

Atrisco Heritage Academy HS – Battery Storage for Peak Shaving



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Project objectives

- Charge from grid ‘off-peak.’
- Deploy strategically during ‘on-peak.’
- Reduce daily peak demand to below 500 kW.
- Test case for replication elsewhere in District.
- Potential for resiliency during power emergency.



Is it cost-effective?

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Project a Long Time in the Making

- April 2018 -- Intro to Clean Energy Group – meet Todd Olinsky-Paul.
 - May-October 2018 -- Analyze Rio Grande HS – meet Dan Borneo and Tu Nguyen.
 - November 2018 -- Focus switches to Atrisco Heritage – State of NM joins as partner.
 - January-October 2019 -- Develop RFP; get APS Board of Education approval.
 - September 2019 -- Imre Gyuk visits APS conservation committee meeting; DOE pledges significant financial assistance.
 - December 2020 -- RFP released in two phases: Qualifications and Technical.
 - May 2021 -- Design-Build contract signed with Osceola Energy.

Formal ground-breaking yesterday!

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Center of the Community



Large disadvantaged population.

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Demographics

- Serves 2200 students (impacting thousands of families)
 - 14% from disadvantaged households (below Federal poverty line)
 - 99% eligible for Federal free or reduced lunch (APS average is 65%)
 - 20% English language learners
 - 28% Special education
 - On-site community health clinic

An ideal location.

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APS' largest campus, largest utility bills.



Summertime electricity bills over \$50K; demand charges more than 50%.

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Avengers Movie 2012 – Opening Scene



Nick Fury's Helicopter Arrives at Avenger's Headquarters.

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Tesla Mega Pack 2



Dimensions:

- 8' - 3" Tall
- 5' - 6" Deep
- 25' - 6" Long
- 56,000 lbs
- 28 Tons

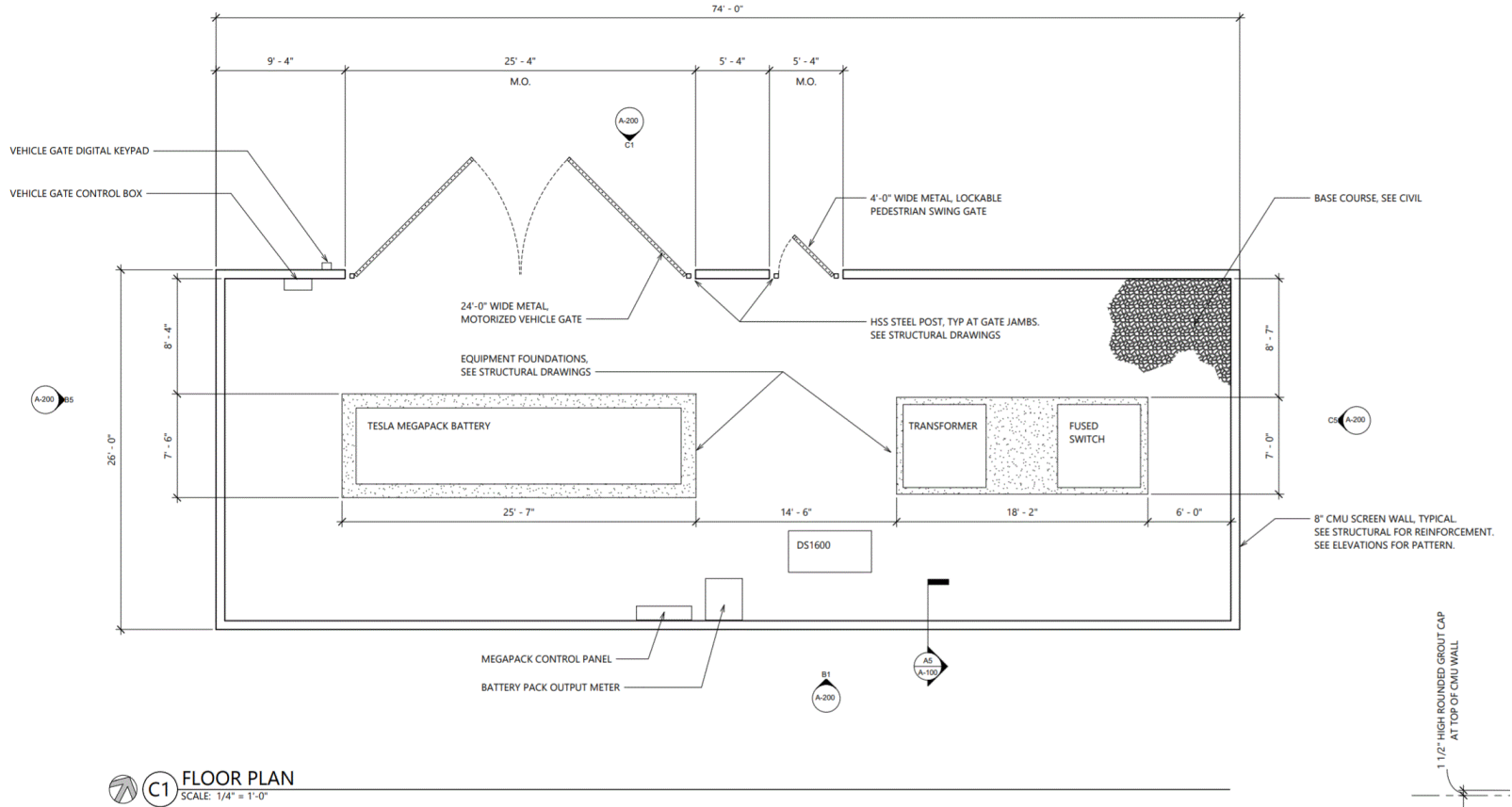
BESS Site Location



Largest Tesla installation in New Mexico – 721 kW / 2884 kWh

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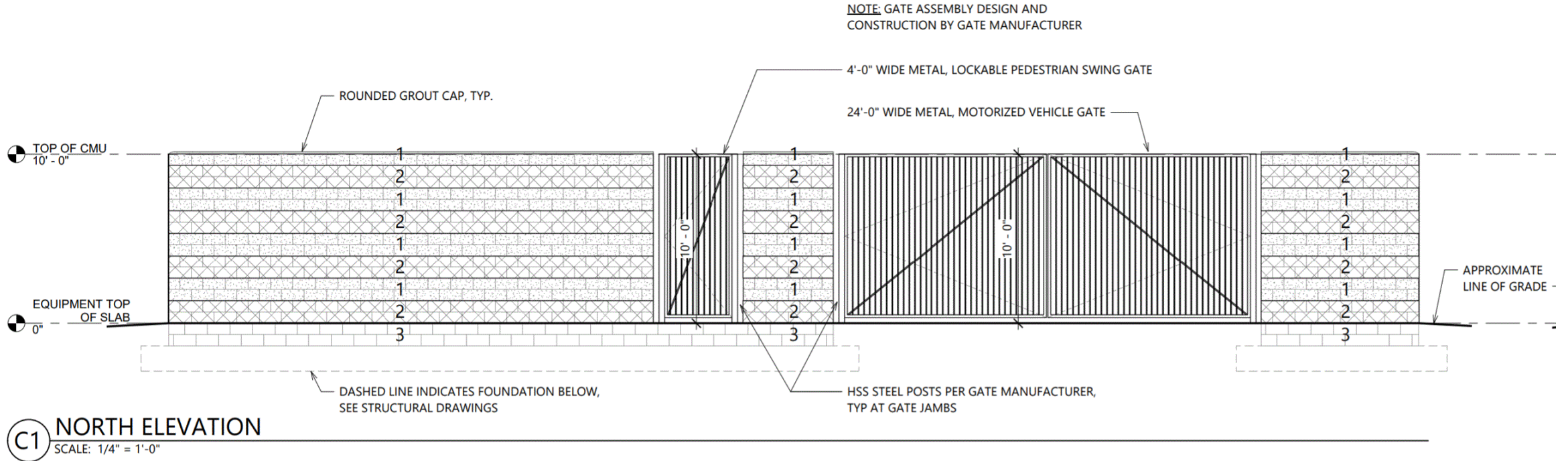
Safe and compact battery storage layout



Available for on-site 'Learning Lab.'

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Concrete block enclosure with motorized gate



Colored to match surrounding campus architecture.

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Added PV to improve the payback



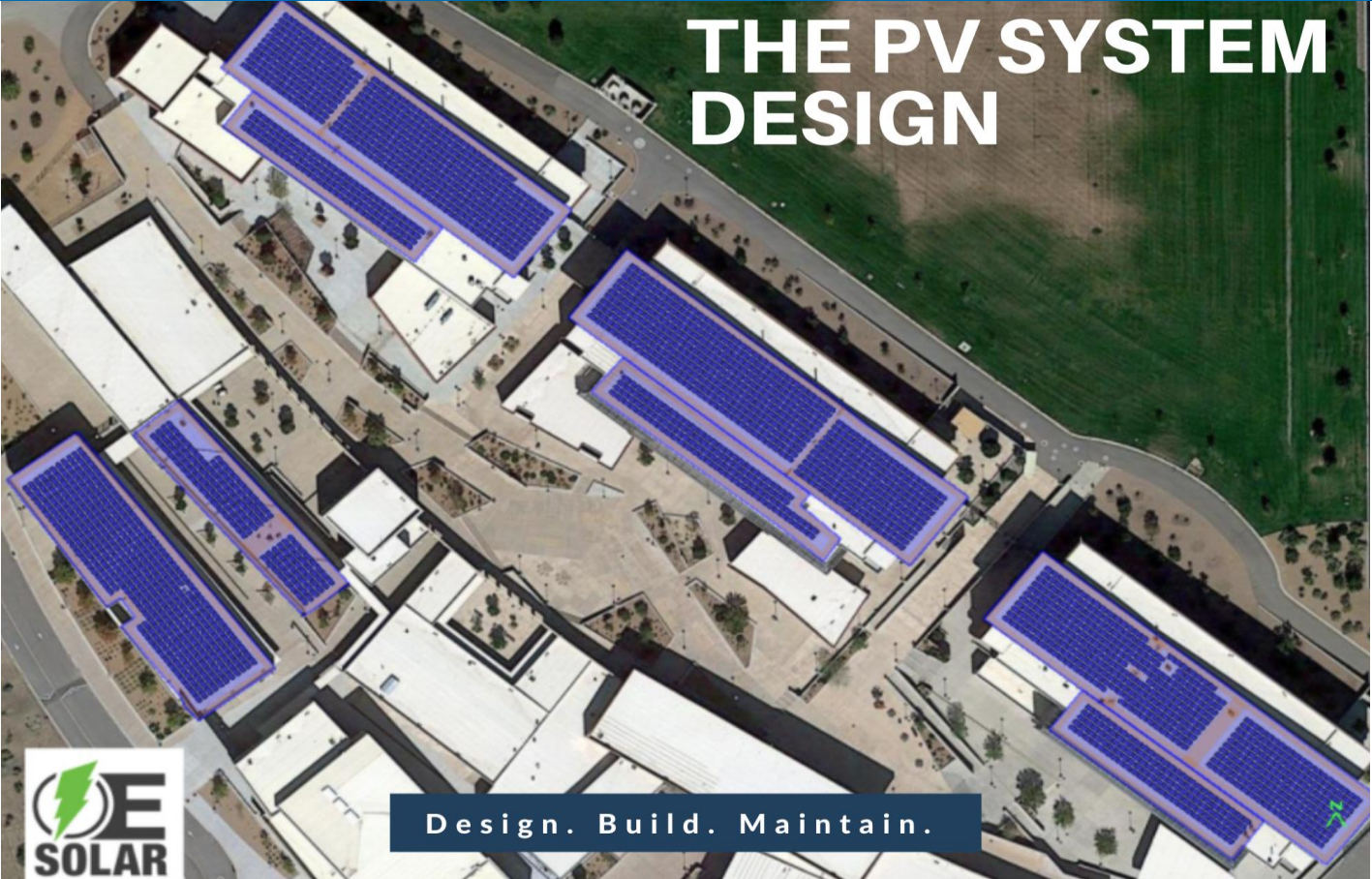
- 850 kW to optimize payback
- 2200 PV panels . . . one per student!
- PV *plus* battery – 13 years
- Without PV – 17 years.*

* Entirely dependent on utility rate structure

Doubled project cost; saves approx. \$3.5 M over life of battery.

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PV layout



Lots of roof available; triggered significant roof repairs.

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Choosing the right contractor

- Qualifications
- Experience
- Honesty
- Flexibility
- Connections



We're not just their client; we function as a partners.

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The importance of partners

- Expertise, experience
- Detailed, reliable analysis
- Many eyes, many viewpoints
- Shared financial burden



A win for everybody!

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Lessons learned

- Design-Build delivery method is not typical for our Procurement Department, and presented challenges.
 - Life cycle and performance calculations must account for battery and solar degradation, as well as escalating utility rates. Budget accordingly!
 - New technology and high-production systems may pose concerns for the local utility company which could impede/delay an interconnection agreement.
 - Roof-mounted photovoltaics on existing buildings means roof condition and warranty must be examined. Be prepared for costly repairs!
 - Data collection and analysis – especially by third party entities – has many facets which must protect the interests and privacy of all parties.
 - EVERYTHING takes longer than expected...

And so many more lessons to come.

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