

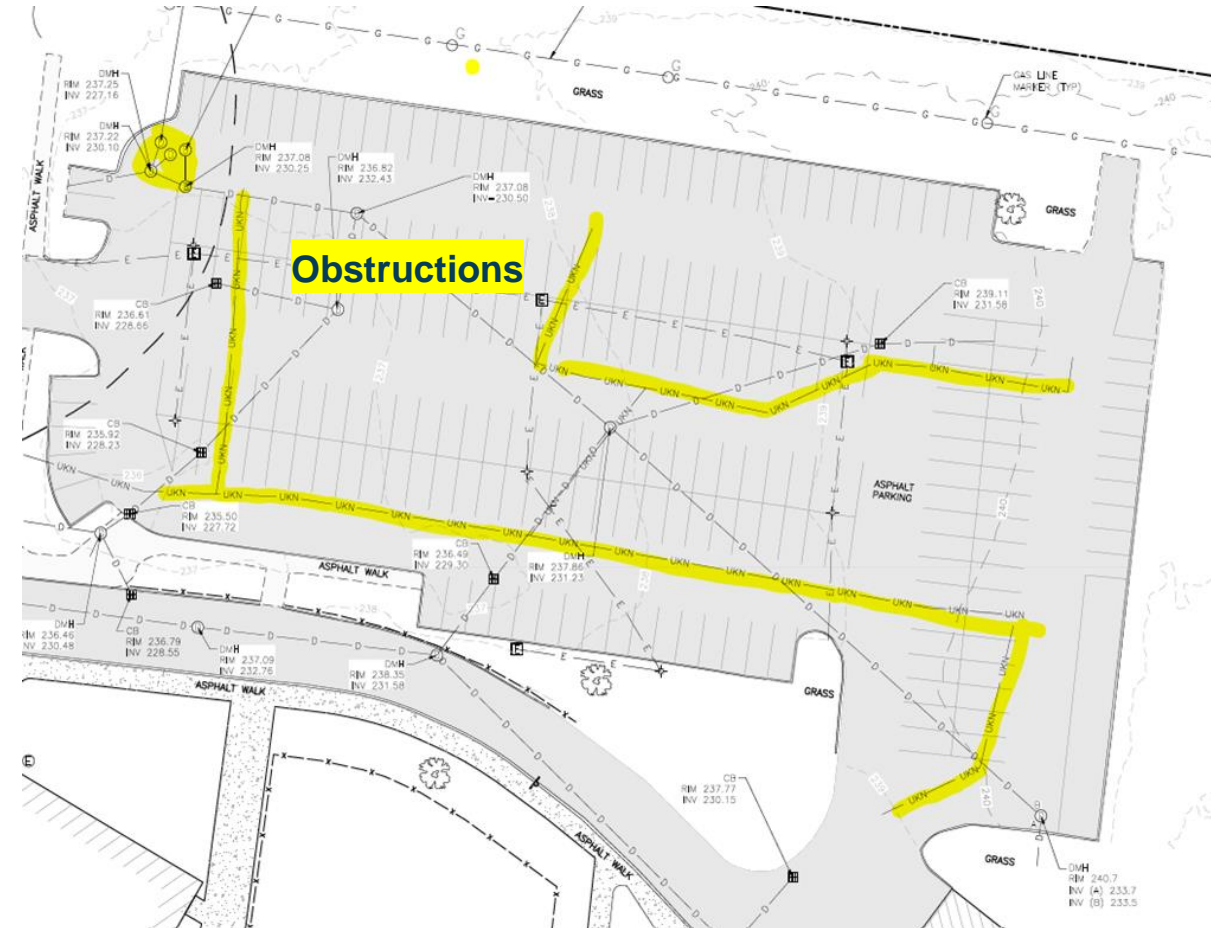
Westwood High School

Solar Canopy Project Update

October 10th, 2024

Key Development Tasks

- 1) Canopy Relocation Assessment
 - A. Interference with events and roof requires coordination and can impact timeline
 - B. Obstruction Review - Underground pipes and unknown obstruction may require adjustments to Canopy, being assessed with Facility Manager
- 2) Approvals (see slide 3)
- 3) Final Electrical Engineering Design
- 4) Final Structural Engineering Design
- 5) Equipment Procurement
- 6) Building Permits



Approvals and Reviews

1. Approval from School Committee to proceed by end of October 2024
2. Planning Department
 1. Approvals
 - Initial Approval – July 11, 2023
 - Modification of Approval – May 20, 2024
 2. Modification of Approval required – October 29, 2024
 - Compliance with Bicycle Parking Design Guidelines
 - Additional parking space addressed
 - Five (5) trees
3. Fire Department Review and Approval – In Progress
4. Land Use Committee Review – November 6, 2024

CONDITIONS OF APPROVAL

1. Except as modified by the conditions and findings hereof, the Project shall comply with the Project Plans and with the conditions of all prior approvals, in all respects, and the Applicant shall pursue completion of the project with reasonable diligence and continuity.
2. If the Project, or any Condition imposed in this Decision, requires any other permit, license, or other approval from any board or commission, or any agency of the Town of Westwood, or other regulatory agency of the Commonwealth or the federal government, the Applicant shall make an appropriate application for the same and shall obtain all required approvals prior to the start of any work. If any condition of such permit, license, or other approval from any other board, committee, or agency is inconsistent with this Decision, the Applicant shall make application to the Planning Board for an amendment of this Decision, and the Planning Board shall consider such application in accordance with the requirements of M.G.L. Chapter 40A §9 and all applicable Planning Board rules and regulations.
3. Any proposed alterations, modifications, deletions or changes to the Solar Design Review shall be requested in writing to the Town Planner and Building Commissioner prior to implementation. Proposed alterations which are considered de minimis by the Building Commissioner may be accepted as a note to the file. Proposed alterations which are considered minor by the Building Commissioner shall require the filing of an Application of Modification of said approval for review by the Planning Board at a publicly posted Planning Board meeting. Proposed alterations which are determined to be major by the Building Commissioner or by the Planning Board, shall be considered by the Planning Board as a formal Amendment to the approval and will require a new public hearing before the Planning Board.
4. Applicant shall adhere to the conditions of approval per the Planning Board Solar Design Review Decision approved on July 11, 2023.
5. Prior to the start of construction, the Applicant shall submit a revised site plan with one extra parking space as discussed at the May 14, 2024 hearing. Said site plan shall be reviewed and approved by the Town Planner if consistent with the intentions expressed by a majority of Planning Board members at the May 14, 2024 hearing.
6. The Applicant and a representative from the School Department shall come before the Planning Board at the next available meeting, but no later than Tuesday August 6, 2024, to present a tree planting plan and tree plantings shall be installed prior to the completion of construction.

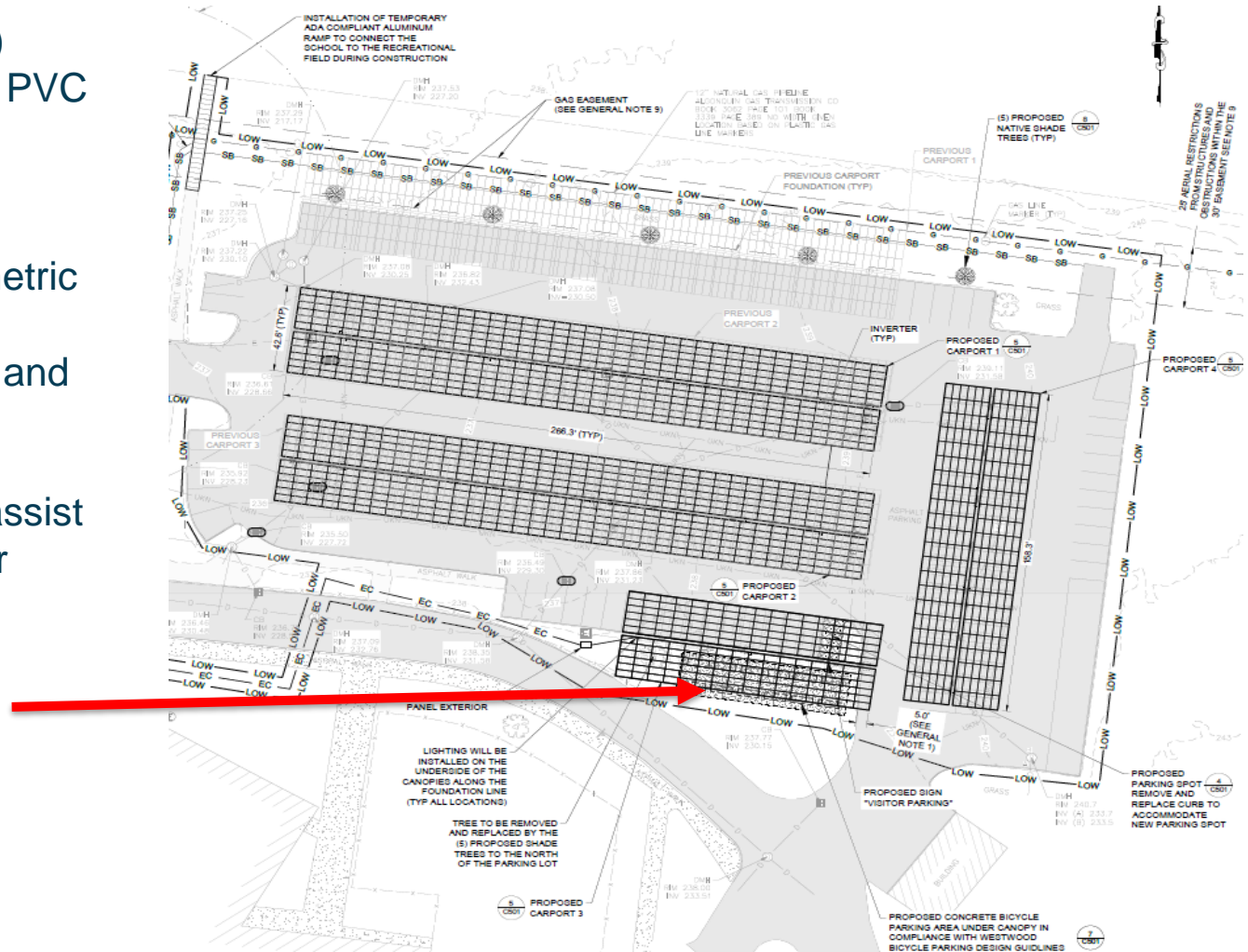
Procurement

Key Components	
Panels	Purchased
Inverter	Purchased
Racking	Pending Procurement
Canopy	Pending Procurement
Panel Boards	Pending Procurement
Transformer	N/A
Data Reporting	Pending Procurement

Project Cost	
Hard Cost Incurred to Date	\$ 650,000
Committed Cost	\$ 660,000
Total	\$1,310,000

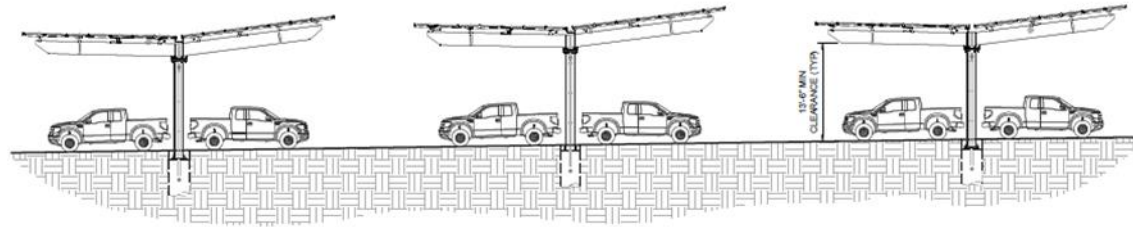
Revised Design and Features

- Canopy water management (for ice melt and rain) including gaskets around panels, gutters, durable PVC downspouts; and tie-in to subsurface stormwater system.
- LED lighting under the canopies including photometric study to provide the required light levels, tap into existing lighting circuit, and coordination with Fire and DPW to provide clearance.
- Installation of security cameras: Developer shall assist Buyer with installation of security cameras in solar canopy area; equipment furnished by others.
- Bicycle Parking located under southeast canopy



Current Design and Features

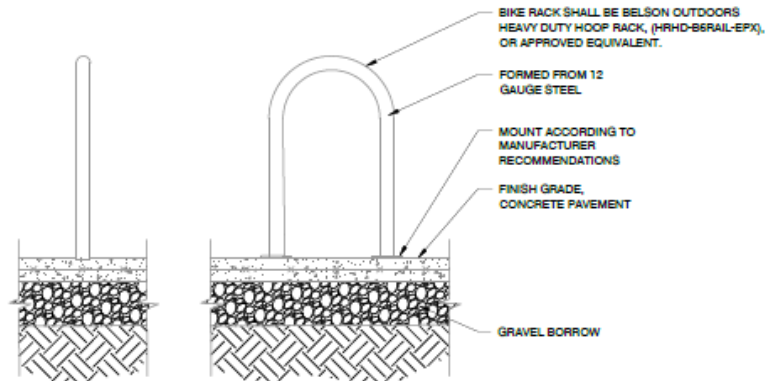
Carport Example



NOTE:
1. DETAIL SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEE STRUCTURAL PLANS FOR FOUNDATION AND MODULE DESIGN.

5 TYPICAL PHOTOVOLTAIC CANOPY
SCALE: N.T.S.

Bike Rack

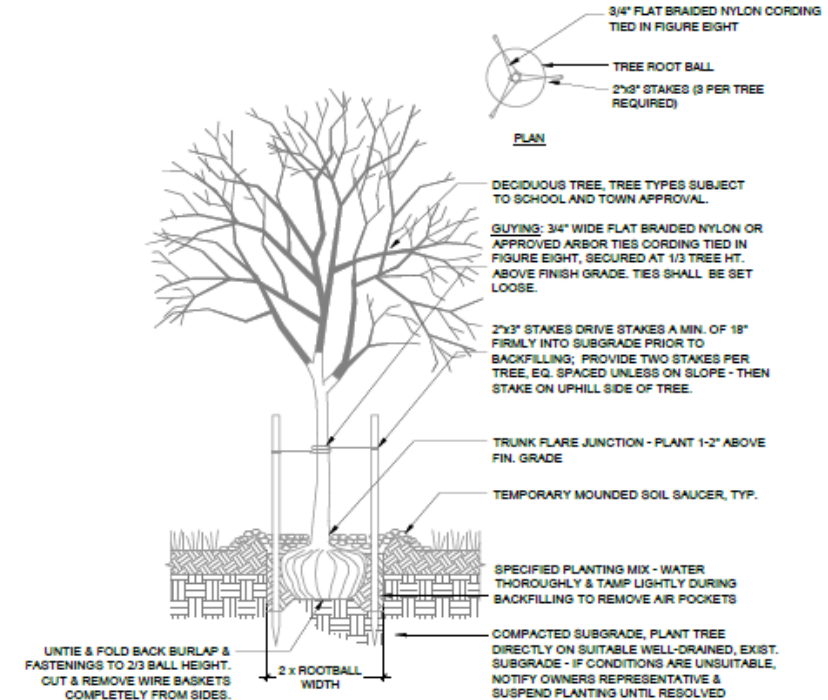


NOTES:

1. FINAL FOUNDATION DESIGN SHALL BE PROVIDED PRIOR TO CONSTRUCTION.
2. A TOTAL OF 12 STORAGE RACKS ARE PROPOSED AS SHOWN ON C101.

7 CONCRETE BICYCLE PARKING AREA
SCALE: N.T.S.

Tree Staking and Planting



NOTES:

TREES SHALL BE PLANTED IN ACCORDANCE WITH THE LANDSCAPING DESIGN REQUIREMENTS OUTLINED IN THE TOWN OF WESTWOOD ZONING BYLAWS, LAST REVISED MAY 3, 2021.

8 TREE STAKING AND PLANTING
SCALE: N.T.S.

Impact Original & Revised Project

Design	Original	Revised
Capacity (kW DC)	668.16	631.21
Year 1 Production (kWhs)*	813,998	758,279
Guaranteed Production (% of Capacity)	80%	86%
Guaranteed Production Year 1 (kWhs)*	651,198	651,198
Average Yearly Production (kWhs)*	776,469	723,319
Equivalent of # of Homes Energy Use per Year	112	105

* System assumes degradation of 0.05% per year

Environmental Benefits of the Revised Project

- 627 tons of CO2 eliminated over 20 years
- Carbon sequestration by 618 acres of U.S. forests annually

Economics ¹	Original	Revised
PPA Rate (\$/kWh)	0.113	0.113
Year 1 Savings	\$7,611	\$29,995
20 Year Savings	\$540,836	\$715,946

(1) Although the capacity and annual production were reduced in the revised design, the project savings increased due to Eversource electric rates increasing in the past few years.

Project Timeline

- Pending approval from School Committee by end of October 2024, Ameresco will begin final Development and Engineering tasks leading to Procurement and Construction.
- Construction would commence June 25, 2025, with completion of parking lot construction by August 26, 2025.
- Coordination with Roofing Project and summer activities need to be addressed as this is a concern that can affect timeline.

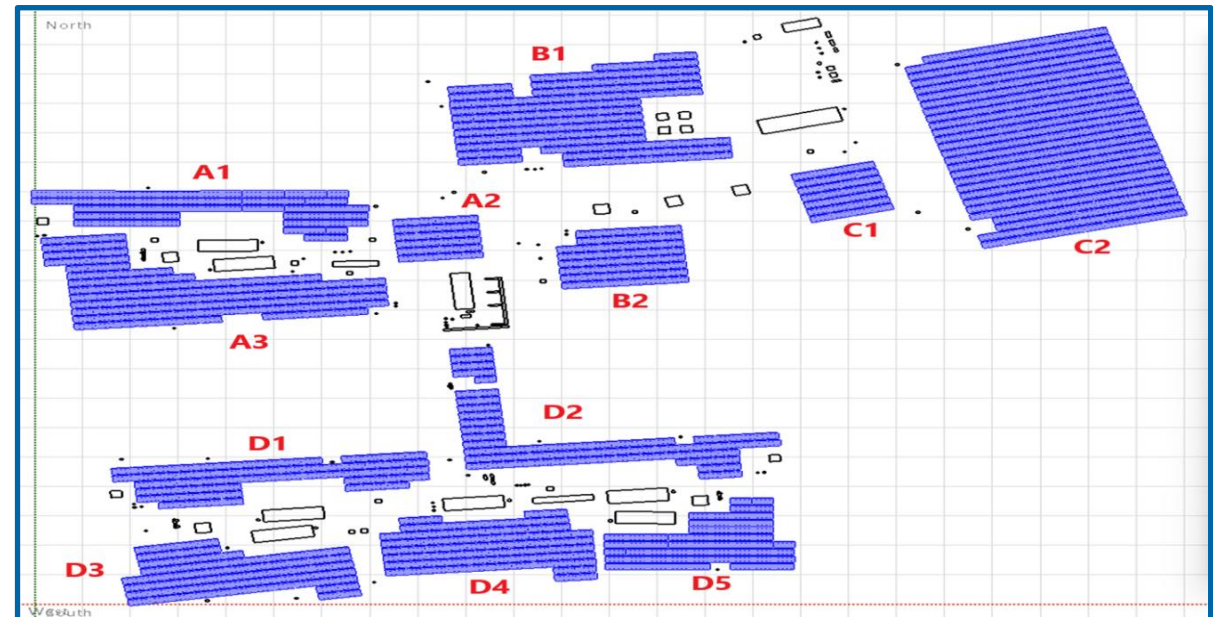
Pine Hill School

Pine Hill School is a complex solar roof top installation:

- 4 Different Roof Levels
- 13 Arrays
- Wiring

Schedule to be Mechanically Complete by September 30, 2024 – **this deadline was met.**

Project is expected to be energized in November 2024.



Project Timeline

Approval to Start of Construction

Task Name	Duration	Start	Finish
▸ Westwood High School Solar Canopy	476 days	Mon 7/1/24	Sun 4/26/26
▸ Development	48 days	Mon 7/1/24	Wed 9/4/24
Due Dilligence	40 days	Mon 7/1/24	Fri 8/23/24
Planning	8 days	Mon 8/26/24	Wed 9/4/24
▸ Commercial	24 days	Thu 9/5/24	Tue 10/8/24
Approval to Proceed	19 days	Thu 9/5/24	Tue 10/1/24
Planning	1 wk	Wed 10/2/24	Tue 10/8/24
▸ Permitting	190 days	Wed 10/9/24	Tue 7/1/25
State Site Plan Approval (Non-Ministerial)	1 day	Wed 10/9/24	Wed 10/9/24
▸ Municipal Site Plan Approval (Non-Ministerial)	45 days	Wed 10/9/24	Tue 12/10/24
▸ Municipal Ministerial Permits	75 days	Wed 3/19/25	Tue 7/1/25
Utility Easement - Final Execution	30 days	Wed 10/9/24	Tue 11/19/24
▸ Engineering	65 days	Tue 10/8/24	Tue 1/7/25
Engineering Notice to Proceed	0 days	Tue 10/8/24	Tue 10/8/24
Civil & Landscape Permit Drawings	20 days	Thu 10/10/24	Wed 11/6/24
LV Electrical Permit Drawings	40 days	Wed 11/13/24	Tue 1/7/25
MV Electrical Permit Drawings	40 days	Wed 11/13/24	Tue 1/7/25
Racking / Structural Permit Drawings	25 days	Wed 10/9/24	Tue 11/12/24
DAS / SCADA Permit Drawings	30 days	Wed 11/27/24	Tue 1/7/25
▸ Procurement	244 days	Thu 9/5/24	Tue 8/12/25
Procurement Notice to Proceed	0 days	Tue 1/7/25	Tue 1/7/25
Utility ISA 75% Construction Payment	1 day	Thu 9/5/24	Thu 9/5/24
▸ Major Equipment	155 days	Tue 1/7/25	Tue 8/12/25
▸ Subcontracting	44 days	Thu 4/24/25	Tue 6/24/25
▸ Construction	120 days	Wed 6/25/25	Tue 12/9/25

Construction to Mechanical Completion

Task Name	Duration	Start	Finish
▸ Construction	120 days	Wed 6/25/25	Tue 12/9/25
Site Control	1 day	Wed 6/25/25	Wed 6/25/25
Construction Notice to Proceed	0 days	Wed 6/25/25	Wed 6/25/25
▸ Mobilization & Site Preparation	2 days	Wed 6/25/25	Thu 6/26/25
▸ Civil Work	12 days	Wed 6/25/25	Thu 7/10/25
Tree Removal, Bike Parking Installation	2 days	Wed 6/25/25	Thu 6/26/25
Trenching	2 wks	Fri 6/27/25	Thu 7/10/25
Catch Basin Installation	2 wks	Fri 6/27/25	Thu 7/10/25
▸ Racking Installation	38 days	Wed 6/25/25	Fri 8/15/25
Foundation Survey	3 days	Wed 6/25/25	Fri 6/27/25
Install Racking Foundations	15 days	Mon 6/30/25	Fri 7/18/25
Steel Installation	20 days	Mon 7/21/25	Fri 8/15/25
Electrical Installation	120 days	Wed 6/25/25	Tue 12/9/25
▸ Install Modules	56 days	Mon 8/4/25	Mon 10/20/25
Plug in DC Strings	10 days	Mon 8/4/25	Fri 8/15/25
Install DC Home Runs & Connectors	10 days	Mon 8/11/25	Fri 8/22/25
LV Trench, Conduit & Backfill	14 days	Mon 8/4/25	Thu 8/21/25
Form & Pour Equipment Pad	3 days	Fri 8/22/25	Tue 8/26/25
Land Equipment	1 day	Wed 8/27/25	Wed 8/27/25
Install AC & DC Conductors	15 days	Thu 8/28/25	Wed 9/17/25
Landscaping Bike Rack Installation	5 days	Wed 8/27/25	Tue 9/2/25
Parking Lot Work Completed	2 days	Mon 8/25/25	Tue 8/26/25
Final Terminations	20 days	Thu 9/18/25	Wed 10/15/25
Conductor Testing (Polarity, Megger & HiPot)	3 days	Thu 10/16/25	Mon 10/20/25
Mechanical Completion	2 days	Tue 10/21/25	Wed 10/22/25

Project Timeline

Mechanical Completion to Closeout

Task Name	Duration	Start	Finish
Mechanical Completion	2 days	Tue 10/21/25	Wed 10/22/25
Utility Upgrades Complete	20 wks	Wed 11/20/24	Tue 4/8/25
▸ Testing & Commissioning	85 days	Thu 10/23/25	Wed 2/18/26
Authorization for Testing / Energization	2 wks	Thu 10/23/25	Wed 11/5/25
Pre-Startup Inspections	2 days	Thu 11/6/25	Fri 11/7/25
Witness Test	20 days	Thu 11/6/25	Wed 12/3/25
Utility Meter Installation	10 days	Thu 12/4/25	Wed 12/17/25
Permission to Operate (PTO / ATI)	5 days	Thu 12/18/25	Wed 12/24/25
▸ Substantial Completion	1 day	Thu 12/25/25	Thu 12/25/25
Communications Startup & Final Commissioning	20 days	Thu 12/25/25	Wed 1/21/26
Production / Capacity Testing	20 days	Thu 1/22/26	Wed 2/18/26
▸ Closeout	90 days	Thu 1/22/26	Wed 5/27/26
Final Testing & Commissioning Package	30 days	Thu 1/22/26	Wed 3/4/26
Final Submission As-Built Drawings & PVSyst	30 days	Thu 3/5/26	Wed 4/15/26
Close All Permits	30 days	Thu 4/16/26	Wed 5/27/26
Final Warranty Transfer	10 days	Thu 4/16/26	Wed 4/29/26
Final Acceptance	0 days	Wed 5/27/26	Wed 5/27/26
Project Complete	0 days	Tue 4/21/26	Tue 4/21/26

Westwood Team

Discipline	Name	Role	Notes	Phone
Lead Contact				
	Raducha, Paul <praducha@ameresco.com>	Lead		401-965-8443
	Fahey, Ryan <rfahey@ameresco.com>	Lead Support (Smart and ITX)		508-598-3071
O & M				
	Manna, Nickolas <nmanna@ameresco.com>	Director	O & M Agreement Pine Hills and Roof Repair	240-429-9518
	Munoz, Cody <cmunoz@ameresco.com>	Project Manager	Roof Repair coordinator	774-545-6115
Asset Management				
	Krupp, Benjamin <bkrupp@ameresco.com>	Director	Asset Management , Program and Array disruption	
	Coakley, Ben <bcoakley@ameresco.com>	Support		
Project Construction				
	Williamson, Michael <mwilliamson@ameresco.com>	Project Manager - Director	Director	508-598-3018
	Keever, Robert <rkeever@ameresco.com>	Project Manager - Admin Etc.	Oversite Of Construction	315-750-5061
	Nabih Younis, <nyounis@ameresco.com>	Project Manager - Onsite	Onsite Construction Manger	508-598-3026
Engineering				
	Rubin, Benjamin <brubin@ameresco.com>	Lead		
	Miller, William <bmillier@ameresco.com>	Support		

Thank You!



Paul Raducha

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