Herpetological Associates, Inc. - Environmental Consultants
❀ Plant and Wildlife Specialists ❀

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575 Toms River Road (Route 571), Jackson, New Jersey 08527

November 4, 2013

Joseph A. Del Duca, Esq.
General Counsel - Walters Group, Inc.
500 Barnegat Boulevard North, Building 100
Barnegat, New Jersey 08005

Re: Evaluation of the Walters Group, Inc.'s proposed Solar Panel project as it pertains to Grassland Birds and Northern Pine Snakes at Stafford Park Landfill, Stafford Township, Ocean County, New Jersey - HA File Number 2013.14.

Dear Mr. Del Duca:

Herpetological Associates, Inc. (HA) has completed our review of the court documents submitted by Aaron Kleinbaum and Alice Baker, of the Eastern Environmental Law Center and Renee Steinhagen, of New Jersey Appleseed, who are the attorneys for the Pinelands Preservation Alliance, New Jersey Conservation Foundation, and the New Jersey Environmental Lobby (Superior Court of New Jersey, Appellate Division, Docket No. A-002316-10). On August 26, 2013, we had an on-site meeting with you, Ed Speitel, Jr., and HA staff members Matt McCort, Dave Burkett and I. We have also reviewed the New Jersey Department of Environmental Protection (NJDEP), permits associated with the landfill including the requirements for ongoing mowing and maintenance of the landfill cap.

Our mission was to conduct a follow-up habitat inspection and evaluation of the growth of various warm season grasses that were planted on the capped landfill between 2007 and 2009. Additionally, we re-evaluated any potential adverse impacts that may be caused by the installation of 1,030 solar collection panels on grassland birds and pine snakes at Stafford Park Landfill. As part of our evaluation, various plans and detailed drawings of the proposed solar panels were studied. During our site visit, it was noted that warm season grasses now currently cover approximately 90% of the new landfill and the surrounding Stafford Business Park property. Certain portions of these areas are slated and approved for single family housing development.

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Project History

In complying with the June 28, 2006, *Memorandum of Agreement* (MOA) between Stafford Township, Ocean County and the New Jersey Pinelands Commission (the Commission), Walters, as the project's designated redeveloper, has completed the remediation and closure of two landfills located at the property known as the Stafford Business Park. This was done in accordance with all New Jersey Department of Environmental Protection (NJDEP), Commission and other governmental requirements. The approximately 55-acre, formerly licensed, municipal landfill is the subject of this review. As part of the MOA, Walters also constructed, or has obtained approvals to construct, a mixed use commercial and residential development, known as the Stafford Business Park Redevelopment Project (hereafter SBP), which is located adjacent to the landfill in question. **Figure 1** shows the location of the subject landfill and the SBP property which is 388-acres in size. The Stafford Forge Wildlife Management Area surrounds the SBP property and landfill on three sides (**Figure 2**).

In 2006, there were three rare wildlife species and two rare plant species known from the SBP. These were the state-endangered Southern Gray Treefrog (*Hyla chrysoscelis*), and the state-threatened Pine Barrens Treefrog (*Hyla andersonii*) and Northern Pine Snake (*Pituophis m. melanoleucus*). The two plant species were Knieskern's Beaked Rush (*Rhynchospora knieskernii*), a federally-threatened and state-endangered sedge, and Little Ladies'-tresses (*Spiranthes tuberosa*), an orchid on the Pinelands Commission's list of protected plants.

At the request of Alfred Galvan, Erosion Control Specialist with the Ocean County Soils Conservation District, and in accordance with the NJDEP approved landfill post closure plan, rye grass was planted on various portions of the landfill. Particular effort was made to plant grass on slopes and on other bare ground to prevent erosion of the soil. However, at the specific request of the Pinelands Preservation Alliance, the organization now objecting to the placement of solar panels on the landfill, Walters agreed, despite no obligation to do so, to modify the grass mixture proposed for the landfill cap. After consultation with Ted Gordon, HA's botanist, John Bunnell, Research Scientist at the Commission, Ken Carter, Supervising Environmental Specialist at the Commission and various representatives of the Pinelands Preservation Alliance, Walters agreed to modify their assorted grass seed mixture to only include native Pine Barrens grass species on the landfill and on the three snake management fields at the SBP development site. The recommended seed mixture was: 35% *Panicum virgatum*, 25% *Andropogon virginicus*, 25% *Schizachyrium scoparium*, and 15% *Sorghastrum nutans*.

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Figure 1. A 2005 aerial photograph showing the location of the Stafford Business Park in Stafford Township, Ocean County, New Jersey. The Garden State Parkway and State Route 72 can be seen on the right side of the aerial photograph. Arrows depict the locations of the old landfill, Mill Creek and the Stafford Forge Wildlife Management Area. The bold red line illustrates the property boundary of the 388-acre Stafford Business Park property. The new capped landfill is in the same general vicinity of the old landfill, but just slightly north of it. Major commercial and residential development has been added since this was taken.

On July 10, 2007, the Commission submitted a letter to Stafford Township's Mayor, Carl W. Block approving this seed mixture. Unfortunately, the needed amount of *Andropogon virginicus* was not commercially available and the mixture was modified accordingly. With the approval of the Commission and NJDEP, the surface of the landfill and the three snake management fields were all planted with three of the Commission's recommended native grass species that were commercially available. These were: 45% *Panicum virgatum*, 35% *Schizachyrium scoparium*, and 20% *Sorghastrum nutans*.

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Figure 2. A 2007 aerial photograph showing a western view of the SBP site and the early stages of the commercial construction on the eastern and central portions. The licenced landfill is centered on the western portion of the SPR property (highlighted with white lines). Retention Basin D is located at the extreme west of the site (highlighted in white). The three pine snake mitigation and management fields are due west of the site (outlined in red lines), and the former perimeter exclusion drift fence that once surrounded the SPR property, is also outlined in red. Source: Walters, Inc.

The snake management fields were constructed following HA's design at Walters' expense in accordance with the requirements of the MOA. The snake management fields were required by the Commission as an environmental offset to replace the lost critical nesting and overwintering habitat. In other words, in order to properly close and cap the landfill the critical Northern Pine Snake habitat that existed on the landfill had to be destroyed. A 7-year radio-tracking study has shown that both shifted and non-shifted Pine Snakes have used the new management fields for nesting and overwintering.

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Walters and Stafford Township are obligated by NJDEP and the Commission to maintain the surface of the landfill for a period of 30-years in accordance with a detailed landfill post-closure plan. The post-closure plan requires that the grasses and other vegetation "be mowed on a regular basis to prevent the overgrowth of shrubs, trees and other deep rooted vegetation as well as for aesthetic purposes." Walters is free to mow the grasses as often as it deems appropriate in accordance with the requirements of the landfill post-closure permit.

Description of Existing Conditions

During HA's site visit on August 26, 2013, it was observed that the warm season grasses and other native vegetation had grown higher and denser on the landfill, the sloped edges, and the flat, open, prairie-like areas. These grasses include *Panicum virgatum*, *Schizachyrium scoparium* and *Sorghastrum nutans*, which were planted by Walters in 2007 and 2008. These native grasses cover approximately 90% of the SBP. Evidently, the selected seed mixture that was planted in 2007 and 2008 neither compromised additional native grass colonization, nor its growth on the landfill. More important, the rich grasses and native plants currently growing on the landfill have stopped soil erosion. There is some native *Andropogon virginicus* growing on the landfill and on the snake management fields through natural colonization. **Figure 2** above illustrates the approximate location of the three pine snake management fields in relation to the landfill. It is important to note that the excluder drift fence was removed in November of 2010. Since then (2011 to 2013), pine snakes and other wildlife have free access to the SBP and the landfill grasslands where they have occasionally been observed by HA.

Description of the Proposed Solar Panels

The proposed 1,030 solar collection panels will be erected and positioned to run from east to west for optimum sun-light exposure. A typical solar panel is 27-feet wide and 16-feet long. The low end of the panel is about 3-inches to 4-feet above grade, and the high end is about 6-feet to 12-feet above grade. Each solar panel will sit on two concrete foundations that are 14-feet long and 2-feet wide each. There is a 20-foot space between the rows of solar panels which will allow for general maintenance and mowing grasses. Mowing will also prevent unwanted trees from growing between the solar panels. All connecting wires will be run above ground and overhead. There will be no excavation into the soil on the landfill surface for any reason whatsoever, as digging could possibly rupture the capped lining.

Approximately 12% of the solar panels approved for the total project have already been installed on the site. The solar project when completed will include 6.5 MW. The entire project, including 1,030 solar panels, will occupy approximately 28-acres of the 55-acre landfill lot. The panels themselves will occupy approximately 9.5-acres of ground surface. The ballasts for all of the approved solar

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panels will cover only approximately 1.3-acres of land. Consequently, only 9.5-acres of vegetation will be totally eliminated from the top of the landfill to accommodate the entire solar project. The area will be fenced for security purposes. No panels will be located on steep slopes. Areas will be left open to access the solar panels. Little maintenance of the panels is required and only rarely will the panels need to be accessed by workers which will limit disturbance to wildlife.

As stated above, about 12% of the existing solar panels are already in place. These panels are located in the vicinity of the Ocean County building in the northwest portion of the SBP. It should be noted that grassy vegetation still exists at and between current solar panels. It appears that the grassy vegetation grows normally between the existing solar panels and partial shading has not significantly restricted the growth.

Grassland Birds on the SBP

The Grasshopper Sparrow (*Ammodramus savannarum*), is opportunistic in its selection of open, treeless breeding habitat. This migratory bird selects and prefers larger patches of grassland, usually with few shrubs or trees. However, its specific habitat preferences vary in different parts of the overall range. In the United States, it breeds mostly east of the Rocky Mountains and adjacent portions of southern Canada, but there are isolated breeding populations in the western states. Grasshopper Sparrows spend winters in the southern United States, most of Mexico, the Greater Antilles, and parts of Central America.

The Grasshopper Sparrow is mainly a visual predator that forages on the ground in grassy habitats. In winter it feeds on the seeds of panic grass and sedges. During the summer, when in its breeding territory, its main diet is various small insects, comprised primarily of various grasshopper species. Nests are difficult to find and very unique, having a dome structure with overhanging grasses and an entrance on the side. Adult pairs can have more than 2 broods in a season if the weather is favorable. Clutch size is usually 4 or 5 eggs. Cooperative brooding is relatively common. Unrelated adults and adults whose own nests were recently destroyed will help feed and brood other birds' chicks.

Only a few pair of Grasshopper Sparrows have been confirmed breeding on the landfill by HA staff in 2012 and 2013. The exact number of successful breeding pairs is unknown. There are other suitable grassland habitats for this species in Ocean and Burlington Counties. A good example are the grasslands along the airfield runways found at McGuire, Fort Dix and Lakehurst Joint Base.

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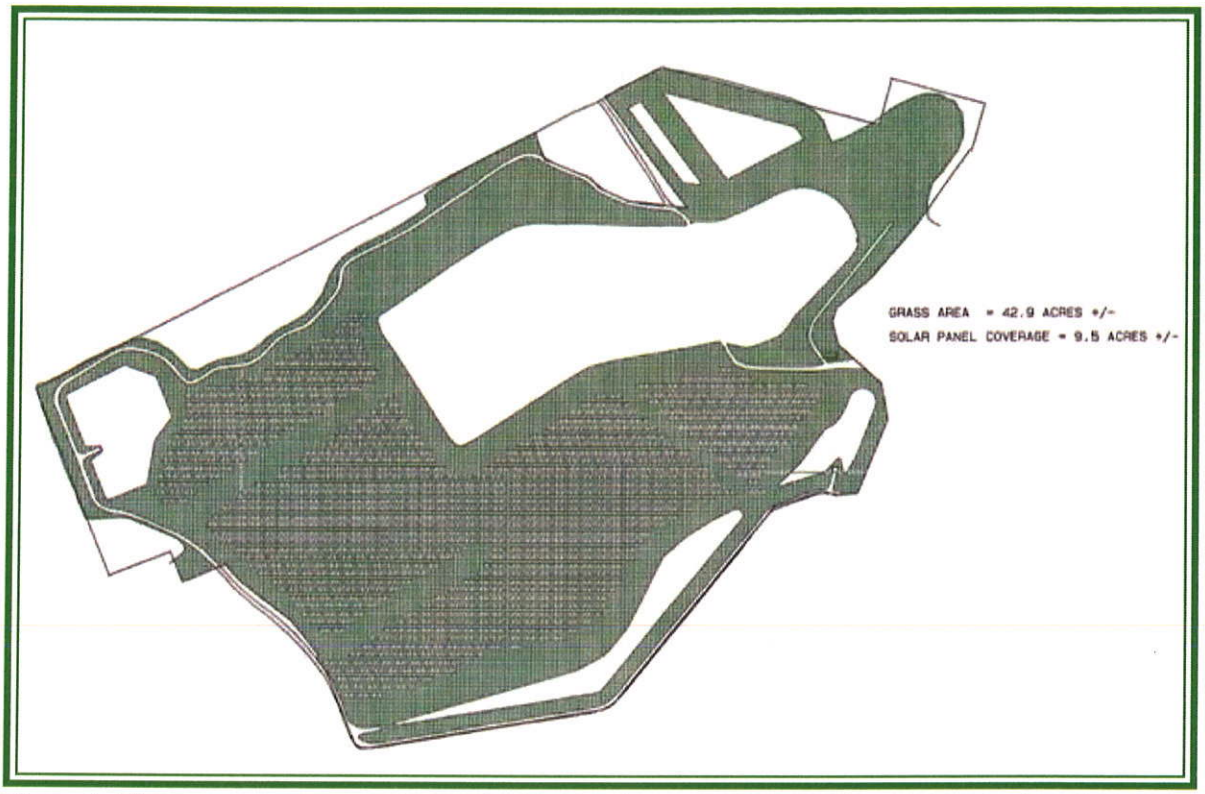

Figure 3. The green areas represent the grassland habitat that would be available to birds and other wildlife after the proposed solar panels are installed at the SBP. Only 9.5-acres would be covered with solar panels.

The Eastern Meadowlark (*Sturnella magna*) has also been documented as a breeding species on the SBP property. The Meadowlark is a medium-sized bird, very similar in appearance to the Western Meadowlark. It occurs from eastern North America to South America, where it is also most widespread in the east. Its breeding habitat is grasslands and prairie, but it also may select pastures and hay fields. This species is a permanent resident throughout much of its range, though most northern birds migrate southward in winter.

Meadowlarks forage on the ground or in low vegetation, sometimes probing for insects with its bill. They mainly eat arthropods, but also seeds and berries. In winter, they often feed in flocks. Nesting occurs throughout the summer months. The nest is also on the ground, covered with a roof woven from grasses. There may be more than one nesting female in a male's territory.

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The numbers of this species increased as forests were cleared in eastern North America. This species is ideally suited to farmland areas, especially where tall grasses are allowed to grow. Their numbers are now shrinking with a decline in suitable farmland habitat. On the other hand, its range is expanding in parts of Central America toward the Pacific (western) side of the continent, in agricultural-type areas.

Eastern Meadowlark have been confirmed breeding on the landfill portion of the SBP property by HA staff in 2012 and 2013, but the exact number of successful breeding pairs is unknown. There are other suitable grassland habitats for this species in Ocean and Burlington Counties. A good example of suitable grassland habitat would be the open grassy areas found along the airfield runways at McGuire, Fort Dix and Lakehurst Joint Base.

The Horned Lark (*Eremophila alpestris*), is another species of grassland bird, that has been identified as breeding on the SBP. Unlike most other larks, this is a distinctive-looking species on the ground, mainly brown-grey above and pale below, with a striking black and yellow face pattern. Except for the central feathers, the tail is mostly black, contrasting with the paler body; this contrast is especially noticeable when the bird is in flight. In summer, males have distinct black "horns," which give this species its American name.

America has a number of races distinguished by the face pattern and back color of males, especially in summer. Vocalizations are weak, high-pitched lisping or tinkling calls, which may be given in flight, as is common among larks. Their song consists of a few chips followed by a warbling, ascending trill. The Horned Lark has only been documented breeding by HA staff in the central open grassy area on the SBP property, but not on the landfill. This open grassy area has been approved for single family home development. Several pairs (exact numbers not known) were breeding in 2013.

The Grasshopper Sparrow and Eastern Meadowlark have been observed breeding on the landfill portion of the SBP property over the past few years, but only in small numbers. It should be pointed out that after the solar panels are installed, 42.5-acres of grassland habitat will remain on the SBP site for bird and Pine Snake use (**Figure 3**).

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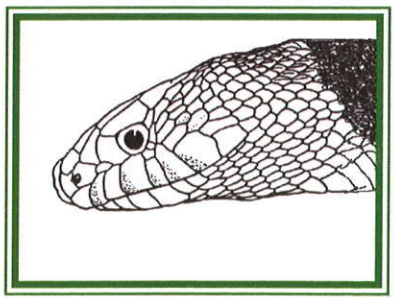
Northern Pine Snakes

Northern Pine Snakes historically and currently use the 388-acre SBP property to forage, nest and seek shelter while shedding their skin. No nesting or shedding have been documented directly on the landfill, but two individuals have been confirmed foraging there, most likely for rodents and ground nesting birds. During the 7-year follow-up investigation, HA has learned that pine snakes will not typically use open, bare sandy areas as travel corridors because that exposes them to predators such as red-tailed hawks, foxes and coyote. In order to avoid these predators, they will select vegetated or grassy habitat to safely travel from one part of their habitat to another. The grasslands on the landfill will attract many insects, birds and small mammals. Pine snakes will forage for prey in these grasslands, as well as in the forest of Stafford Forge Wildlife Management Area. Although pine snakes will climb trees to find bird nests with eggs or chicks, they particularly hunt for ground nesting birds such as the grassland species found on the SBP.

It should be noted, that due to the limited depth of the liner over the landfill, this area is not suitable as Pine Snake winter denning (hibernacula) habitat. The dense grass and other vegetation also make the area not suitable for Pine Snake nesting. However, the grasslands are suitable foraging habitat for Pine Snakes and other snake species. It is interesting to note that the Pinelands Preservation Alliance specifically objected to Walters getting any credit for the landfill as replacement habitat for Pine Snakes on the specific grounds that the restored landfill is not suitable habitat for snakes, for the reasons set forth above.

Analysis and Conclusions

The Comprehensive Management Plan (NJSA 13:18A-1, et seq.), governs development in the Pinelands region in the State of New Jersey. The regulations define "critical habitat" (NJAC 7:50-6.33), and provides that: "No development shall be carried out unless it is designed to avoid irreversible adverse impacts on habitats that are critical to the survival of any local population of those threatened or endangered animal species designated by the Department of Environmental Protection pursuant to NJSA 23:2A-1 et seq" (emphasis added). The landfill portion of the SBP property is habitat for the Grasshopper Sparrow, the Horned Lark, the Eastern Meadowlark and the Northern Pine Snake. For the reasons that follow, the landfill portion of the SBP property is not "critical habitat" for any of these species and the solar project will not have an "irreversible adverse impact" on the local population of these species.



It should be noted that prior to 2007, no grassland habitat occurred on the SBP property and there were no grassland birds breeding on site. Native grasses were planted to stabilize the soil and to

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prevent erosion. Ironically, the species of grasses ultimately planted was chosen by Pinelands Preservation Alliance. Because of the vast open grassy habitat structure, the rare birds have recently selected the SBP landfill as breeding habitat. If the landfill was not mowed, and trees and shrubs grew, within 3 to 5-years it would no longer be suitable for grassland birds. This human-made bird habitat was inadvertently created by planting grasses to prevent soil erosion and subsequent constant mowing. Because a stringent mowing regime has not been initiated, the identified species of grassland birds currently find the existing conditions suitable for breeding. However, in order to maintain the cap of the landfill mowing may occur with sufficient frequency, and at times inconsistent with the breeding activities of these birds. In such an event, the landfill surface would not be suitable as breeding habitat for grassland birds. That is why the landfill should not be considered "critical habitat," because other suitable grassland habitat is available for them in Ocean County, and throughout southern New Jersey.

Additionally, the inadvertently created grasslands will only be partially disturbed by the installation of solar panels. The ballast will cover only 1.3-acres of grassland and only 9.5-acres are actually covered by solar arrays. There will be minimal need to access the panels or disturb the grassy habitat. There will be approximately 42.9-acres of available grassland after the solar panels are installed (see **Figure 3**). This grassland habitat may still provide ample breeding and/or foraging habitat for the Grasshopper Sparrow, the Eastern Meadowlark, the horned lark and foraging habitat for the Northern Pine Snake.

In summary, it is HA's opinion that the installation of all the proposed 1,030 solar collection panels will not have an irreversible adverse impact upon habitats that are critical to the survival of the local populations of any rare plant or wildlife species on the SBP.

Sincerely Yours,

Robert T. Zappalorti
Executive Director/President

Matthew R. McCort
Herpetologist/Wildlife Ecologist

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