Brightcore
building energy performance™

Community Solar Project Overview for CCSD Board of Education

CHAPPAQUA
Central School District

May 27, 2020

BACKGROUND ON COMMUNITY SOLAR

- NY State and its electric utilities have created a program to increase the number of solar projects in the state by providing attractive incentives to project developers
  - Driven by the 2019 NYS Climate Leadership and Community Protection Act which mandates 100% renewable generation by 2040
  - Focus on siting projects in areas with grid congestion, such as Westchester County
- The most attractive incentives are under a program called "Community Solar" in ConEd service territory
  - **Project developers invest capital** to build, own and operate solar projects
  - **ConEd receives the power and pays a premium** for every kWh generated by the projects
  - **Building and land-owners host** solar projects and **receive significant compensation** for doing so
  - **Residents subscribe** to the projects and **receive discount** on ConEd electric bills

GENERAL PROJECT OVERVIEW
COMMUNITY SOLAR FOR CCSD

Brightcore evaluated all of the sites owned by CCSD and developed a preliminary design for 14.7 megawatts (MWs) of solar PV systems as follows:

	Indicative System Size (kWdc)	Estimated Year 1 Production (kWh)
Douglas Grafflin ES	338 kW	409,000 kWh
Horace Greeley HS	2,788 kW	3,466,000 kWh
Roaring Brook ES	2,713 kW	3,497,000 kWh
Robert E. Bell ES	232 kW	285,000 kWh
Seven Bridges MS	3,493 kW	4,367,000 kWh
Westorchard ES	4,922 kW	6,341,000 kWh
Chappaqua Library	231 kW	285,000 kWh
Total:	14,717 kW	18,650,000 kWh

DETAILED PROJECT OVERVIEW
COMMUNITY SOLAR FOR CCSD

The 14.7 MWs of projects is spread across rooftops, parking and ground as follows:

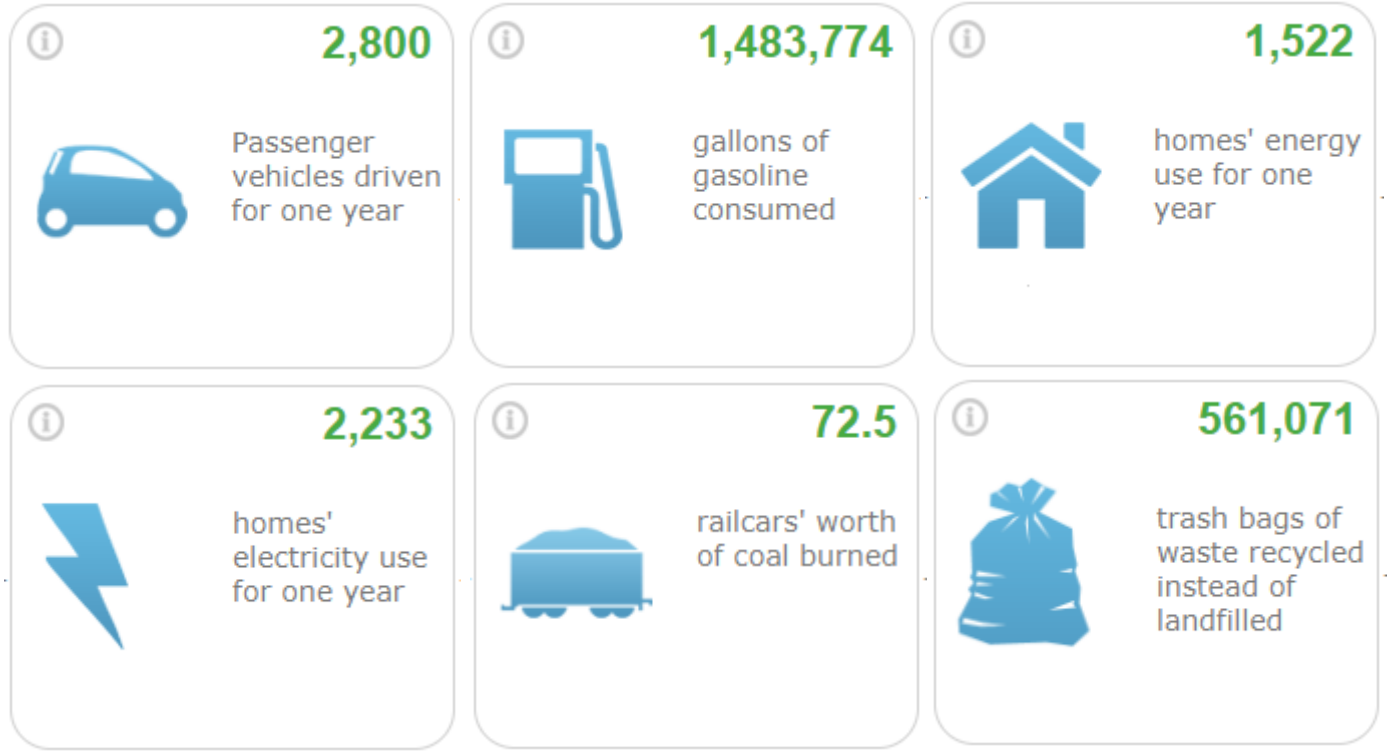
Site	System Type	System Size (kw)	Annual Est. Production (kWh)
Douglas Grafflin Elementary	Rooftop	338.0	409.0
Horace Greeley High School	Carport - Senior Lot	344.0	432.0
	Carport - Main Lot	536.0	644.0
	Ground Mount	1,414.0	1,826.0
	Rooftop	494.0	564.0
Roaring Brook Elementary	Ground Mount	2,400.0	3,120.0
	Rooftop	313.0	377.0
Robert E Bell Middle School	Rooftop	232.0	285.0
Seven Bridges Middle School	Carport	348.0	415.0
	Ground Mount	2,655.0	3,389.0
	Rooftop	490.0	563.0
Westorchard Elementary	Ground Mount	4,635.0	6,005.0
	Rooftop	287.0	336.0
Chappaqua Library	Carport	100.0	125.0
	Rooftop	131.0	160.0
	Total	**14,717.0**	**18,650.0**

Indicative Project Economics – District-Wide Project	
Estimated Aggregate Project Size	14,717 kWdc
Project Type	Rooftop, Ground and Carport
Estimated Total Project Cost *	$35,900,000
Estimated NYSERDA Incentive **	$7,750,000
Estimated Net Project Cost	$28,150,000
Upfront Investment by Chappaqua CSD	$0
Indicative Site Lease Payment to Chappaqua CSD ***	$900,000 in the first year Escalated 3% annually
Lease Term****	25 years
Total Lease Payments to CCSD the term of the lease	$32,813,338

** Based on prevailing wage labor. Assumes $1,000,000 in Con Edison interconnection costs.*
*** Assumes NYSERDA Block 7 Incentive of $0.50/kW plus NYSERDA carport adder incentive of $0.30/kW adder for carports.*
**** Assuming full property tax exemption and Investment Tax Credit of 30% (based on ability to utilize safe harbor equipment). To the extent roofs need repair/replacement, Brightcore will fund such repairs/replacement with a rent abatement.*
***** If desired by CCSD and its legal counsel, lease can be structured with an initial 10-year term and a provision that at end of initial term, CCSD will either extend the lease term or purchase the project.*

ENVIRONMENTAL BENEFITS

- The project's estimated annual output of 18,650,000 kWh is equivalent to reducing carbon dioxide emissions by 13,186 metric tons per year. That is also equivalent to:



https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

ENVIRONMENTAL IMPACT OF GROUND-MOUNTED PROJECTS

- While the proposed ground-mounted projects involve removing existing trees (approximately 6 acres per 1 megawatt (MW) of ground-mounted solar project), the net environmental impact is significantly positive
  - Each MW of ground-mounted project will reduce carbon dioxide emissions by the equivalent of approximately 919 metric tons in the first year and by 23,064 metric tons over 25 years
  - Removal of 6 acres of trees results in total environmental impact of releasing / not reducing carbon dioxide emissions of approximately 1,004 metric tons over the same 25-year period (based on 6 acres of forests retaining approximately 889 metric tons of carbon dioxide and sequestering an additional 5 metric tons per year)
  - The ratio of benefit to detriment stands at more than 23 metric tons of carbon dioxide avoided by 1 MW of ground-mounted solar for every 1 metric ton increased from removing 6 acres of trees (= 23,064/1,004)

https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

ADDITIONAL ENVIRONMENTAL INFORMATION - SUSTAINABILITY

Brightcore technical design guidelines mandate all ground mount solar projects be seeded with an area-specific pollinator-friendly seed mix

This mix must meet a minimum of 95/100 points on the nationally accredited “Solar Site Pollinator Habitat Scorecard”

Pollinator Approved™ seed mixture draws attention to the many grasses, wildflowers and flowering trees and shrubs that provide life giving nectar and pollen foraging opportunities to pollinators

ROLES AND RESPONSIBILITIES

Party	Role
Brightcore (and affiliates)	Develops, builds and owns project Provides 100% of capital Covers 100% of maintenance Pays rent to CCSD
CCSD	Hosts project Receives rent Enjoys additional benefits
Chappaqua residents	Receive discount on electricity bills Voluntary participation with no long-term commitment required
ConEdison	Pays for and receives solar power
New York State	Provides incentives Achieves renewable energy goals

BENEFITS TO CCSD

- CCSD will derive multiple benefits from hosting community solar projects
  - Receive significant rent payments
    - To the extent any of the rooftops that will host solar arrays need repair or replacement, Brightcore will fund the cost with an abatement of future rent
  - Obtain covered parking with optional EV charging stations
  - Reduce wear and tear on roofs
  - Improve security via fencing around ground mount arrays
  - Educate students on solar energy via real-time monitoring
  - Promote environmental stewardship

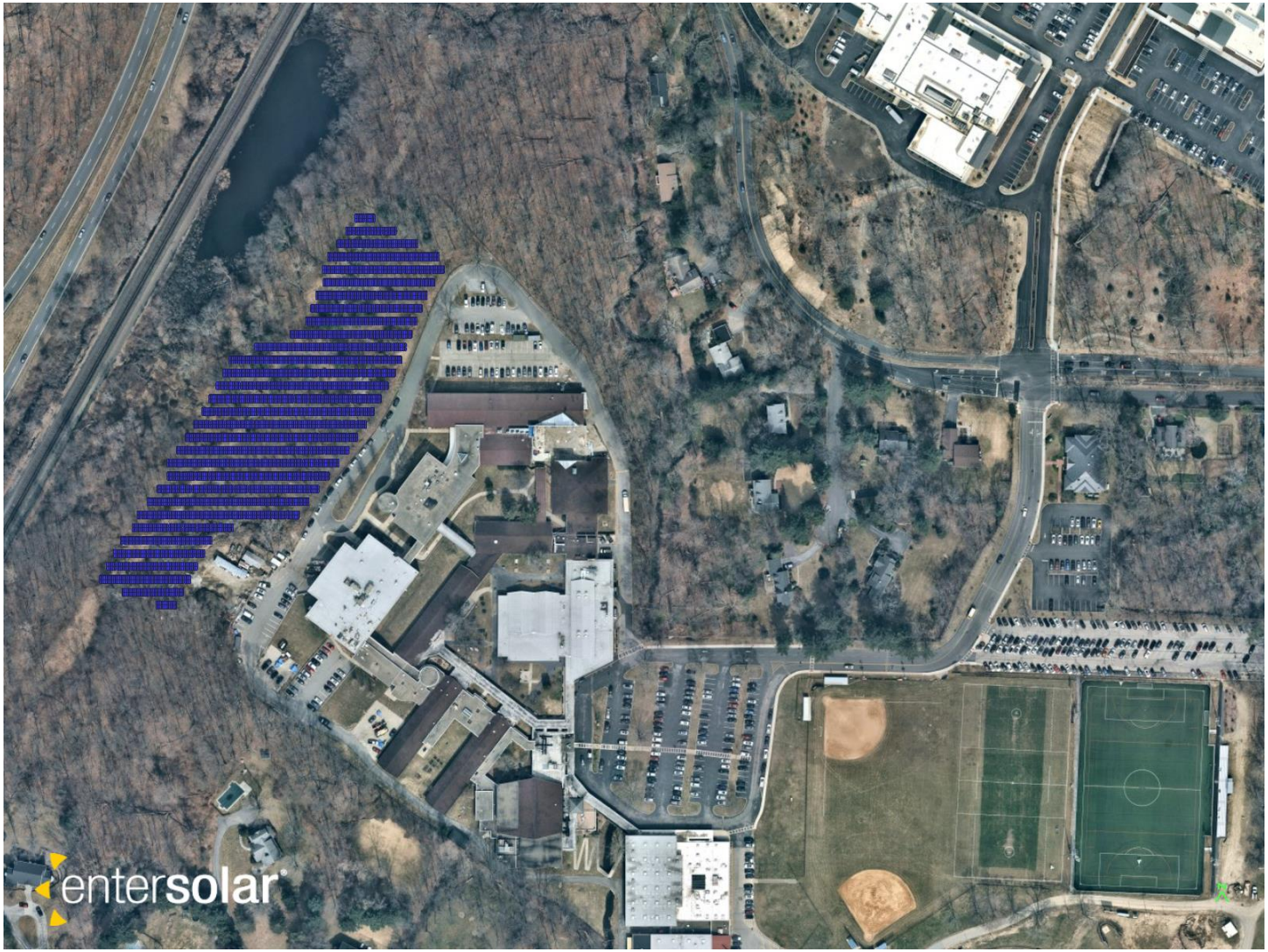
Requires $0 investment from CCSD and no maintenance responsibilities

BENEFITS TO COMMUNITY RESIDENTS

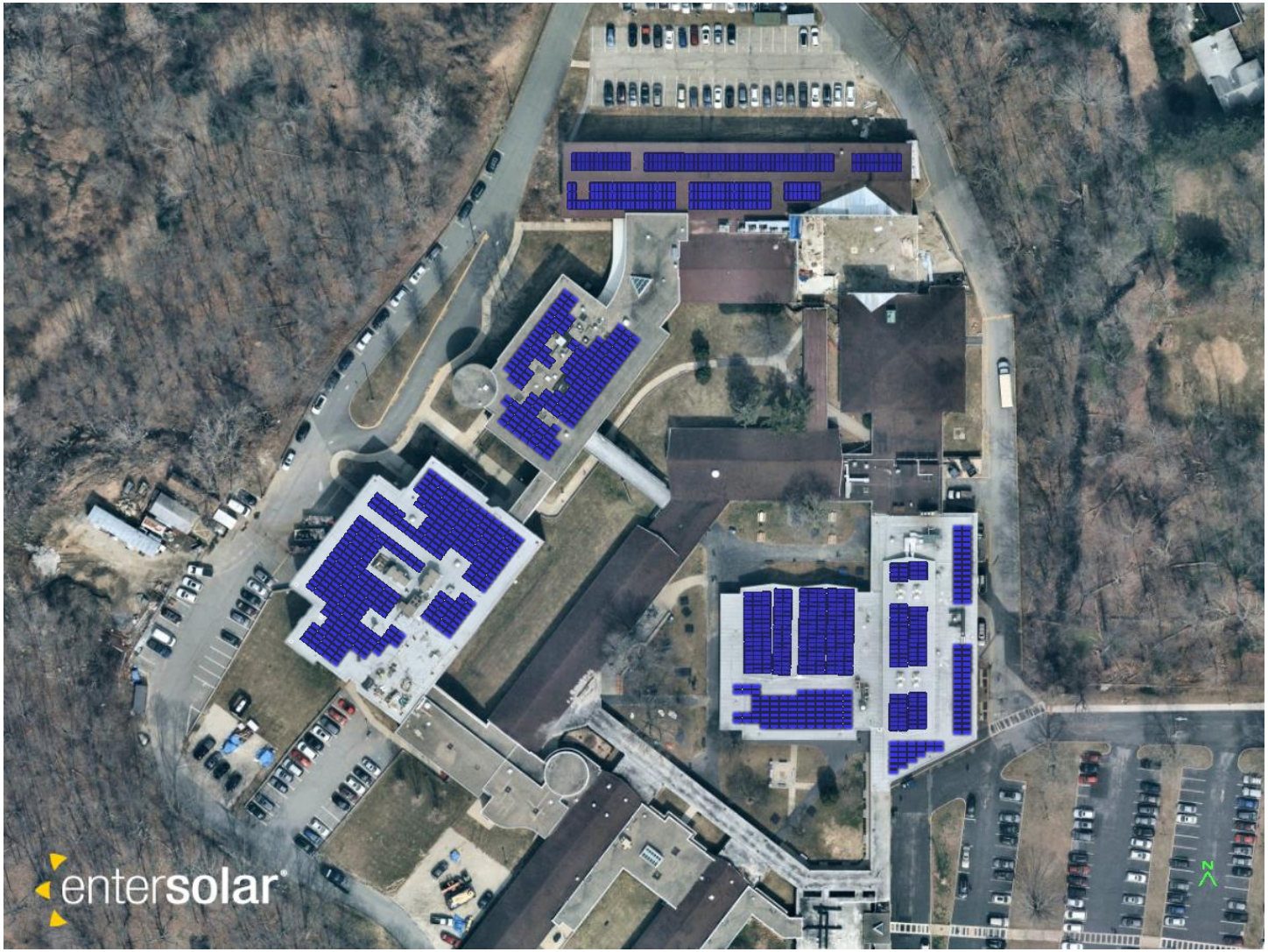
- As a community solar project, Chappaqua residents can subscribe to the project and receive a discount on their Con Edison monthly electric bills
  - 10% discount on total monthly Con Edison bill
  - Voluntary participation
- The proposed project is projected to generate approximately $3,000,000 annually in residential bill credits, delivering $300,000 in savings annually to Chappaqua residents
  - Assuming the average Chappaqua home's Con Edison bills total $3,000 per year, 1,000 homes can subscribe to the project with the average home saving $300 per year

SITE LAYOUTS

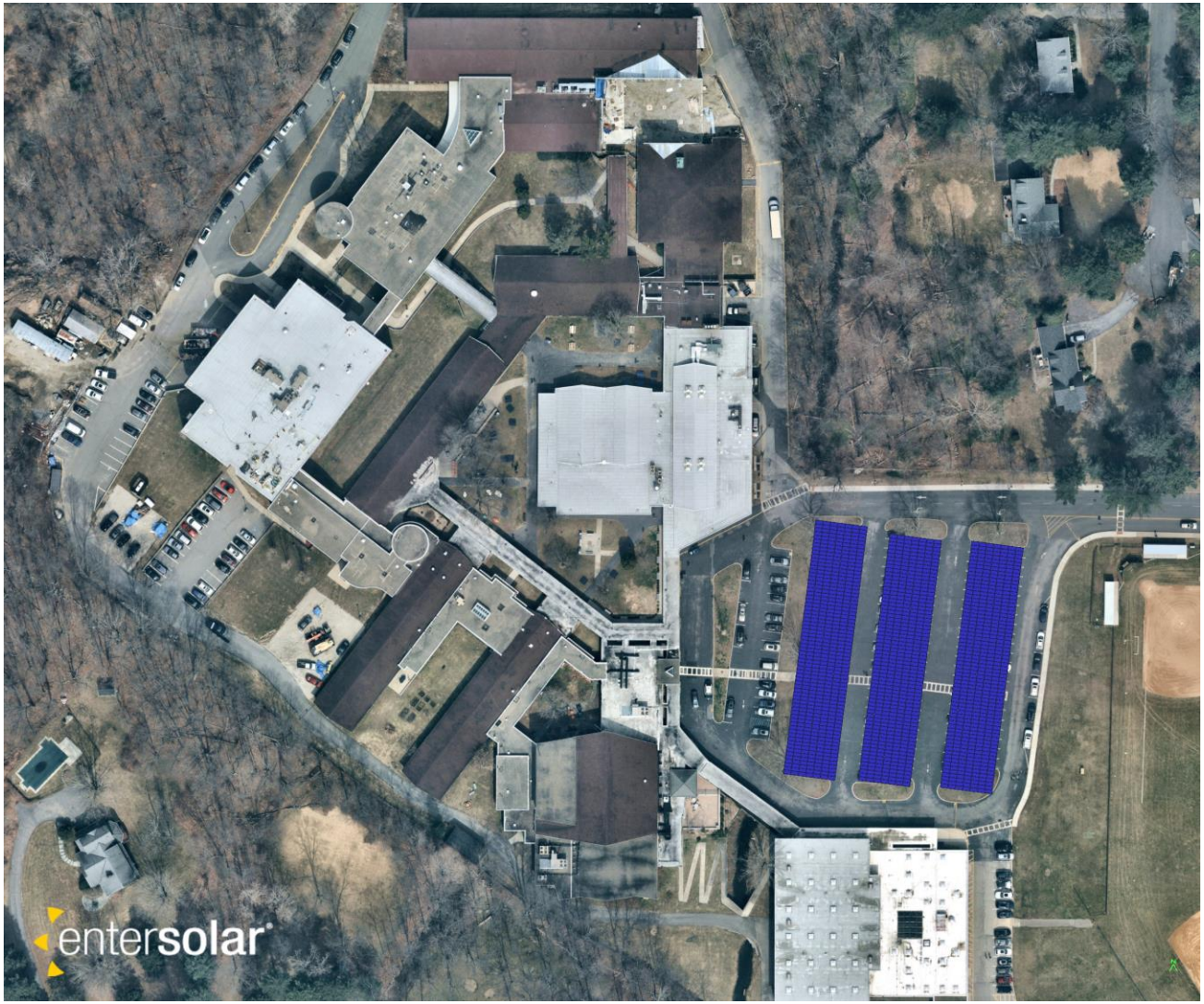
HORACE GREELEY – GROUND MOUNT



HORACE GREELEY - ROOFTOPS

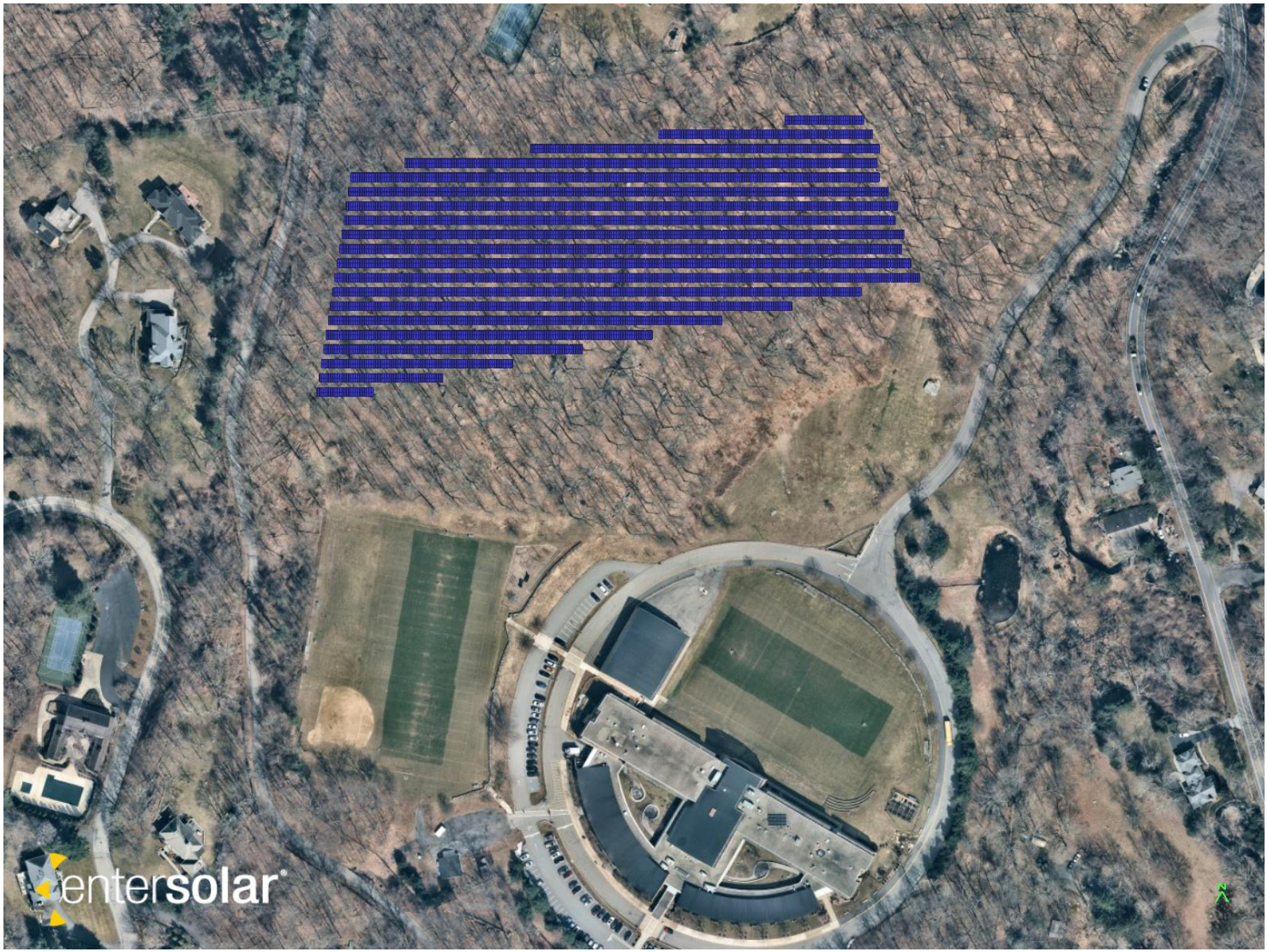


HORACE GREELEY - CARPORTS

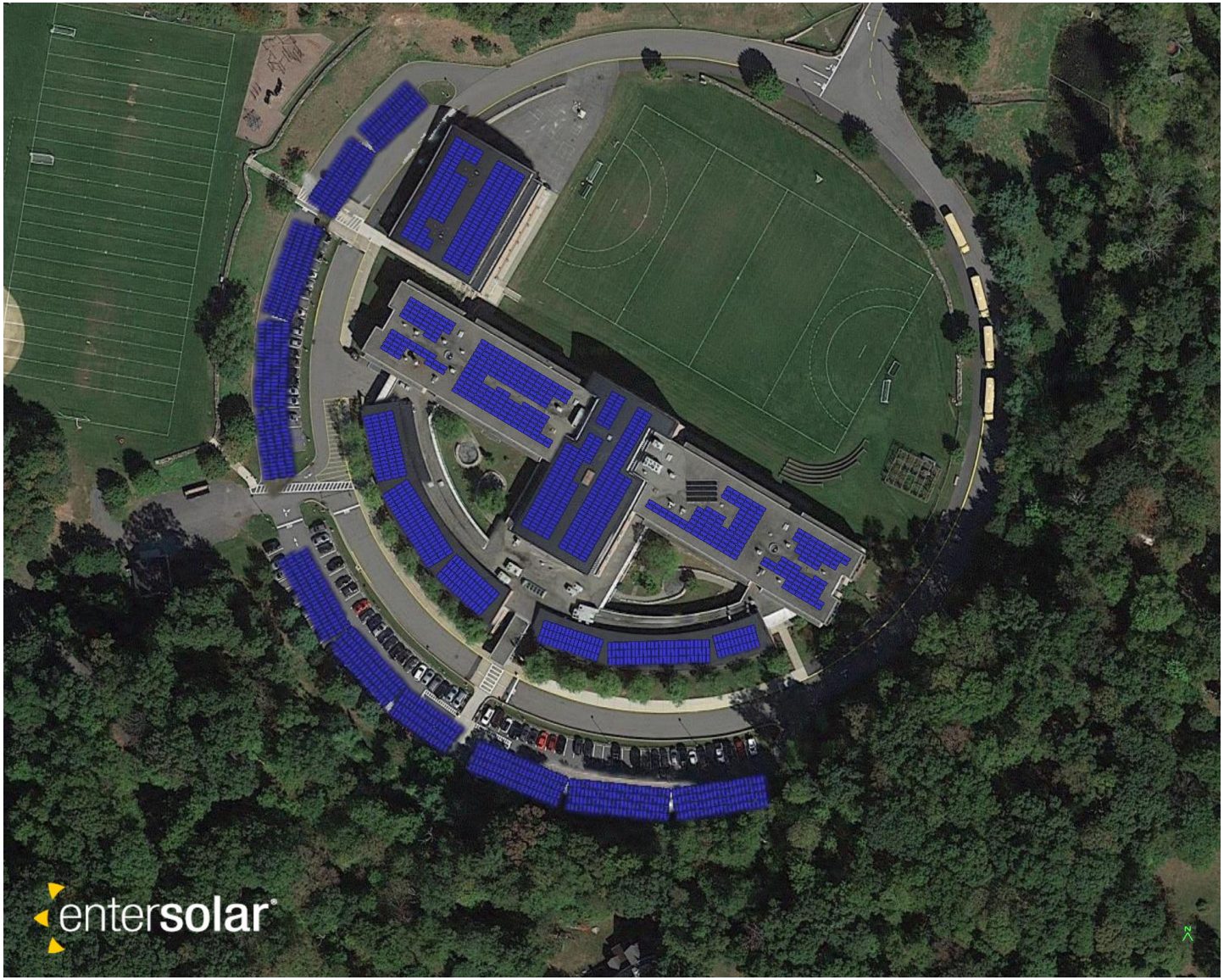


HORACE GREELEY - CARPORTS

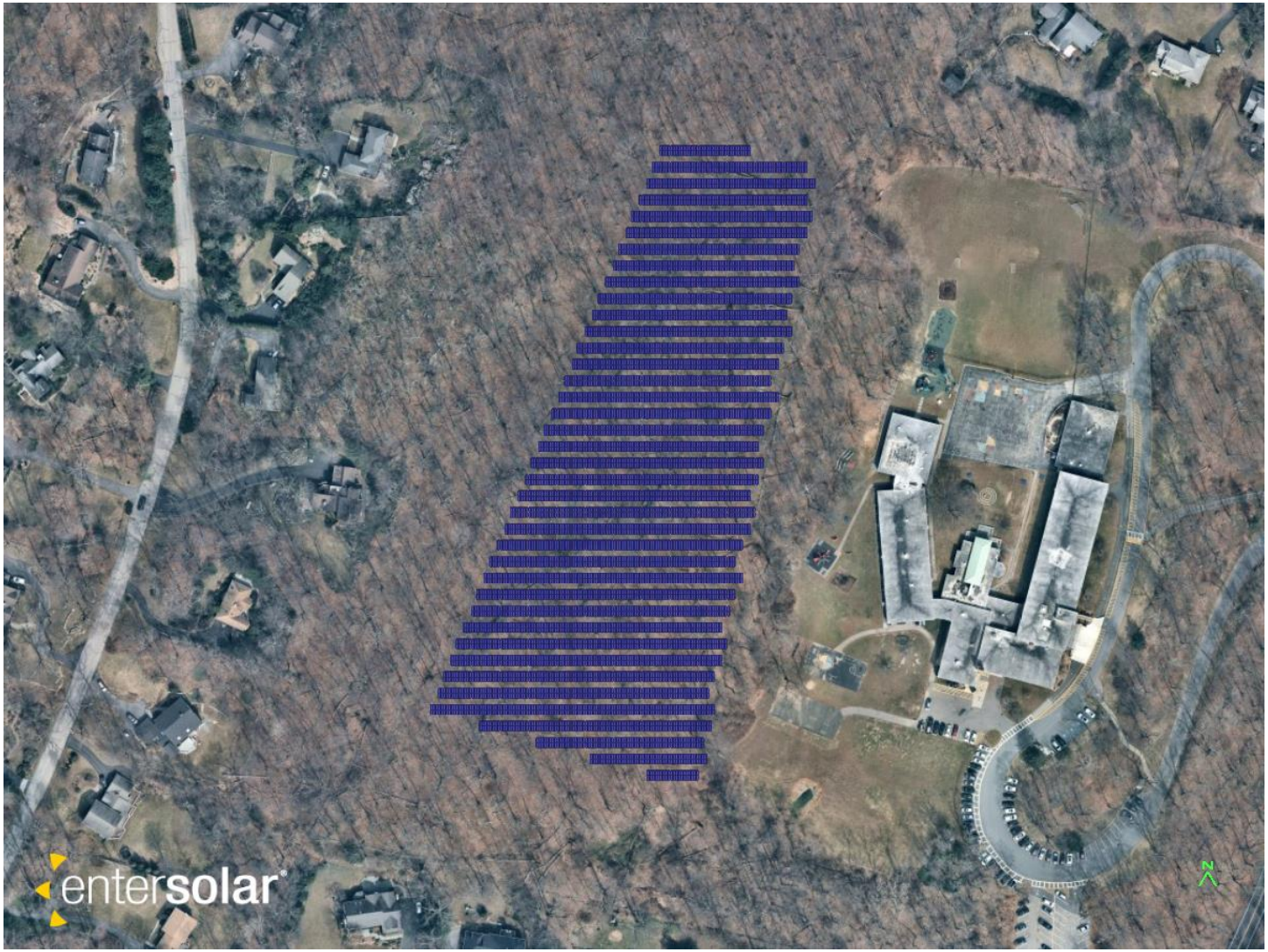
SEVEN BRIDGES – GROUND MOUNT



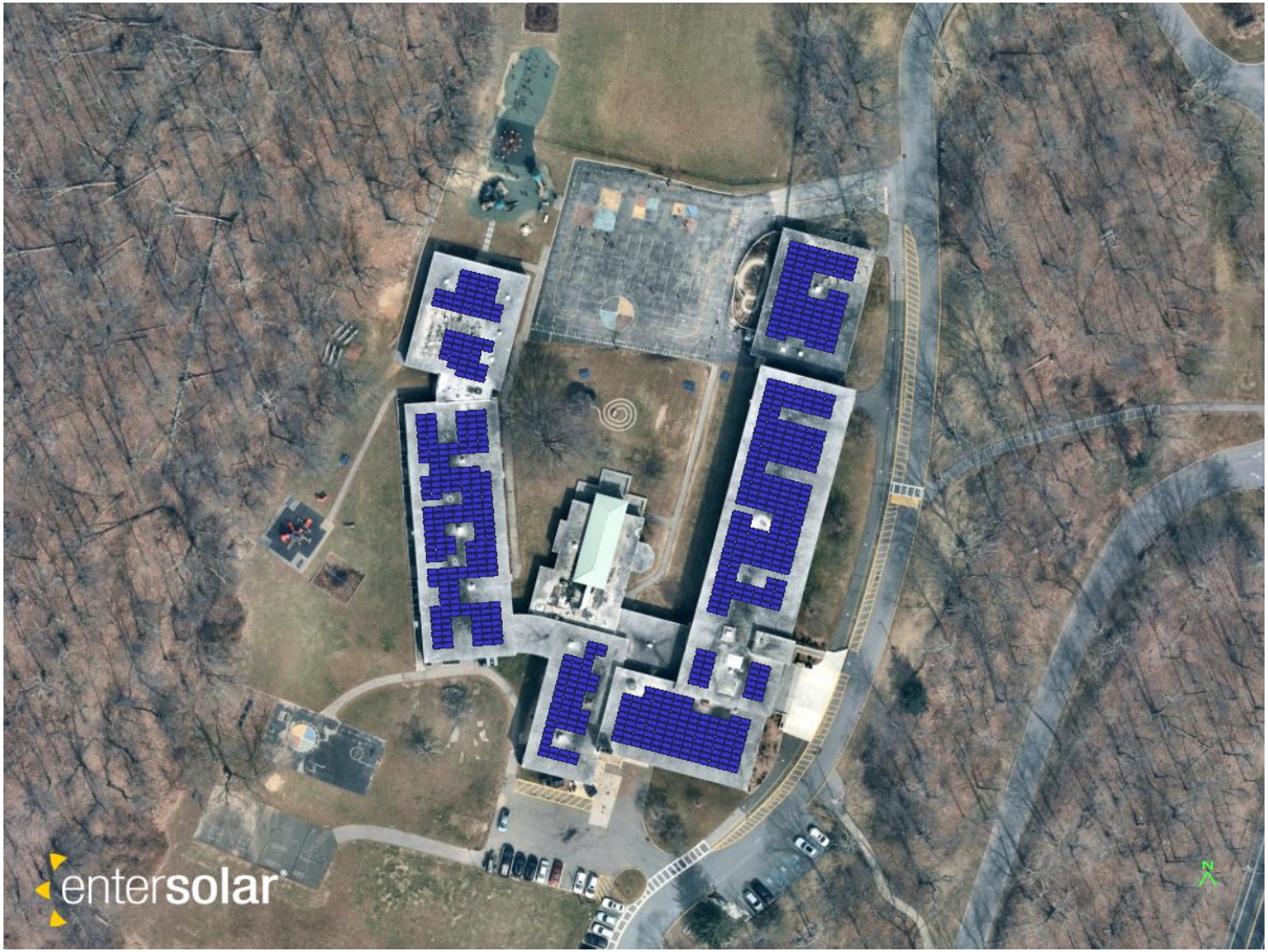
SEVEN BRIDGES – ROOFTOP/CARPORTS



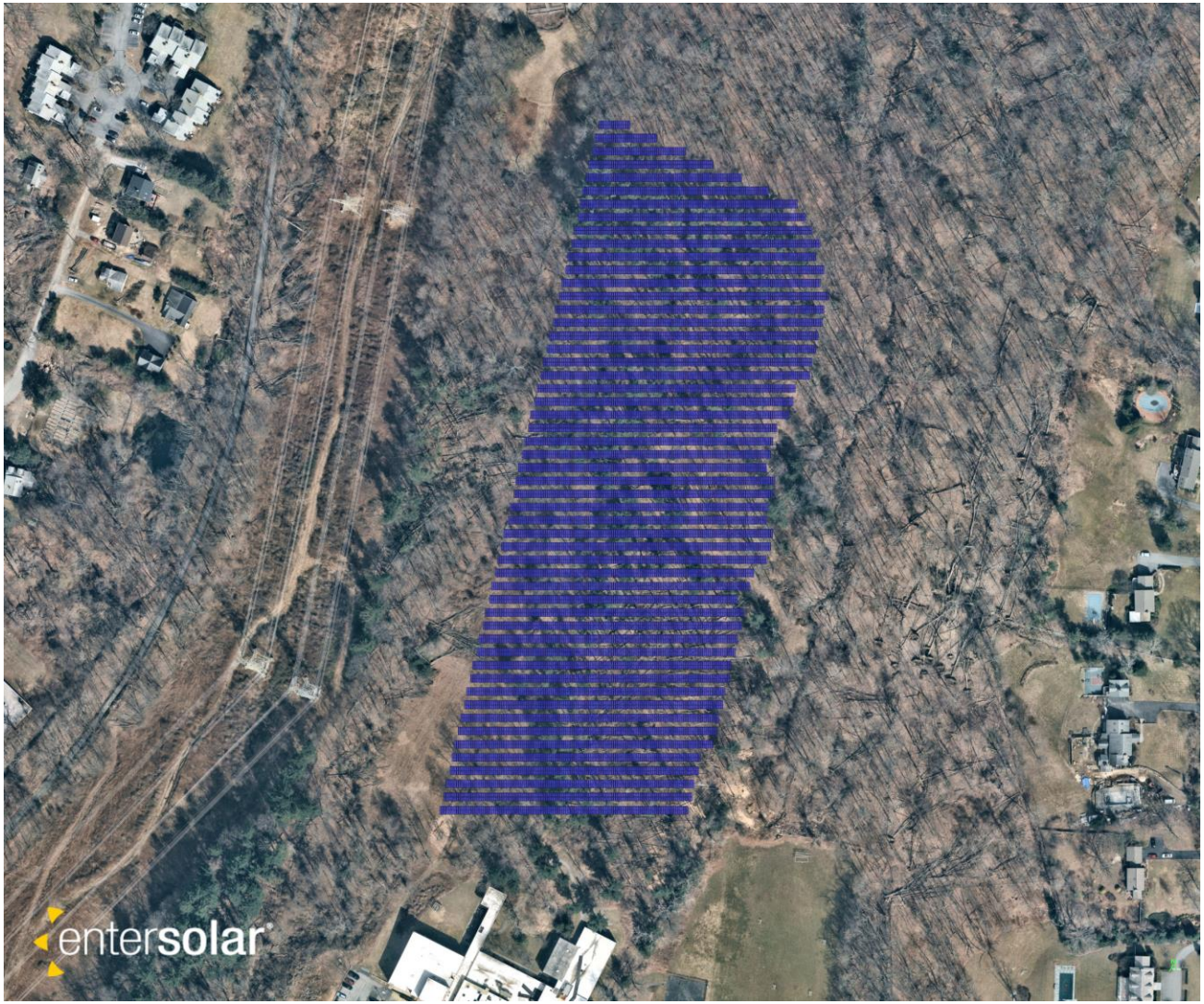
ROARING BROOK – GROUND MOUNT



ROARING BROOK - ROOFTOP



WESTORCHARD – GROUND MOUNT



WESTORCHARD - ROOFTOP

GRAFFLIN - ROOFTOP

ROBERT BELL - ROOFTOP

LIBRARY - ROOFTOP

LIBRARY - CARPORTS