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September 24, 2007

Village of Clarendon Hills
1 North Prospect Avenue
Clarendon Hills, IL 60514-1292

Attn: John Hays, Director of Public Works

Subject: Evaluation of Blue Lake, Clarendon Hills, IL (CBBEL Project No. 01-161)

Dear Mr. Hays,

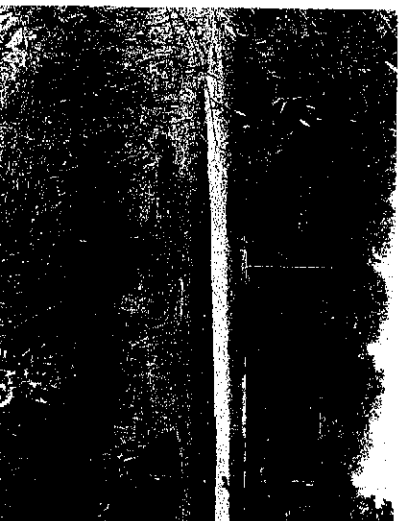
On September 18, 2007, Christopher B. Burke Engineering, Ltd (CBBEL) staff visited Blue Lake to evaluate and document its current condition, make recommendations regarding maintenance and monitoring activities and to describe what visually we would expect the area to appear like in the next +/-5 years.

Background

In May 2001, CBBEL prepared a report titled "Blue Lake & McIntosh/Burlington Avenues - Preliminary Drainage Evaluation". The study evaluated several alternatives for increasing stormwater storage capacity of Blue Lake. The Village selected and implemented the installation of a new outlet structure that would lower the NWL by 0.8'. The wetland assessment completed in 2001 stated that Blue Lake was surrounded by a band of emergent wetland encompassing 2/3 of the shoreline. Three alternatives were presented to Village concerning the aesthetic treatment of Blue Lake after the NWL was lowered. The three alternatives evaluated were dredging, dry detention or a wetland basin. Because of the high cost of the first two alternatives, the Village Board decided to allow Blue Lake to revert to a wetland basin. Consequently, Blue Lake now has a wetland fringe surrounding its perimeter.

Current Condition

On September 18, 2007 CBBEL staff visited the site to document its current condition. Blue Lake presently would be considered a hemi-marsh. A hemi-marsh is an open water area with a wetland perimeter with an interspersion of habitat types. These habitat types include emergent wetland (cattails/river bulrush), open water, mud flat, wet prairie (grasses/forbs) a small area of riverine/riparian and upland buffer. The Photograph to the right illustrates all of the identified habitat types.



These habitat types are attracting and providing forage for a variety wildlife. While onsite staff observed Beaver, Muskrat, Great Blue heron, Canada geese, Mallard ducks, minnows, bluegill, frogs, as well as a number of song birds. We expect that the area is also providing forage to egrets, night herons, fox, and possibly turtles.



Our understanding from Village staff is that in years past that the cattail coverage was greater and a concern was raised as to why there appears to have been a decline this year. That decline in cattail coverage can be attributed to the Muskrats. Muskrats eat cattail and build lodges with cattail. Muskrats typically reduce cattail coverage, and this is a normal cycle when Muskrats are present. In place of cattails, river bulrush is establishing and would be expected to expand its coverage.

Village staff also asked that we take a look at the "algal" problem within the lake. As shown in photograph to the right, there is a large area of the water surface covered in green matter. This material is not algae, the material is a plant called small duckweed (Lemna minor). Duckweeds are among the smallest of the flowering plants. They are deciduous, free-floating, aquatic perennials that form a rapidly-expanding mat of foliage (to 1/4" tall) on still water surfaces. Duckweed has no true leaves or stems. Each plant consists of an oval-rounded, flattened green frond (to 1/8" long) with a single downward-trailing root. Foliage is bright green. Tiny flowers are white, but rarely produced.



Lemna minor, sometimes commonly called lesser duckweed, is perhaps the most widespread of the duckweeds, being found throughout the world. It typically occurs in sloughs, ponds, slow-moving streams and generally reflects good water quality.



It is called duckweed because ducks (as well as other waterfowl) like to eat it. Fish also consume the plants. Duckweed is also an important food source for muskrats, beaver, birds (e.g., rails, herons) and small aquatic animals such as frogs. It also discourages algae growth by taking away available nutrients, shading the water, and lowering water temperatures. Duckweed is a beneficial plant for a variety of purposes and should be viewed as a positive and not a negative.

In our opinion, the presence of Duckweed is a major reason why so many waterfowl were present at the time of our field visit.

The wetland portions of the lake are dominated by native species, and given the context of the lakes' location in a urbanized area, where untreated runoff is directly tributary to it, there is a surprising lack of weed species and, in our opinion, the wetland is providing valuable habitat and water quality improvement by filtering runoff that passes through it.

Recommendations

Based on our field visit, we prepared the following recommendations to maintain and/or improve the habitat value of the wetland and surrounding upland area.

1. Continue routine maintenance of the lake outlet. Village staff routinely cleans debris from the lake outlet and it is important that this task continue indefinitely to prevent drowning of the established vegetation.
2. We would suggest stenciling or labeling inlets in the adjoining neighborhood that drain to the lake with a "drains to lake" or similar text to remind neighbors to dispose of fluids appropriately. We understand that a year or two ago red algae was present in the lake. Red algae are typically associated with a stressed water body. This stress may have been caused by dumping of excess herbicide, solvent, fertilizer or other substance into a storm sewer which discharged directly in to the lake.
3. The drainageways within the lake associated with the storm inlets should continue to receive routine maintenance to assure that the wetland drains properly and that stormwater runoff passes through the pond as designed.
4. The upland area surrounding the pond could use enhancement. This area is vegetated by lawn and at the top of slope is a narrow shrub line. The shrub line is dominated by buckthorn, which is a non-native weedy species. Enhancement of this area would consist of removing all buckthorn and other non-native vegetation and installing native trees and shrubs, and replacing the mowed lawn with prairie.
 - a. A less expensive option would be to stop mowing within 10' of the top of bank which will provide better habitat for the wetland area.
5. It would be beneficial to the wetland, to occasionally complete a prescribed burn of the area to promote establishment and maintain native vegetation in the area. Prescribed burns are typically completed on a 3 year cycle depending on the density of vegetation.
6. It would be beneficial to contract with a qualified company to come out yearly and herbicide non-native and weed species within the wetland and the un-mown portion of the upland buffer.
7. We recommend that trash removal within and around the wetland be completed on a routine basis.
8. We recommend construction of a path and overlook to promote appreciation and stewardship of the wetland and upland area.

Future Appearance

The wetland is currently in good condition. If the current level of maintenance is continued, we would not expect the wetland appearance to change significantly. We would expect that the river bulrush would continue to expand its coverage of the mudflat areas. Cattail coverage will vary every year depending on the number of Muskrat in the

lake and the weather. The wetland has basically reached a level of equilibrium and changes will be subtle.

If management activities are implemented, we would expect the greatest change to occur to the uplands. If mowing is stopped within 10' of the top of slope as recommended, the buffer area would become significantly denser in herbaceous and woody vegetation and the wetland area would become more secluded. This added seclusion would attract a greater abundance of wildlife to the wetland interior. Ideally, management activities would include removal of the non-native buckthorn and replacement with native trees, shrubs and grasses. This revegetation would significantly improve wildlife habitat by adding a vegetative community type not currently present; promoting other wildlife usage of the area.

If you have any questions or comments concerning this report please do not hesitate to call.

Sincerely,



Jedd Anderson
Vice President
Head, Environmental Resources Department