MANAGEMENT PLAN

Appleton 2: Block 6, Lot 11.03

Harding Open Space Trust

February 13, 2024

Block 6, Lot 11.03

Setting/Historic land use/current land use

The 4.27- acre subject property is located at 538 Van Beuren Road in Harding Township, Morris County, New Jersey. It consists of vacant, undeveloped land comprised of open field and mature woodlands bordering Great Brook on the western edge of the property. The southern portion of the property consists of mature woodland. The "flagstaff" portion of the property is primarily open with patchy thickets. The neighboring properties are rural, single-family residential and agricultural (Fig. 1).

A bridle path traverses the property in an eastern direction near or adjacent to the lot line between Lots 11.02 and 11.03. It exits the property, to traverse the northern edge of Lot 11.03 in Block 6 (Fig. 2). It appears that the bridle trail has been mowed in various configurations in the past and there are several abandoned trail segments throughout the southern end of the property.

Environmental Features

Geology and Soils

The property is moderately to steeply sloping, adjacent to the Great Brook, a HUC-14 subwatershed located within the Upper Passaic River HUC-11 watershed. The property is situated within the New Jersey Piedmont Physiographic Province, where it is underlain by sandstone, siltstone, mudstone, and fine-medium grained calcareous silt stone associated with the Towaco Formation (NJDEP, GeoWeb).

The preservation of prime farmland is essential for ensuring food security, protecting the environment, supporting rural economies, and preserving cultural heritage. This property is not classified as Prime farmland but does contain some soils of local importance. Prime Farmland is classified according soil data developed by the United States Department of Agriculture (USDA) Natural Resource Conservation Service. It includes all those soils in the Land Capability Class I and selected soils from USDA Land Capability Class II. USDA Class I soils have slight limitations that restrict their use. USDA Class II soils have moderate limitations that reduce the choice of plants or require moderate limitations that reduce the choice of plants or require moderate conservation practices. Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both. These soils can economically produce high yields of crops when treated and managed according to acceptable farming methods.

Class III soils make up approximately 25% of the property. These include 23.6% Penn channery silt loam (PeoC 8-15% slope) and 1.2% of Reaville deep variant channery silt loam (RerB7, 0-6% slope). Class III soils, although they do not meet the criteria for Prime Farmland, are identified as soils of statewide importance. There are also class IV soils, comprising 10% which is Parsippany silt loam, sandy loam substratum (PbphAT, 0-3% slope). This is a class IV soil of local importance. Approximately 64% of the soils on this property are of no agricultural importance, according to the Web Soil Survey.

Water Resources

Great Brook forms the western boundary of the property. It is classified by the NJDEP Surface Water quality Standards as FW2NT "slightly impaired". Great Brook originates in areas that are suburbanized, where it is subject to non-point pollutants and continuous development pressures.

Great Brook is one of five streams that flow into the nearby Great Swamp National Wildlife Refuge (GSNWR). The 2014 United States Fish and Wildlife Service GSNWR Comprehensive Conservation Plan states that the preservation, protection and restoration of the upper reaches of this brook are critical for the ecological integrity of the refuge.

In September 2019, A Freshwater Wetlands Letter of Interpretation: Line Verification File No. and Activity No. 1413-11-0001.1 FWW190001 was prepared to verify the boundary of the freshwater wetlands on Block 6, Lots 11.02 and 11.03. This line is provided on a map entitled: NJDEP Permit Plan (Freshwater Wetlands Letter of Interpretation – Line Verification) Block 6, Lots 11.02 & 11.03 528 & 538 Van Beuren Road Township of Harding Morris County NJ, consisting of one sheet, dated March 29, 2019, last revised August 29, 2019, and prepared by Thomas P. Mendola, P.L.S.

In addition, the NJDEP Division of Land Use Regulation has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetland are Exceptional (150' wetland buffer) and State Open Water: LS-21 through LS-27 and within wetlands (no wetland buffer). The finding of exceptional resource value is based on a finding that the wetland is documented habitat for threatened and endangered species that maintains suitable use for breeding, resting or feeding by such species.

Habitats

The property includes multiple habitats including open water (Great Brook) with steep streambanks, mature deciduous forest, scrub-shrub thickets and open field.

The open field consists of a variety of warm season grasses including Little bluestem, Indiangrass, Switchgrass and Deer-tongue. Native forbs are found among the grasses such as aster, milkweed, and goldenrod. Warm season grasses provide habitat for a variety of wildlife, including butterflies and pollinators, small mammals, white-tailed deer, songbirds, bats and raptors as well as wide variety of amphibians such as green snake and box turtle. The clumping nature of these grass types typically results in bare ground between individual plants, which enables herbs, forbs and broadleaf plants to become established as well as provides spaces which serve as travel corridors for birds, amphibians and small mammals. Warm-season grasses do not mat down easily under winter snows. Therefore, they provide excellent winter escape cover and nesting cover the following spring (Dickerson et al, 1998).

The deciduous forest has dense crown cover and is composed of mature Red Oak, Hickory and Beech. The understory is very open but Multiflora Rose is present throughout the larger gaps or openings in the forest canopy and along the forest edge. There are dense thickets of Multiflora

Rose in the flagstaff portion of this parcel. Multiflora rose is capable of producing dense monocultures that are impenetrable to humans and wildlife. Multiflora rose outcompetes native plant species and reduces overall native species diversity (Snyder and Kaufman, 2004).

Threatened and Endangered Species

The areas of deciduous forest with greater than 50% crown cover, are suitable habitat for the Indiana Bat (*Myotis sodalist*). This State and federally listed endangered species, utilizes riparian corridors near and within the Great Swamp National Wildlife Refuge for foraging and warm season roosting.

The areas of deciduous forest with greater than 50% crown cover, have been identified as suitable habitat for the Indiana Bat (*Myotis sodalist*). This State and Federally-listed Endangered species, utilizes riparian corridors near and within the Great Swamp National Wildlife Refuge for foraging and warm season roosting. Indiana Bat populations have been impacted throughout their range from White Nose Syndrome (WNS), a devastating fungal disease. This disease disrupts the bats' hibernation patterns, causing them to wake up more frequently and deplete their fat reserves, ultimately leading to starvation and death (Blehert et al., 2009). In New Jersey, WNS has had a profound impact on many bat populations, including the endangered Indiana bat (Frick et al., 2010). The spread of WNS has led to significant declines in Indiana bat populations throughout the state, exacerbating existing conservation concerns (Frick et al., 2010). Efforts to mitigate the impacts of WNS on Indiana bats in New Jersey include habitat protection, monitoring, and research into potential treatments or management strategies to support their recovery.

The subject property has been characterized as active season sighting, potential maternity colonies and roost sites for the Indiana Bat by The New Jersey Natural Heritage Database (NJDEP). Primary roost sites may be found within a variety of forested habitats, including wetlands and riparian areas, and primarily include snags with nearly dead trees with peeling or exfoliating bark. They are typically large trees, of a size greater than 22" diameter at breast height, in open areas with high exposure to sunlight. Alternative roost sites typically are found within the forest interior in trees of similar sizes. (Kitchell 2008). Maternal roosts are typically established in agricultural areas with fragmented forests. The subject property, with riparian forest, stream corridor and associated open fields provides suitable conditions for roost sites and foraging.

Foraging for the Indiana Bat can occur in and around upland and wetland mixed oak forested habitats, (Butchkoski and Hassinger 2002; Gardner et al., 1991; Humphrey et al., 1977; Murray and Kurta 2004; Romme et al., 2002, Sparks et al., 2005). Pregnant or lactating bats primarily forage within wooded or riparian corridors, streams and floodplain forests and impounded waterways. They will also use hedgerows, upland forest, early successional field and along cropland. (Kitchell 2008).

The subject property may also be used by the Brown Thrasher (*Toxostoma rufum*), a Species of Special Concern, as reported by Conserve Wildlife Foundation of New Jersey. This large, brown

songbird, nests in thickets, fields with scrub and woodland borders. It feeds on insects, berries, nuts and seeds as well as earthworms, snails, lizards and frogs (PGC Wildlife Notes, 2021).

Management Strategies

Active management of open space properties is needed to ensure that these resources will be available for the multitude of species that depend upon them well into the future. In addition, public benefits in terms of access and visibility are also desired. There are a number of Federal and State incentive programs that can provide technical assistance and financial resources to meet management goals. Management goals should be revisited periodically to evaluate previous priorities and identify and address new concerns as they arise.

Goal 1: Maintain and improve habitat for Indiana Bat and Brown Thrasher. The subject property contains suitable habitat for both the Indiana Bat and Brown Thrasher and a goal for the management of this property includes maintaining the diverse array of habitats on the property while taking measures, when feasible, to improve habitat for these species.

Strategy 1: Manage open field to encourage a combination of grasses dispersed native flowering plants, and native shrub borders. Although a variety of human induced disturbances can be used to maintain warm season grasslands, the small size of the property and surrounding residential development favor mowing as the most effective treatment. Mowing should occur 3-4 years and timing is crucial for wildlife management. Heavy bush-hogging should be avoided, as it may result in considerable nest and habitat loss and bird mortality (Oehler 2006). Consideration should be given to the foraging and roosting activities of the Indiana Bat and nesting birds, meaning activities should be limited to mid-November through early March. If mowing creates extensive clippings, remove to avoid buildup of thatch.

Strategy 2: Maintain areas of shrub/scrub edge habitats to create a softer ecotonal transition between mature forest and grassland. While invasive species management is an important goal, it should be balanced with the need to support conditions for essential food and cover for wildlife. Selective removal of invasive plants in the property's interior can provide conditions for native species to thrive while continuing to provide essential wildlife habitat.

Strategy 3: Conduct invasive species management by removing multiflora rose where it is producing dense monocultures. On Lot 11.03 this is primarily an issue within the flagstaff portion of the lot. These dense thickets prevent the growth of native shrubs and herbs and may be detrimental to nesting of native birds.

Goal 2: Maintain healthy streambanks and riparian zone adjacent to Great Brook.

Strategy 1: Maintain forest cover and other riparian vegetation that provides shade and ensures healthy water temperatures for fish and other aquatic life. Leaves and small twigs falling from surrounding vegetation into the brook are contribute to aquatic food webs. There are several large trees with eroded and exposed root systems that are in

danger of falling into the stream. The bare soil conditions left behind leads to erosion that will deposit fine sediments that impact water clarity and can damage stream bottom habitat.

Goal 3: Manage public access on the property. This includes maintenance of the bridle trail and clear marking of the property boundaries to avoid encroachment from the neighboring lot(s).

Strategy 1: It appears that the bridle trail has been mowed in various configurations in the past. Continue periodic monitoring of the bridle path on the property to identify potential areas of erosion or extensive soil compaction. Monitor bridle path access on adjacent properties and remove obstructions when they occur.

Strategy 2: Configure preferred bridle trail location, particularly where it crosses the open field near the lot lines separating Lot 11.02 and 11.03. Trampling and seed dispersal from equestrian activity should be minimized., therefore it is recommended that the trail remain within or adjacent to the wooded areas when possible. Install trail makers to identify the trail location and minimize encroachment into surrounding areas.

Strategy 3: Install property boundary signs to deter encroachment from neighboring properties and install signage near road to identify the parcel(s) as part of Harding's Open Space portfolio.

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Figure 1: Property Location
Block 6, Lot 11.03

Figure 2: Soil Types
Township of Harding, Block 6 Lot 11.03

Figure 3
Bridle Trail Block 6 Lots 11.02 and 11.03

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Table 1
Management Summary

Management Target	Appleton 1 (Lot 11.02)	Appleton 2 (Lot 11.03)
Invasive Species Clearing and Viewshed Creation	Area adjacent to Van Beuren Road (Nov – March)	Flagstaff area of lot (Nov – March)
Open Field Mowing	Mow to 6-8", Remove Excess clippings if necessary (Nov – March)	
Bridle Trail	Identify permanent trail location Install trail markers (summer 2024)	
Property Boundary	Install permanent boundary signs (summer 2024) Install permanent open space sign along Van Beuren Rd. (fall 2024)	
Forested Areas of Properties	Girdle Ailanthus (summer 2025)	Keep trail clear of debris (ongoing)
Stream Access	Ensure safe access for fishing (ongoing)	Watch for signs of excessive streambank erosion (ongoing)