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20 January 2017

Mr. Stanley Zamonsky, Chairman and Board Members
Town of Mamakating Planning Board
2948 Route 209
Wurtsboro, NY 12790

Dear Mr. Zamonsky and Board Members:

Attached please find Hudsonia's report "Preliminary Biodiversity Assessment of the Proposed Beautiful Earth Development Project at McDonald Road and Route 209, Town of Mamakating, Sullivan County, New York," prepared at the request of the Basha Kill Area Association.

Thank you for the opportunity to comment on the Beautiful Earth project.

Sincerely,

Erik Kiviat PhD
Executive Director

cc:

John Cappello, Town Attorney
Stuart Turner, Town Planner
Larry Paggi, PE, Town Engineer
Freda Eisenberg, County Planning Commissioner
Tracey O'Malley, DEC Permits
Bill Herrmann, Town Supervisor



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**Preliminary Biodiversity Assessment of the Proposed Beautiful
Earth Development Project at McDonald Road and Route 209,
Town of Mamakating, Sullivan County, New York**

by Erik Kiviat PhD

Hudsonia

Prepared for the Basha Kill Area Association

Wurtsboro, New York

20 January 2017

INTRODUCTION

At the request of the Basha Kill Area Association, Hudsonia assessed the proposed Beautiful Earth development project located on 48 acres south of McDonald Road and east of Route 209 in the Town of Mamakating, Sullivan County, New York. Our review focused on the potential impacts of the project on biodiversity (flora, fauna, habitats), and the opportunities for reducing those impacts. Hudsonia does not take positions for or against development projects; rather we study environmental documents and field conditions, and make recommendations, as appropriate, for avoiding or reducing impacts to those habitats and species of conservation concern onsite or offsite.

Hudsonia is a nonprofit institute founded in 1981 (hudsonia.org) for research in the environmental sciences and producing information for use in planning, conservation, and environmental management. I am a co-founder and Executive Director of Hudsonia, and have been studying nature and land use in the Hudson Valley and neighboring regions for forty-five years. My résumé is appended to this report.

METHODS

I reviewed relevant portions of the DEIS for the Yukiguni Maitake (YM) proposal (Chazen Companies 2004) which predated the current Beautiful Earth (BE) proposal (BE-ECO LLC no date). I also reviewed the 9 January 2017 plan sheets for the BE proposal (Cornerstone 2017), as well as selected earlier comments on the YM proposal and additional information on soils, wildlife, and the Basha Kill Wildlife Management Area downstream from the BE site, and satellite imagery on Google Earth. On 9 December 2016 from approximately 1100 to 1600 hours EST I reconnoitered the periphery of the site; it was partly sunny, the air temperature ca 36F, wind Beaufort 2-4, with occasional snow flurries and very limited extent of snow and ice on the ground and water surfaces.

THE SITE

The extensive central area of the site is nearly flat and dominated by tall forbs and locally shorter grasses. Woody vegetation occupies much of the periphery of the site ranging from a 1-2 meter wide belt along McDonald Road to substantial patches elsewhere. A wetland with herbaceous, shrubby, and sapling vegetation is in the southwestern area of the site; it connects to a much larger area of wetland south of the site. I did not see flags from the 2016 wetland boundary delineation reported in Cornerstone (2017).

There is extensive evidence of earthmoving on the site including scraped areas, ridges of earth, an excavated basin, a large soil pile, an old filter fabric siltation barrier, hummocky areas, and stone piles. A large area in the central and eastern portions is dominated by mugwort (*Artemisia vulgaris*), indicative of relatively recent topsoil removal. If topsoil or underlying gravel was removed from the site, a mining permit might have been needed. If material was used to fill wet areas of the Raynham soil in the center or western area of the site, or pushed into the state-

regulated wetland in the southwest, there might have been a wetland law violation. Tailings from old lead mines nearby could have been disposed onsite. Any lead in the soil could be mobilized into the Basha Kill by further earthmoving.

There is a small dump containing concrete, sheet metal, metal mesh fencing, rusted cans, and possibly other materials, in the southeast portion of the site. An excavated pit just southeast of the dump appears to be empty. This dump and pit should be examined for possible hazardous materials and the soil tested for contaminants. Contaminants in the soil could be mobilized during development activities.

BIODIVERSITY CONCERNS

The proposed BE project incorporates many important environmental features related to energy conservation and other environmental concerns. The project proposal, however, does not convincingly address biodiversity (habitats and species) issues. Given the magnitude and nature of the proposed development, I believe many biodiversity issues could be addressed constructively with marginal additional planning and costs.

Golden-winged warbler, a state-listed Special Concern species, was reported to breed at wetland edges on the D&H Canal Park bordering the southern edge of the site (Freer 2004) but the exact locations were not provided. This was stated to be the only regular breeding site of this species in Sullivan County. More recent and detailed information is needed to determine if onsite and offsite impacts would impinge on breeding and nonbreeding home ranges of this species.

The Freer (2004) letter also reported a high species diversity of birds on and close to the site compared to other well-studied localities in Sullivan County. Sullivan County Audubon considers this a very important locality for birds.

Shagbark hickory (*Carya ovata*) trees are fairly common around the edges of the site. All sizes of shagbarks from saplings to trees almost 1 meter (39 inches) in diameter-at-breast-height (dbh) are present, including an especially large tree at McDonald Road halfway across the site, and another in the northeastern corner area. Shagbarks have many habitat functions, particularly as summer roosting and nursery sites for the Endangered Indiana bat. It is not known if this bat occurs onsite. The site is about 28 miles southwest of the well-studied Indiana bat overwintering area near Rosendale, well within the potential seasonal migration distance of this species.

There is a shrub thicket of hazel (*Corylus* sp.) along part of the south side of McDonald Road. Both hazel species are uncommon in our region.

Timber rattlesnake (State Threatened) was reported within 1.5 miles of the site by the New York Natural Heritage Program (NYNHP; letter in Chazen Companies 2004 Part II, Appendix A). This probably refers to a winter den site, although no details are available. Timber rattlesnakes, especially adult males, often migrate considerable distances (sometimes much farther than 1.5 miles) from winter dens during the active season. Without knowing the behavior of the snakes in this particular den population (or populations), it is impossible to predict the likelihood of

rattlesnakes entering the site. The DEIS suggests that Route 209 would be a barrier to rattlesnake movement; however, depending on which direction the den is in, and whether there are potentially useable passages beneath the highway, this may or may not be relevant.

No herpetofaunal (amphibian and reptile) survey has been conducted at or near the site, as far as I know. The streams on and along the southern border of the site could provide core habitat for the wood turtle, a Special Concern species. Wood turtles overwinter in streams and range onto upland areas to forage and nest during the active season. The spotted turtle could occur in the wetland onsite and range onto the proposed development area; this is also a Special Concern species. Eastern box turtle, another Special Concern species, could occur on the site in the open field areas, wetlands, or woodland edges.

The ironcolor shiner (Special Concern), a small fish of varied flowing water habitats, is known in New York State from a single population in the Basha Kill area. It is not known if this population extends upstream to the site. However, pollution of the stream system by silt or nutrients from earthmoving, stormwater, or wastewater disposal, or mobilization of nutrients, residual agricultural chemicals, or other possible pollutants from soil disturbance, could have offsite-downstream effects on this species. Many bird species of conservation concern (e.g., pied-billed grebe and certain duck species) breed or forage in the Basha Kill wetland complex and may also be at risk of pollution from the site, as may the ironcolor shiner.

The proposed BE facilities and infrastructure (parking areas, wastewater and stormwater treatment facilities) would occupy much of the flat field area of the site. Because, excepting golden-winged warbler, and a long list of other bird species, as well as a list of common plants in the DEIS, little is known about the habitat functions of the site, I am unable to analyze how the proposed development might affect the biota through habitat loss or fragmentation, or the loss of future shrubland habitat if the site were to be left undeveloped. I echo the concerns of Barbour (2005) that there has been too little biological study of the site to properly analyze its habitat functions, biodiversity, and conservation role.

Stormwater basins 1 and 2 are proposed to discharge into the wetland or the wetland buffer zone. Stormwater discharges have the potential to alter water quality, quantity, distribution, and timing in the wetland. These characteristics are critical to habitat functions and other ecosystem services (such as carbon sequestration and flood modulation) provided by wetlands. Stormwater management could alter habitat for spotted turtle, golden-winged warbler, and other species of conservation concern.

The Raynham soil, which underlies approximately the western half of the flat field area (including part of the development footprint), is rated as hydric and floodprone (Chazen Companies 2004). There may be unrecognized pockets or extensions of wet meadow into this area. Potential flooding of the Raynham soil is relevant to both habitat functions (e.g., the potential occurrence of rare sedge species, see Barbour [2005]) as well as the integrity of structures and infrastructure.

Both the Raynham soil and the Chenango soil (on the eastern portion of the development area) are considered prime farmland soils (Chazen Companies 2004).

The wind turbines proposed for the roof of the main building are a recently commercialized (about three years old) design. Have they been studied to determine if they are relatively safe for birds and bats? Mortality of bats and birds due to wind turbines is very important, and varies according to landscape and site characteristics and turbine type. Three years may have been too short a period to determine the mortality and morbidity effects of this turbine type.

Solar panel arrays are a possible hazard to flying organisms such as bats, birds, and insects (Horváth et al. 2009, 2010). One way this occurs is due to the light-polarizing effect of the reflective, dark-colored panels. It may be possible to install panels of a type that minimize this impact. Given the proximity of wetlands and streams to the development footprint, effects on flying aquatic insects and the bats that feed on them could be substantial.

The former applicant's inquiries to the New York Natural Heritage Program (NYNHP) and the U.S. Fish and Wildlife Service (FWS), and the limited biological survey work performed at the site by YM, are now a dozen years old. NYNHP, for example, recommends updating inquiries annually prior to the permitting of a development project.

RECOMMENDATIONS

-Conduct a comprehensive survey of the vascular flora of the entire 48 acre site. Conduct surveys of birds, bats, herpetofauna, dragonflies, and butterflies of the site. Survey work should be performed by qualified independent field biologists during appropriate seasons for at least one full year prior to construction.

-Study the golden-winged warblers and determine individual home ranges during breeding and nonbreeding seasons. This is important to understand and minimize development impacts on this Special Concern species.

-Mark and map shagbark hickories of all sizes from saplings to large trees and protect them from cutting or damage. Protect the hazel shrubs along MacDonald Road.

-Test soils for potential contaminants (e.g., heavy metals, pesticides) around the dump and remove the dumped refuse for proper disposal. Test soils across the development area for lead.

-Arrange for an independent verification of the entire onsite wetland boundary. This will be helpful to the project as well as to biodiversity. Also take auger borings outside the current wetland boundary on the field side, to determine if filling took place during episode(s) of earthmoving that occurred subsequent to the enactment of federal and state wetland protection.

-Have a fulltime independent construction monitor onsite during all site preparation and construction activities to help ensure that proper measures are maintained to minimize soil erosion, siltation, equipment impingement on wetlands, damage to shagbark hickories and hazels, spills and leaks of potential pollutants, and other preventable environmental damage. An appropriately trained and licensed monitor can also safely remove any snakes and turtles that

may wander onto the construction area, as well as coaching construction workers to see and avoid those reptiles.

-Examine the current site plan and determine if stormwater basins and the main building can be pulled back from the wetland buffer zone. Also, determine if the whole project can be laid out more compactly to reduce habitat loss.

-The stormwater basins should be built prior to site preparation and construction and should be designed to act as settling ponds for soil materials (suspended sediment). Silt and clay particles commonly are not fully blocked by siltation barriers from entering wetlands and streams.

-Remaining (undeveloped) field habitat should be managed as shrubland. This might be as simple as a targeted mowing regime. Shrubland with native plants can possibly be developed over the SSDS (sewage disposal system) and process wastewater infiltration area without interfering with the operation and future maintenance of these facilities.

-BE should consider mitigating for the loss and fragmentation of the field habitat for birds and other wildlife. This could take the form of funding the preservation and management for grassland or shrubland of a large parcel adjoining one of the existing managed natural areas in Mamakating.

-BE should also consider mitigating for the loss of prime farmland soils by protecting prime farmland soils for agriculture elsewhere in the region, perhaps in association with one of several organizations that have established training centers or “incubators” for new farmers.

-Update the NYNHP and FWS inquiries, because there may be new data and new policies. Update the Sullivan County Audubon Society inquiry.

-Investigate options for types of wind turbines and solar panels that would minimize mortality and morbidity of flying animals, and monitor mortality for several years following installation.

ACKNOWLEDGMENTS

Gretchen Stevens (Hudsonia) assisted in this biodiversity assessment.

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