

POWELL SPRING

GREEN LAKE COUNTY, WISCONSIN

LAND MANAGEMENT PLAN

DRAFT

NOVEMBER 2021



PREPARED BY:

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PROJECT BACKGROUND

Green Lake Conservancy (GLC) is a non-profit land trust with a mission to permanently and proactively protect and preserve special places, primarily in the Green Lake watershed and Green Lake County, by offering conservation expertise, strategies and legal tools for the benefit of humans, plants and wildlife. Since 1995, GLC has protected over 1,196 acres and 33,372 linear feet of shoreline from development. The Powell Spring project will protect a natural, cold-water spring, 6 acres of intact mesic forest, and 670 linear feet of perennial stream, which contributes significant base flow to White Creek, and ultimately Green Lake.

Project Location

W598 County Road K, Ripon WI 54971
Town 16 North, Range 13 East, Section 35, Town of Brooklyn, Green Lake County, Wisconsin

Parcel number: 004-00764-0100

Acreage: 6.02

Zoning: A1 – Farmland Preservation District

Legal description: LOT 1 CERTIFIED SURVEY MAP 834 V3 & LOTS 1 & 2 CERTIFIED SURVEY MAP 839 V3 SEC 35

See Figure 1 for location of subject property and adjacent protection lands.

Purpose and Need

Over time, Green Lake's water quality has declined, as established by historic monitoring, sediment cores and other data. While Green Lake was once an oligotrophic lake, its nutrient load has increased due to land use in the watershed, and it is now considered mesotrophic. In 2014, the Wisconsin Department of Natural Resources (WDNR) listed Green Lake as a 303(d) impaired water body because it failed to meet water quality criteria for dissolved oxygen. Powell Spring is located within the White Creek subwatershed, which is one of the highest contributors of sediment loading to Green Lake. While Best Management Practices have been implemented within this watershed, more action is needed to reduce loading and improve downstream water quality. Protection and subsequent restoration of the proposed property aligns with the goals of improving water quality for Green Lake by permanently protecting shoreline properties from further development. This project will protect the recharge area and baseflow for White Creek, conserve cold water habitat which are vulnerable to climate change and protect important wildlife habitat within a larger forested matrix.

Protection of the site's unique natural features, which include the spring, coldwater stream, mesic forest community, and rock outcrops, along with its cultural history, align with GLC's goals of providing lake and watershed protection, and preserving special places. Conservation of the natural communities found on this property will provide habitat for a suite of aquatic and terrestrial species, including those that are considered to be rare or declining in Wisconsin.

The purpose of this plan is to provide a framework for ongoing protection, management and recreational enjoyment of this important resource. GLC will permanently protect and preserve this property for the benefit of future generations and will allow safe public access. GLC will be responsible for property management and stewardship, which will include regular property inspections and invasive species

control. Future use may include environmental studies, water quality monitoring and timber management.

EXISTING CONDITIONS

The 6-acre subject property is comprised of a small residential area (0.67 acre) and wooded land (5.35 acres) with a meandering perennial stream (Figure 2). This property is located in the headwaters of an unnamed tributary to White Creek and will protect a significant natural spring run. The Wisconsin Geological and Natural History Survey and WDNR monitor spring characteristics such as discharge rate, conductivity, pH and temperature every few years. In May 2015, the spring discharge rate was 3.4 cubic feet per second (cfs) and in November 2020 the rate was 4.5 cfs. Protection of this spring is necessary to maintain the intact characteristics of its perennial spring run and protect downstream water quality. White Creek is considered by WDNR to be an outstanding/exceptional resource water under NR102 as well as a Class I Trout Water under the WDNR Fisheries Program. Protection of this spring is essential to maintaining water quality for White Creek.



Photo 1. Powell Spring originating at rock fissures.



Photo 2. Rock outcrops in NE portion of property.

Representatives from GLC completed a site assessment in October 2021 to characterize existing conditions. The small residential dwelling and associated outbuilding are located in the southeast portion of the property and contain mowed lawn, a garden plot and a gravel driveway/parking area. The wooded portion is bisected by a perennial stream which originates at the spring near the residential dwelling. Topography slopes to the northwest and several rock outcrops are present in the northeast portion of the property (Figure 3). Adjacent land use consists of agriculture to the east, woodland to the north and west and residential development to the south. This property is located within a larger forested matrix containing

several springs and cold-water streams. GLC was instrumental in protecting Michell Glen (Figure 1) which is located to the north of the subject property. The proposed acquisition will protect another important spring and increase the acreage of protected forested land.

The wooded portion is characterized as a mesic forest dominated by red oak (*Quercus rubra*), sugar maple (*Acer saccharum*), black walnut (*Juglans nigra*) and basswood (*Tilia americana*), with a subcanopy of sugar

*Green Lake Conservancy
Powell Spring Property Management Plan*

maple saplings. The herbaceous layer is dominated by sugar maple seedlings, jack-in-the-pulpit (*Arisaema triphyllum*), Solomon's seal (*Polygonatum biflorum*), Virginia waterleaf (*Hydrophyllum virginianum*), zigzag goldenrod (*Solidago flexicaulis*), lady fern (*Athyrium filix-femina*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), white avens (*Geum canadense*), red raspberry (*Rubus idaeus*), and the highly invasive Dame's rocket (*Hesperis matronalis*). Other invasive species identified in low densities include buckthorn (*Rhamnus cathartica*) and oriental bittersweet (*Celastrus orbiculatus*).



Photo 3. Mesic forest, comprise of mature trees and limited invasive species cover.

An overhead electric distribution line servicing the residence and neighboring properties bisects the wooded portion. Historic debris including old fencing, bridges and a deer stand are located within the wooded community. No significant areas of erosion, dumping or other problematic environmental concerns were identified. Photos depicting site characteristics are attached.

LAND MANAGEMENT PLAN

This property will be protected in perpetuity and remain under ownership and management of GLC.

Public Use

This property will be open to the public year-round for low-impact recreational use such as hiking, wildlife viewing and access to the spring. For safety reasons, no hunting, trapping, overnight camping, or campfires will be allowed. Signs will be posted notifying the public of property rules and additional signage will mark the boundaries of the property.

The public will access the property from an existing gravel driveway located within an established easement on the adjacent neighbor's property. This road and easement will be maintained for public access. A small parking area for up to 2-3 cars will be available inside the property boundary. GLC does not intend to maintain trails but will install stairs so the public can safely access the spring.

Timeline

GLC intends to remove the residential dwelling, outbuilding and other human impacts (i.e., fencing, deer stands, etc.) and restore the site to its natural condition (Figure 4). The residential



Photo 4. Residence to be removed.

zone will be restored to its natural state by planting a variety of native trees, shrubs and native seed after removal of the buildings. The anticipated timeline is outlined below.

- November 2021 – GLC takes ownership of the property
- November 2021+ - GLC initiates a fundraising campaign focused on grants and local donations
- April 2022 – GLC secures WDNR Surface Water funding (pending award)
- April 2022 – August 2023 – GLC will remove all buildings and associated debris, and initiates site restoration. Timeline will vary pending receipt of grant funding.
- October 2023 – GLC completes site restoration, to include native seeding, and installation of native trees and shrubs with the goal of restoring a closed canopy forest similar in composition to the natural forest on-site
- 2023+ - GLC will maintain ownership and be responsible for long-term stewardship

Property Restoration

Restoration within the Mesic Forest Restoration unit (Figure 4) will be initiated after removal of all buildings. The process will include the removal of selected trees (e.g. ash), invasive plant control through targeted herbicide applications, installation of native seed and plant materials, and monitoring and management to ensure continued success. The primary focus in the Mesic Forest Restoration unit is to control invasive species post construction and to establish a diverse, native wooded plant community.

Invasive and non-native herbaceous species will be treated throughout the management unit in preparation for revegetation with native seed, trees and shrubs. Treatment methods will include application of both non-selective and selective herbicides a minimum of two times during the first growing season. Target species include mainly conventional lawn grasses. Following sufficient control of target species, the management unit will be seeded with a mix of native seed. These include grasses, sedges and forbs, characteristic of a shade tolerant community. The seed mix will also include pioneering native species and annual cover crops which are adapted for early establishment following disturbance. Native seed will be sown via hand-broadcast. It is anticipated that seeding will occur during the early dormant season following site preparation (September-October) to allow for establishment of annual cover crops prior to hard frost.

A combination of native trees and shrubs will be installed after site preparations. Installation of native woody material will diversify degraded forests, restore canopy cover, provide critical migratory pathways, enhance riparian habitat, and enable ecosystem resiliency within an important wooded corridor. Tree planting will include installation and maintenance of bare root and container material. Tree planting is expected to occur in spring/fall 2023 and 2024. Tree species will be selected based on historic occurrences within the property in combination with site-specific considerations for climate adaptability, soil stabilization, wildlife habitat, and relatively high rates of growth and evapotranspiration. The project will rely on smaller planting stock (<1" caliper, and up to 1 inch caliper) to increase the likelihood of transplant success and to minimize maintenance requirements. Trees will be inspected annually and replaced as needed.

Long-term Management

GLC will maintain ownership of the property and be responsible for long-term protection and maintenance. The site will be maintained to allow safe public access. Maintenance is anticipated to be

minimal but will include garbage removal, invasive species control and occasional mowing along the permanent easement/access road.

Site Safety Monitoring:

- Site safety – GLC members/volunteers will walk the site 3 times per year (spring, summer and fall) to monitor for trash dumping, signage replacement or other cleanup needs. This site monitoring may coincide with invasive species monitoring.
- Parking maintenance - GLC members/volunteers will annually brush/mow the road cut to maintain parking for public access.

Invasive Species Management:

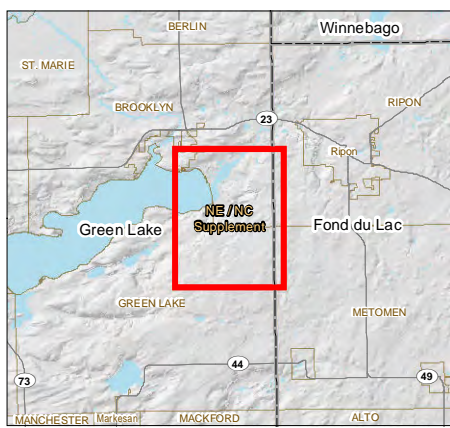
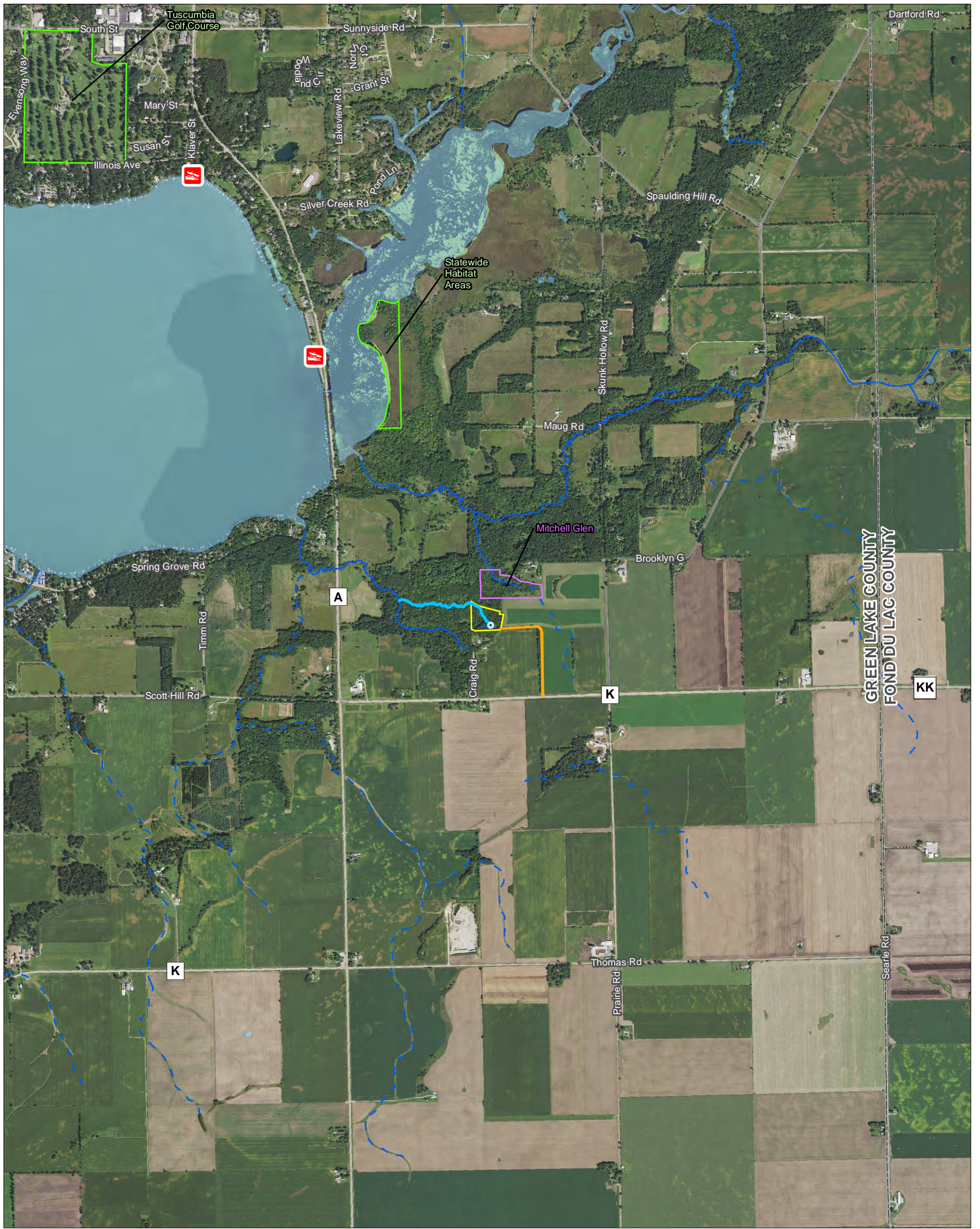
GLC members/volunteers will walk the site 3 times annually to monitor for known invasives and look for new ones. Based on a site visit performed in October 2021, invasive species known to occur on the property include common buckthorn, Dame's rocket, oriental bittersweet and honeysuckle (*Lonicera spp*). Dame's rocket and oriental bittersweet are located in the valley bottom adjacent to the waterway. Buckthorn and honeysuckle are located in scattered locations along the forested slopes.



Photo 5. Oriental bittersweet population adjacent to stream bank.

GLC will perform annual invasive species control as needed to maintain ecological integrity and control the target species.

Invasive control will include a combination of foliar treatment and cut/stump treatment, depending on the target species. Herbicide type and concentration will vary depending on the target species. GLC will work with professional contractors to perform the necessary herbicide treatment.



Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources: Stantec, WisDOT, WDNR, PADUS
 3. Background: 2020 NAIP

- Legend**
- Nearby Protected Conservation Land
 - Proposed Purchase - Powell Spring
 - Access
 - + Protected Areas Database
 - ~ Digitized Creek
 - Powell Spring
 - Public Boat Access Site - Ramp

- DNR 24k Hydrography**
- ~ Perennial Stream
 - - - Intermittent Stream
 - Waterbody

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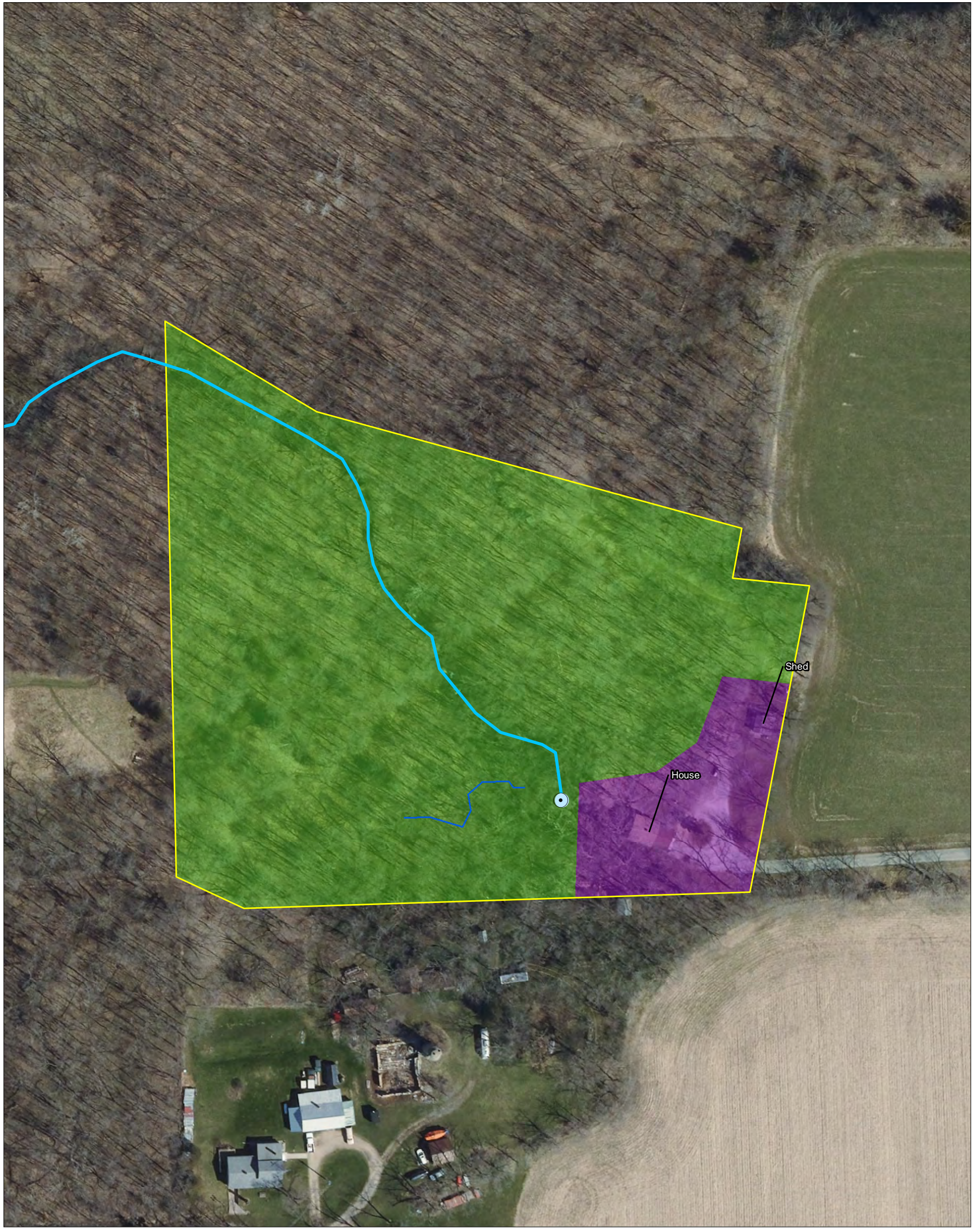


Project Location
 T. of Green Lake,
 Green Lake Co., WI

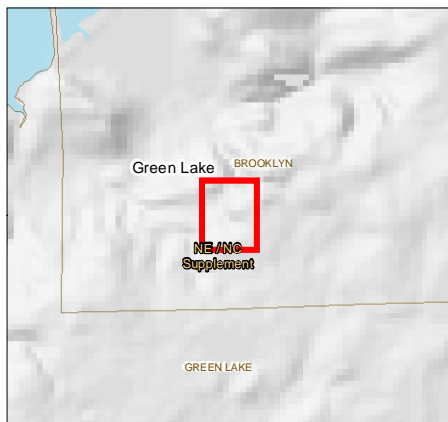
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TR by AS on 2021-10-19
IR by XX on 2021-XX-XX
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Client/Project
 Green Lake Conservancy
 Powell Spring Property

Figure No.
 1
Title
 Project Overview



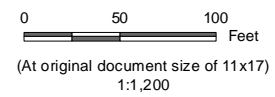
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Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources: Stantec, WisDOT, WDNR, SCO
 3. Background: 2020 WROC Leaf-Off

- Legend**
- Proposed Purchase - Powell Spring
 - Parcel Boundary
 - Digitized Creek
 - Powell Spring
- Landcover**
- Mesic Forest (5.35 acres)
 - Residential (0.67 acres)

- DNR 24k Hydrography**
- Perennial Stream
 - Intermittent Stream
 - Waterbody



Project Location
 T. of Green Lake,
 Green Lake Co., WI

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Client/Project
 Green Lake Conservancy
 Powell Spring Property

Figure No.

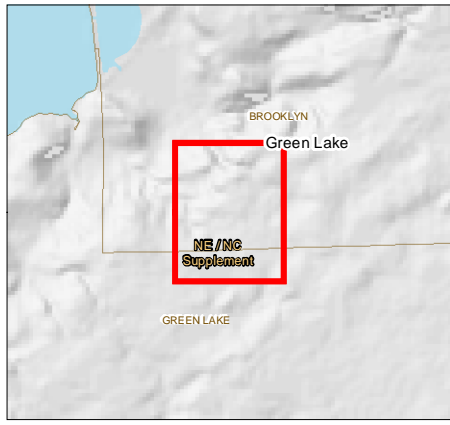
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Title

Landcover

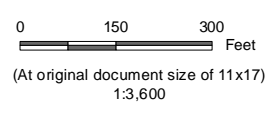


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- Legend**
- Proposed Purchase - Powell Spring
 - Access
 - ~ Digitized Creek
 - ~ Perennial Stream
 - ~ Intermittent Stream
 - ~ Waterbody
 - ~ Powell Spring
 - ~ 1ft Elevation Contour

Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources: Stantec, WisDOT, WDNR, Green Lake County
 3. Background: 2020 NAIP



Project Location
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 Green Lake Co., WI

Client/Project
 Green Lake Conservancy
 Powell Spring Property

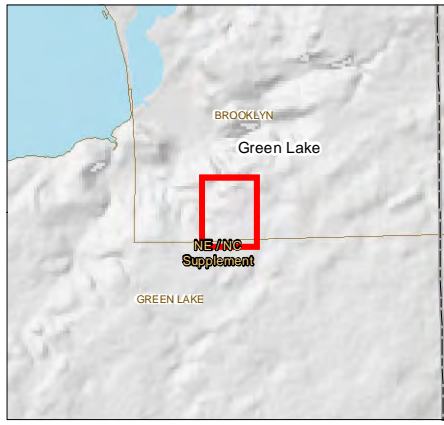
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Figure No.
3

Title
Aerial Overview

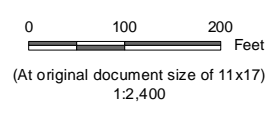
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Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources: Stantec, WisDOT, WDNR
 3. Background: 2020 NAIP

- Legend**
- Proposed Purchase - Powell Spring
 - Access
 - ~ Digitized Creek
 - ~ Perennial Stream
 - - - Intermittent Stream
 - ~ Powell Spring
 - ~ Waterbody
- Proposed Conditions**
- Mesic Forest Enhancement (5.35 acres)
 - Mesic Forest Restoration (0.50 acres)
 - Proposed Parking Area (0.17 acres)



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Client/Project
 Green Lake Conservancy
 Powell Spring Property

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Figure No.
4

Title
Proposed Condition

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Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 1. Small, one-bedroom residential home and mowed lawn



Photo 2. Residential home – to be removed

Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 3. Utility shed/outbuilding – to be removed



Photo 4. Cold-water spring originating at the base of a rock feature. Bridge will be removed.

Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 5. Cold-water spring source



Photo 6. Meandering stream bisecting the wooded portion

Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 7. Stream with view of home above the spring location. Building will be removed.



Photo 8. Intact mesic forest community

Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 9. Rock outcrops



Photo 10. Fencing to be removed

Green Lake Conservancy
Powell Spring Property – Site Photographs



Photo 11. Distribution line bisecting wooded community