance cost to the City, and reduce the size of stormwater management facilities to construct and maintain.

b.3.iv.a Wetlands (page 21)

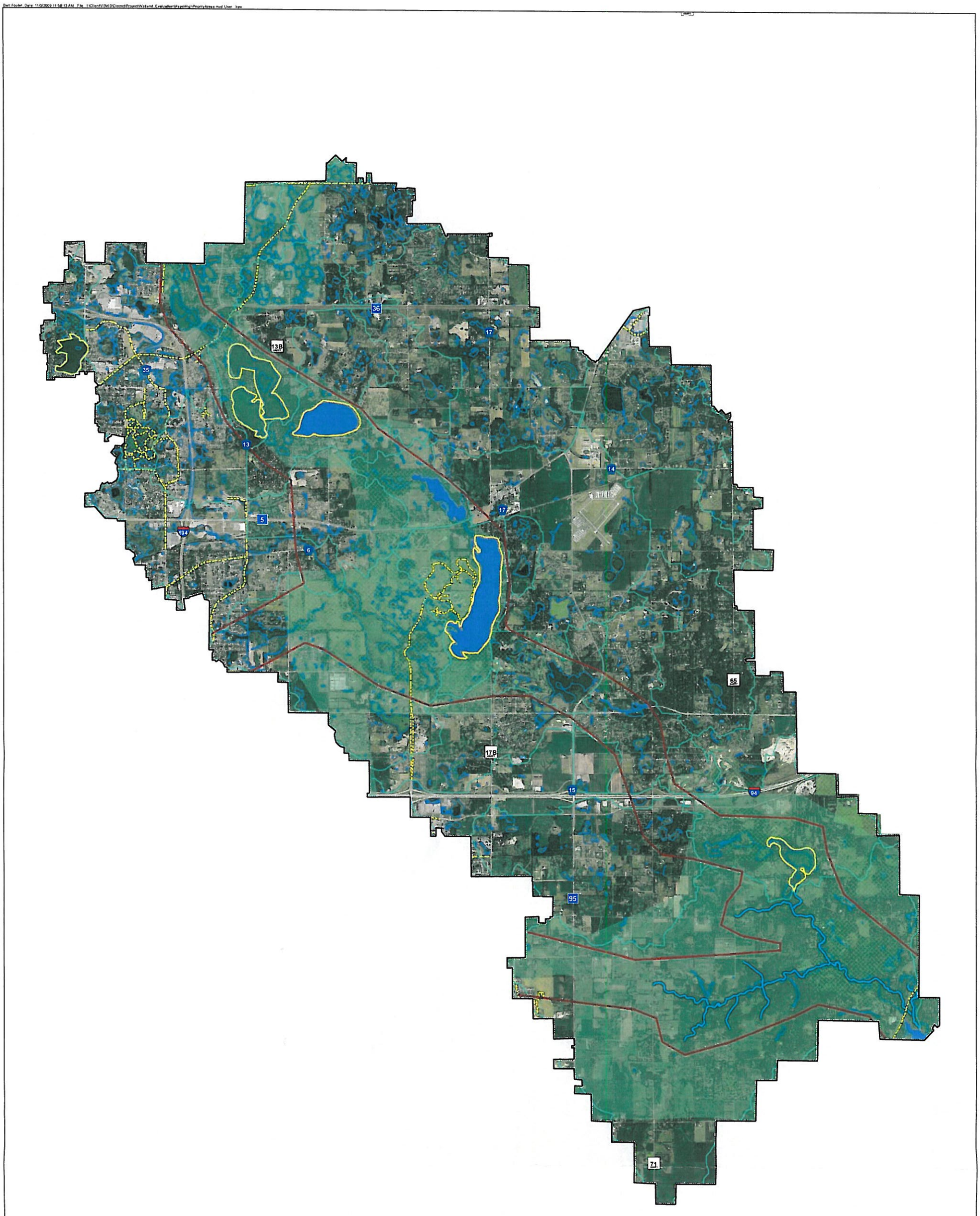
As noted in the EAW, a VBWD permit will be required and the project will be reviewed for conformance to the VBWD rules and regulations when a permit application is submitted.

Thank you for the opportunity to comment on the EAW. As the EAW indicates, a VBWD permit will be required for the project. VBWD will review the project plans for conformance to the VBWD rules and regulations when a permit application is submitted. The items identified in this letter are meant to identify potential issues and assist the project designers in protecting the water resources of the area. If you have any questions or need clarifications, feel free to contact me at 952-832-2622.

Sincerely,

John P. Hanson, P.E.
Barr Engineering Co.
Engineers for the Valley Branch Watershed District

c: VBWD Managers



Parks and Open Space
Subwatersheds
Impaired Stream (2010)
High Priority Water Body
Impaired Lakes (2010)
Somewhat Connected Natural Corridor
Central Region Green Infrastructure
Bikeways/Trails
Designated Trout Streams
Assessed Wetlands
Impaired Wetlands (2010)
Valley Branch Watershed District Legal Boundary

N

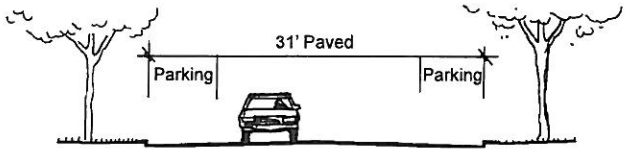
0 3,000 6,000 9,000 12,000 15,000 Feet

0 1,000 2,000 3,000 4,000 5,000 Meters

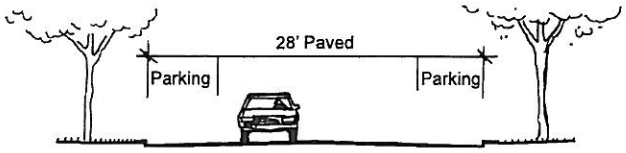
Figure 20

HIGH PRIORITY AREAS
AND GREENWAY CONNECTIVITY
Valley Branch Watershed District, MN

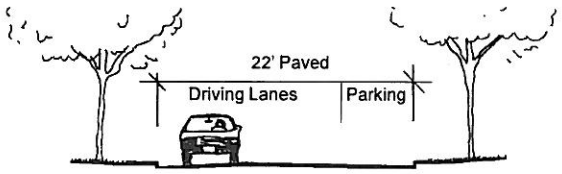
Street Design



Standard width for residential collector streets, with parking on both sides. Dimension Source: Maple Grove, Minnesota.



Standard width for residential minor streets, with parking on both sides. Dimension Source: Eden Prairie, Minn.

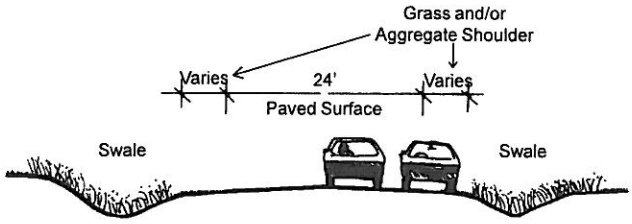


Allowing parking on only one side can further reduce the width of low-volume residential streets. Dimension Source: Robert Engstrom Companies (Fields of St. Croix, Lake Elmo, Minn.).

Many residential streets are wider than necessary. They should be designed with the minimum pavement width that will support the area's traffic volume; on-street parking needs; and emergency, maintenance, and service vehicles. For example, consider creating one parking lane rather than two for suburban residential streets.

In new subdivisions, reduce impervious surface by reducing the total length of residential streets. (See *Open Space Subdivision Design.)*

Encourage stormwater infiltration through the use of curbless road designs and overland drainage conveyance systems. On low-traffic streets, narrow the pavement and allow grass shoulders to function as an occasional parking lane.



Crowned, curbless road drains to roadside swales. Grass shoulders function as occasional parking lanes. Dimension Source: Afton, Minn.

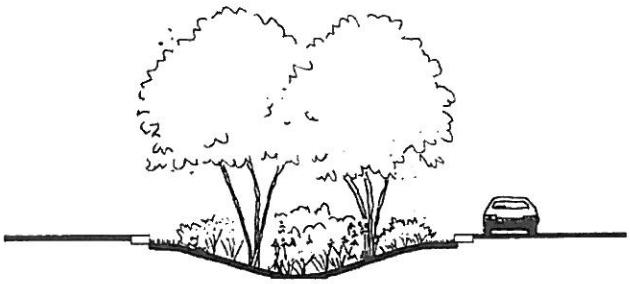
Benefits

- Reducing impervious surface results in less stormwater runoff and less infrastructure to accommodate it.
- Less pavement means lower costs for development and maintenance.
- Narrower streets discourage fast driving speeds and create a more pedestrian-friendly environment.

Design Guidelines

- Design residential streets with the minimum pavement width necessary to support: the traffic volume; on-street parking needs; and emergency, maintenance, and service vehicles.

Cul-de-Sac Design

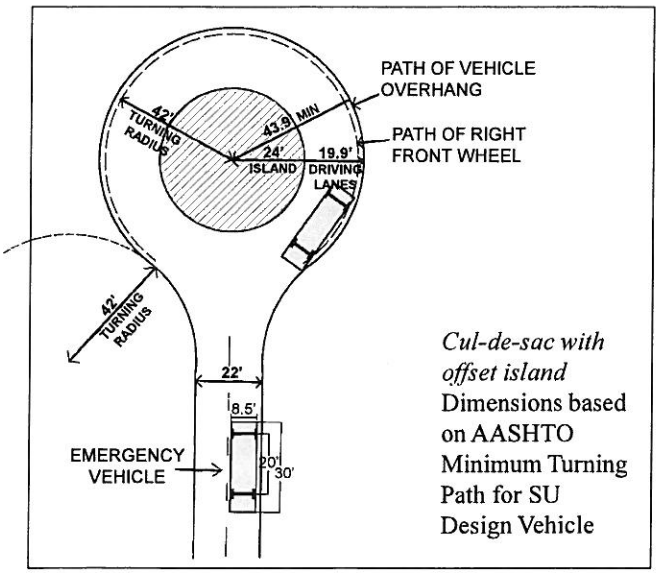


Cul-de-sac infiltration island accepts stormwater from surrounding pavement.

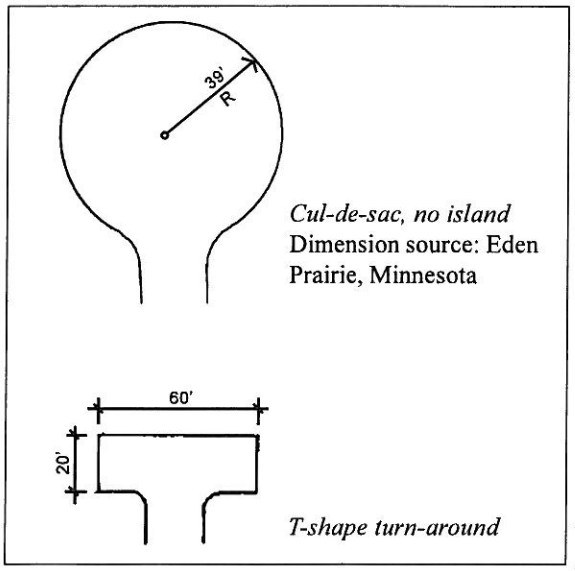
Reducing the size or changing the shape of cul-de-sacs can reduce the amount of impervious surface in subdivisions. Cul-de-sacs should be designed using the minimum radius that accomodates turning of emergency, service, and maintenance vehicles. Changing the radius from 40 feet to 30 feet can reduce the impervious coverage by about 50% (Schueler 1995).

Using turnaround options such as a T-shape can also greatly reduce impervious surface.

A landscaped island in the center of the cul-de-sac removes impervious surface where driving does not occur. This island can also be designed as a depression to accept stormwater runoff from the surrounding pavement. A flat apron curb will stabilize roadway pavement and allow for runoff to flow from pavement into the cul-de-sac's open center.



Cul-de-sac with offset island
Dimensions based on AASHTO Minimum Turning Path for SU Design Vehicle



Cul-de-sac, no island
Dimension source: Eden Prairie, Minnesota

T-shape turn-around

Drawings adapted from Schueler 1995.

Benefits

- With less impervious surface, less stormwater runoff will require management. Reducing stormwater runoff protects downstream water bodies. Less paved surface also means lower development and maintenance costs.
- Reducing pavement lessens the urban heat island effect, the increase in air temperature that can occur when highly developed areas are exposed to the sun.
- Planted cul-de-sac islands are more attractive than wide expanses of pavement.

Design Guidelines

- Design cul-de-sacs with a radius of 39 feet or less.
- Include an unpaved, depressed island with a minimum radius of 20 feet.