



Girard Lake Mitigation Project: A Plan in Progress

Wendy Anderson

INTRODUCTION

The renovation of Bush Lake Beach in the summer of 1996 includes construction on a site that was historically a wetland; therefore, mitigation within the City of Bloomington is required. The chosen site is Girard Lake, a park consisting of a lake, grassy upland area, and what is considered a small area of wetland. The Girard Lake site is located on France Avenue, just south of 60th Street. This park is also a filled wetland and therefore seemed an appropriate site for a wetland mitigation project. The project is headed by Shelly Peterson, an engineer with the city of Bloomington, and Greg Ingraham, manager of the Parks and Recreation Division of Bloomington. The plan will be submitted in spring of 1996, reviewed by the engineer and the manager, and construction will begin in the fall of that same year.

PROJECT GOALS

The main goals of the mitigation are not only to fulfill the requirements of the regulations, but to provide an additional recreation and educational area that will connect with the park that already exists. The proposed plan provides as close to a functioning wetland as possible at this scale. Since the proposed area will only be approximately one acre, restoration of the site to its former wetland structure and function is not possible. However, considering that this site will be the mitigation site for other projects, the scale will be significant enough to function as a reclamation. This will be accomplished by both grading the site properly and planting in a proposed regimen that will establish native, productive wetland. At the same time the planting will to some extent preclude the invasion of exotic, detrimental species. The project also allows for an additional amenity to be added; the excavated soil will be kept on site to produce an intentional earth mound sculpture. This will not only save money by keeping the fill on site, but will also draw in people who will then experience the wetland.

SITE DESCRIPTION

The entire Girard Lake Park consists of approximately 15 acres, with a lake that occupies close to 60% of the park. The remaining area includes an upland area and an existing wetland patch. Unfortunately, the existing area is dominated by *Typha glauca*, an invasive form of cattail. This is considered a detriment to the site and is an important factor when designing the layout and planting of the new site. The upland area, a mown turf space, is well bounded from the roadways by several Oak stands. The proposed mitigation site is approximately one acre, and is located just north of the existing wetland. The mitigated wetland will be cut into the upland, turf area. A pathway also exists which winds around the lake and connects to a parking lot northeast of the lake. The Girard Lake Park is

surrounded by developed, urban land. What was once an area with several wetlands is now filled and urbanized.

MITIGATION PLAN

The proposed wetland mitigation plan includes several steps. The first step is the excavation of the fill soils to approximate the correct hydrologic conditions for a wetland. The second step is in conjunction with the first, that is, to provide a bermed walking path which separates the existing wetland from the proposed. The seeding and transplanting of wetland species is the third step. The wetland will be established to mimic working systems under similar conditions. The next step of the plan is to complete the walking path, which will connect with the existing path structure of the site, and to provide signage to educate and demonstrate the structure and function of the wetland, as well as depicting several unique species, both plant and animal. An additional step that will actually be performed coincident with steps one and two is the establishment of an earthwork on the upland portion of the site. This step, however, does not directly impact the wetland, and will therefore be discussed as an additional step.

EXCAVATION

The first step in the process is excavating the site to an appropriate hydrologic state to allow for the establishment of a wetland. This process includes removing the fill which dominates the first few feet soil to reach the original peaty, wetland soils. In areas where this is not possible, the soils will be removed to approximately one foot above the normal water level of Girard Lake. In order to allow for the best establishment of wetland species, the side slopes of the new wetland will be approximately 8:1. Soil borings in the area have shown that the original peaty, wetland soils are a minimum of four and one-half feet below surface. Therefore, the depth of the proposed excavation will be dependent on the possibility of utilizing the original wetland soils. This would further facilitate the adaptation of wetland plant species to the site. The bottom of the proposed wetland will vary in depth, with a limited number of areas which will protrude in mounds slightly above the typical bottom elevation to provide for diversity in planting establishment.

The location of the one-acre proposed wetland is north of the lake, adjacent to the existing wetland which is dominated by *Typha glauca*. In consideration of this, a pathway will be raised between the existing and the proposed sites to inhibit the vegetative reproduction of the exotic species. However, since the *Typha* seed is primarily wind dispersed, the influx of Cattails into the area is anticipated. The majority of the excavated fill will remain on-site as the integral part of the upland earth sculpture which will be discussed in the last section.

REVEGETATION

The second step of the mitigation project is the seeding and planting of the newly excavated area. Due to the long duration and intensity of disturbance of the original wetland, as well as the fact that there exists no natural wetland propagule

source in proximity to the site, natural recolonization of wetland species is limited. Natural recolonization is a slow process. For this reason and since an important goal is to deter the invasion of the exotic species on-site, the site needs to be established quickly. Two revegetation mechanisms are proposed: seeding and planting of indigenous species harvested from sites within the city of Bloomington.

The proposed seed mix is a wet mesic grass seed mix in combination with a wet mesic wildflower seed mix. The mix will be provided by Mohn Frontier Seed and Nursery. The primary grasses of the mix are Big Bluestem, *Andropogon gerardii*, and Switch Grass, *Panicum virgatum*. Also included in the grass mix with smaller percentages are seeds from Cordgrass, *Spartina pectinata*, and Bluejoint Grass, *Calamagrostis canadensis*. The mix of forbs includes: Joe Pyeweed, *Eupatorium maculatum*, Meadow-Rue, *Thalictrum dasycarpum*, and several others. The seed mix will be applied generally over the entire site, while patches of the harvested species will be established in high visibility areas. The possible harvestable species include both shrub species and forbs. Red osier dogwood, *Cornus sericea*, is the main woody species which will be transplanted. The forbs which will be harvested include the blue flag iris and marsh marigold, *Caltha palustris*. An abundance of exotic species, including Purple Loosestrife, *Lythrum salicaria* and *Typha*, exists in several locations throughout Bloomington. Therefore, sites for harvesting are to be chosen carefully, and species will be sterilized before transplanting to avoid the introduction of additional invasive, exotic species.

Several trees located on the proposed mitigation site will be saved by regrading depending on the caliper and value of the tree species. A large Maple near the edge of the proposed wetland will be saved. The excavation will proceed around the tree. A few trees will also be moved on-site. Several maples which are an appropriate size to move will be transplanted along the upland edge.

CULTURAL ADDITIONS

The existing pathway which circles the lake is an eight-foot, wood chip path, and is heavily used during the summer months. The proposal includes a path system to wind around the wetland and tie into the existing path. The purpose is to entice users to view the wetland and perceive the system as an amenity similar to that of the lake. Signage is also included in the plan to further accomplish this goal of community involvement. The plan calls for one large sign at the main entrance of the wetland circle which will serve as an introduction and description of the function of the wetland. Several smaller signs are also included in the plan that will call attention to small, unique areas within the wetland structure. These special groupings could constitute either patches of unique and beautiful plant species for example, or describe and demonstrate wildlife that may inhabit the wetland. A similar large, descriptive sign may also be placed at the planned entries to the upland area for better comprehension of the earthwork sculpture.

ADDITIONAL EARTHWORK

The excavated soil will be kept on site primarily for the purpose of the earthwork to draw new visitors to the site. The proposed plan for the earthwork sculpture is the placement of two hands extending from the two main entrances toward the wetland. The earthwork has been graded to be intuitively comprehensible, but easily maintained. Due to the fact that nothing similar to an earth sculpture exists in proximity to Bloomington, this site has the potential to become a draw, and will therefore encourage more use of the path system. This will stimulate more exposure for the wetland, and more possibility for education of the community.

SUCCESS EVALUATION

At this time, no evaluation of the success of the wetland is planned. The mitigation process calls for one acre of wetland to be developed, and for this purpose, success can be claimed if the appropriate amount of land is excavated to a certain established depth. However, several criteria should be considered when judging the success of the establishment of the wetland.

The first criterion should be the diversity of planted species that manage to establish and thrive on the site. Since the project is not designed to be a complete restoration, no reference site has been chosen to judge to what level the diversity should be achieved. Therefore, the establishment of several different grass and forb species would satisfy the goal of reclaiming the area and establishing somewhat the structure and function of a wetland area. Compared with the existing conditions, that is, mown turf, the addition of several species would be considered a success. The diversity of plant species would both allow for future sustainability as well as attracting a more diverse fauna population. Although the plan does not directly refer to the establishment of a more diverse animal population on the site, this should be a consideration. The establishment of the native grasses and forbs will allow for the habitat diversity which will support several amphibians, insects, and birds.

Another criterion should be the ability of designed barriers to deter the invasion of the exotic species already on-site. The eventual invasion of the non-indigenous species should not be a indicator of an unsuccessful mitigation; but the success of exotic deterrents is an important parameter when considering sustainability of the site as planned.

The third criterion should be whether the site has achieved the goal of including the community and encouraging use of the park, especially the wetland. This could be measured by evaluating the increase of utilization of the park and the interest of groups to use the site for educational purposes.

PLAN EVALUATION

The plan for the wetland mitigation at Girard Lake is thorough and sensitive to both ecological and design considerations. Due to the loose parameters of the mitigation regulations, the wetland was first proposed to be a large pit with 4:1

side slopes and no barrier to the existing invasive exotic species. Consultation with specialists in the fields of horticulture, ecology, landscape architecture led to acceptance of new ideas, and modified a typically engineered mitigation plan. The enlightened plan has become a potentially sustainable and educational site. However, two specific aspects of the plan should be given further consideration. One potential problem is the existence of *Typha glauca* on-site. The barrier of the pathway as well as the establishment of native plants will likely not be sufficient to deter the invasion. At this time, there is not a plan to treat the existing cattails. The addition of a regular regimen to fight the existence of *Typha* would further allow the establishment of the native vegetation that can then compete with this particular exotic hybrid.

The second addition to the plan will need to be a maintenance regime which will be sensitive to the wetland. This could be establishing boundaries for the mowing and giving specific directions for the use of fertilizers, if used at all. The maintenance regime should also extend to the care of the wetland within the first establishing years. Primarily, the removal of exotics and the overplanting of species will be the main focuses of this maintenance.

With the addition of these two maintenance amendments, the submitted proposal plan for the Girard Lake park has the potential to be a successful reclamation. Due to the small size of the proposed area, the project, as it stands now, cannot be considered a restoration. However, the benefits of reclaiming such a public site for a wetland are substantial. Not only will the site, if treated correctly, adapt a more functional, sustainable system, but will act as an educational tool. If the site does establish and reach the goals of the plan, it could become a valuable precedent for other communities planning wetland mitigations.