The following review of the above mentioned project located within the legal jurisdiction of the Brown’s Creek Watershed District (BCWD) was conducted to determine compliance with the BCWD rules for purposes of the engineer’s recommendation to the Board of Managers for its determination of the application for an amendment to a permit determination made by the administrator (5/20/2020).

**Applicant:** Indian Hills Golf Club  
**Permit Modification Request Submittal Date:** June 8, 2020  
**Completeness Determination:** June 11, 2020  
**Action Required By:** August 8, 2020  
**Review based on BCWD Rules effective April 1, 2020**  
**Recommendation:** Approve with conditions

**GENERAL COMMENTS**

*Comments from 4/27/2020 Engineer’s Report for the initial permit approval*

High water levels on the Sunnybrook Lake system have resulted in flooding of Keats Avenue North and inundation of the Indian Hills Golf Club. Typically, the golf club pumps water from the Keats Avenue ponds to the east side of the golf course to maintain playability of the adjacent holes. Spring rainfall caused water to overtop a berm on the golf course which inundated three of the club’s 18 holes. To maintain services for the members of the golf club, the applicant is proposing to abandon the three flood-prone holes by expanding the course to the northeast and constructing three new holes.

The proposed project will disturb 8.36 acres and extends northeast of the existing golf course across the old trolley line onto what is currently a forested portion of the existing parcel and an area that is currently being used for agricultural purposes on the adjacent parcel. There will be no impacts to existing wetlands as a result of this project. Activities related to holes 6 and 7 are outside of the existing wetland buffers and there are no wetlands located on the parcel being subject to a new primary use. The cart path is proposed to be constructed of wood chip so there will be no new imperious area created as a result of this project. The project includes the construction of two sediment basins which will become permanent water features for the course. The site plan for the proposed project is provided as Figure 1.

*Comments on modification request*

On June 8th, the permit applicant notified the BCWD of their intent to replace proposed wood chip cart paths with asphalt cart paths. The proposed cart paths are 8 feet wide and run a total length of
2,380 feet, resulting in a total addition of impervious area of 19,040 square feet. This area exceeds the 10,000 square foot threshold and triggered review of the project under BCWD Rule 2.0 (Stormwater). The discussion below relates only to BCWD Rule 2.0 as the project was already approved under Rule 3.0 and the proposed erosion and sediment control plans have not been changed. An updated site plan for the proposed project is provided as Figure 1.

**Recommendation:** The BCWD engineer recommends that the Board approve the amended permit with conditions as identified in this engineer’s report.
Figure 1. Site Plan

Watershed Summary

Watershed A
- Impervious cart path proposed: 0 Acres
- Impervious cart path removed: 0.06 Acres

Watershed B
- Impervious cart path proposed: 0.43 Acres
- % Impervious: 1.5%
Rule 2.0—STORMWATER MANAGEMENT

Under 2.2(b)(ii) of the rule, stormwater management is required for development or redevelopment creating impervious surface that, aggregated with existing impervious surface on the site, equals 10,000 square feet or more or creating impervious surface that, aggregated with existing impervious surface on the site, equals 5,000 square feet or more on a site within the surface water contributing area of a groundwater-dependent natural resource. Given redevelopment of a portion of the site from agricultural to golf course use, and given that less than 50 percent of existing impervious surface is disturbed, the criteria in Rule 2.0 apply only to reconstructed and net additional impervious surface, and all disturbed areas on the project site.

The proposed project creates 19,040 square feet of additional impervious surface, which triggers Rule 2.0 Stormwater Management. Stormwater management is provided through infiltration within golf course depressions, which are connected through a series of catch basins used for irrigation. Runoff from the site drains to one of two basins.

- **Watershed A** (west portion of site - 2.5 acres) drains to Sediment Basin 1 which will be repurposed as a infiltration basin following stabilization of the site.
- **Watershed B** (east portion of site - 22.5 acres) drains to Sediment Basin 2 which will be managed as a wet pond, with a 2-foot infiltration bench above the normal water level of the pond. A culvert with a gate valve at the normal water level of the basin will be installed to drawdown the basin for maintenance or in the event the basin fails to drawdown to the normal water elevation within 48 hours.

**Rate Control**

According to BCWD Rule 2.4.1(a)(i), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase peak stormwater flow from the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two, 10, or 100 years for all points where discharges leave the site.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. A comparison of the modeled peak flow rate to each watershed is included in Table 1 - Table 2.

<table>
<thead>
<tr>
<th>Table 1 - Peak Discharge Rate for Watershed A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Event</strong></td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>2-year (2.81&quot;)</td>
</tr>
<tr>
<td>10-year (4.17&quot;)</td>
</tr>
<tr>
<td>100-year (7.23&quot;)</td>
</tr>
</tbody>
</table>
Table 2 - Peak Discharge Rate for Watershed B

<table>
<thead>
<tr>
<th>Event</th>
<th>Pre-settlement Runoff Rate (cfs)</th>
<th>Proposed Runoff Rate (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year (2.81&quot;)</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>10-year (4.17&quot;)</td>
<td>0.41</td>
<td>0.37</td>
</tr>
<tr>
<td>100-year (7.3&quot;)</td>
<td>11.88</td>
<td>4.90</td>
</tr>
</tbody>
</table>

**Volume Control**

According to BCWD Rule 2.4.1(a)(ii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase stormwater flow volume from all points where discharge leaves the site, as compared with the pre-settlement condition, for a 24-hour precipitation event with a return frequency of two years, or five years within a landlocked basin or a subwatershed draining to a landlocked basin.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of pre-settlement and post-development site conditions. Since the project is within a landlocked basin, a comparison of the modeled volume for the 5-yr, 24-hour storm to each watershed is included in Table 3.

**Table 3 - Discharge Volumes for the 5-year Storm**

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Pre-settlement Runoff Volume (acre-ft)</th>
<th>Proposed Runoff Volume (acre-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watershed A</td>
<td>0.09</td>
<td>0.00</td>
</tr>
<tr>
<td>Watershed B</td>
<td>0.03</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Pollutant Loading**

According to BCWD Rule 2.4.1(a)(iii), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not at the downgradient property boundary or to an onsite receiving waterbody or wetland, increase annual phosphorus loading as compared with the pre-development condition.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a MIDS model of pre-development and post-development site conditions. A comparison of the annual phosphorus loading to each watershed is included in Table 4.
Table 4 - Offsite Phosphorus Loading

<table>
<thead>
<tr>
<th>Watershed</th>
<th>Pre-Development Annual Phosphorus Loading (lbs)</th>
<th>Proposed Annual Phosphorus Loading (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watershed A</td>
<td>0.15</td>
<td>0.01</td>
</tr>
<tr>
<td>Watershed B</td>
<td>1.05</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Lake/Wetland Bounce

According to BCWD Rule 2.4.1(a)(iv), an applicant for a stormwater management permit must demonstrate to the District that the proposed land-altering activity will not increase the bounce in water level or duration of inundation, for a 24-hour precipitation event with a return frequency of two, 10, or 100 years in the subwatershed in which the site is located, for any downstream lake or wetland beyond the limit specified in Appendix 2.1.

☒ Rule Requirement Met

The stormwater management plan developed for the site was evaluated using a HydroCAD model of Existing and post-development site conditions. Given no increases in peak flow rate from pre-settlement as shown in Table 1 - Table 2 and given no increase in runoff volume from existing conditions as shown in Table 5 - Table 6, there will be no increase in bounce or duration of inundation for any downstream wetlands.

Table 5 - Discharge Volumes for Watershed A

<table>
<thead>
<tr>
<th>Event</th>
<th>Existing Runoff Volume (acre-ft)</th>
<th>Proposed Runoff Volume (acre-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year (2.81&quot;)</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>10-year (4.17&quot;)</td>
<td>0.16</td>
<td>0.00</td>
</tr>
<tr>
<td>100-year (7.23&quot;)</td>
<td>0.53</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Table 6 - Discharge Volumes for Watershed B

<table>
<thead>
<tr>
<th>Event</th>
<th>Existing Runoff Volume (acre-ft)</th>
<th>Proposed Runoff Volume (acre-ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year (2.81&quot;)</td>
<td>0.4</td>
<td>0.00</td>
</tr>
<tr>
<td>10-year (4.17&quot;)</td>
<td>1.42</td>
<td>0.13</td>
</tr>
<tr>
<td>100-year (7.23&quot;)</td>
<td>4.77</td>
<td>2.18</td>
</tr>
</tbody>
</table>

Rule 2.0 Conditions:

2-1. Provide a stormwater facility maintenance declaration in a form acceptable to the District and proof of recordation with Washington County. The maintenance declaration shall be
Rule 7.0—FLOODPLAIN AND DRAINAGE ALTERATIONS

According to Rule 7.2, no person shall alter or fill land below the 100-year flood elevation of any waterbody, wetland, or stormwater management basin, or place fill in a landlocked basin, without first obtaining a permit from the District. No person shall alter stormwater flows at a property boundary by changing land contours, diverting or obstructing surface or channel flow, or creating a basin outlet, without first obtaining a permit from the District.

☒ Rule Requirements Met.

This rule is triggered due to changes to existing drainage patterns within Watershed A (additional drainage area is directed to the north under proposed conditions). However, drainage from the entirety of Watershed A under both existing and proposed conditions ultimately drains to the same downstream wetland northeast of the site. The drain tile system on holes 5 and 6 will be directed to a permanent sediment basin with an infiltration bench which will naturally overflow to the existing depressions and wetlands to the north. The drain tile system for hole 7 will capture irrigation water and route it to a permanent infiltration basin which will also naturally overflow to the wetland on the southwest side of the old trolley Line where it will continue to flow along its existing drainage path. Given stormwater flow rates and volumes conveyed to downstream resources are maintained at or below existing conditions, there is no concern regarding flood risk or basin stability.

Rule 8.0—FEES

Fees for this project as outlined below:

1. Erosion control fee for grading $2,000
2. Stormwater management fee $3,000
3. Floodplain and drainage alterations fee $500

TOTAL FEES $5,500

Rule 9.0—FINANCIAL ASSURANCES

Financial assurances for this project are as outlined below:

1. Grading or Alteration (8.36 acres disturbed x $2,000/acre) $16,720
2. Stormwater Management Facilities (125% of facility cost) $TBD

RECOMMENDED ADDITIONAL CONDITIONS OF THE PERMIT:

The following is a summary of the remaining tasks necessary to bring the project into compliance with the BCWD Rules:

1. Demonstrate that the plan has received approval from the city of Grant (BCWD Rule 1.3a).
2. Address all stormwater requirements (Condition 2-1).
3. Address all erosion control requirements (Conditions 3-1 to 3-2). All conditions met except:
   a. Provide documentation as to the status of a National Pollutant Discharge Elimination System stormwater permit for the project from the Minnesota Pollution Control Agency.
4. Replenish the Permit fee deposit. If the permit fee deposit is not replenished within 60 days of receiving notice that such deposit is due, the permit application or permit shall be deemed abandoned and all prior approvals shall be revoked and collection proceedings shall begin on unpaid balances.
5. Provide the required financial assurances (BCWD Rule 9.0):
   a. Total grading or alteration assurance 8.36 acres ($16,720).
   b. Floodplain and Drainage Alterations ($500)
6. Provide financial assurance for the stormwater management facilities.

STIPULATIONS OF APPROVAL:
1. Note that the permit, if issued, will require that the applicant notify the District in writing at least three business days prior to commencing land disturbance. (BCWD Rule 3.3.1)
2. Provide the District with as-built record drawings showing that the completed stormwater facilities conform to the grading plan.