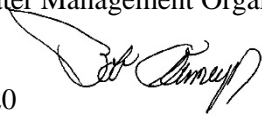


To: Lower Rum River Water Management Organization
From: Barr Engineering Co. 
Date: Date: October 13, 2020
Re: Permit # 2019-22: The American Club: Anoka

The project submitted proposes the removal of the existing on-site structures with the construction of a multi-unit residential building with underground parking on the 4.0-acre site located west of Greenhaven Road with the Greenhaven Golf Course to the north and west. The Health Partners Clinic is to the south.

The stormwater management plan is for the entire proposed site and the contributing tributary area. The Health Partners site has also been analyzed as well as runoff discharging to the existing downstream basins. An environmental investigation of the site identified contaminated soil and groundwater, resulting from underground petroleum storage tanks, located in the central portion of the site. For compliance with the LRRWMO volume retention requirements, volume retention is proposed through infiltration. Braun Intertec has identified the extent of the groundwater impacts and has identified that contaminated is limited to an area approximately 300 feet west of the proposed infiltration facilities. This distance is beyond the estimated area of influence from the infiltration facilities, 75 feet required, using the Minnesota Stormwater Manual Screening Assessment for Contamination at Potential Stormwater Infiltration Sites: Influence Zone Table. We agree with this conclusion.

The Braun geotechnical report identifies the underlying soils throughout the site as silty sand (SM). The stormwater management calculation submitted used an infiltration rate of 0.8 inches/hour, which is more representative of a sand material (SP). Our analysis used an infiltration rate of 0.45 inches/hour for the SM soil using the Minnesota Stormwater Manual. Groundwater in the area of the proposed surface infiltration basin was identified at a depth of 4.5 feet, elevation 846.2 M.S.L. Groundwater information, that has not been provided, is required in the area of the proposed underground stormwater facility.

The following table summarizes the existing and proposed discharges from the site for the 2, 10, and 100-year frequency storm:

Frequency	Existing Discharge c.f.s.	Proposed Discharge c.f.s
2-Year	2.2	<1.0
10-Year	6.8	2.2
100-Year	20.1	9.4

A volume retention of 7,369 cubic feet is required from the 2.03 acres (88,427 square feet) of impervious area. The proposed stormwater facilities provide a retention volume of 9,901 cubic feet (7,369 cubic feet required) with an area of 9,363 square feet (4,094 square feet required) at a depth of 1.8 feet or the outlet

elevation of the basin(s), whichever is less. A depth of 1.8 feet is the maximum allowable depth of inundation for a drawdown of the volume retention within 48 hours 0.45 inches/hour as the infiltration rate.

LRRWMO water quality criteria requires an annual removal efficiency of 90% for total suspended solids and 60% of total phosphorous for the project. The results of the MIDS calculator submitted indicates the combined stormwater facilities will provide an annual removal efficiency of 93% for total suspended solids (724 lbs.) and 93% for total phosphorus (3.99 lbs.).

As previously stated, groundwater was encountered at elevation 846.2 M.S.L. in the area of the proposed surface water infiltration basin. The bottom elevation of this facility, as shown on the revised plans, is 849.3 M.S.L., a separation of 3.1 feet. Additional information, as previously stated, needs to be provided showing the required 3 foot of separation will be provided between the bottom of the underground infiltration facility and groundwater.

The calculated 100-year frequency flood elevation of basins and the low floor elevation of the adjacent structures are as follows:

	Calculated 100-year HW elevation (M.S.L.)	Building Finished Floor elevation (M.S.L.)	Separation (feet)	Garage Floor Elevation (M.S.L.)	Separation (feet)	Minimum Separation to GW (feet)*	Separation to GW Provided (feet)
Basin 2P – Surface Basin	851.2	862.7	11.5	852	0.8	0.3	5.8
Basin 3P- Underground System	853.3	862.7	9.4	852	-1.3	3.0	7.1

*Low Floor Elevation Assessment has been used to determine if sufficient distance is provided between a proposed structure and a riparian basin for the drawdown of the retention volume not having a direct impact on the structure.

The table above provides the information regarding the calculated 100-year high water elevation for both proposed stormwater facilities, the building finished floor and underground garage floor elevation, and the required and proposed minimum distance between the garage floor elevation and groundwater using the lowest floor elevation assessment. The Low Floor Elevation Assessment has been used to determine if sufficient distance is provided between a proposed structure and a riparian basin for the drawdown of the retention volume not having a direct impact on the structure. There is no “direct” connection between the underground stormwater system and the low floor elevation (garage floor) of the structure. The highwater elevation within the underground system would have to reach elevation 859.7 M.S.L. (6.4 feet higher than the calculated 100-year frequency flood elevation) before water could leave the pipe system and potentially become tributary to the structure.

Silt fence and bio-rolls are shown to be constructed at the limits of construction, inlet protection encircling storm water inlets, and a rock construction entrance for erosion control.

It is our recommendation that the LRRWMO approve of the permit for this project subject to the following conditions:

1. Erosion control measures need to be installed prior to the commencement of construction.
2. Upon completion of construction and restoration of disturbed areas, the permit applicant is responsible for the removal of all erosion control measures installed throughout the construction site.
3. To minimize the potential of material from leaving the site and being tracked onto the roadway, a rock filter construction entrance being a minimum of 2 feet in height and having side slopes of 4:1 must be constructed at the entryway onto the site. The rock construction entrance will provide an erosion control facility and also enable construction traffic to enter the site.
4. Street sweeping must be undertaken and completed on an as needed basis.
5. Compliance with the storm water management requirements of the Lower Rum River Watershed Management Organization are to be administered for this project by the City of Anoka.
6. Additional information needs to be provided showing the required 3 foot of separation will be provided between the bottom of the underground infiltration facility and groundwater.
7. In all cases where the doing by the permittee of anything authorized by this permit shall involve the taking, using, or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements or interests, the permittee; before proceeding; shall obtain the written consent of all persons, agencies, or authorities concerned, and shall acquire all necessary property rights and interest.

The permit for the project will not be issued until Condition 6 has been satisfied.