

OPENLANDS PROPERTY MANAGEMENT PLAN

Twin Creeks (Hackmatack National Wildlife Refuge)

October 11, 2017

SECTION 1: PROPERTY INFORMATION

Property Address: Southeast corner of Queen Anne Road and Allendale Road

Legal Description (Section, Township, Range, County): Located within Section 10, T45N, R7E, twin Creeks Subdivision, Village of Greenwood, Greenwood Township, McHenry County

Acreage: Outlot A representing the core habitat area to date, is 27 acres in size. In the southeast corner of the subdivision, where MCCD has already purchased 9 lots/24 acres in the subdivision from Openlands, there are still three lots 08-10-326-011, 08-10-326-10 and 08-10-402-002 representing 6 acres collectively. These three lots are owned by Openlands and no further re-subdivision is planned. They are being held until MCCD is able to finance their purchase, and if not, may be sold by Openlands to homebuilders. They are prior ag fields but would serve to provide a buffer to MCCD's 24 acres.

Parcels 08-10-101-001, 08-10-101-003, and 08-10-101-007 are owned by Openlands and are intended to be re-subdivided and traded in part for portions of property owned by adjoining homeowners in order to assimilate a larger contiguous preserved habitat core. Final acreage retained in these three parcels, and added from privately owned neighboring parcels will be determined after these transactions occur. New pin numbers may be established for the re-configured parcels at that time

- **Location Information and Regional Context:** *e.g. regional project connections, geological or natural community history, etc.*

The Twin Creeks property is located in the rural Village of Greenwood and within the Queen Anne Prairie Core Area of Hackmatack National Wildlife Refuge ("Hackmatack"). The property represents a portion of the undeveloped lots within a subdivision which was acquired by Openlands in 2013.

The McHenry County Conservation District (MCCD) subsequently purchased one of the lots along Queen Anne road, and multiple lots in the southeast corner of the subdivision, where it potentially may acquire two remaining lots still owned by Openlands. MCCD has indicated its interest in acquiring additional lands, intended to be combined in one core habitat management unit. Openlands is in the process of assimilating all, or portions of 7 lots, two of which are privately owned., to create this core habitat. Other lots within the subdivision which were acquired by Openlands, but are not intended to become part of this core habitat, will be resold in the marketplace for single-family home development.

McHenry County has a glaciated landscape with excellent farmland soils and variable topography. McHenry County is host to 86 species on the Illinois endangered and threatened list, with three of those species currently cross-listed as federally endangered or threatened. The Nippersink Creek watershed serves as the anchor for the Hackmatack footprint. Much of the Nippersink is a Class A high quality stream as defined by the Illinois department of Natural resources and MCCD. Its northwest branch, and a southern tributary to the northwest branch, combine their flows on the Twin Creeks property from whence it receives its name.

The property is a strategic and critical habitat corridor connection between two high quality habitats owned by MCCD on the west (Barber Fen) and east (Lind Woods). This critical habitat linkage was presumably lost in the 1990's when the Twin Creeks subdivision was approved by the Village of Greenwood. The national recession, starting in 2008, stifled the development of most of the lots, and Openlands was able to purchase the undeveloped lots within the subdivision, Openlands has worked since then to aggregate several of the parcels into one contiguous core area. In addition, it has re-subdivided a number of the parcels to protect additional habitat and add to the core area. The remaining lots outside of the core area will be sold on the open market. The original developer of the subdivision planted prairie seed in the rear of several lots on the north side of Twin Creeks Road. All of these re-seeded rear-lot prairie buffer were protected in the re-subdivision of the lots and have been added to the core habitat area.

- **Land Use History:** *e.g. past ownership history, adjacent land uses including public lands, potential adjacent threats, land use history such as agriculture or development, etc.*

The property has been part of a regional agricultural landscape that began to evolve starting in the 1840's. Wetlands, floodplains oak ridges and steep bluff slopes were utilized for grazing by dairy cows, probably until the 1950's-60's when that activity began to wane. Wetland and floodplains reverted to old pasturelands with a mix of invasive species dominating in much of the area but retaining native species as well. The oak ridge and bluff, no longer grazed, was invaded by non-native shrubs in the oak understory.

The property was owned and farmed by the Pappas family at the time that the subdivision was approved by the Village of Greenwood. 1939 historic aerials show no structures on any of the parcels that Openlands acquired. The land in 1939 was a mix of agricultural fields, wetlands, riparian corridors along the two tributaries, and a line of oaks along the edge of the bluff on the south side of the creeks. The parcel at the southeast corner of Allendale and Queen Anne Roads, is a wetland and had large trees present in 1939 as well, possibly cottonwoods, silver maples or swamp white oaks.

- **Topography:** *e.g. dominant landforms or glacial features*

The two creeks enter the property at Queen Anne Road an elevation of 836-38 feet above sea level (ASL), and exit the property sold to MCCD at the far southeast corner at 828 feet ASL. 15-20 ft. bluffs border the creek at its west end, gradually sloping down to 6- to 8-foot bluffs at the northeast end. The property rises to 862 feet at the top of the bluffs along the creek, and 880 feet on Openlands two parcels at the southeast corner.

- **Soils:** (Source: Soil Survey of McHenry County, based on 1995 field surveys)
- *e.g. soil type description, drainage, runoff and erosion potential, agricultural potential, etc.*

The southeast parcels are primarily Kidder Loam with eroded 6-12% slopes, well drained loamy till located on glacial moraines, a mesic hapludalf. The oak-lined bluff top is also Kidder Loam, but considered severely eroded, a characteristic of a steep bluff. Two large eroded swales cut into the bluff ridge caused by storm water drainage from the agricultural field with no evidence of stabilization by previous farm operators.

The first terrace above the creek floodplain in the northeast corner is Harvard Silt Loam, 2-5% slope, well drained, parent soil formed from silt and loamy glacial outwash, a mollic hapludalf.

The swale into the creek at the west end of the property, where detention and wetland exist today is Pella Silt Loam, 0-2% slope, a calcareous loamy alluvium, considered a mesic cumulic endoaquoll.

The northwest corner of the property, currently a partially wooded swamp, and the immediate floodplain through which both creeks flow, is Millington Silt Loam, 0-2% slope, a calcareous loamy

alluvium, considered a cumulic endoaquoll. Only Harvard Silt Loam (344B) is considered a prime farmland soil. Pella Silt Loam and Millington Silt Loam would be considered prime if ditched or tilled, which they appear not to be because of the wetland plants growing on both. The Kidder Loam soils are too steeply sloped to be considered prime farmland.

- **Hydrology:** *e.g. presence of surface water on property such as streams or wetlands, potential for flooding, general water quality, etc.*

Surface water hydrology – The property being aggregated by Openlands, or already acquired from Openlands by MCCD, will protect the extensive wetlands and floodplains in the subdivision. These the mapping of these wetlands and floodplains as shown on McHenry County government GIS maps are reasonably accurate but are not perfect. Based on Openlands and MCCD site surveys, the entire wetlands and floodplains are being protected in the land assemblage. Surface runoff from agricultural fields in past years has cut deep ravines through the oak ridgeline in two locations. Water runoff into these ravines was substantially mitigated in the initial development of the subdivision when water conveyance swales and detention basins were built, substantially lessening the stormwater flows through these ravines. The creeks are both incised approximately 2 feet into the 1st floodplain shelf, a fairly small incisement compared to many creek incisements in upstream and downstream agricultural fields. The large area of wetlands bracketing the creeks have provide space for stormwater overflows, lessening the rate of stream downcutting since 19th century settlement.

Subsurface waterflow – Tile discharges into the creeks are not evident, but it is possible that there may be tiles present. There is no depth of groundwater data available at this time. It should be noted however that the Kidder Silt Loam, a common soil type throughout the subdivision, is characterized by a very gravelly sand layer in its soil horizon below 30 inches. Once the more moderately permeable soils above it allow rainwater to reach this layer, this highly permeable subsurface layer creates a shallow aquifer that is moving laterally towards the southernmost creek. Discharges are evident at the base of the bluffs where sedge meadow remnants are found in several locations. It is not known whether this aquifer is surcharging the creek water with subsurface flow, but it is possible. It could also be possible that the creek is losing water to this aquifer. Waterflow measurements at Queen Anne Road for both creeks, as well as just before they combine, and as the combined creek leaves the property at the east end, would help to understand this hydrology.

- **Natural Communities and Wildlife:** *e.g. natural community type, evidence of remnant communities, endangered or threatened species, known wildlife species, etc.*

The “Summary of Plant Inventory – March 2015” created by Ken Johnson of Conservation Research Institute still presents the best perspective of native plant species on the twin creeks property. 171 native species were identified, with 7 conservative species, including creeping bent grass, beak grass, rattlesnake master, hollow joe-pye weed, sweet black-eyed susan, grass-leaved arrowhead, and water speedwell.

A mussel survey was accomplished on both creeks on 10-24-2014. A giant floater, and a recent-dead slippershell was found in the southern creek. Recent-dead means that mussel tissue was still present, meaning that the mussel was recently eaten by muskrats or racoons. In the northern tributary an ellipse mussel was found, a declining species and one of Chicago Wilderness’ priority species. A fish survey was accomplished by Openlands on October 24, 2014 as well. 13 species were found in the south branch including central mudminnow and brook stickleback, Illinois Wildlife Action Plan species of greatest conservation need. In the north branch, 15 species were found including the central mudminnow.

Other animal surveys have not been accomplished. The bluffs have several large animal holes. Recent digging is evident every year. It is possible that they are groundhog holes but are larger than typical for this animal. Possibly they are fox holes or badger holes. Badgers are very rare with few recent McHenry County sightings, but they have been seen in neighboring counties. Animal cameras should be installed to record species activity at these holes and determine if badgers are present.

- **Exotic Species:** *e.g. species observed, distribution, frequency, etc.*
Openlands contracted to remove invasive brush along most of the oak ridge bluff during the winter of 2016-17. The Ken Johnson report from March of 2015 still is the best summary of invasive vegetation of management concern. Reed canary grass in the bottomlands and garlic mustard along the bluffs are dominant invasives. Special attention should be paid to small infestations of giant reed, plumeless thistle, purple loosestrife, and multiflora rose to ensure that these populations don't explode in numbers. Invasive shrubs along the bluff line and in scattered locations throughout the property will also attempt to spread unless managed.

Most of the non-wetland areas of the property are wooded and shady with heavy invasive brush and herbaceous species throughout, including common buckthorn (*Rhamnus cathartica*), sweet clover (*Melilotus officinalis*), and garlic mustard (*Alliaria petiolata*). There is also a stand of tall evergreen trees near the southeastern corner of Parcel A; this forested area was planted by the previous landowner. At present, the wetland area is heavily grown over with cattails (*Typha sp.*) and reed canary grass (*Phalaris arundinacea*). Near the northeastern corner of Parcel A, the post-demolition house site is now an open, weedy meadow area with more sun exposure than most of the other areas on the property.

- **Cultural and Aesthetic Resources:** *e.g. historic structures, archaeological resources, etc.*
It is probable that the property could be rich in prehistoric archaeological resources.
- **Restrictions:** *e.g. any leases, mineral rights, right-of-ways, easements, etc. associated with the property, if applicable.*
Openlands' property has easements and deed restrictions in several locations which were established under the original plat of subdivision. They are not expected to substantially affect the habitat values of the property, as they were designed to restrict future placement of septic systems, wells, and structures. In addition, a 20 ft. fiber optic easement adjoins a 12 ft. public utility easement along the length of Queen Anne Road which traverses the far west edge of Outlot A. Also, a channel maintenance easement dedicated to the Village of Greenwood, along both sides of the creek is in place if the village deems it necessary to perform emergency procedures to manage the creek flow. Maintenance of the channel maintenance easement is delegated to the Twin Creeks Homeowners Association.

SECTION 2: MANAGEMENT PLAN

- **General Restoration and Management Goals:** *Provide a brief overview of project vision and purpose, e.g. maintain land health, restore pre-settlement vegetation, target habitat for key species, etc.*
 - 1) Remove and manage invasive woody, herbaceous, and wetland species
 - 2) Enhance native woodland and wetland vegetation with appropriate seeding and/or plugs
 - 3) Plant trees and shrubs as appropriate
 - 4) Provide lot owners with informational material regarding native landscape management of Openlands and MCCD's properties. especially with regard to how controlled burns will be

accomplished and the need for lot owners to not stack landscape brush, or build sheds or fences near property lines in order to prevent damage or spreading of controlled burns. Homeowners should be advised to not plant aggressive invasive plants in their landscaping which might spread to the preserved habitat.

- **Key Objectives:** *List specific tasks that are instrumental in reaching goals, e.g. discourage brush encroachment, control invasive species, restore native vegetation, etc., and include reason for each objective*

Note that all listed objectives are funding-dependent. It is recommended that management objectives related to the above goals include:

- 1) Collecting and removing remaining barb wire and fenceposts.
- 2) Managing for invasive species with appropriate methods across the property. Considerable attention should be paid to woody invasive species removal around mature and seedling native trees to improve space and sunlight. Wetland invasive species management should be assessed to determine preferred removal methods, as reed canary grass removal may require a strategic approach.
- 3) Installing native seed mix and/or plugs to reestablish or enhance native vegetation across the property, including a prairie area on the former house site.
- 4) After brush clearing, assessing areas where tree and shrub planting may benefit the natural communities and aesthetics of the property, and implementing tree planting.
- 5) Accomplish controlled burns on bluff and prairie restoration. Accomplish controlled burn in wetland in collaboration with MCCD as resources allow, but no later than 2019. (Last controlled burn of 80% of prairie adjoining oak ridge was in spring of 2016).
- 6) Meet with and provide homeowners with informational material on natural area management, especially with regard to how controlled burns will be accomplished and the need for lot owners to not stack landscape brush or build sheds or fences near property lines in order to prevent damage or spreading of controlled burns. Homeowners should be advised to not plant aggressive invasive plants in their landscaping which might spread to the preserved habitat. Encourage lot owners to install native landscaping and rain gardens. Provide information on native seed and plant sources, and experienced native landscapers and organizations that can offer native landscaping advice.
- 7) Provide tours of the preserved habitat to lot owners at least twice per year.

- **Recommended Management Practices:** *Provide overview of tools and methods used to complete objectives, e.g. prescribed fire, herbicide treatment, selective thinning, etc.*

Invasive species may be controlled by cutting, pulling, selective herbicide application, prescribed burning, and/or mowing. Seed may be distributed by hand or mechanical application if feasible.

Plugs may be installed by hand. **Timeline (per funding availability):**

Priority	Objective	Anticipated Completion
1	Collect and remove remaining trash on site	Fall 2018
2	Clear woody invasive brush from wooded areas. Apply understory grass and forb seed.	Ongoing annually
3	Manage herbaceous invasive species. Eradicate <i>carduus acanthoides</i> (plumeless thistle), <i>Phragmites australis</i> (common reed) in 2017-18. Annually manage and lessen populations of garlic mustard, autumn olive, Eurasian honeysuckle,	2017-18 for two species listed. Annually for the others.

	purple loosestrife, common buckthorn, and multiflora rose.	
4	Manage wetland invasive species. Develop a management plan for reed canary grass and begin to accomplish it in 2017-18.	2017-18
5	Install seed and/or plugs	Annually
6	Develop a trees and shrubs restoration plan.	2018
7	Controlled burn of prairie, wetland, and bluff	2018-19
8	Lot owner outreach and education.	2017-2019

- **Additional Remarks:**

This management plan serves as a working document that may be revised as necessary.

Management Plan Date: October 11, 2017