

MEMORANDUM

TO: Loretta Taylor, Planning Board Chairperson
Town of Cortlandt, New York

FROM: Daniel P. Biggs, RLA, ISA, CERP

DATE: October 14, 2020

SUBJECT: **Tree Inventory and Assessment Summary**
10 Lexington Avenue Solar – Cortlandt CG LLC
Town of Cortlandt, New York

Introduction

As requested, Weston & Sampson PE, LS, LA, PC (Weston & Sampson) completed a tree inventory and assessment for the approximately 35 acre parcel at 10 Lexington Avenue in the Town of Cortlandt, New York for the proposed 2.3 MW community solar energy system.

The purpose of this inventory was to locate and identify all trees greater than 4-inches diameter at breast height (DBH) in accordance with Town Code (Chapter 283) within the project area. Trees within the project area were tagged by the applicant's surveyor, then identified by Weston & Sampson staff. All tagged trees were inventoried (genus and species with scientific and common names). The attached table of inventoried trees is supplemented by a site survey map illustrating identification number and location of all trees surveyed.

Upon completion of the field inventory, this summary report was prepared to provide an overview of the forest characteristics, species, sizes and general condition of the forest area.

The assessment was conducted using the *Guide for Plant Appraisal, (10th edition, 2018)* authored by the Council of Tree & Landscape Appraisers, and the *New York State Tree Species Rating Guide, revised December 2007* authored by the New York State Arborists – ISA Chapter, Inc.

Existing and Proposed Conditions

The 10 Lexington Avenue Parcel in Cortland, New York consists of a mostly undeveloped forested parcel, which is bordered to the north by both developed and undeveloped properties along Dyckman Road, to the south by an existing natural gas pipeline right-of-way (ROW), to the east by Lexington Avenue, and to the west by the Baron De Hirsch Road subdivision.

The proposed project will utilize approximately 5,300 solar modules, which will be manufactured offsite and then delivered to the site by truck in wooden crates or cardboard boxes. Each module measures approximately 3.3 feet by 6.4 feet. Solar modules are typically 2 modules high by 12 modules wide, will be oriented to face south at a 25° tilt to maximize exposure to the sun, and will be mounted on steel posts, which would be screwed in driven between 10 and 15 feet into the ground and spaced in rows approximately 10 feet apart for operations and maintenance access.

The site will be accessed via Lexington Avenue, approximately 400 feet long and 15 feet wide. The access road will be constructed of geotextile and gravel and will terminate at the northeastern corner of the solar array with a hammerhead turnaround to accommodate vehicles.

The solar array and all balance of system equipment will be enclosed in an eight-foot-tall chain link fence in compliance with the National Electric Code and Cortland Township local solar law. The fence will have at least one vehicle access gate at the northeastern corner of the array, which will always remain locked, except during operations and maintenance activities.

Existing Forest Conditions

The project area is bisected by a paper road running north/south. To the northeast of the paper road, the woodland is bounded by three residential properties, and to the northwest of the paper road the woodland is bounded by an undeveloped, wooded property. Just to the east of the paper road, the elevation increases and a ridge roughly follows the paper road south. From the top of the ridge the elevation drops at varying degrees and sharply drops along Lexington Avenue. To the west of the paper road, the elevation continues to drop to a wetland area. A meadow/utility ROW bounds the southern portion of the woodland.

According to “*Ecological Communities of New York State*”, the Town of Cortlandt is located within New York Ecoregion 59c – Northern Coastal Zone (Southern New England Coastal Plains and Hills).¹ Forests in this region were historically dominated with a mix of oaks (*Quercus spp.*), American chestnuts (*Ulmus americana*), hickories (*Carya spp.*), hemlocks (*Tsuga spp.*) and white pines (*Pinus strobus*).

¹ Bryce, S.A., Griffith, G.E., Omernick, J.M., Edinger, G., Indrick, S., Vargas, O., and Carlson, D., 2010, Ecoregions of New York, http://ecologicalregions.info/data/ny/NY_front.pdf

The “Oak-Tulip Tree” forested upland type most closely resembles trees observed in the field. This forest community is characterized as a mesophytic hardwood forest found on moist, well-drained sites in southeastern New York state.

Within this type, the dominant trees include a mixture of five or more of the following: red oak (*Quercus rubra*), tulip tree (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), black birch (*Betula lenta*), red maple (*Acer rubrum*), scarlet oak (*Quercus coccinea*), black oak (*Q. velutina*), and white oak (*Q. alba*).² Dominant trees inventoried throughout the project site include red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), tulip tree (*Liriodendron tulipifera*) and red oak (*Quercus rubra*).

Overall, the various tree species were found throughout the site. Attachment A summarizes the overall tree inventory, as well as identifies the general species location throughout the site. A small cluster of sassafras was located adjacent to Lexington Avenue. Other tree species observed in smaller quantities include sweet birch (*Betula lenta*), pignut hickory (*Carya glabra*), American beech (*Fagus grandifolia*), and white pine (*Pinus strobus*).

In addition, it should be noted that Norway maple (*Acer platanoides*) was documented throughout the site in clusters and black locust (*Robinia pseudoacacia*) was found dominating the southern portion of the site.

Forest Assessment

As a part of the field inventory, a health condition rating was completed, which is one factor to be considered as a part of a tree assessment.

The Health Condition Rating consists of a visual tree health evaluation of each tree based on experience as a Certified Arborist considering the tree canopy, trunk and exposed root systems and any surrounding disturbance that could affect the health of the tree. A combination of health and vigor for each tree to determine a rating, which is expressed as a percentage. Ratings consist of Good – alive with minimal defects (71-100%), Fair – alive with defects (41-70%), Poor – alive with major defects (5-40%) or Dead (0%).

A complete tree assessment includes a species rating, health condition rating, and location rating for each tree. This assessment was conducted using the *Guide for Plant Appraisal, (10th edition, 2018)* authored by the Council of Tree & Landscape Appraisers, and the *New York State Tree Species Rating Guide, revised December 2007* authored by the New York State Arborists – ISA Chapter, Inc.

² Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero (editors). 2014. Ecological Communities of New York State. Second Edition.

Overall, more than three-thousand three hundred trees were identified and located within the project area and range in size from 4.0" dbh (diameter at breast height) to 53.1" dbh with an average of 10.6" dbh. The forest consists of the following approximate conditions:

- Good 45-50%
- Fair 20-30%
- Poor 10-15%
- Dead 15-20%

In addition, the following forest characteristics were observed in the field:

- The forest was fairly stable with trees in a variety of conditions, typical of the forest succession process. There were a few blow downs, likely from heavy wind events, and there is a limited understory throughout the forest area. Many of the trees are stressed due to drought and heat.
- There are limited tree species of concern (Cortlandt Code - Chapter 283), including *Carya laciniosa* / Big shellbark hickory – (Threatened) and *Cornus florida* / Flowering dogwood (Exploitably Vulnerable).
- Where there was an understory layer, the following native shrub/perennial vegetation was observed: ferns, pipsissewa, jack-in-the-pulpit, Canadian mayflower, enchanter's nightshade, Virginia creeper, goldenrod, spice bush, sweet pepperbush, sedges, and devils walking stick.
- The following invasive species were observed within the project area: celandine, barberry, garlic mustard, wisteria, Celastrus orbiculatus, multiflora rose, stilt grass, Norway maple, poison ivy, wormwood. Japanese knotweed and phragmites were observed outside project area.
- Several aviary, amphibians and reptile species were observed within the project area, including: wood frogs, leopard frog, eastern box turtle and owls.
- There are several stands of hickories in the upland and wetland areas. Several shagbark hickories are located within the wetland areas, and although not assessed, they are likely to be bat habitat.
- Based upon the observed animal species and potential habitats within the project area, an biodiversity/ecological assessment for threatened and endangered species in compliance with the Town Assessment Protocols is recommended for the project.

Certification

I certify that all the statements of fact in this appraisal are true, complete, and correct to the best of my knowledge and belief, and that they are made in good faith.



10/14/2020

Daniel P. Biggs, RLA, ISA (MA-5119A), CERP

Date

Registered Landscape Architect NY-002443-01

exp. 1/31/2023

Attachments:

Attachment A: Tree Inventory Summary Table

Attachment B: Tree Inventory Map + Table

Attachment A – Tree Inventory Summary Table

Table 1: Inventory Composition

Tree Species		Quantity	Percentage	Location
Acer platanoides	Norway Maple	691	22.13%	evenly dispersed
Acer rubrum	Red Maple	363	11.62%	evenly dispersed
Acer saccharinum	Silver Maple	5	0.16%	western portions only
Acer saccharum	Sugar Maple	413	13.22%	evenly dispersed
Betula alleghaniensis	Yellow Birch	2	0.06%	north-central area
Betula lenta	Sweet Birch	55	1.76%	evenly dispersed - more to the east
Carya glabra	Pignut Hickory	74	2.37%	evenly dispersed - more to the east
Carya laciniosa	Shellbark Hickory	2	0.06%	more to east
Carya ovata	Shagbark Hickory	10	0.32%	evenly dispersed
Carya tomentosa	Mockernut Hickory	7	0.22%	evenly dispersed
Cornus florida	Flowering Dogwood	3	0.10%	more to east and north
Fagus grandifolia	American Beech	72	2.31%	mostly east
Fraxinus americana	White Ash	10	0.32%	evenly dispersed
Fraxinus pennsylvanica	Green Ash	2	0.06%	more to east
Larix decidua	European Larch	11	0.35%	line planted south of the residential properties
Liriodendron tulipifera	Tulip Tree	321	10.28%	evenly dispersed
Ostrya virginiana	Hophornbeam	2	0.06%	more to northeast
Picea rubens	Red Spruce	36	1.15%	more north-central
Pinus resinosa	Red Pine	10	0.32%	more north-central
Pinus strobus	Eastern White Pine	48	1.54%	more north-central
Populus deltoides	Eastern Cottonwood	1	0.03%	more to west (wetlands)
Populus grandidentata	Bigtooth Aspen	10	0.32%	more to east
Prunus serotina	Black Cherry	17	0.54%	evenly dispersed
Quercus rubra	Northern Red Oak	325	10.41%	evenly dispersed
Quercus alba	White Oak	18	0.58%	evenly dispersed
Quercus palustris	Pin Oak	17	0.54%	more to east
Robinia pseudoacacia	Black Locust	550	17.61%	concentrated to southern border
Sassafras albidum	Sassafras	15	0.48%	small cluster to northeast
Ulmus americana	American Elm	33	1.06%	seen throughout - more southwest
		3123	100.00%	