

EXHIBIT A

Distribution & Abundance of

***Symphyotrichum urophyllum* -- white arrow-leaved aster**

Warner Solar Project - Bennington, Vermont

by

Connecticut Valley Environmental Services, Inc.

September 12, 2019

Connecticut Valley Environmental Services, Inc. was requested by Otter Creek Solar LLC to quantify the distribution and abundance of *Symphyotrichum urophyllum* (Lindl.) G.L. Nesom, white arrow-leaved aster (Photo 1), on the Warner Project site. Fifteen plants of this very rare species (in Vermont) were positively identified, on the project site on September 1, 2019, at six locations south of the powerline. The purpose of the request is to collect more data on this species in order to inform methods to avoid and minimize impact of the proposed project on this species. This is a report of those findings.

On September 7, 2019, additional field work was conducted and several hundred additional plants (most of them in flower) were identified at approximately 44 new locations, on and adjacent to the Project site. When the species was identified - the plant was photographed, coordinates of its location were recorded (and entered into Google Earth), the number of stems of other nearby individuals were counted, and the stems (if located on the project site) marked in the field with pink wire flags imprinted with "Wetland Delineation" (Photo 2). Each location is shown on the Distribution Map (Photo 3).

White arrow-leaved aster was previously found, on September 1, 2019, widely scattered in old field, scrub-shrub and early-successional woodland habitats on the project site. However, this additional field work, conducted only a week later, reveals the species is locally rather common. It is most abundant and flourishes best on southwest-facing slopes of the adjacent railroad right-of-way (Photo 1), an area recently disturbed by brush-hogging (Photo 4) and fully exposed to afternoon sun.

In the railroad right-of-way, the aster occurs continuously from Location 38 to Location 51 (Photo 5). The number of stems is so large that the population was simply estimated to be several hundred, perhaps up to, or even more than, a thousand. On the project site, the greatest number of stems occur clustered in old field habitat (approximately 104) on the north central portion of the site (Locations 1-15 & Sites 1-4) and early successional woodland habitat (approximately 69 stems) on the southernmost portion of the site (Locations 27-37 & Sites 5 & 6). Scattered locations along the eastern side of the site (Locations 20-26) have a total of approximately 26 stems and one location on the western side of the site (Location 18) had nine stems. A total of 208 stems were identified onsite.

White arrow-leaved aster is widespread across the eastern half of North America¹ where it is reported to inhabit fields and open spaces on high-pH soils². These observations are consistent with those made on and near the Project site as the species was not found in mid to late successional woodland. Our

¹ <https://plants.usda.gov/core/profile?symbol=SYUR>

² <https://gobotany.nativeplanttrust.org/species/symphyotrichum/urophyllum/>

observations further indicate that it is: 1) frequent on, and in the vicinity of, the project site, and 2) well-adapted for dispersal to, and growth in, disturbed open habitats of the railroad corridor.

Along the railroad corridor, the number of plants is significantly greater, and the plants are more vigorous (attain their greatest heights and have larger inflorescences) than those in partial shade of scrub-shrub and early successional woodland. In partial shade the plants grow in light gaps and are usually small and spindly (with few flowers in small inflorescences) with large basal leaves (Photo 6) and leaves that are frequently damaged by leaf miners (Photo 6).

These data indicate the white arrow-leaved aster will not be extirpated in the vicinity of the project by the proposed improvements. We believe the plant is a “weedy” species in the project area and will be recruited to, and thrive in, the edge of the visual buffer areas around the perimeter of the Project site (Photograph 3, Distribution Map). It is also likely that the species will find suitable habitat under the racks of solar panels (Photograph 7) if vegetation is controlled. In summary, we believe that the construction of the solar array will not have a significant adverse effect on the aster species but may, in fact, create habitat that is beneficial to its survival. Transplantation of any of the plants is not recommended. If any mitigation is to be performed, we recommend collecting seeds from the existing plants and spreading them around both the eastern and western borders of the project site.



Photo 1. White arrow-leaved asters on the bank of the railroad right-of-way (at Location 40) are vigorous and pollinated by honey bees. A railroad tanker car is visible in upper left of photo. Photo taken September 7, 2019.



Photo 2. White arrow-leaved asters (marked with pink wire flags) in early successional woodland habitat (Location 30) are diminutive. Photo taken September 7, 2019.

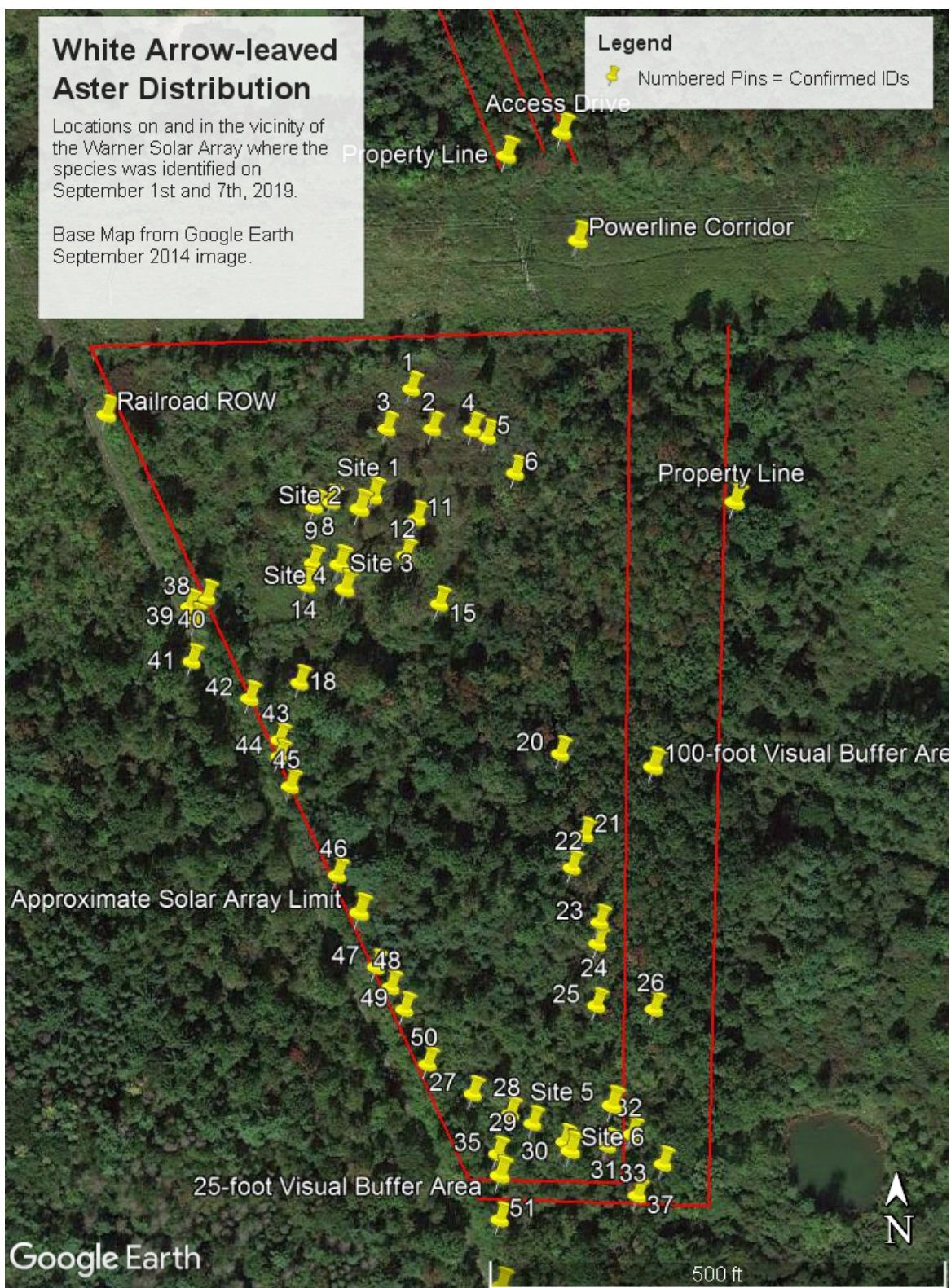


Photo 3. Distribution Map showing the locations where white arrow-leaved asters were identified. Locations labelled "Site" (e.g., Site 4) were observed on September 1, 2019 and those with just a number (e.g., 6) were observed on September 7, 2019.



Photo 4. White arrow-leaved aster thrives in the brush-hogged railroad right-of-way (Location 49). Photo taken September 7, 2019.



Photo 5. White arrow-leaved asters at the fence line that delineates the edge of the railroad right-of-way (Location 51) have robust inflorescences. Photo taken September 7, 2019.



Photo 6. The blade of this aster basal leaf (at Location 5) is nearly seven inches in length and is damaged by leaf minors. Photo taken September 7, 2019.



Photo 7. Clearing of the project site and erecting solar panels may benefit the white arrow-leaved aster, which appears to prefer disturbed open habitats.