

**Proposed Shooting Star Resort and Casino
Wetland Summary
Star Lake, Minnesota**

July 26, 2017

1. EXISTING CONDITIONS

a. Wetland types and cumulative acreage of wetland types in Star Lake subwatershed

Based upon the online version of the NWI, the following are estimates of wetland acreages by the following wetland types:

Type	Acres Total	Lakeside Total	South Arm only
PEM1B	10	--	--
PEMC	995	389	248
PEMF	1,470	878	554
PSS1C	1,170	402	14
PFO1C	160	104	--
PFO6	135	17	--
PUBF	8	--	--
PUBG	30	--	--
PEM1Ad	13	--	--
PEMCd	211	98	98
PEMFd	70	--	--
PFO1Cd	7	--	--
PFO6Cd	368	--	--
PUBGd	38	--	--
Totals	4,685	1,888	914

A tally of the wetlands from the NWI mapping tool identified approximately 4,685 acres of wetlands within the Star Lake subwatershed. Approximately 1,888 acres of wetland area was mapped adjacent to Star Lake, and 914 acres were mapped adjacent to the South Arm.

This total wetland acreage may be underestimated as there were additional wetland acreages delineated on the property than those were mapped on the NWI, and NWI acreages are estimates only.

Based on the estimated acreages, the 7.4 acres of wetland to be filled in the proposed project would represent 0.16% of the wetlands within the immediate watershed of Star Lake, 0.40% of the wetlands adjacent to Star Lake, and 0.82% of the wetlands adjacent to the South Arm.

b. Functions and values of wetlands in Star Lake subwatershed and relative significance to Star Lake

According to the MnRAM, the primary Functions and Values categories are Vegetative Diversity/Integrity, Maintenance of Characteristic Hydrologic Regime, Flood / Stormwater / Attenuation, Downstream Water Quality, Maintenance of Wetland Water Quality, Shoreline Protection, Maintenance of Characteristic Wildlife Habitat Structure, Maintenance of Characteristic Fish Habitat, Maintenance of Characteristic Amphibian Habitat, Aesthetics / Recreation / Education/ Cultural, Commercial Uses, Groundwater Interaction.

1. Vegetative Diversity/Integrity

Much of the immediate watershed to Star Lake has historically been agricultural, as identified in the MnDNR Fisheries Lake Survey. Since Star Lake is near the top of a watershed, it would be expected of it to have less degradation from the land use practices around it than waters lower in the watershed.

Even near the top of this watershed, there is still a significant amount of wetlands that have been degraded by historic drainage and by the overuse of fertilizers in the timeframe before the 1980s as since then there has been more emphasis on a reduction in fertilizer use as receiving waters had turned green from nuisance algal blooms. This was noted in the Otter Tail County Water Management Plan. This plan identified drained wetlands and the future priority of restoring wetland in the Southwest area of Otter Tail County. The water clarity reading in Star Lake in the 1970s was the shallowest on record, with transparencies increasing through the 1980s and 1990s to water that is much clearer today.

This clearing-up of the water in Star Lake happened during the timeframe when livestock were moved away from lakes and fertilizer was used more sparingly on agricultural fields.

Even though nutrient loads have been reduced, the damage to many wetlands has already been done: most wetlands adjacent to agricultural land have shifted to reed canary grass-common cattail wetlands, indicating that these species have most likely displaced the species that were there previously. Even in the Staff Waterfowl Production Area (WPA), much of the wetland area is overgrown in common cattail so that there is a relatively small amount of open water, and long distances between the open water and the shorelines.

While there are some wetland areas that are in their historic natural state, many of the wetlands in the Star Lake subwatershed have been degraded by past land use practices. When reed canary grass and common cattail become established, it very seldom goes back to the previous condition.

Wetland areas within the Star Lake subwatershed where the wetlands had not yet been degraded have plant species assemblages that include lake sedge, woolgrass, fowl bluegrass, various smartweed species, various sedges, various spike rush species, and bulrush.

2. Maintenance of Characteristic Hydrologic Regime

There was a time when ditching and draining occurred regularly on farmland in order to increase agricultural production. Now, technological advances have increased per-acre yields, so the additional acreage is less critical. Furthermore, there is more scrutiny regarding farmland practices so that wetlands cannot be drained without proper replacement. In non-agricultural areas, there is scrutiny regarding land use such that wetlands cannot be filled unless they go through the proper sequencing process or fit within some kind of exemption.

The practice of agricultural wetland draining has largely ceased.

3. Flood / Stormwater / Attenuation

The historic ditching and draining within agricultural land has led to an increase in the “flashiness” of bounce in water levels after stormwater events. Since Star Lake is near the top of

a watershed, stormwater bounce is far less than it would be if the lake was farther down the watershed with more acres draining into the lake.

4. Downstream Water Quality

Due to the improvement in agricultural livestock and cropland farming practices during the 1980s, the water quality improved significantly from the 1970s through the 1990s. This has improved the water quality to the downstream receiving waters.

5. Maintenance of Wetland Water Quality

With farmers and mown lawn owners using less fertilizer on the soil (from educational campaigns), wetlands that have not drastically been degraded will have a chance to hold steady and possibly even improve in quality.

6. Shoreline Protection

Through education and regulation, lakeshore homeowners around Star Lake are recognizing that the vegetation outside their property is important to fish and for protection from shoreline erosion.

Many docks around the lake have cleared-out paths for the landowners to reach the open water in the lake. As long as these are maintained as paths, erosion should be minimal. If the vegetation is removed completely there would likely be erosion.

7. Maintenance of Characteristic Wildlife Habitat Structure

Areas like the Staff WPA will preserve wildlife habitat. The proposed project identifies an increased Upland Buffer and other areas of Native Prairie restored, which would also increase the wildlife habitat.

8. Maintenance of Characteristic Fish Habitat

Shoreline wetlands are home for fish food and for living spaces where baitfish hide from predators providing food for them in the late fall and winter. Emergent vegetation (such as hardstem bulrush) is a common spawning area for spottail shiners as they can spawn on the hard bottom while not being exposed to predators if they were on clean sand bottom.

The current project does not plan to disturb the shoreline or clear out vegetation in along the lakeshore of the property except for possibly a path for access to the wild rice beds.

9. Maintenance of Characteristic Amphibian Habitat

The stoppage of ditching and draining within agricultural areas, and the conversion of agricultural land to rural-residential (with the avoidance of wetlands in the process) has allowed many seasonal basins to become more usable for amphibians.

10. Aesthetics / Recreation / Education / Cultural

Wetlands provide a variation in texture during a long view across farmland and across lakes. Waterfowl will use the open water for growth and the fringes for nesting areas. Pheasants are

commonly found in the upland areas adjacent to wetlands, with pheasants using common cattail as thermal cover during the coldest times of the winter, including winter snowstorms.

11. Commercial Uses

Aside from farmed wetlands and livestock using wetlands, there is minimal commercial use. There is some wild rice harvest, but that is minimal in the subwatershed of Star Lake.

12. Groundwater Interaction

Most of the wetlands within the Star Lake subwatershed are flow-through wetlands that don't have a significant amount of interaction with groundwater.

c. Nature and relative extent of currently-impacted wetlands in subwatershed

There is a relatively high amount of wetlands within the Star Lake subwatershed that have had degradation impacts due to row crop farming and livestock activity. Historically there has been a significant amount of ditching and draining within western and southern Minnesota, and this area is no exception.

The nutrient enrichment that leads to dominance of wetlands by reed canary grass and large stands of common cattail are evident even in areas where row crop farming does not occur, such as the Staff WPA; the wetland areas have relatively small amounts of open water and relatively high amounts of tall common cattail, reducing the amount of waterfowl habitat.

The edges of Star Lake appear to have higher quality wetlands, with some nutrient enrichment evidence in the west end of the South Arm, as identified by the reduced water clarity according to MnDNR data. This would have been from the previous land use of the proposed project property. The plan for the proposed project is to direct stormwater through stormwater ponds designed to remove nutrients before discharging the water to Star Lake.

2. PROPOSED ACTIONS

a. Loss of wetlands in local context

A tally of the wetlands from the NWI mapping tool identified approximately 4,685 acres of wetlands within the Star Lake subwatershed. Approximately 1,888 acres of wetland area was mapped adjacent to Star Lake, and 914 acres were mapped adjacent to the South Arm.

This total wetland acreage may be underestimated as there were additional wetland acreages delineated on the property than those mapped on the NWI, and NWI acreages are estimates only.

Based on the estimated acreages, the 7.4 acres of wetland to be filled in the proposed project would represent 0.16% of the wetlands within the immediate watershed of Star Lake, 0.40% of the wetlands adjacent to Star Lake, and 0.82% of the wetlands adjacent to the South Arm.

b. Functions and values of wetlands in Star Lake subwatershed and relative significance to Star Lake

1. Vegetative Diversity/Integrity

Reed canary grass was a primary species observed in the areas identified to be impacted with a little bit of fowl bluegrass, lake sedge, sandbar willow, black ash, and common cattail. It is expected that these species will volunteer into the stormwater ponding areas.

2. Maintenance of Characteristic Hydrologic Regime

The stormwater ponding areas will tend to hold a stronger hydrologic regime than the previous areas identified as impact areas.

Wetlands along the shore of Star Lake are expected to continue to maintain their hydrologic regime.

3. Flood / Stormwater / Attenuation

The plan to re-direct stormwater through a stormwater system will provide a higher level of stormwater attenuation (this area is not within a floodplain) than the existing wetlands prior to the proposed project.

The water flows down to the lake past the current wetland (Basin 5) with minimal attenuation. The other basins are isolated, and provide only a little attenuation from the water in the footprint of the project. The proposed plan will direct most of the stormwater into stormwater ponds (especially from hard-surface areas), providing a higher level of attenuation than is in the current situation.

In addition, there will be a non-mown Upland Buffer along the upland slope of the shoreline wetlands, which will further slow (attenuate) the flow of sheet-flow water down to the lake.

4. Downstream Water Quality

With the stoppage of concentrated livestock right next to Star Lake and the reduction of exposed soil row crop farmland, the downstream water quality is anticipated to improve. The stormwater ponds are designed to improve water quality by settling out colloidal suspended solids and also allow for the uptake of nutrient in solution so that there is less nutrient that flows downstream.

In other words, two point sources of pollution (former cattle pasture next to the lake, and row crop farming next to the lake) will be removed, and stormwater will be pre-treated before it flows down-stream.

5. Maintenance of Wetland Water Quality

With the reduction in nutrient load into the thick stand of common cattail alongside Star Lake, it is expected that there may be an increase in biological diversity; the common cattail population may be reduced and a mixed dominance of various species may develop as a result.

6. Shoreline Protection

The plan does not identify any impact to the heavily protected shoreline other than a minor re-configuration of an outlet area for a stormwater outlet. There is a very thick and tall stand of common cattail between this location and the open water of the lake so that there would be no waves that wash into this area.

7. Maintenance of Characteristic Wildlife Habitat Structure

While the stormwater ponding areas are technically not “wetlands,” they will provide good habitat for wetland species. Canada geese prefer the short grass of mown stormwater ponding area edges as they seem to prefer that habitat over highly vegetated shorelines.

The addition of the non-mown Upland Buffer alongside Star Lake will provide greater nesting habitat as compared to the current condition of row cropped farmland.

One of the proposed mitigation strategies is to reduce the population of nest predators such as raccoons. This would provide the opportunity for more successful nesting conditions and increase the population of game and nongame birds.

8. Maintenance of Characteristic Fish Habitat

This site is more than a mile away from the portion of the bay where most fish would be, and more than 2 miles away from the deep water in the lake. Without any significant alteration of the shoreline or the vegetation within the standing water zone outside of the shoreline, any impact to this fishery habitat is anticipated to be negligible.

9. Maintenance of Characteristic Amphibian Habitat

Even marginal wetlands of low quality will become amphibian habitat during the snowmelt runoff period of early spring. While the proposed project identifies 7.4 acres of wetland impact, there will be 3.9 acres of unofficial “wetland creation” in the form of stormwater ponding areas.

These stormwater ponding areas will become habitat for amphibians as they will hold water longer than the existing wetlands to be filled would, and there will be more open water habitat where the larval stages will be able to swim after hatching out.

10. Aesthetics / Recreation / Education / Cultural

Part of the project is to have an educational component where guests and visitors can learn about the various ecological topics important to the Star Lake area. The cultural importance of Wild Rice will be part of that educational component.

Part of the plan is to restore Native Prairie habitat in the Upland Buffer and elsewhere, which will be aesthetically pleasing to the visitors and guests.

With bird houses and bird feeders, there would be an opportunity for ornithology buffs to add more species to their “life lists.”

11. Commercial Uses

There is no known commercial use of the wetlands in the footprint of the potential project other than the past practice of letting livestock use the wetlands for drinking and grazing, and the wetlands within row crop farmland to grow crops during years when they could be planted through.

12. Groundwater Interaction.

The wetlands on the site appear to be flow-through wetlands. Soils within the bottoms of wetlands tends to be tighter soil as they collect colloidal suspended solids from the row cropped farmland and the exposed gravel driveways; this colloidal material becomes silts and clays, tightening up the soils in the bottoms of wetlands and tending to make them flow-through features.

c. Nature and relative extent of current impacts to wetlands in project area to be filled

While the wetlands proposed to be impacted would be replaced outside the Star Lake subwatershed, there are 3.9 acres of stormwater ponds that provide many of the wetland functions and values of the wetlands proposed to be impacted.

d. Nexus and potential impacts to wild rice adjacent to wetlands to be filled

The proposed actions are inland from the identified shoreline and the wild rice is far into the lake from the identified shoreline. The proposed wetland fill actions are separated from the wild rice by a very thick and tall stand of common cattail. Even potential direct influences in water quality, quantity, and temperature would be moderated through the stand of common cattail, thereby mitigating direct impacts on wild rice.

The White Earth Natural Resource department was part of the advisory team related to the Wetland Delineation and Mitigation. Will Bement participated in the delineation, mitigation and the protection of Wild Rice. This effort reduced the original number of Wetlands impacted to 7.4 acres and changed the waste water treatment systems from surface water discharge to irrigation methodology.

In the past when there was concentrated livestock in the proposed site location, there would have been nutrient enrichment to the western end of the South Arm. This, combined with the more recent row crop farming (with exposed soil washing into Star Lake) would have contributed to the current nutrient load in Star Lake that has made the west end of the South Arm less clear (due to more algae) than the rest of Star Lake.

The proposed plan of stopping row crop farming practices and directing stormwater through stormwater ponds designed to reduce the nutrient load leaving the site are expected to reduce the nutrient load in the South Arm and are anticipated to contribute to an improvement in the water quality of the area. This improvement of water quality is anticipated to be beneficial to the stand of wild rice in the South Arm.

3. PERMITTING/MITIGATION

a. COE jurisdiction

With the Rapanos Decision, the COE needs to demonstrate that there is a connection to a navigable waterway. Because a formal Approved Jurisdictional Determination (AJD) can take a long time, most times projects go the route of using the Preliminary Jurisdictional Determination (PJD) where the Corps assumes jurisdiction for wetlands on a project and the mitigation is determined from there without making a formal determination. Since the State of Minnesota usually has jurisdiction, most projects don't request an AJD.

The replacement ratios are typically similar between the COE and the State, but not always. The COE replacement factors in whether the replacement is A) in-kind, B) in-advance, and C) within the same Bank Service Area or not. The process for determining replacement uses these three factors as the basis.

Also, the COE requires that Wetland Bank Credits (in-advance mitigation) be from COE-approved wetland banks (not all Wetland Banks are COE Approved).

On this property, the State does not claim jurisdiction on the Tribal Trust Land but under the PJD, the COE would be given jurisdiction. Therefore the Tribal Trust portion is discussed in the COE process but not the State process.

b. WCA jurisdiction

The WCA jurisdiction is administered by Otter Tail County. Based on many meetings over many months with recommendations from the BWSR representative who received input from the higher levels of BWSR, it was determined that there would not be State jurisdiction on the Tribal Trust Land as it relates to wetlands.

Therefore, the WCA review included only the proposed impacts to Basins 3, 6, 19, and the Fee Land portion of Basin 5.

There were multiple design configurations that were discussed (with both WCA and COE representatives) over several months which resulted in the avoidance of wetland impacts to Basin 4 and Basin 18 but caused Basin 19 to be impacted as the footprint of the project was shifted to the east; this reduced the overall wetland impact but increased the number of trees impacted in the eastern portion of the proposed project.

c. Proposed action is permissible under COE rules with compensatory mitigation

While this may fit into the Individual Permit category for extra regulatory review, the COE regularly grants Individual Permits. There was extensive Sequencing information in the Permit Application along with many additions to the Sequencing discussion when the COE requested additional information to clarify particular points. There were many revisions to the proposed project in response to input from WCA and COE representatives.

d. Status of COE permitting

The current status of is comment and response phase being completed and under review by the COE.

e. Status of WCA permitting

The current status is on hold due to the Voluntary Environmental Assessment process. The permit phase has been through public comment and is awaiting next steps of response from proposer.

f. Mitigation required (2:1)

1. Mitigation must be in COE-approved wetland bank

Because the project was moving forward in the PJD manner, all of the identified wetland impact would need to be replaced in COE-approved wetland bank sites.

It should be noted that both the COE and the WCA are on record that they “prefer” in-advance wetland replacement (Wetland Bank Credits) rather than on-site replacement.

2. No COE-approved wetland banks in Otter Tail County or nearby

Commenters asked why the wetland replacement was outside the Star Lake sub-watershed and outside Otter Tail County. The answer is that there are no COE-Approved Wetland Bank Sites within Otter Tail County. The way to change this is to encourage people to restore wetlands within Otter Tail County along with the lengthy paperwork, maintenance, and monitoring process that is required.

Even within the Bank Service Area, there was only a small amount of COE-approved wetland bank credits (just enough for the Fee Land portion, but not enough for the entire replacement need). With the delay in this process, even the Fee Land portion might have to be purchased outside the Bank Service Area as that bank owner might need to sell those credits elsewhere.

Otter Tail County is a 50-80% County (for State WCA Jurisdiction), so the Fee Title portion would need to be purchased in a 50-80% County based on WCA Rules; therefore, the replacement becomes even more complicated (but will be resolved properly).

It is the State and COE rules and guidelines that require the replacement location within a COE approved or 50-80% County approved Wetland Bank. On-Site replacement has not been regularly used since the 1990s.

It should be noted that many of the important wetland functions and values (such as stormwater attenuation, cleaning of sheet-flow water, and wildlife habitat) are being provided by the stormwater ponding system and the voluntary Upland Buffer (plus other Native Prairie areas) alongside the Star Lake shoreline wetlands.

In older versions of the WCA, stormwater ponding areas were given “wetland credit” (called Public Value Credits) but that was prior to the shift to the preference for using Wetland Bank Credits. These stormwater areas really do provide wetland functions and values within the Star Lake subwatershed, but are not formally claimed as “wetland credit.”

g. Effect of wetland filling on Star Lake subwatershed

1. Water quantity (e.g. volume of wetland water retention lost)

With the addition of hard-surface to the landscape from the existing condition, there would be an addition of run-off water compared to the previous condition. The proposed project has stormwater ponding areas to collect and hold the water (for stormwater attenuation and removal of the nutrient load), so the runoff from the site will be slower than the conditions at the site prior to the proposed project.

During the retention time, there will be evaporation, evapotranspiration, and some percolation loss of stormwater. The proposed project conditions are anticipated to have an increased stormwater attenuation (reducing the pulse of stormwater after an event) from the previous conditions.

2. Water quality

a. Effects on lake water

Because the water will be run through stormwater treatment ponds, the sediment and nutrient load is expected to be less as the water will have time for the suspended solids to precipitate out and the vegetation in the stormwater ponds to uptake nutrients in solution.

b. Effects on wild rice

With the improvement of the water leaving the site (stoppage of concentrated livestock in barnyard next to the lake and row crop farming next to the lake), the nutrient load is anticipated to be reduced. This reduction in nutrient load is expected to result in the slowing or stopping of Common Cattail expansion out from the site location; the reduction in the potential encroachment of Common Cattail mats into Wild Rice habitat would benefit the Wild Rice. Therefore, it is not anticipated that the proposed project will have a detrimental effect on the stand of wild rice.

Sited sources:

Otter Tail County Water Management Plan