

PLANNING AND ZONING COMMISSION AGENDA

REGULAR MEETING | APRIL 25, 2024 AT 6:00 PM
CITY COUNCIL CHAMBERS | 405 MUNICIPAL DRIVE , KENNEDALE, TX 76060

I. CALL TO ORDER

To address the Planning and Zoning Commission regarding an agenda item, submit a 'Request to Speak' form before the meeting begins. Speakers are allotted three (3) minutes, must limit their comments to the subject indicated on the form, and should address the Planning and Zoning Commission as a whole, rather than individual members or staff. Pursuant to Texas Government Code §551.071, the Planning and Zoning Commission reserves the right to adjourn into Executive (Closed) Session at any time during the meeting to seek legal advice from the City Attorney on any item posted on the agenda.

A. ROLL CALL

II. VISITOR AND CITIZEN FORUM

At this time, any person may address the Planning and Zoning Commission about items not on the agenda. Rules and procedures for addressing the Planning and Zoning Commission are included under "I. CALL TO ORDER". Neither formal action nor discussion may occur at this time. Those wishing, instead, to speak on an agenda item should indicate their desire to speak as the Planning and Zoning Commission considers that item.

III. REGULAR SESSION

A. CONSENT AGENDA

These matters have appeared on previous agendas, require little or no deliberation, or are considered routine or ministerial tasks. If discussion is desired, items may be removed for separate consideration.

1. Approval of the minutes from the February 29, 2024 Special Meeting

B. ITEMS FOR INDIVIDUAL CONSIDERATION

1. Consider a request for Final Plat for Emerald Crest Estates to create Lots 1 through 10, and Lot 1X, being Lots R1 through 5R and 6, Block 1, Amending Plat of Emerald Crest Estates, an Addition to the City of Kennedale, Tarrant County, Texas.

C. PUBLIC HEARINGS

1. PZ CASE #24-08 to conduct a public hearing and consider a proposed Conditional Use Permit as required by Section 24.2 (C) of the Unified Development Code for "Battery Energy Storage Systems," a new land use, located at 509 S New Hope Rd, Tract 1EE & A1327 TRS 2B01 & 2B04, Abstract 378, situated in the Cannon E C Survey, and 501 S NEW HOPE RD, Block 1, Lot 1, of the Kim Addition, and City of Kennedale, Tarrant County, Texas

IV. EXECUTIVE SESSION

The Planning and Zoning Commission reserves the right to meet in Executive (Closed) Session at any time during the meeting pursuant to the below cited sections of the Texas Government Code:

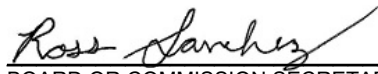
- A. **PURSUANT TO §551.071** — Consultation with the City Attorney pertaining to any matter in which the duty of the City Attorney under the Texas Disciplinary Rules of Professional Conduct may conflict with the Open Meetings Act, including discussion of any item posted on the agenda, legal issues regarding the Open Meetings Act.
- B. **PURSUANT TO §551.072** — Deliberation regarding the purchase, exchange, lease, or value of real property.
- C. **PURSUANT TO §551.074** — Deliberate the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee; or to hear a complaint or charge against an officer or employee.
- D. **PURSUANT TO §551.087** — (1) Deliberation regarding commercial or financial information that the governmental body has received from a business prospect that the governmental body seeks to have locate, stay, or expand in or near the territory of the governmental body and with which the governmental body is conducting economic development negotiations; or (2) to deliberate the offer of a financial or other incentive to a business prospect described by Subdivision.

**V. RECONVENE INTO OPEN SESSION, AND TAKE ACTION NECESSARY
PURSUANT TO EXECUTIVE SESSION, IF NEEDED**

VI. ADJOURNMENT

CERTIFICATION

I DO HEREBY CERTIFY THAT THE APRIL 25, 2024 PLANNING AND ZONING COMMISSION AGENDA WAS POSTED INSIDE THE MAIN ENTRANCE OF CITY HALL (405 MUNICIPAL DRIVE), IN A PLACE CONVENIENT AND READILY ACCESSIBLE TO THE GENERAL PUBLIC AT ALL TIMES; AND THAT SAID AGENDA WAS POSTED AT LEAST SEVENTY-TWO (72) HOURS PRECEDING THE SCHEDULED TIME OF SAID MEETING, IN ACCORDANCE WITH CHAPTER 551 OF THE TEXAS GOVERNMENT CODE.


BOARD OR COMMISSION SECRETARY

In compliance with the Americans with Disabilities Act (ADA), the City of Kennedale will provide for reasonable accommodations for persons attending meetings. This facility is wheelchair accessible and accessible parking spaces are available. Requests for sign interpreter services must be made forty-eight (48) hours prior to the meeting by calling 817-985-2104 or (TTY) 1-800-735-2989.

STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: CONSENT AGENDA ITEM III.A.

SUBJECT

CONSENT AGENDA

These matters have appeared on previous agendas, require little or no deliberation, or are considered routine or ministerial tasks. If discussion is desired, items may be removed for separate consideration.

ORIGINATED BY

SUMMARY

RECOMMENDATION

ATTACHMENTS



STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: CONSENT AGENDA ITEM III.A.1.

SUBJECT
Approval of the minutes from the February 29, 2024 Special Meeting

ORIGINATED BY

SUMMARY

RECOMMENDATION

ATTACHMENTS

1.	Minutes unsigned 02.29.2024	Minutes unsigned 02.29.2024.pdf
----	-----------------------------	---------------------------------



PLANNING AND ZONING COMMISSION MINUTES

REGULAR MEETING | FEBRUARY 29, 2024 AT 6:00 PM
CITY HALL COUNCIL CHAMBERS | 405 MUNICIPAL DRIVE, KENNEDALE, TX 76060

I. CALL TO ORDER

Chairman Michael Brown called the meeting to order at 6:04 p.m.

A. ROLL CALL

PRESENT: Andrew Malkowski, Colby Cowan, Perry Clementi **ABSENT:** ; **STAFF:** Community Development Director Nathan Gonzales, City Manager Darrell Hull

II. REGULAR SESSION

A. Approval of the minutes from the February 22, 2024 Regular Meeting

Motion: Approve

Action: Approval of the minutes from the February 22, 2024 Regular Meeting once the repeated line on the minutes is removed

Moved By Andrew Malkowski, **Seconded By** Colby Cowan

Motion passed unanimously

B. PZ Case 24-06 Consider approval for Preliminary Plat creating Lots 1-15 and open space, Block 1, RMC Business Park Addition, being 24.814 acres of land situated within the Jessie B. Renfro Survey, Abstract No. 1260, City of Kennedale, Tarrant County, Texas.

Motion: Approve

Action: PZ Case 24-06 Consider approval for Preliminary Plat creating Lots 1-15 and open space, Block 1, RMC Business Park Addition, being 24.814 acres of land situated within the Jessie B. Renfro Survey, Abstract No. 1260, City of Kennedale, Tarrant County, Texas.

Moved By Perry Clementi, **Seconded By** Colby Cowan

Motion passed unanimously

C. PZ Case 24-07 Consider Site Plan approval for a new commercial building located at 535 W Kennedale Parkway, Kennedale, TX, 76060

Motion: Approve

Action: PZ Case 24-07 Consider Site Plan approval for a new commercial building located at 535 W Kennedale Parkway, Kennedale, TX, 76060

Moved By Andrew Malkowski, **Seconded By** Colby Cowan

Motion passed unanimously

III. PUBLIC HEARING

A. PZ CASE #24-05 to conduct a public hearing and consider a proposed zoning change request from "C-1 Commercial District" to "EC-1 Employment Center District" for approximately 0.3265 acres, Block 7, Lot 4a Less Row Blk 7, of the Oak Crest Addition, located at 6704 Lindale RD, City of Kennedale, Tarrant County, Texas.

Motion: Approve

Action: PZ CASE #24-05 to conduct a public hearing and consider a proposed zoning change request from "C-1 Commercial District" to "EC-1 Employment Center District" for approximately 0.3265 acres, Block 7, Lot 4a Less Row Blk 7, of the Oak Crest Addition, located at 6704 Lindale RD, City of Kennedale, Tarrant County, Texas.

Public hearing opened and closed at 6:35pm due to not having speakers

Moved By Andrew Malkowski, **Seconded By** Colby Cowan
Motion passed unanimously

IV. ADJOURNMENT

Motion: Adjourn

Action: ADJOURNMENT

Moved By Perry Clementi, **Seconded By** Andrew Malkowski
Motion passed unanimously

Chairman Michael Brown adjourned the meeting at 6:36 p.m.

APPROVED:

ATTEST:

PRESIDING OFFICER

BOARD OR COMMISSION SECRETARY

STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: INDIVIDUAL CONSIDERATION ITEM III.B.

SUBJECT
ITEMS FOR INDIVIDUAL CONSIDERATION

ORIGINATED BY

SUMMARY

RECOMMENDATION

ATTACHMENTS



STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: INDIVIDUAL CONSIDERATION ITEM III.B.1.

SUBJECT

Consider a request for Final Plat for Emerald Crest Estates to create Lots 1 through 10, and Lot 1X, being Lots R1 through 5R and 6, Block 1, Amending Plat of Emerald Crest Estates, an Addition to the City of Kennedale, Tarrant County, Texas.

ORIGINATED BY NATHAN GONZALES

SUMMARY

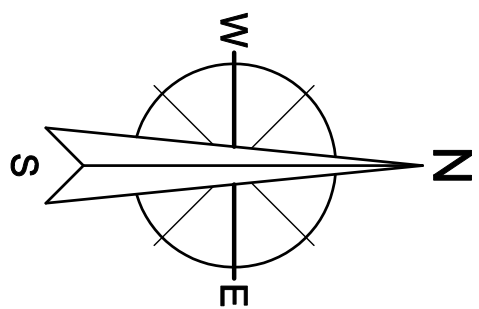
Emerald Crest consists of 10 new residential single-family lots and 1 HOA-maintained lot reserved for on-site drainage detention. The existing zoning will remain R-3. Engineering review for this site has been completed and a Site Development Permit has been approved. The plat meets all planning requirements.

RECOMMENDATION

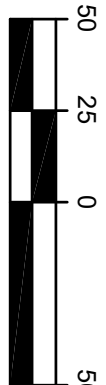
Staff recommends approval.

ATTACHMENTS

1.	Final Plat Emerald Crest Estates	Final Plat Emerald Crest Estates.pdf
----	----------------------------------	--------------------------------------



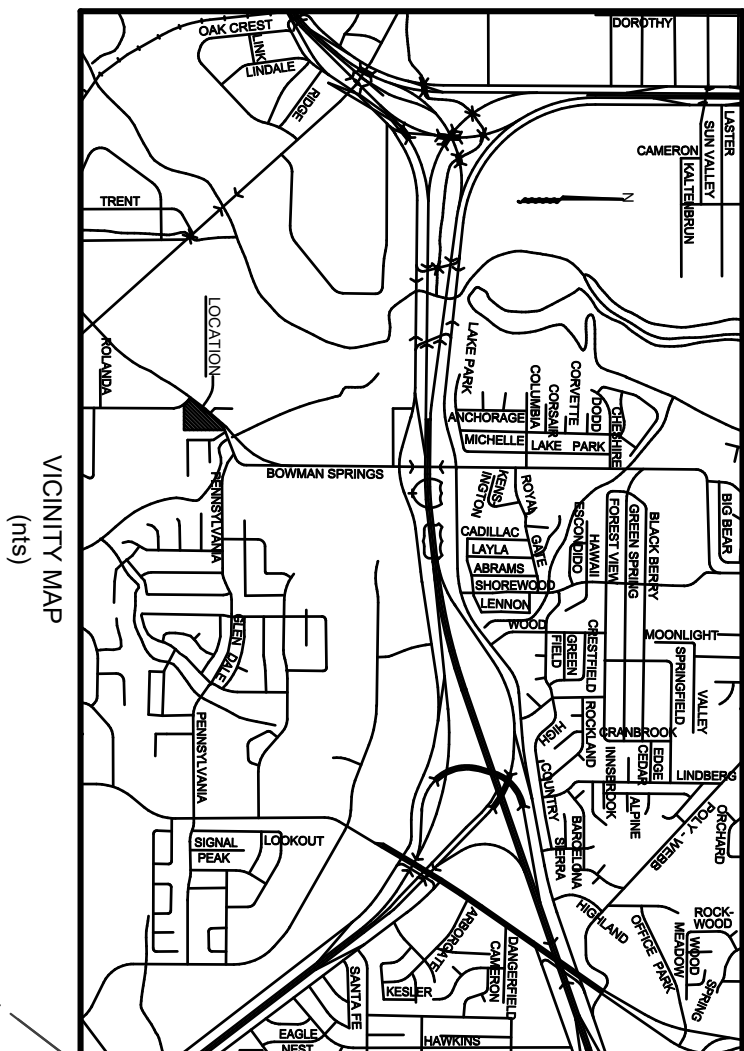
GRAPHIC SCALE



1 inch = 50 ft.

CURVE TABLE			
LINE	LENGTH	BEARING	DELTA
L1	30.00'	S79°18'35"W	10.00'
L2	25.00'	N80°30'12"E	8.00'
L3	15.84'	S00°29'48"E	155.76'
L4	19.34'	N87°11'07"E	11.06'
L5	22.42'	S02°27'38"E	22.28'
L6	33.92'	S52°38'42"E	

CURVE TABLE			
CURVE LENGTH	RADIUS	DELTA	TANGENT CHORD
10.00'	250.00'	10.00'	10.00'
8.00'	160.00'	20.00'	45.9708'
8.00'	260.00'	6°15'45"	15.84'
155.76'	200.00'	11.06'	22.28'
11.06'	22.28'	N87°11'07"E	

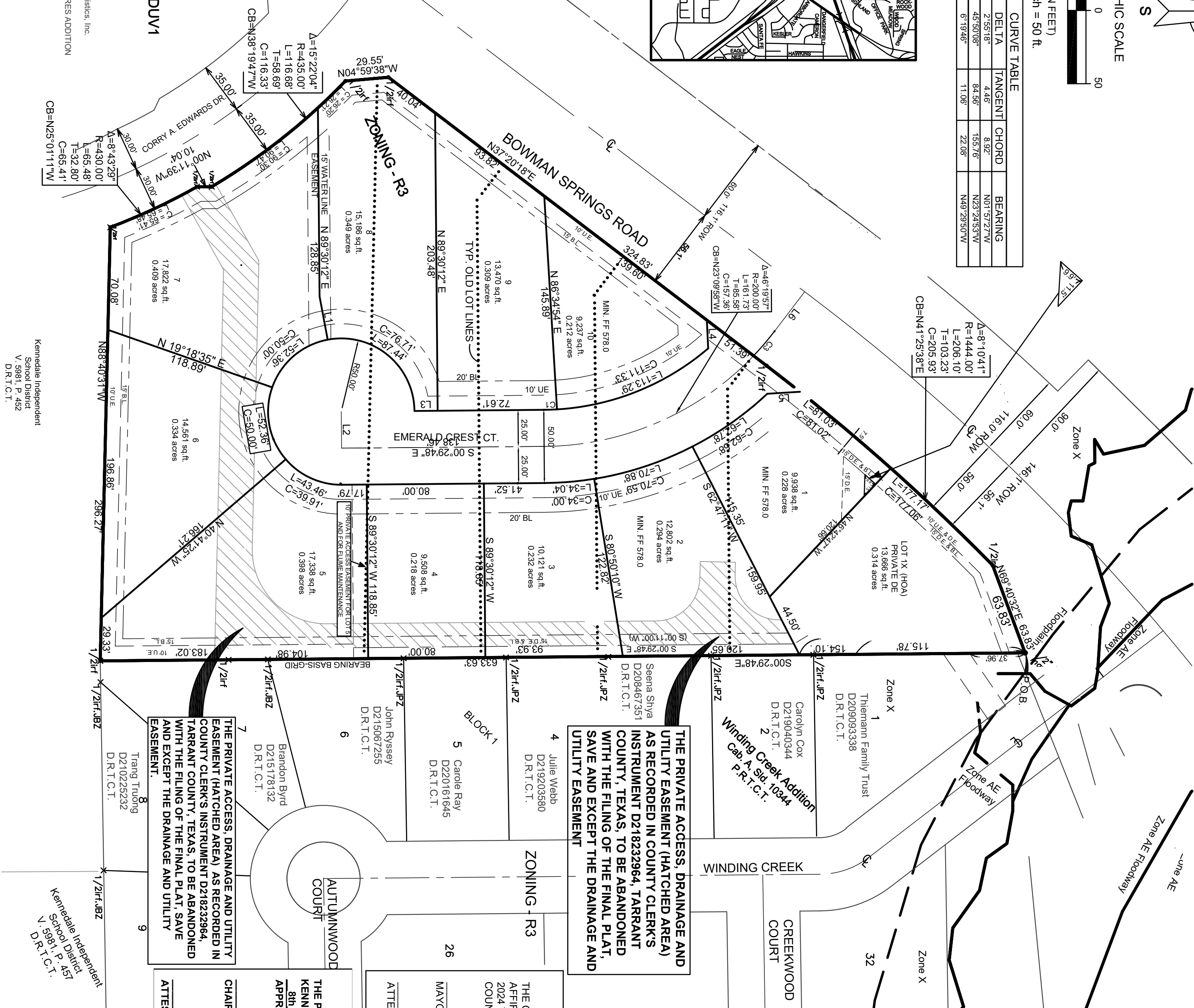


ZONING - AG

FELLOWSHIP ACADEMY
WOODLEA ACRES ADDITION
Block 1 Lot 2081
PER PLAT D214166527

ZONING - PDUV1

Santa Communities, Inc.
D216077849
WOODLEA ACRES ADDITION
Block 1 Lot 198



THE PRIVATE ACCESS, DRAINAGE AND UTILITY EASEMENT (HATCHED AREA) AS RECORDED IN COUNTY CLERK'S INSTRUMENT D218232964, TARRANT COUNTY, TEXAS, TO BE ABANDONED WITH THE FILING OF THE FINAL PLAT, SAVE AND EXCEPT THE DRAINAGE AND UTILITY EASEMENT

Maintenance Statement for Private Detention Area

The City of Kennedale is not responsible for the design, construction, operation, maintenance, or use of the storm water detention area, and their associated private drainage easements, herein referred to as "features" to be developed and constructed by the developer or his successors. Developer or successors will indemnify, defend and hold harmless the City of Kennedale its officers, employees, and agents from and against all claims, damages, losses, costs, or expenses and attorney's fees for any and all claims, damages, losses, costs, or expenses arising out of the design, construction, operation, maintenance, condition or use of the "features", including any non-performance of the foregoing. Developer will require any successor in interest to accept full responsibility and liability for the "features". All of the above shall be covenants running with the land.

- NOTES:
- Building lines shall conform to current City Ordinance.
 - This property may be subject to charges related to impact fees.
 - This property is currently zoned R-3.
 - All private space lots shall be owned and maintained by the HOA.

- LEGEND:**
- BL BUILDING LINE
 - UE UTILITY EASEMENT
 - WLE WATER LINE EASEMENT
 - DE DRAINAGE EASEMENT
 - POB POINT OF BEGINNING

CITY COUNCIL CERTIFICATE OF APPROVAL

THE CITY COUNCIL OF THE CITY OF KENNEDALE, TEXAS VOTED AFFIRMATIVELY ON THIS _____ DAY OF _____, 2024 TO RECOMMEND APPROVAL OF THIS PLAT BY CITY COUNCIL.

MAYOR, CITY OF KENNEDALE _____

ATTEST: CITY SECRETARY _____

CERTIFICATE OF APPROVAL

THE PLANNING AND ZONING COMMISSION OF THE CITY OF KENNEDALE, TEXAS VOTED AFFIRMATIVELY ON THIS 8th DAY OF APRIL, 2024, TO RECOMMEND APPROVAL OF THIS PLAT BY CITY COUNCIL.

CHAIRMAN, PLANNING AND ZONING COMMISSION _____

ATTEST: SECRETARY, PLANNING AND ZONING COMMISSION _____

The subject property is not located in the 100 year flood zone A, AE, AH, AO, A99, V, VE, or X, (other flood areas), according to the United States Department of Housing and Urban Development Federal Insurance Administration Flood Insurance Rate Map of Tarrant County, Texas and incorporated areas, Map No. 48439C0440, J. Community-Panel No. 480003 0440, J. Dated August 23, 2000. The property being located in Zone X (Areas determined to be outside 500 year flood plan), according to said map.

WMSA PARTNERS, LTD.

DBA WILLIAM M. SMITH & ASSOCIATES
ENGINEERS • SURVEYORS • PLANNERS
PE REG NO F-9681& RPLS REG NO 10043800
1506 CREEKFORD DRIVE
ARLINGTON, TX 76012
PHONE: 817.903.1182
BUDWMSA@GMAIL.COM

REGISTERED PROFESSIONAL SURVEYORS
HERBERT S. BEASLEY
LAND SURVEYORS L.P.
• LAND • TOPOGRAPHIC
• CONSTRUCTION SURVEYING
FIRM NO. 10094900
METRO 817-429-0194
FAX 817-446-5488
hbsbeasley@nsn.com
P. O. BOX 8873
FORT WORTH, TEXAS 76124

STATE OF TEXAS §
COUNTY OF TARRANT §

WHEREAS, TRIFECTA HOMES LLC, acting by and through the undersigned, its duly authorized agent, is the sole owner of all of that certain tract, parcel, or lot of land located in the J. Pickett Survey, Abstract No. 1225 and the E.R. Mingus Survey, Abstract No. 1075, City of Kennedale, County of Tarrant, State of Texas, according to County Clerk's No. D218195156, Deed Records, Tarrant County, Texas, and being all of Lots 1R thru 5R and Lot 6, Block 1, EMERALD CREST ESTATES, an addition to the City of Kennedale, Tarrant County, Texas, according to the plat recorded in County Clerk's No. Instrument No. D218232964, Deed Records, Tarrant County, Texas and being more particularly described by metes and bounds as follows:

BEGINNING at a 2" iron rod marked HSB at the most Northerly corner of said tract, also being a common corner with WINDING CREEK ADDITION, an addition to the City of Kennedale, Texas, as recorded in Cabinet A, slide 10344, P.R.T.C.T.;

THENCE along the common East line of said EMERALD CREST ESTATES and West line of WINDING CREEK ADDITION South 00°29'48" East a distance of 633.63 feet to a round 7" iron rod found on the common North line of the Kennedale Independent School District tract as recorded in Volume 5981, page 452, Deed Records, Tarrant County, Texas;

THENCE North 88°40'31" West along said line a distance of 296.27 feet to a 2" iron rod found at a corner, also being on East right-of-way of Carry A. Edwards Drive, variable right-of-way width;

THENCE along said right-of-way the following calls:

- 65.48 feet in a Northwesterly direction along a curve to the left, having a central angle of 08°43'29", a radius of 430.00 feet, a chord of 65.41 feet, and a chord bearing of North 26°01'11" West to a 1/2" rod rod found.
- North 00°11'39" West a distance of 10.04 feet to a 1/2" rod rod found.
- 116.68 feet in a Northwesterly direction along a curve to the left, having a central angle of 15°22'04", a radius of 435.00 feet, a chord of 116.33 feet, and a chord bearing of North 38°19'47" West to a 1/2" rod rod found.
- North 04°59'38" West a distance of 29.55 feet to a 1/2" rod rod found on the South right-of-way of Bowman Springs Road, variable right-of-way width;

THENCE along said right-of-way the following calls:

- North 37°20'18" East a distance of 324.83 feet to a 1/2" iron found at the beginning of a curve.
- 2,006.10 feet in a Northwesterly direction along a curve to the left, having a central angle of 08°10'41", a radius of 1,444.00 feet, a chord of 205.93 feet, and a chord bearing of North 41°25'38" East to a 1/2" rod rod found.
- North 69°40'32" East a distance of 63.82 to the POINT OF BEGINNING and containing 3.776 acres of land.

The bearings recited hereon are oriented to NAD 83 Texas North Central Zone.

NOW, THEREFORE KNOW ALL MEN BY THESE PRESENTS:

THAT TRIFECTA HOMES LLC, acting by and through the undersigned, its duly authorized agent, does hereby adopt this plat designating the herein above described real property as Lots 1R-1 thru 5R-1 and Lot 6R, Block 1, EMERALD CREST ESTATES, an addition to the City of Kennedale, Tarrant County, Texas, and do hereby convey to the public for public use: the streets, alleys, rights-of-way, easements, and any other public areas shown on this plat.

WITNESS MY HAND AT _____, Tarrant County, Texas, this _____ day of _____, 2024;

by: _____

Keyur Naik, President

STATE OF TEXAS §

COUNTY OF TARRANT §

BEFORE ME, the undersigned authority, on this day personally appeared Keyur Naik, President, TRIFECTA HOMES LLC, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and consideration therein expressed, and in the capacity herein stated.

GIVEN UNDER MY HAND AND SEAL of office on the _____ day of _____, 2024.

Notary Public Tarrant County, Texas
My commission expires: _____

KNOW ALL MEN BY THESE PRESENTS:

That I, Dick S. Jones, a Registered Professional Land Surveyor licensed in the State of Texas, do hereby certify that this survey is true and correct and was prepared from an actual survey made under my supervision on the ground and that all lot corners, angle points, and points of curve shall be properly marked on the ground and that the same shall be accompanied by a copy of this plat, unless otherwise stated, and that this plat represents the original survey made by me or under my direction and supervision. Irons that are damaged, disturbed, or not so marked are not to be considered original.

Dick S. Jones
Registered Professional Land Surveyor
Texas Registration No. 5524



KNOW ALL MEN BY THESE PRESENTS:

That I, William M. Smith, Jr., a Registered Professional Land Surveyor licensed in the State of Texas, do hereby certify that this subdivision from an actual boundary on the ground and that the plat correctly represents that survey of the boundary made by Herbert S. Beasley, Land Surveyors, L.P.

William M. Smith, Jr.
Registered Professional Land Surveyor
Texas Registration No. 4647



FINAL PLAT

EMERALD CREST ESTATES
an Addition to the
City of Kennedale, Tarrant County, Texas
Being Lots R1 thru 5R and 6, Block 1, Amending Plat of
Emerald Crest Estates, an Addition to the City of Kennedale,
Tarrant County, Texas, according to the plat recorded in County Clerk's
No. D218232964, Deed Records, Tarrant County, Texas.

10 Lots & 1X (HOA) Lot
3.776 Acres of Land
March, 2024

TRIFECTA HOMES LLC
Keyur Naik, President
3003 Russell Road
Arlington, Tx 76001
(803) 467-3060
naikkeyur@hotmail.com

STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: PUBLIC HEARING ITEM III.C.

SUBJECT
PUBLIC HEARINGS

ORIGINATED BY

SUMMARY

RECOMMENDATION

ATTACHMENTS

STAFF REPORT TO THE PLANNING AND ZONING COMMISSION

MEETING DATE: APRIL 25, 2024

AGENDA ITEM NUMBER: PUBLIC HEARING ITEM III.C.1.

SUBJECT

PZ CASE #24-08 to conduct a public hearing and consider a proposed Conditional Use Permit as required by Section 24.2 (C) of the Unified Development Code for “Battery Energy Storage Systems,” a new land use, located at 509 S New Hope Rd, Tract 1EE & A1327 TRS 2B01 & 2B04, Abstract 378, situated in the Cannon E C Survey, and 501 S NEW HOPE RD, Block 1, Lot 1, of the Kim Addition, and City of Kennedale, Tarrant County, Texas

ORIGINATED BY NATHAN GONZALES

SUMMARY

BACKGROUND AND OVERVIEW	
Request	Conditional Use Permit
Applicant	Parker Sloan for Cypress Creek Renewables
Location	501 & 509 S New Hope Rd
Surrounding Uses	Industrial and Residential
Surrounding Zoning	I, PD-MHD, R-2
Future Land Use Designation	Neighborhoods, Park & Open Space
Staff Recommendation	Not Recommended

I. CURRENT STATUS OF THE PROPERTIES

The property at 501 S New Hope Rd is approximately 9.36 acres and is zoned PD-MHD. The current zoning allows for single-family use, however, it was rezoned to a Planned Development to allow for the existing manufactured home to be placed on-site.

The property at 509 S New Hope Rd is approximately 48 acres, not platted, and currently split-zoned. The western acreage with frontage off a S New Hope Rd carries R-2 Single-Family Residential District zoning (+/- 8.65 ac), with the larger acreage to the east zoned I-Industrial District (Highlighted in green, Exhibit A). Aside from an accessory structure near the road, the property is undeveloped.

Both 501 & 509 S. New Hope Rd are heavily treed parcels and owned by the same entity. Both floodways and floodplains exist within the properties.

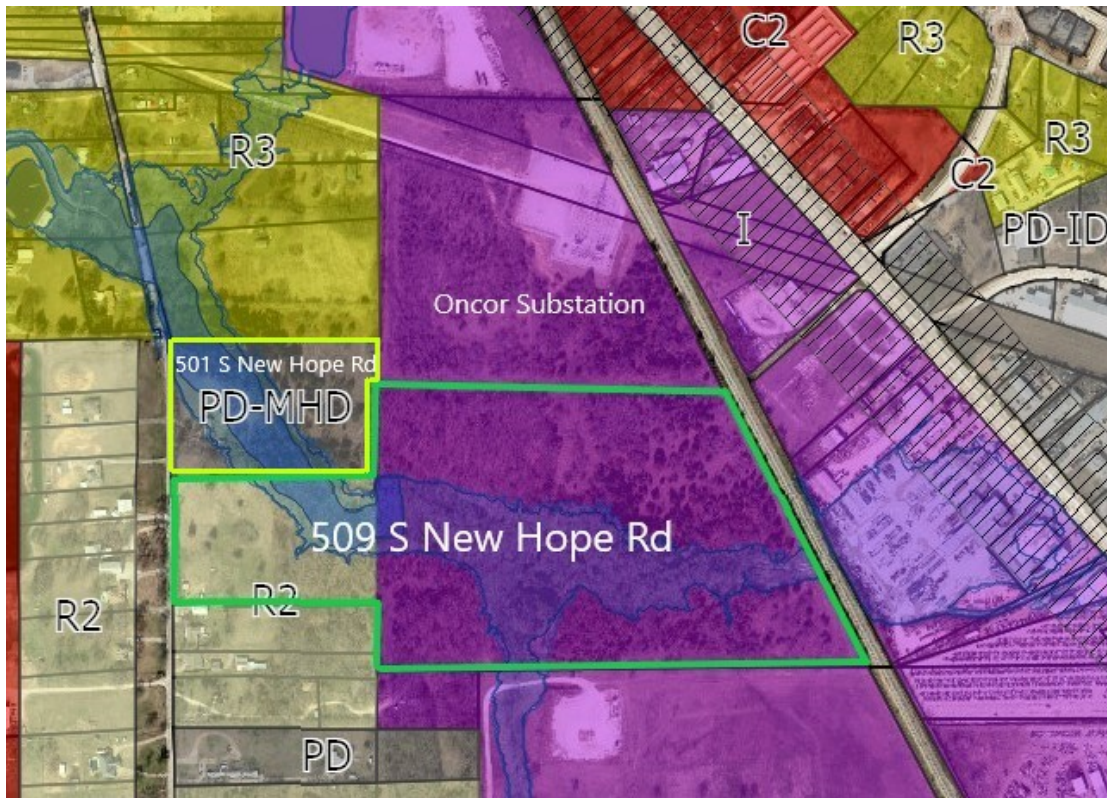


Exhibit A- 509 S New Hope Rd, Kennedale, TX 76060

II. SURROUNDING PROPERTIES & NEIGHBORHOOD

501 S New Hope Rd is surrounded by R-3 single-family residential to the north, I-Industrial District to the east, and R-2 single-family residential to the west and south.

The eastern forty acres of 509 S New Hope Rd are surrounded by I-Industrial to the north, south, and east. An Oncor substation is located directly north. The western eight acres of 509 S New Hope Rd are surrounded by R-2 Single-family residential properties to the north, south, and west.

The current Future Land Use (FLUP) Map has this area designated as “Neighborhood Residential” with “Parks & Open Space” (See Exhibit B). Kennedale’s adopted Comprehensive Plans provide samples of types of development that should occur within Neighborhood Villages. These include neighborhood-serving retail and services, context-sensitive small-scale multifamily, restaurants, and community offerings.

The FLUP has also called for an extension of Little School Rd across Kennedale Parkway providing a connection to New Hope Rd. The planning and route study for this road extension is currently underway. City Council has recently approved a route study to be performed by Freese & Nichols, Inc. Tarrant County has also granted funding to assist with the construction costs of the project. At this time, it is unclear which route the Little School Rd will extend to the south and how much right-of-way will need to be secured and/or extended on both sides of Kennedale Parkway (See Exhibit B). City Council has noted their preferred route and has authorized Freese & Nichols to begin their environmental and feasibility studies (See Exhibit C). City Council approved a measure

for CO bonds to fund the project, however, the bonds have yet to be issued and require additional action by the City Council. Should the bonds be issued, this new road extension will create a new gateway, opening up the western half of the city for development.

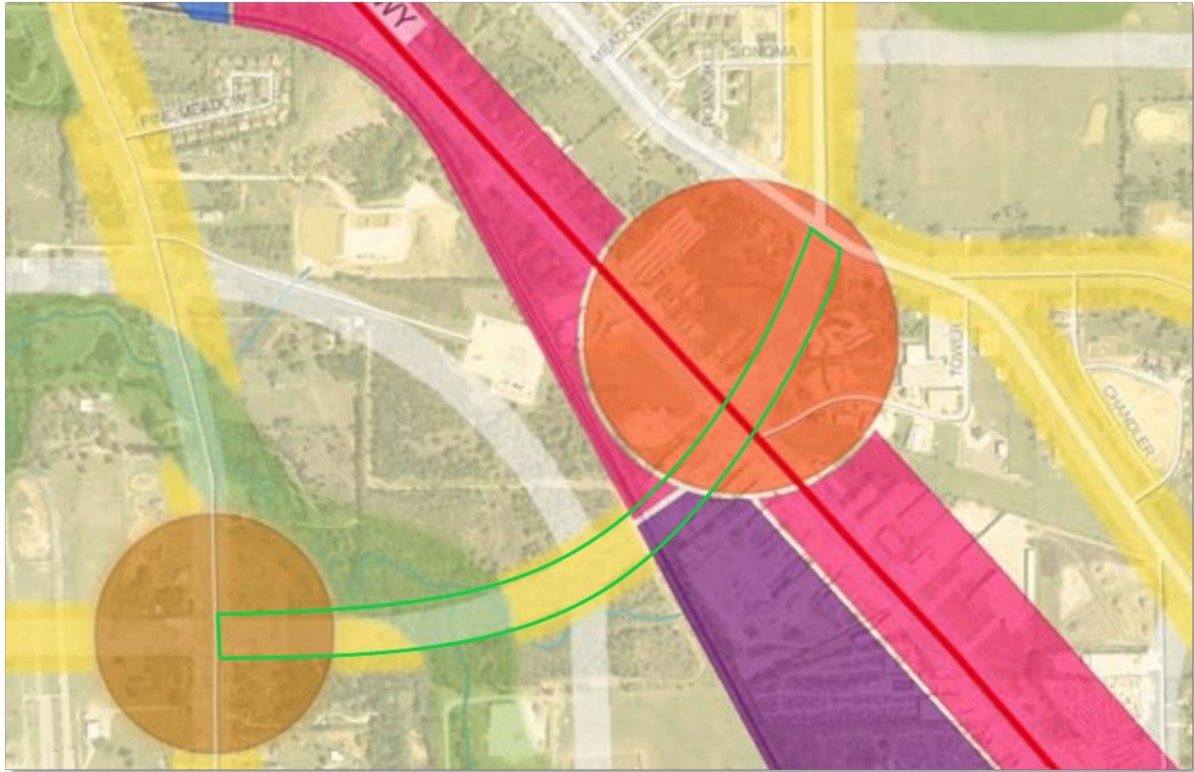


Exhibit B- FLUP & Little School Rd Extension

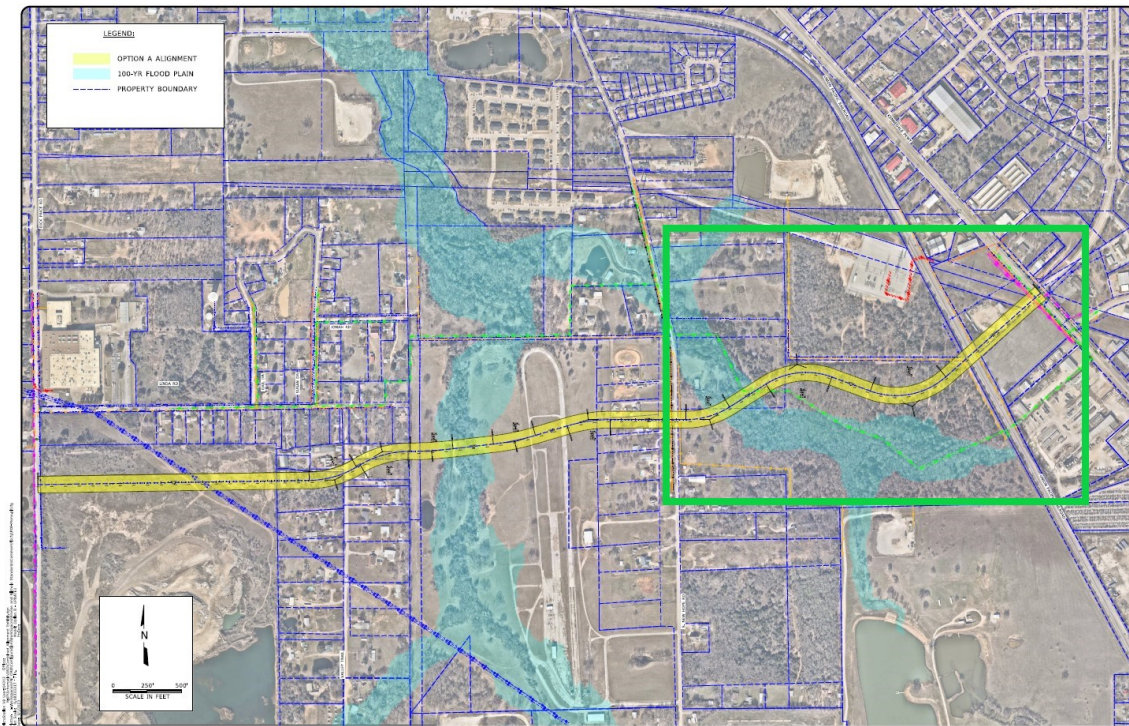


Exhibit C- Preferred Route (Phase 1, Green Box)

III. ZONING REVIEW FOR PROPOSED LAND USE

In May of 2023, staff met with the team of Cypress Creek Renewables who are considering developing the eastern acreage of 509 S New Hope for what they described as a *Battery Energy Storage System*, which they've named *Fort Watt*. Most of the actual site development will occur at 509 S New Hope Rd, however, a portion of 501 S New Hope Rd will be used for site access. Staff's understanding of the operation is that the proposed system utilizes large grid-connected batteries to store energy, and then release it back onto the grid when demand is high. The batteries are built upon a slab or pier and can be removed as needed. Parker Sloan of Cypress Creek Renewables provided photos to help illustrate the type of equipment they plan to use (See Figures 1 & 2).

In August of 2023, Cypress Creek Renewables appeared before the Board of Adjustment to obtain a land use determination. At the time, Cypress Creek believed the appropriate land use classification listed in our current UDC was *Infrastructure and utilities-regional*, a use permitted by right within the I-Industrial District. Staff's interpretation, however, differed and considered the land use to be *Outdoor storage*. A public hearing was held and the Board of Adjustment recommended the case be referred to the Planning and Zoning Commission and City Council for the new land use of *Battery Energy Storage Systems* under application for a Conditional Use Permit (CUP).



Figure 1- Battery on Slab



Figure 2- Battery on Pier

Following the BOA decision in August 2023, staff met with representatives for Cypress Creek Renewable in preparation for their application for CUP. The proposed site plan has changed to allow for any potential extension of Little School Rd. Previously, the road extension would have cut directly through their proposed site. The site itself has been redesigned and shifted further south, out of the area where the Little School Rd extension is proposed. Both site plans have been provided for review. In either scenario, the proposed site itself would be tucked away towards the back acreage and likely unseen from S New Hope Rd. The site, however, would be visible from the proposed bridge over the railroad as part of the Little School Rd. extension.

As previously noted, the FLUP envisions the proposed site to become a future residential area with an open park and green space. As such, the proposed development would not be consistent with the city's adopted plans.

FURTHER CONSIDERATIONS

In early 2024, the Fire Chief, Fire Marshal, and staff met with Cypress Creek to discuss emergency response concerns given the nature of the batteries, the potential for thermal runaway, and emergency management planning. Site precautions, fire suppression systems, and a series of redundancies built into the system were presented and discussed. A plume study was requested by KDF and is currently underway. This study would show the extent of any vapors or gases should there be fire at the location. Cypress Creek has performed similar studies at other sites and each has shown that any potential hazards following a fire would be relegated to the limits of the property. Staff believes the study that is underway will likely net similar results. A letter from the Fire Marshal has been included for review noting concerns the Fire Department has. Staff has also spoken with Interim Chief, Lt. Brian King, who shares the same concerns. Despite the safety redundancies, emergency response planning would remain the same as a hazmat incident, likely requiring a shelter-in-place order as a precautionary measure. Given the small size of the Kennedale Fire Department, mutual aid with neighboring jurisdictions would likely be required. The main driver of KFD's concerns is that the site

would be centrally located within Kennedale as opposed to the outer rim of the community where other jurisdictions have allowed these to be developed.

Cypress Creek has provided an in-depth F.A.Q. regarding their battery systems and estimated tax benefits for the community. Staff recommends both P&Z and City Council review these submittal documents for consideration.

Given the need for resiliency of the state's electrical power grid, alternative energy systems provide a feasible solution. Zoning in most jurisdictions, however, often fails to foresee or account for new advancements in technology. The Kennedale UDC itself notes the difficulty with capturing all future or proposed land uses in its governing documents, hence the request to consider each new land use under its own merits through the CUP application. This proposed development would not only be new and unique to Kennedale, but to the region overall.

RECOMMENDATION

Given the concerns raised by KDF and that the proposed development is not consistent with the city's adopted plans, staff does not recommend approval for a Conditional Use Permit at this time.

ATTACHMENTS

1.	(EY) Cypress Creek-TX-Tarrant-Fort Watt BESS-Project Presentation-FINAL_10.26.23 (3)	(EY) Cypress Creek-TX-Tarrant-Fort Watt BESS-Project Presentation-FINAL_10.26.23 (3).pdf
2.	ACP-Energy-Storage-Enhances-Reliability-Lowers-Costs	ACP-Energy-Storage-Enhances-Reliability-Lowers-Costs.pdf
3.	BatteryFAQ_072423_HighResV2 (1)	BatteryFAQ_072423_HighResV2 (1).pdf
4.	Fort Watt Neighborhood Letter 2 (1)	Fort Watt Neighborhood Letter 2 (1).pdf
5.	Initial Site Plan	Initial Site Plan .pdf
6.	Site Plan Option 2	Fort Watt Storage_Opt2-Conceptual Siteplan_2024-04-03.pdf
7.	TI_20231208_PT2 Battery Emergency Response Guide USA_V7.2_EN	TI_20231208_PT2 Battery Emergency Response Guide USA_V7.2_EN.pdf
8.	Letter from Fire Marshal	Letter from Fire Marshal .pdf

Project Overview

- 20+ year anticipated project life
- Estimated ~400 MW / 2 Hour Battery Energy Storage System (BESS)
- Located on a portion of a 48.95-acre tract
- Tarrant CAD Parcel ID Number: A-378-1EE

Technology

- Battery Storage
- Installed on large racks in battery containers
- Interconnected lithium-ion batteries
- Same technology typical in cell phones or laptops

Local Impact

- Limited local hiring, but expecting upwards of 30-40 staff on site at peak during construction using hotel and local services
- No anticipated impact on local roads and traffic. Road use agreement will be in place with County
- No anticipated water needs
- Projects generate almost no noise and require little maintenance once operational which minimizes these impacts to the local community
- Zero emissions facilities, with no adverse impact on air quality

Project Timing

- 14 months of on-site construction
- Estimated Construction Start Date in Q4 2025
- Estimated Commercial Operations Date in Q4 2026

Project Investment

- Estimated ~\$169,000,000 in Y1 property tax values to jurisdictions



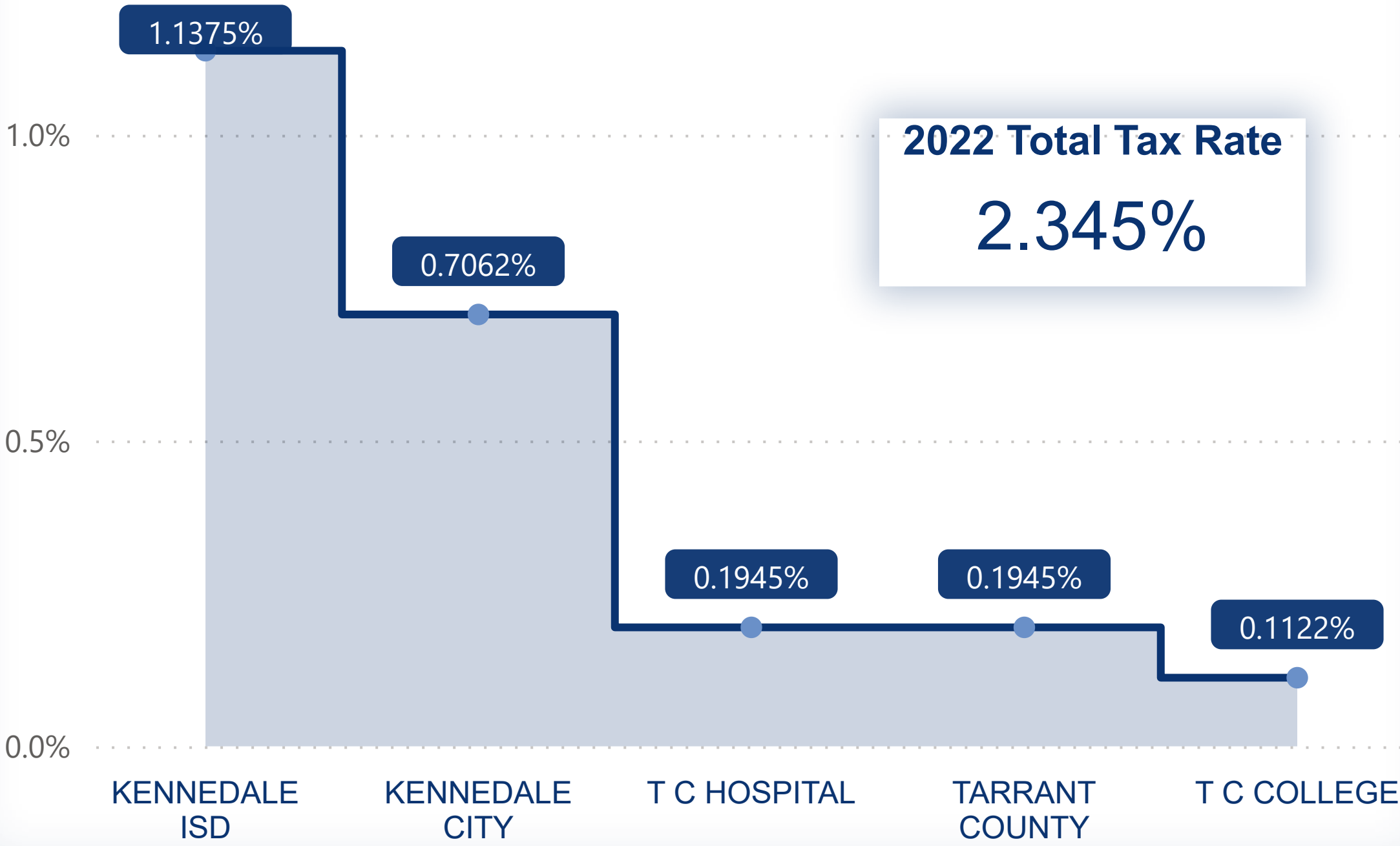
33,275,743

Land+Storage 20 Year Est. Taxes

249,993

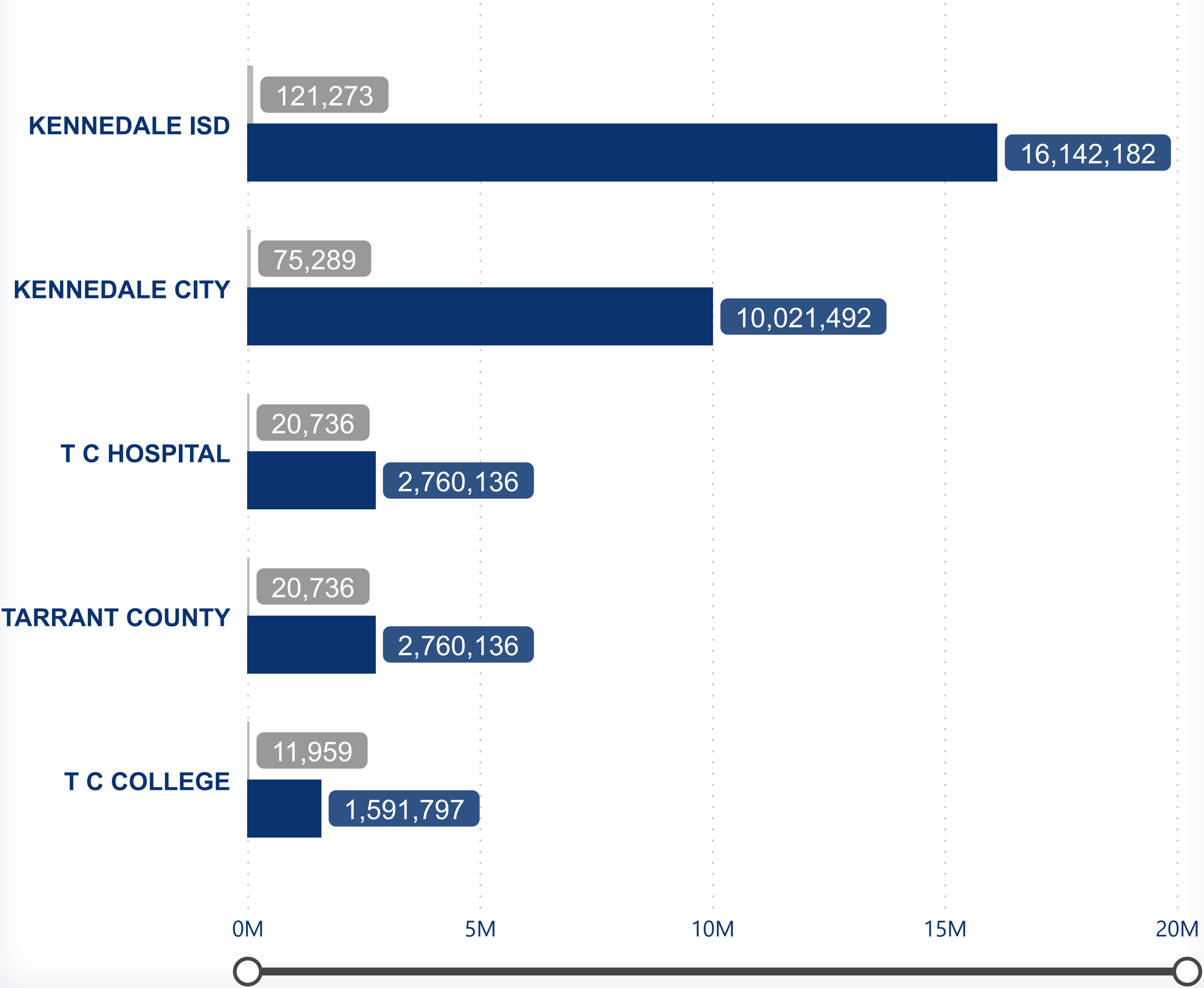
Land Only 20 Year Est. Taxes

2022 Tax Rates by Jurisdiction



20yr Summary by Jurisdiction

Land Only Land + Storage



Fort Watt BESS
Map of Possible Location

Project Location
509 S New Hope Rd, Kennedale, TX, USA

Proposed Reinvestment Zone



Energy Storage Lowers Electricity Costs & Reduces Ratepayer Bills

Energy storage technologies are uniquely positioned to reduce energy system costs and, over the long-term, lower rates for consumers by:

- **Optimizing the grid;**
- **Bolstering reliability; and**
- **Enabling a clean grid.**



How does storage reduce energy costs?

- 1 Supports the integration of more wind and solar generation:** Wind and solar are the cheapest sources of electricity. Energy storage supports the integration of higher and higher shares of renewables, enabling the expansion and incorporation of the most cost-effective sources of electricity generation.
- 2 Reduces energy waste:** Energy storage can help eliminate energy waste and maximize the benefits of renewable energy. Energy storage is the only grid technology that can both store and discharge energy. By storing energy when there is excess supply of renewable energy compared to demand, energy storage can reduce the need to curtail generation facilities and use that energy later when it is needed.
- 3 Improves grid efficiency:** Energy storage is instantly dispatchable to function both as generation and load, so it can help the grid adjust to fluctuations in demand and supply, which optimizes grid efficiency, alleviates transmission congestion, and increases grid flexibility. This reduces overall system costs.
- 4 Limits costly energy imports and increases energy security:** Energy storage improves energy security and maximizes the use of affordable electricity produced in the United States.
- 5 Prevents and minimizes power outages:** Energy storage can help prevent or reduce the risk of blackouts or brownouts by increasing peak power supply and by serving as backup power for homes, businesses, and communities. Disruptions to power supply can be extremely costly and hazardous to health and safety. Energy storage makes the grid more resilient and reliable.

Energy Storage Enhances Grid Reliability & Resilience

Credit: AES

Energy storage is, at its core, a **resilience enabling** and **reliability enhancing** technology. Across the country, states are choosing energy storage as the best and most cost-effective way to improve grid resilience and reliability.

How do energy storage systems strengthen grid reliability?

- 1 Frequency Response and Regulation:** Energy storage ensures the moment-to-moment stability of the electric system at all times.
- 2 Peaking Capacity:** Energy storage meets short-term spikes in electric system demand that can otherwise require use of lower-efficiency, higher-cost generation resources.
- 3 Maximizing Renewable Energy Resource:** Energy storage reduces curtailment of renewable generation resources and maximizes their contribution to system reliability.
- 4 Grid Infrastructure Support:** Energy storage relieves transmission and distribution infrastructure congestion, prevents reliability violations on power lines, enhances the resilience of wires infrastructure, and creates a more flexible power system.
- 5 Increasing Operational Flexibility:** Energy storage facilitates efficient integration of a diversity of generation resources and improves the ability of the electric grid to adapt rapidly to changes in demand and generation.
- 6 Improving Grid Resilience:** Energy storage serves as back-up power for individual homes, businesses, communities, and the broader grid system to minimize and prevent power outages and service interruptions from extreme weather.

Frequently Asked Questions:

Battery Energy Storage Systems

How is energy storage useful?

Energy storage provides the ability to capture energy in times of abundance for later use in times of high demand and scarcity. It makes the electric grid more reliable and resilient by converting energy from intermittent sources such as solar and wind into reliable, dispatchable power. Additionally, energy storage helps reduce power costs to consumers and improve local air and water quality.

What are the components?

A grid-connected battery storage system consists of batteries that store the energy, inverters that convert DC to AC power, communications equipment that allows for 24/7 control and monitoring of the batteries, and equipment that ensures safe and reliable operation. These components and battery systems are housed in specially-engineered enclosures.

What type of batteries are used in the system?

Cypress Creek exclusively sources Lithium Iron Phosphate (LFP) cells from Tier 1 suppliers, meeting the strictest quality and safety requirements. LFP battery cells, in addition to having superior thermal properties, do not utilize cobalt and nickel metals, the extraction and processing of which have been associated with human rights issues and environmental damage.

Where should, or could, the systems be located?

Energy storage is typically connected at utility substations near major transmission corridors. Energy storage is best located in areas where it can provide the greatest benefits to consumers, such as metropolitan areas and industrial centers.

What are the local economic benefits?

Energy Storage provides generous property tax revenues to support a community's schools, roads, infrastructure and more while creating an exceedingly small footprint without any extra traffic or other impacts on utilities, schools, roads, etc.

What is the visual impact of the project?

Energy storage projects are typically located on privately-owned land directly next to an electrical substation and a major electrical corridor serving the community's residents. Landscape screening can be used to minimize or eliminate any visual impact of the equipment.

Does the equipment make a sound?

The sound associated with operating energy storage facilities is due to HVAC units that ensure the system operates efficiently and safely. Periodic sound from each HVAC unit would be comparable to a commercial HVAC unit. These units are located next to the site's interior and away from any public roads. The distance of the equipment from the property boundary and visual vegetative screening installed will significantly reduce any periodic sound from the facility.

How will this project impact my power bill?

Energy storage can capture energy in times of abundance and low cost for later use in times of high demand and cost. When retail power providers and utilities can purchase energy at lower wholesale rates, especially in peak demand, those energy and fuel savings can be passed through to consumers.

Battery Storage Safety

Is Energy Storage safe?

Energy Storage uses technologies we rely on every day. Cypress Creek uses established safety equipment and strategies to ensure that risks associated with the installation and operation of the battery systems are appropriately mitigated. Safety-by-design is incorporated at every stage from manufacturing to installation to operation.

What happens in the unlikely event of a fire?

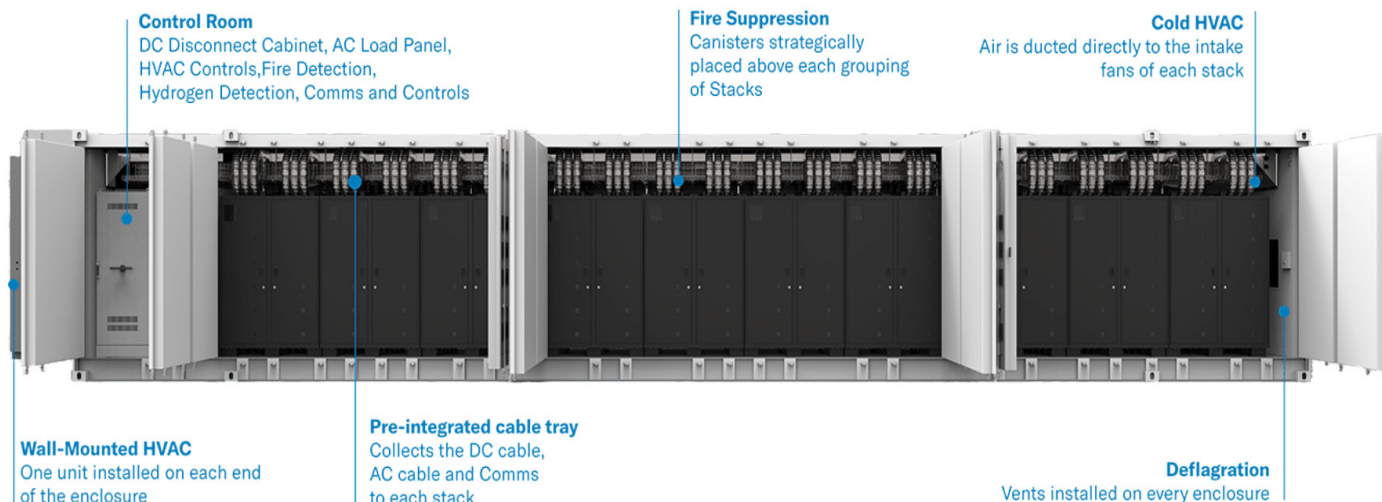
Battery fires occur very rarely and only due to extreme circumstances. The likelihood of fire is substantially lower in grid-scale energy storage systems compared to consumer products due to multiple layers of engineered safety features. Energy storage systems are designed and tested in accordance with strict national fire safety standards to ensure that any event is contained in an efficient manner with no adverse impact to the public or adjacent property.

Further, Cypress Creek closely collaborates with first responders early and throughout the project to ensure they are fully trained on Emergency Response Procedures associated with our battery storage systems. Safety is incorporated into every aspect of design in our battery storage systems:

- Safety is one reason that we have selected Lithium Iron Phosphate (LFP) cells as our preferred battery technology. LFP cells have superior thermal properties compared to other commercially available lithium-ion batteries.
- Battery racks in the system are equipped with sensors that continuously monitor battery temperature and performance, allowing the system to take automatic preventative measures.
- The engineered containers utilize liquid cooling and other thermal management systems including fans, ventilation, and heating and cooling equipment to maintain optimal performance and safe operating temperatures for the battery cells.
- The containers also include equipment designed to instantly detect and mitigate abnormal conditions, with automatic and remote functionality. Fireproof barriers within the system, along with engineered ventilation and layout, allow for safe heat dissipation and fire containment.

Is it possible for the batteries to leak into the groundwater?

No. All energy storage designs incorporate multiple levels of redundant containment to prevent any leakage of materials.



Are these systems held to any nationally recognized safety standards?

Energy storage systems are considered critical electrical infrastructure and are held to similar standards such as the National Fire Protection Associations Standard 855, and numerous Underwriter Laboratories (UL) standards including 9540A testing and Standard 9540 manufacturing standards for Energy Storage Systems. They also must comply with the 2021 International Fire Code and the U.S National Electric Code.

Are there any emissions?

No, the operation of an energy storage facility requires no water consumption and creates no emissions.

Maintenance

Who is responsible for maintenance?

Once constructed, energy storage systems require minimal maintenance. Electrical engineers will service the inverters and transformers on average once per quarter. The system is monitored both locally and remotely and most systems are either automated or can be activated or turned off remotely.

Decommissioning & Recycling

What happens at the end of the project's life?

Cypress Creek is committed to responsibly decommissioning all of our projects at the end of their useful lives. Although the mechanisms for doing so are based on local needs and regulations, every project is contractually obligated to be decommissioned per our lease/purchase agreements with our landowner partners. Decommissioning and dismantling the system is expected about twenty years after the facility is built.

Generally much of the metal equipment within the facility can be recycled. As the deployment of energy storage technology grows across the country, the energy storage industry is developing recycling opportunities to meet future demand.

For more information, visit:
ccrenew.com

Dear <<Name>>,

My name is Parker Sloan and I work with Cypress Creek Renewables. Cypress Creek Renewables is a national solar and energy storage company who has developed projects in Texas since 2014. I am reaching out today to introduce myself and give you information about an energy storage project that is proposed at least 1,200 feet to the east of S New Hope Rd in your area. The proposed project parcel is A 378-1EE, owned by Hawa Inc.

You will likely receive a notice about this project, as we are going to appear in front of the Planning and Zoning Commission on April 25th. After that meeting, we may have additional meetings at the Planning and Zoning Commission, or we will move on to appear before the City Council at a later date for further discussion about the project. The project is expected to start construction in late-2025.

Enclosed I have included a brief questions and answers regarding the project and a small map intended to give you some sense of where the proposed project is located.

Please feel free to reach out to us via phone or email before then if you have any questions. If there is interest, we are happy to set up a time to meet and talk through any questions you may have, either virtually over the phone or in person (at your home, coffee shop, wherever is convenient for you!). We plan to hold a neighborhood meeting prior to appearing before City Council to ensure you have the opportunity to have your voice heard and any questions answered. I have included my contact information below, as well as the contact information for my colleague Ethan Agrawal who is working on this project with me.

Kind Regards,

Parker Sloan
Director Community & Economic Development
828-367-9035 | parker.sloan@ccrenew.com

Ethan Agrawal
Project Developer
210-473-7806 | ethan.agrawal@ccrenew.com

How does it work?

Just like charging your phone while you sleep, energy storage systems efficiently and conveniently capture electricity so that it can be used when it's most needed. Grid-connected energy storage doesn't move or emit any pollution. A grid-connected energy storage system consists of batteries, racks for the batteries, inverters that convert DC energy to AC energy, communications equipment that allow control and monitoring of the batteries, and equipment that ensures the batteries can operate safely. Various types of energy storage have been utilized for more than a century, and the oldest battery storage projects currently in operation have been serving the electrical grid for more than a decade.

Is it safe for neighbors of the facility?

Yes! Battery energy storage systems undergo rigorous health and safety testing, and facilities come equipped with a wide range of state-of-the-art technologies that prevent, monitor, and respond in real time in the unlikely event something does happen. The Electric Power Research Institute published that there have been twenty-two battery system failures since 2012, or in other words, a failure rate of less than two percent. However, in any of these failures, the incidents had no impact outside the bounds of the facility. We will also work with all local emergency services on having clear emergency response plans, proper training, and clear processes for responding to any events. Cypress Creek operates a 24/7/365 control center with local technicians, monitoring and responding as necessary.

Why this location?

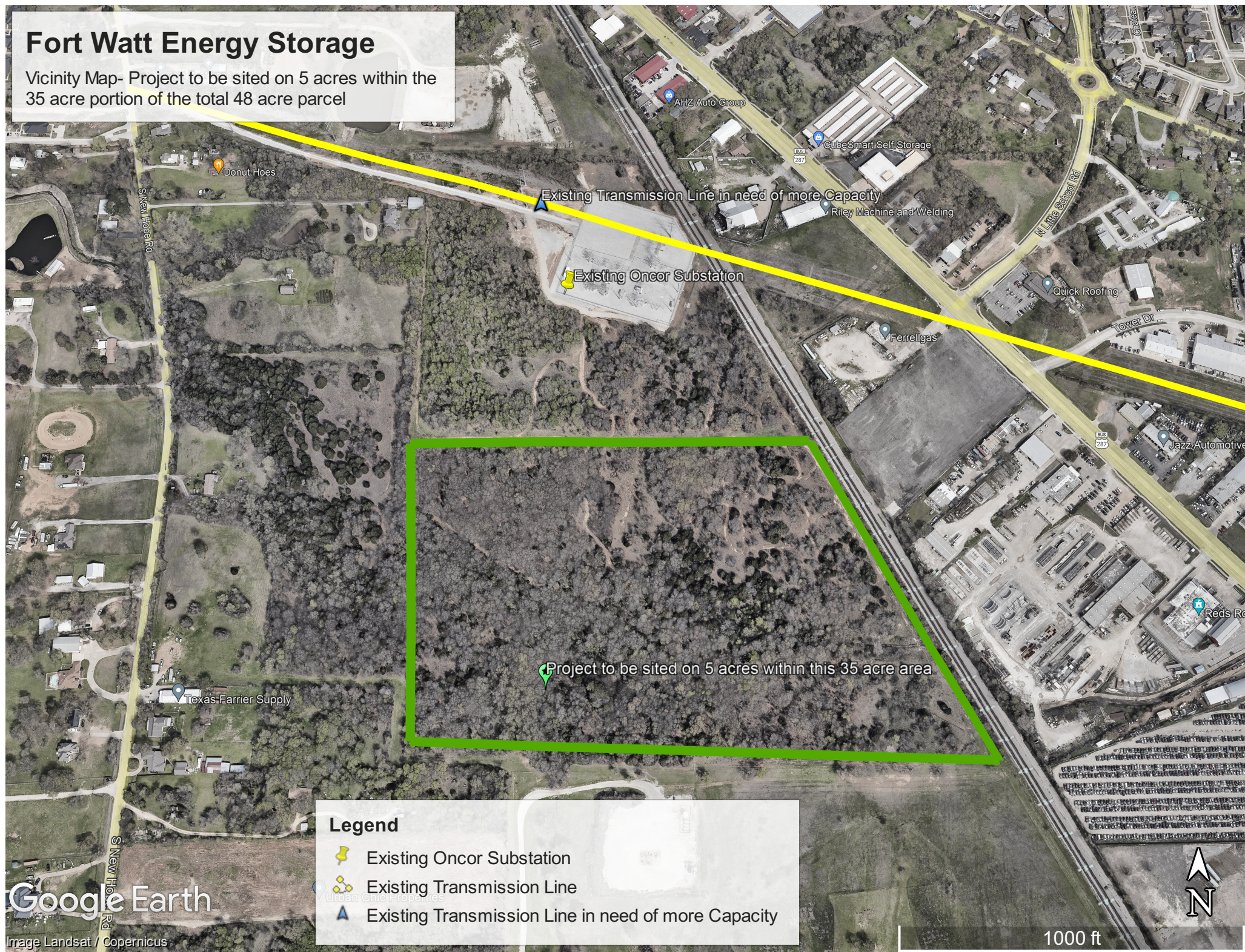
The demand for electricity in Kennedale and the surrounding area is growing and projects like energy storage systems are an answer to the volatile grid supply and demand felt by people all over Texas and your area. This location is unique and is close to an electrical substation and a specific power line in need of more capacity.

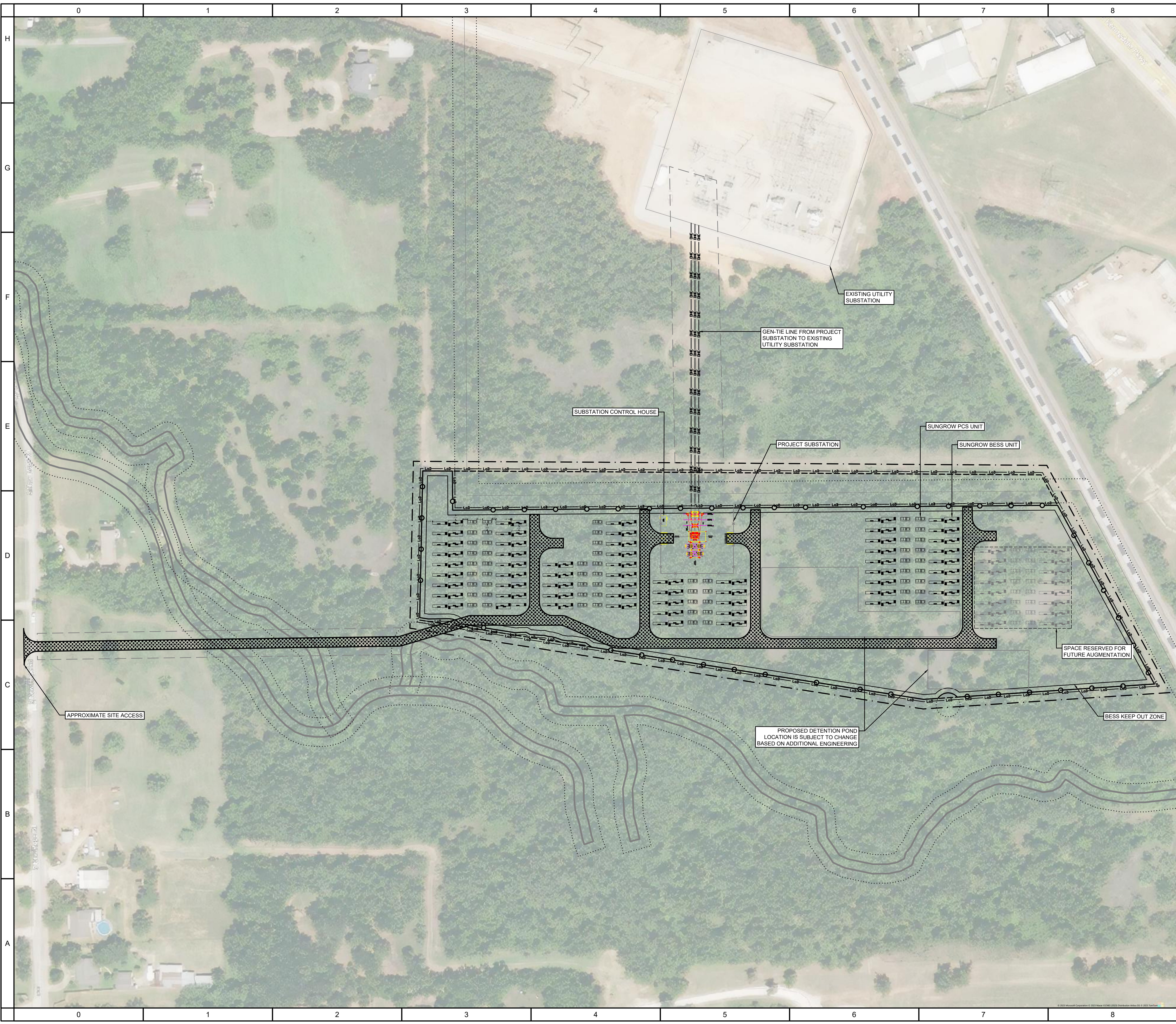
What does it look like?

Energy storage systems connected to the electrical grid are housed in specially engineered outdoor-rated cabinets. While residential systems are generally installed on the exterior of homes and about the size of whole-home HVAC systems, grid-scale facilities vary in size. Our project proposed for the City of Kennedale is about the size of a basketball court. There are currently hundreds of Utility-Scale energy storage projects operating and in construction throughout the entire United States, including in extremes of arctic and desert environments, each tailored for the unique setting and community it serves. Energy storage facilities are located in dense, urban centers as well as rural and remote areas. These operating energy storage projects, wherever they are located, provide valuable reliability and resilience services to the electrical grid in communities across the country. This project will remain hidden within the parcel of land due to much of the existing vegetation staying in place because of the streams and associated floodplain.

Fort Watt Energy Storage

Vicinity Map- Project to be sited on 5 acres within the 35 acre portion of the total 48 acre parcel





VICINITY MAP

SCALE 1" = 5000'

NOTES:

1. BESS LAYOUT AS SHOWN IS REPRESENTATIVE AND TO BE FINALIZED PRIOR TO CONSTRUCTION.

2. AERIAL IMAGE MAY NOT ALIGN EXACTLY WITH SURVEY DUE TO MAP PROJECTION.

3. ALL EXISTING ROAD LOCATIONS SHOWN ARE APPROXIMATE.

4. EXACT PROPOSED INTERIOR ACCESS ROAD LOCATIONS ARE REPRESENTATIVE, AND TO BE FINALIZED PRIOR TO CONSTRUCTION.

5. BESS LAYOUT FENCE IS ASSUMED TO ROUTE THROUGH OVERHEAD ELECTRICAL LINE EASEMENT.

PROJECT SPECIFICATIONS DESIGN SUMMARY

UTILITY	ONCOR
POI VOLTAGE (kV)	138.00
BESS SYSTEM SIZE (MW)	200
BESS SYSTEM CAPACITY (MWh)	400.00
BATTERY & PCS MAKE	SUNGROW
BLOCK MODEL	ST2752UX*3+SC4000UD-MV-US
BLOCK QTY	60
BATTERY MODEL WITHIN BLOCK	ST2752UX-US
TOTAL BATTERY QTY (3 PER BLOCK)	180
BATTERY CAPACITY (kWh)	2752
BATTERY NOMINAL VOLTAGE (V)	800
PCS MODEL WITHIN BLOCK	SC4000UD-MV-US
TOTAL PCS QTY (1 PER BLOCK)	60
PCS TRANSFORMER POWER (kVA)	4000
PRIMARY VOLTAGE (kV)	34.5
SECONDARY VOLTAGE (kV)	0.8
LATITUDE (°)	32.633
LONGITUDE (°)	-97.215

LEGEND

EASEMENTS

EQUIPMENT PAD

LIMIT OF DISTURBANCE

ELECTRICAL (OVERHEAD)

ELECTRICAL (UNDERGROUND)

PROJECT AREA

SECURITY FENCE

SHADE BUFFER

SITE ACCESS

TREELINE

VEGETATIVE BUFFER

FORT WATT STORAGE, LLC

TARRANT COUNTY, TX

DATE: 06-29-23

DRAWN BY: YG

CHECKED BY: --

BESS LAYOUT

E-101

PERMIT DRAWING - NOT RELEASED FOR CONSTRUCTION

SEAL

CONSULTANT

REVISIONS

DESCRIPTION

DATE

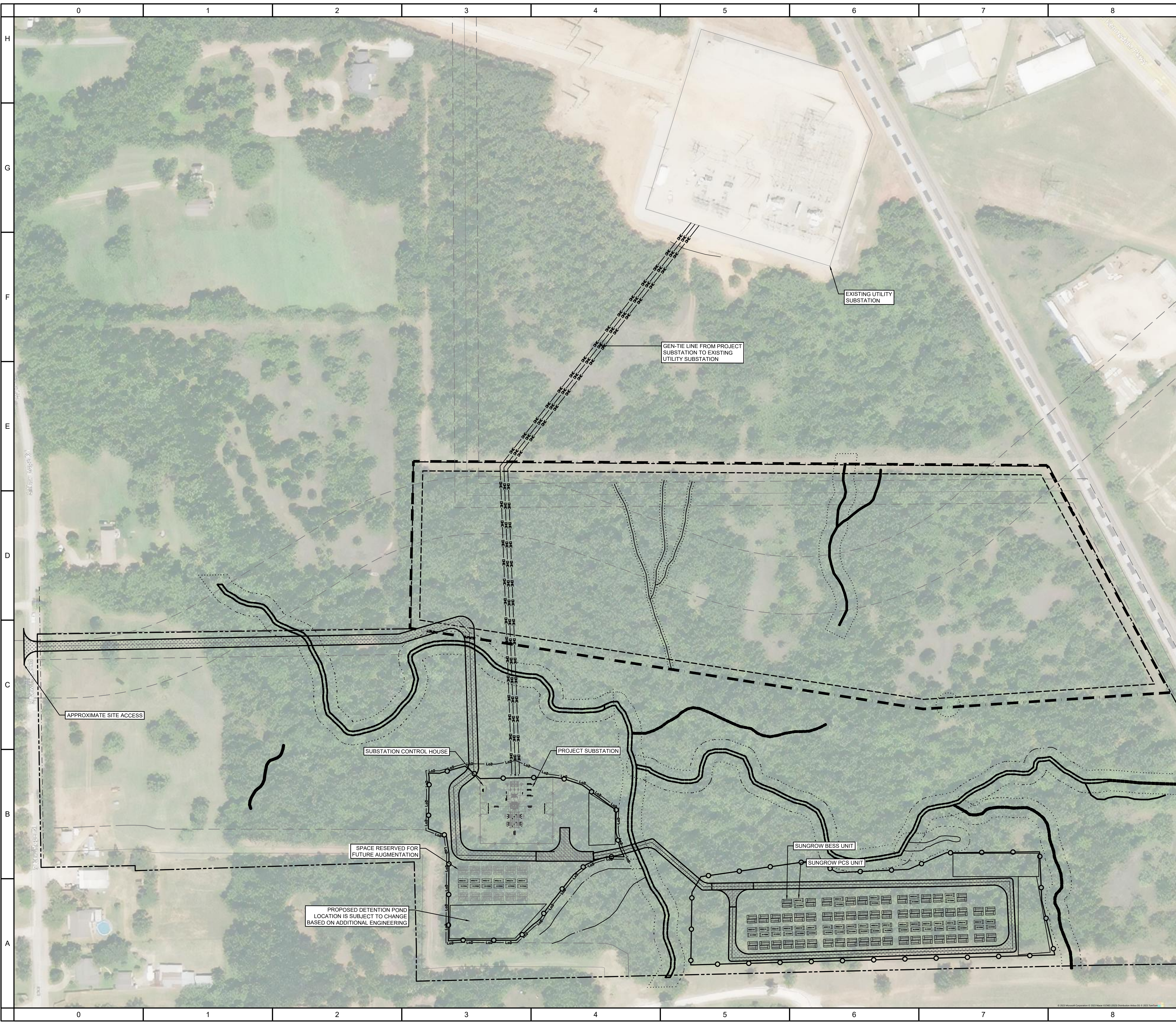
NO.

DATE

DESCRIPTION

3402 PICO BOULEVARD :: STE 215 :: SANTA MONICA, CA 90405

5310 SOUTH ALSTON AVE. :: BLDG. 300 :: DURHAM, NC. 27713



VICINITY MAP

SCALE 1" = 5000'

NOTES:

1. BESS LAYOUT AS SHOWN IS REPRESENTATIVE AND TO BE FINALIZED PRIOR TO CONSTRUCTION.

2. AERIAL IMAGE MAY NOT ALIGN EXACTLY WITH SURVEY DUE TO MAP PROJECTION.

3. ALL EXISTING ROAD LOCATIONS SHOWN ARE APPROXIMATE.

4. EXACT PROPOSED INTERIOR ACCESS ROAD LOCATIONS ARE REPRESENTATIVE, AND TO BE FINALIZED PRIOR TO CONSTRUCTION.

5. BESS LAYOUT FENCE IS ASSUMED TO ROUTE THROUGH OVERHEAD ELECTRICAL LINE EASEMENT.

PROJECT SPECIFICATIONS DESIGN SUMMARY

UTILITY	ONCOR
POI VOLTAGE (kV)	138.00
BESS SYSTEM SIZE (MW)	200
BESS SYSTEM CAPACITY (MWh)	400.00
BATTERY & PCS MAKE	SUNGROW PT2.0
BLOCK MODEL	PT2.0
BLOCK QTY	50
BATTERY MODEL WITHIN BLOCK	ST5015kWh-2500kW-2h-US
TOTAL BATTERY QTY	100
BATTERY CAPACITY (kWh)	2500
BATTERY NOMINAL VOLTAGE (V)	690
PCS MODEL WITHIN BLOCK	SC210HX-US
TOTAL PCS QTY (12 PER BLOCK)	600
PCS TRANSFORMER POWER (kVA)	5140
PRIMARY VOLTAGE (kV)	34.5
SECONDARY VOLTAGE (kV)	0.7
LATITUDE (°)	32.633
LONGITUDE (°)	-97.215

LEGEND

EASEMENTS

EQUIPMENT PAD

LIMIT OF DISTURBANCE

ELECTRICAL (OVERHEAD)

ELECTRICAL (UNDERGROUND)

PROJECT AREA

SECURITY FENCE

SHADE BUFFER

SITE ACCESS

TREELINE

VEGETATIVE BUFFER

SEAL

PERMIT DRAWING - NOT RELEASED FOR CONSTRUCTION

SEAL

ELECTRONIC FILES ARE INSTRUMENTS OF SERVICE PROVIDED BY CYPRESS CREEK RENEWABLES, LLC FOR THE CONVENIENCE OF THE LICENSEE. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS GIVEN FOR THE ACCURACY OF THIS DOCUMENT IN WHOLE OR IN PART WITHOUT THE WRITTEN AUTHORIZATION OF CYPRESS CREEK RENEWABLES, LLC. THERE IS A DISCREPANCY BETWEEN THE ELECTRONIC FILES AND THE SIGNED AND SEALED HARD COPIES. THE HARD COPIES SHALL GOVERN USE OF ANY ELECTRONIC FILES GENERATED OR PROVIDED BY CYPRESS CREEK RENEWABLES, LLC. CYPRESS CREEK RENEWABLES, LLC CONSTITUTES AN ACCEPTANCE OF THESE TERMS AND CONDITIONS.

CONSULTANT

REVISIONS

NO.	DATE	DESCRIPTION

PROJECT

FORT WATT STORAGE, LLC

TARRANT COUNTY, TX

DATE

04-03-24

DRAWN BY:

AR

CHECKED BY:

BESS LAYOUT

E-101

POWERTITAN 2 BATTERY EMERGENCY RESPONSE GUIDE

PRINT AND PLACE IN FACP

LITHIUM-ION / Li-ion



Figure 1: Battery Unit. Caution contains potentially lethal voltage and arc flash hazard

Release Date 2023-12-08
Version 7.2 EN

Emergency contact details – print and place in FACP as a label

EMERGENCY PHONE NUMBERS	
Local and state emergency	911
Fire Department (not for emergency use)	
Police Department	
Ambulance	
BATTERY EXPERTS	
Subject matter expert	
Certificate of fitness holder	
Plant operator	
Network operation center NOC (BESS control)	
Sungrow USA Corporation	1-833-SGPOWER (747-6937)
SITE DETAILS	
Site name	
Site size	[] MW and [] MWh
Address	
Battery Unit Model Number(s) and chemistry	[] ST2752UX, [] ST2236UX, [] LFP, [] NMC, other:
Location of drawings	[] inside FACP, [] at control room, other:
Location of main power switch	
Main power switch interaction with auxiliary	[] does not affect auxiliary safety power, [] disconnects safety power

Battery manufacturer escalation protocol

If battery experts are unresponsive the following emergency escalation protocol may be followed to elicit help from the manufacturer. Sungrow might not have site specific knowhow.

Standard Emergency Protocol:				
1	911 (if applicable)			911
2	Service Call Center. This may also be used for general enquiries.			1-833-SGPOWER (747-6937)
Emergency Escalation: Lack of response on Standard Protocol				
2	Brent Hwang	Director, Projects and Services	Brent.Hwang@sungrowamericas.com	713-377-1368
Emergency Escalation: Lack of response on Standard Protocol or Emergency Escalation Protocol				
1	Clinton Surratt	Director of Field Service	Clinton.Surratt@sungrowamericas.com	704-802-9928
2	John Trowbridge	Field Service	John.Trowbridge@sungrowamericas.com	254-290-2938
3	Matt Foutch	Field Service Manager	Matt.Foutch@sungrowamericas.com	801-675-2778
4	Morgan Gaushell	Field Service Supervisor	Morgan.Gaushell@sungrowamericas.com	318-381-2104
Address: Sungrow Service Training Center				
5780 S40th St. Ste 1 Phoenix, AZ 850401			techsupport@sungrow-na.com	

Contents

Emergency contact details – print and place in FACP as a label	2
Battery manufacturer escalation protocol.....	2
PowerTitan Battery Product	4
Fire, Explosion, Toxic gas release & Smoke incident flow chart	9
Disassembly flow chart	10
Disposal of fire damaged modules flow chart	11
Scope.....	12
Overview of typical site components.....	12
EMERGENCY RESPONSE LITHIUM-ION.....	15
POTENTIAL HAZARDS	16
PUBLIC SAFETY	16
EMERGENCY RESPONSE	17
Containing a fire exposure	18
Lithium-Ion Battery Transportation Emergency Response.....	19
Handling Method of Leaked Coolant	20
Handling Method of Leaked Refrigerant.....	21
Handling Method of Hazards Related to Hot Cells	22
Handling Method of Vented Electrolyte	23
Handling Method of Batteries after Explosion.....	24
Handling Method of Fires Involving Lithium Batteries	25
First Aid Measures	27
Site Specific Exhibits.....	28
Shut down options and processes	29
Site drawings specific to first responders	30
Exhibit project specific electrical datasheets.....	31



Recommended Fire Department Response to Energy Storage Systems (ESS) Part 1

Events involving ESS Systems with Lithium-ion batteries can be extremely dangerous. All fire crews must follow department policy, and train all staff on response to incidents involving ESS. Compromised lithium-ion batteries can produce significant amounts of flammable gases with potential risk of deflagration and fire.

1. If a commercial or utility install, follow pre-plan and **do not** enter structure.
2. Residential setting response, control power to the unit, ventilate the area, and protect exposures.
3. In all cases contact manufacture technical support as soon as possible.

This guide serves as a resource for emergency responders with regards to safety surrounding lithium ion Energy Storage Systems (ESS). Each manufacturer has specific response guidelines that should be made available to first responders prior to activation.

ESS systems come in many shapes and sizes. They may be affiliated with renewable systems (wind, photovoltaic systems, etc) or used as standby power. ESS Systems can be installed in single family homes too large commercial and utility applications.

Pre-Incident

Modify or establish your department policy or standard response guideline to ESS incidents. Include guidelines for mitigation of the event which may include a defensive operations such as non-intervention and manage fire propagation or protect exposures.

Review installation procedures for systems with the various code officials including Building, Fire, and Electrical

ESS systems must be installed per the adopted fire and building codes in the region.

For the 2015 editions of the International Fire Code and NFPA 1 Fire Code and earlier editions the necessary safety requirements are not present (Consider language in 2021 Fire Codes or NFPA 855).

Ensure pre-incident plans are covering location, type, disconnect, and other contact information

Pre-incident plans should provide rapid response resources for company officers specific to your area and region including OEM emergency contact information

Train on department policy and perform practical scenarios which support the response plan

INCIDENT ACTIONS

The fire crew should allow the battery to burn itself out, during which it is recommended to apply water spray to neighboring battery enclosures and exposures to further mitigate the spread of the hazards rather than directly onto the burning unit.

Applying water directly to the affected enclosure will not stop the thermal runaway event, as the fire will be located behind several layers of steel material, and direct application of water has shown to only delay the eventual combustion of the entire unit.

- Firefighters must wear full personal protective equipment, including SCBA with face-piece.
- If identified in pre-incident plan, shut off the unit/system by operating any visible disconnects or E-stops (**shutting off the disconnect does not remove the energy from the battery**). To isolate any PV system and ESS in an emergency, multiple disconnects may need to be shut off. This could include circuit breakers, knife-blade disconnects, or other switches.
- Lithium ion batteries that are in thermal runaway or off gasing will create hazardous atmospheres. Firefighters must stay out of the vapor cloud and not rely on gas monitors (without consideration of cross contamination of the gas sensors)
- Due to construction of the unit, thermal imaging cameras may not give true thermal conditions.

Events can occur from damage, exterior fire, or a malfunction. Smoke or suspicious odor from an ESS system can be an indication of a hazardous condition. When batteries or cells enter thermal runaway, there is typically a period of smoke (may be under pressure). The smoke is most likely flammable and may ignite at any time.

Responding to a venting ESS product

- **Evacuate the area.** Never open any doors or remove panels to ESS units.
- Contact vendor-specific technical support for assistance including BMS data.
- Residential units that are located inside a dwelling unit or garage, the space should be properly ventilated with charged hand-lines in place.
- Maintain a safe distance from the ESS and monitor. A remote FDC may be present on larger commercial or utility ESS to support a sprinkler system inside the enclosure.
- Each manufacturer will have a recommended time for a battery pack to cool down. This can be near a full work cycle of 12 hours or more.
- **Defensive Firefighting.** Water spray is the preferred agent for response to lithium-ion battery fires (*Lithium-ion is not water reactive*).
 - If a fire has not developed and only smoke is visible, take a defensive stance toward the system and be prepared to apply water spray.
 - If a fire develops, take a defensive stance toward the burning unit and apply water spray to neighboring battery enclosures and exposures.
- Maintaining a safe distance from the unit involved (large commercial systems, at least 300').
- Response crews should allow the **battery to burn out**. Water should be applied to adjacent battery enclosures and exposures (building).



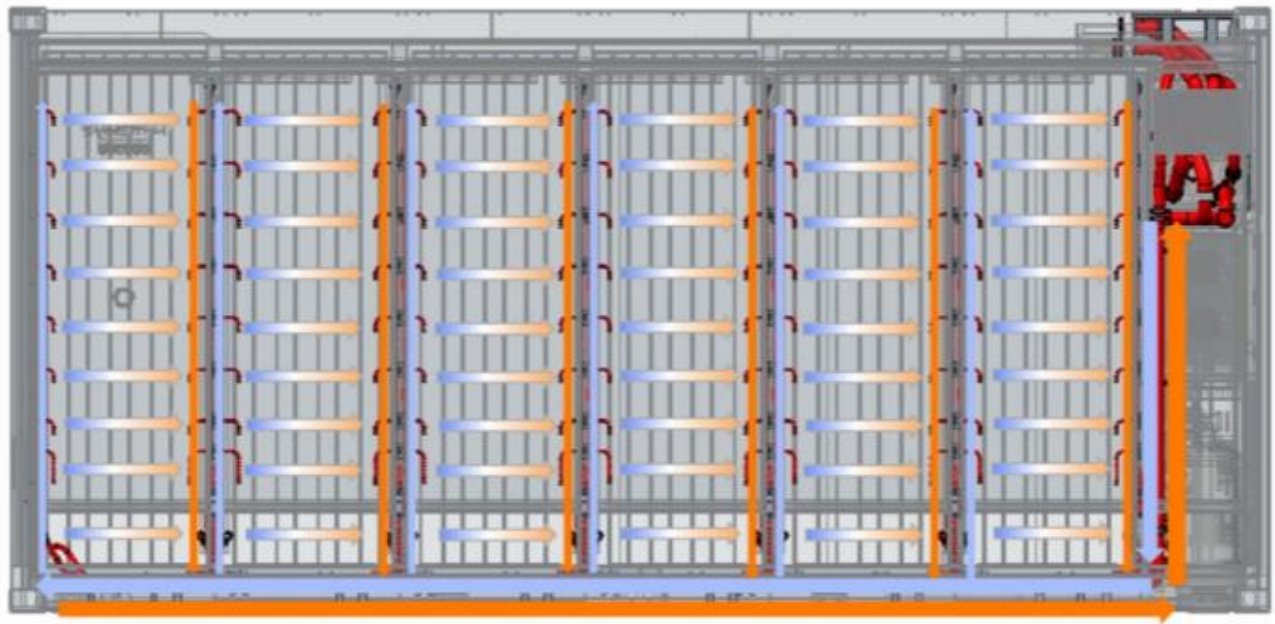


Figure 2: Glycol cooled lithium-ion battery principle



Liquid cooled PCS



Liquid cooled Module

Figure 3: Lithium-ion battery module and PCS, glycol cooled. Caution contains potentially lethal voltage and arc flash hazard

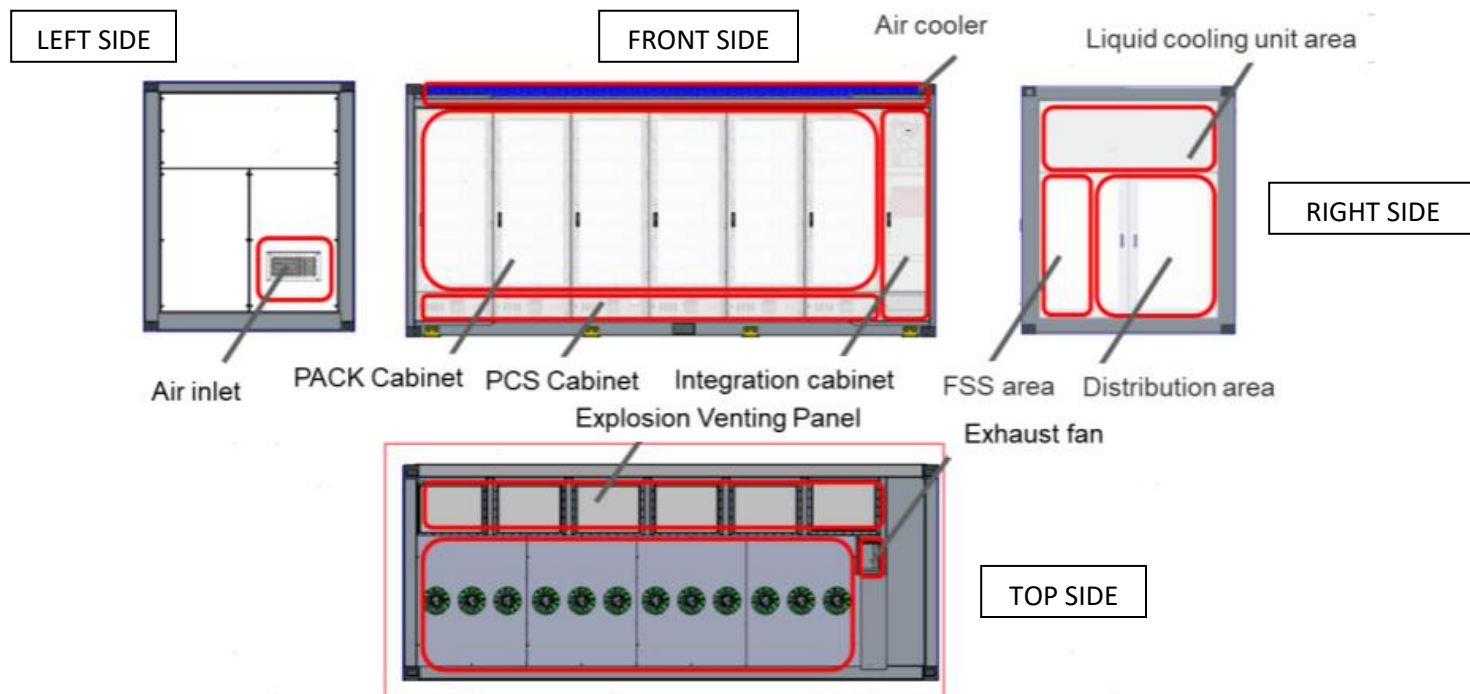


Figure 4: Battery Unit Layout with Liquid cooling and ventilation equipment



Figure 5: Battery module and String PCS. Caution contains potentially lethal voltage and arc flash hazard



Figure 6: Battery Modules each equipped with Manual Service Disconnect

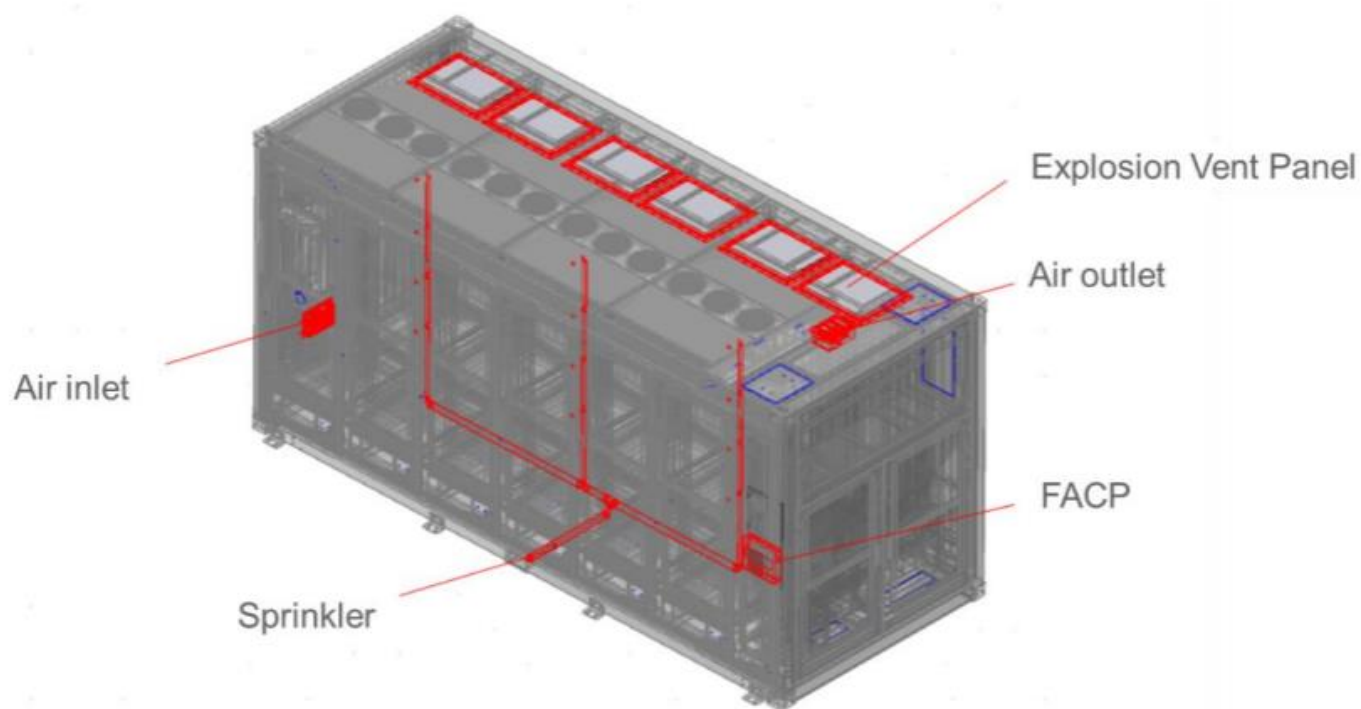


Figure 7: Overview of major FSS components

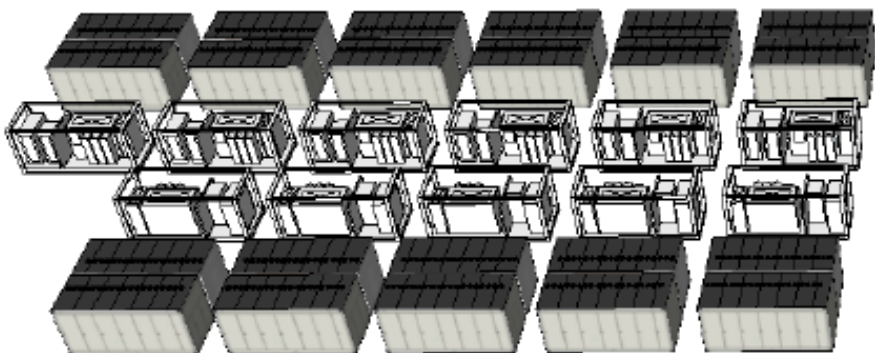
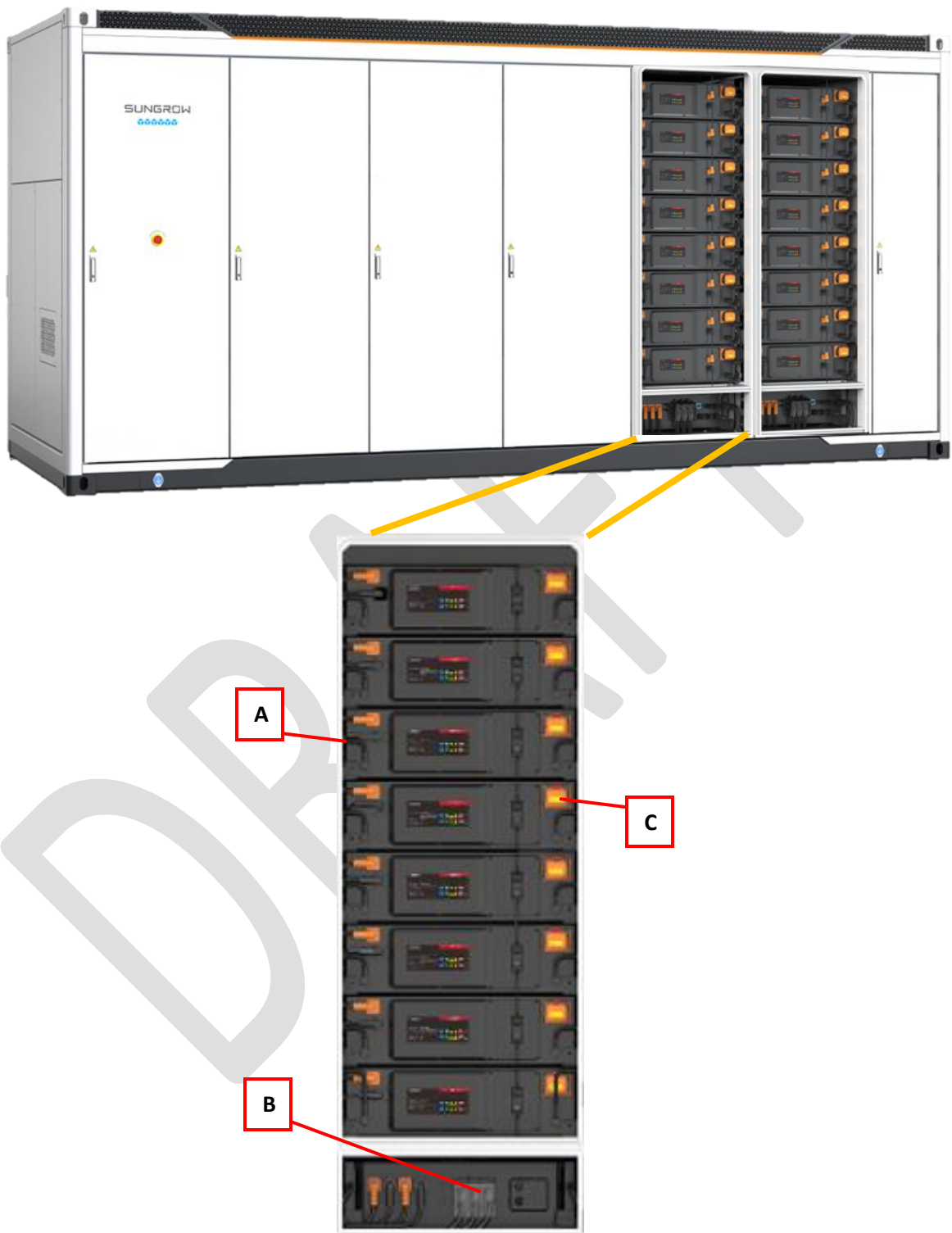
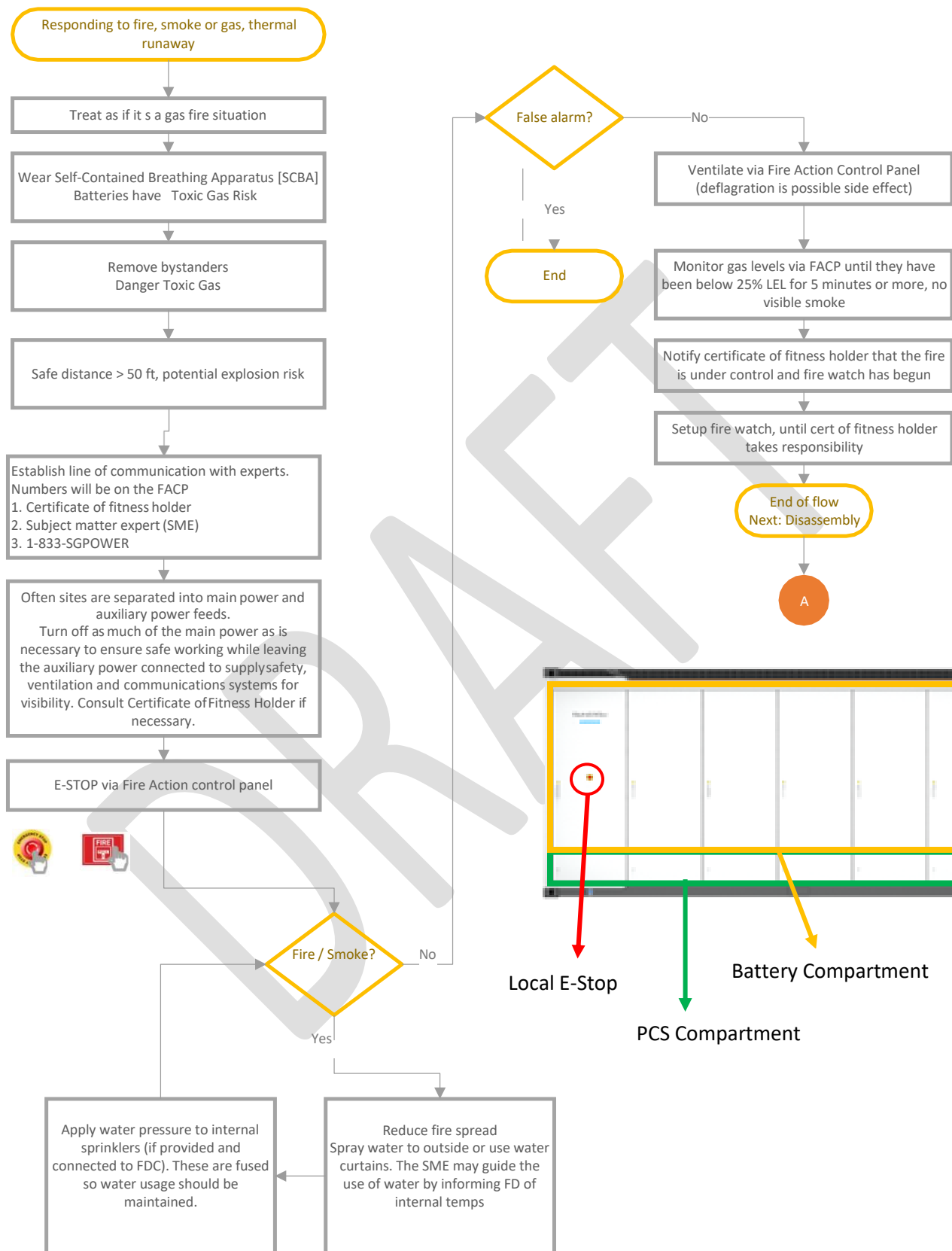


Figure 8: Common Block layout with (2) PowerTitan 2 Battery Units per Medium Voltage Transformer Skid (2Hr system), Depending on System size there may be numerous blocks and a large site footprint

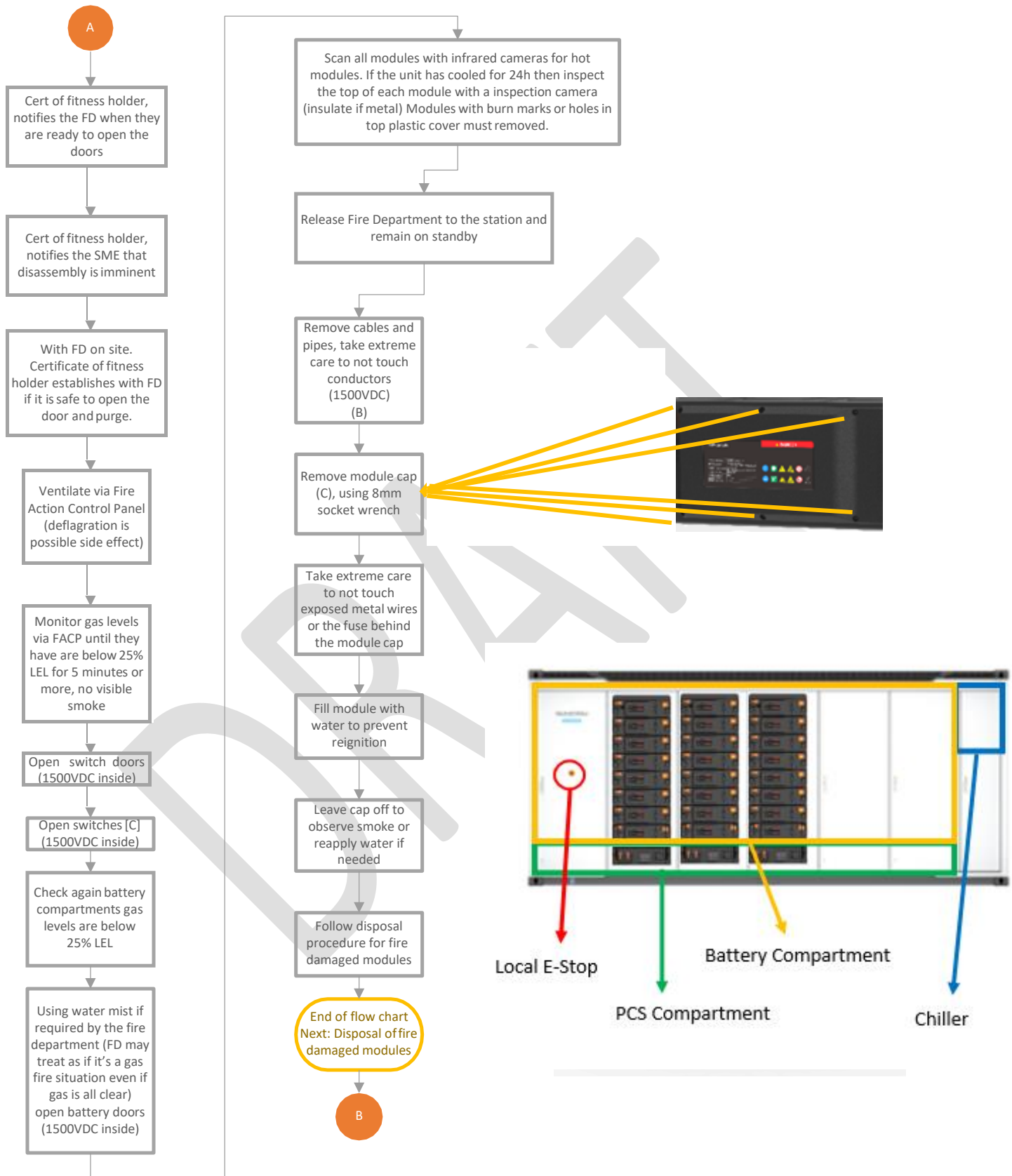


*Figure 9: A Battery and PCS DC wiring Cables,
B PCS AC Cables, C Manual Service Disconnects*

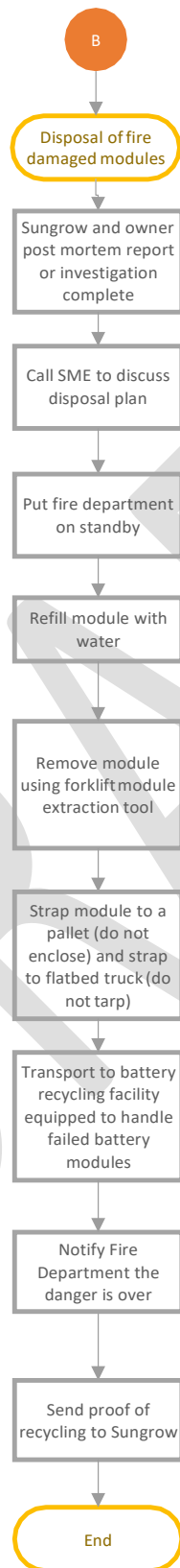
Fire, Explosion, Toxic gas release & Smoke incident flow chart



Disassembly flow chart



Disposal of fire damaged modules flow chart



Scope

This document is a reference guide for emergency personnel. The guide is applicable to Sungrow PowerTitan 2 energy storage systems.

The information and recommendations set forth are made in good faith and believed to be accurate as of the date of publication. Sungrow makes no warranty, expressed or implied, with respect to this information.

Overview of typical site components

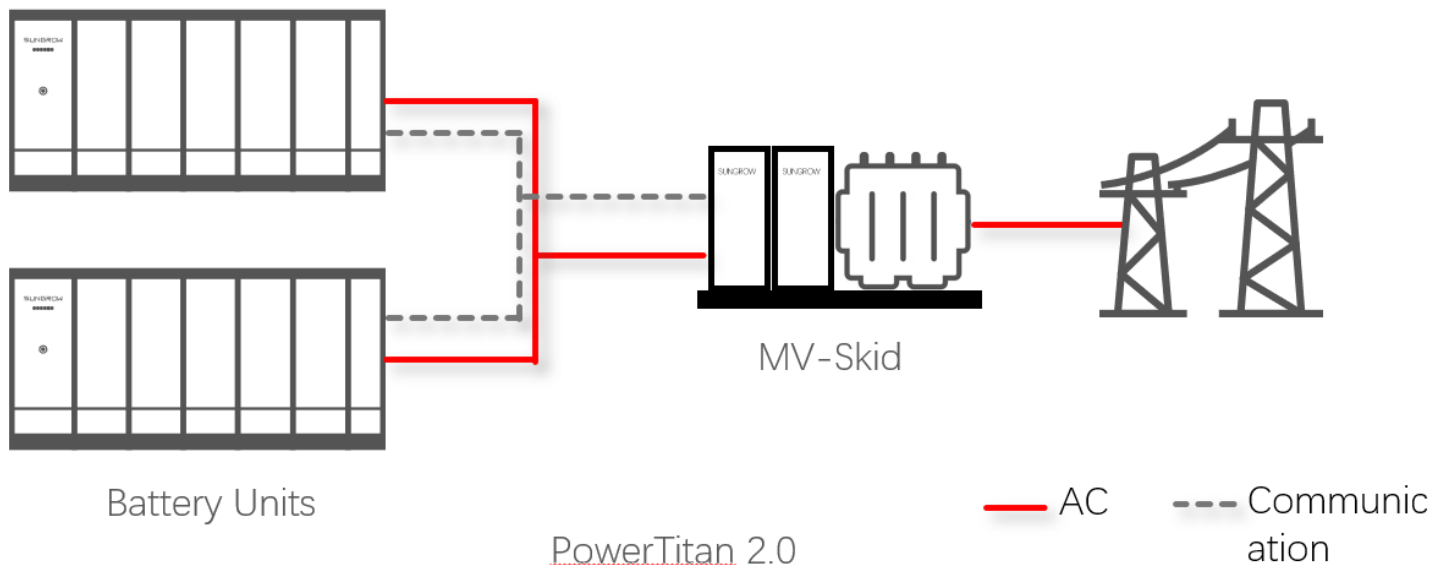


Figure 10: Typical site components of a PowerTitan 2 based energy storage project



Figure 11: PowerTitan 2 Battery Unit

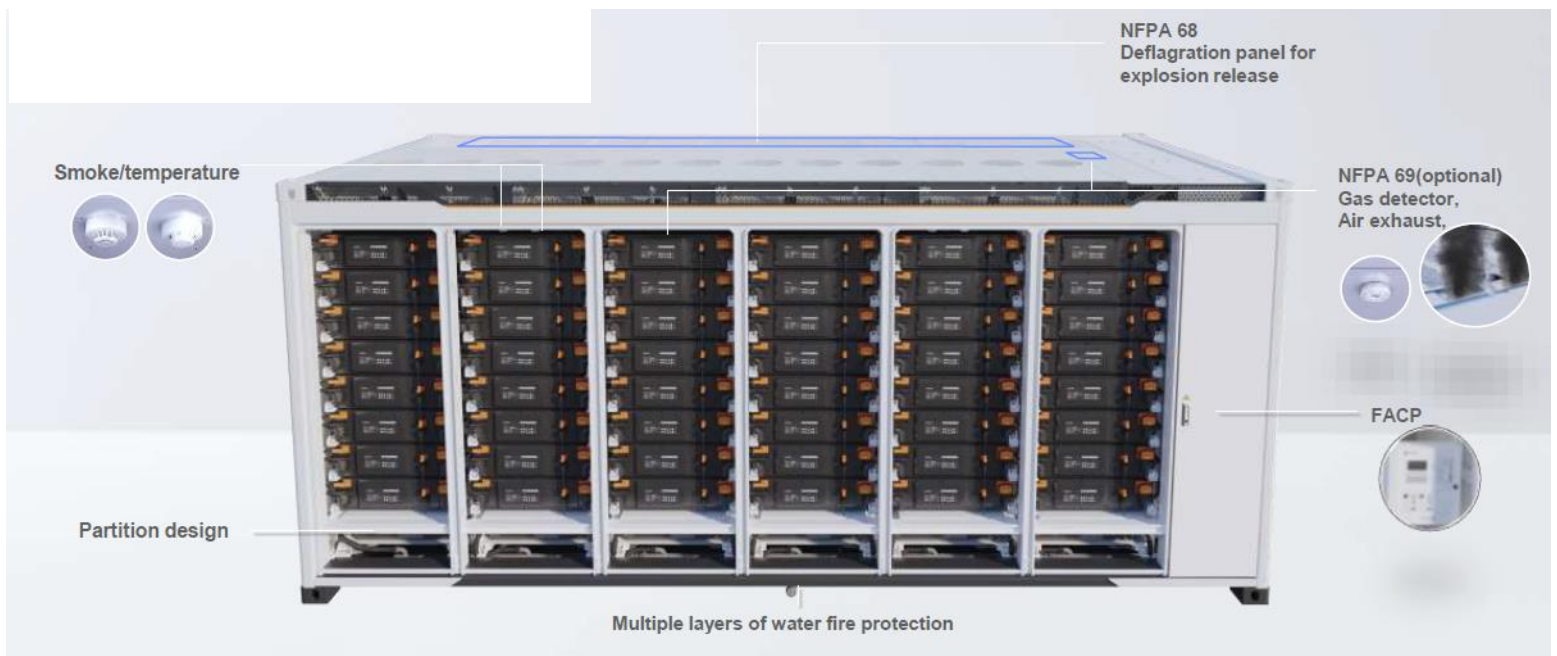


Figure 12: Battery Unit (ST5015UX) - Doors removed to expose internals: Battery Cabinet, PCS compartment, FSS equipment.

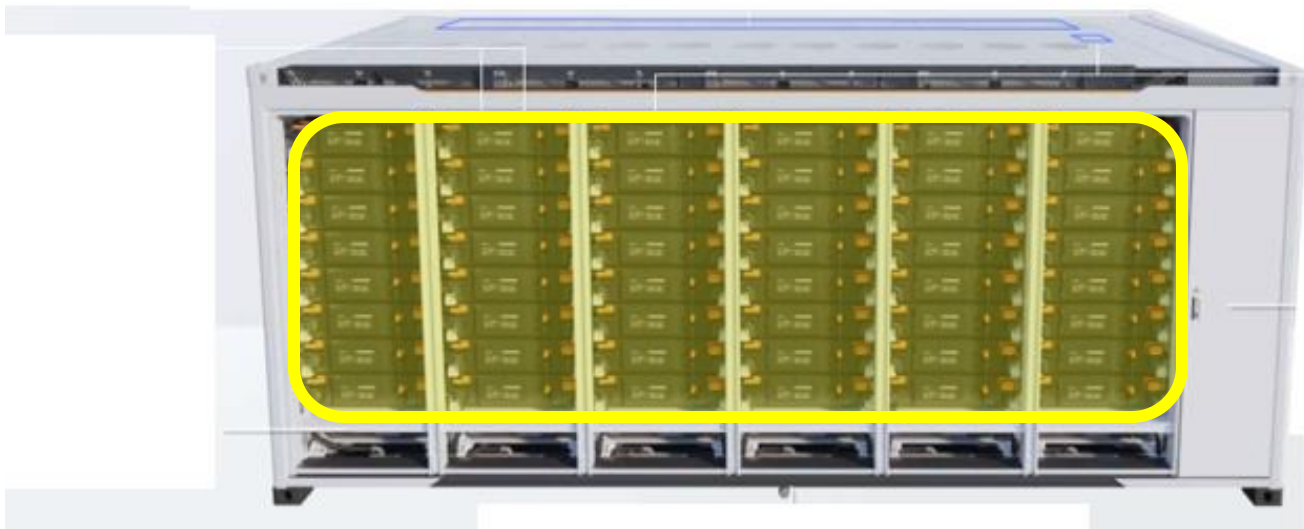


Figure 13: Battery Unit (ST5015UX) - Areas that remain energized due to stranded energy of the battery system, regardless of emergency stop or switch positions



Figure 14: Medium Voltage Skid subcomponents: SCC and Transformer. Occasionally the Skid will include LV auxiliary transformer

EMERGENCY RESPONSE LITHIUM-ION

Hazards include:

- Fire
- Explosion
- Toxic gas release
- Smoke
- Electric shock
- Arc flash

If any Fire, Explosion, Toxic gas release & Smoke incident occurs, follow “Fire, Explosion, Toxic gas release & Smoke incident flow chart”, which outlines the following measures:

1. Call the local fire department (USA 911 or the direct fire department line)
2. Contact the Subject Matter Expert (SME) and Certificate of Fitness Holders’ numbers displayed on FACP
3. Contact Sungrow for technical guidance (1-833-SGPOWER)
4. Turn off as much of the main power as is necessary to ensure safe working while leaving the auxiliary power connected to supply safety, ventilation, and communications systems for visibility
5. If the situation is safe and permits, press the E-stop button on the PCS and battery unit, turn off the system remotely via energy management system (EMS) or SCADA systems
6. Evacuate the area and remove persons from hazards
7. Contain the exposure to limit the spread of fire and other hazards
8. SME or Certificate of Fitness Holder can provide guidance as to internal battery temperatures to save water

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- Lithium-ion batteries contain flammable liquid electrolyte that may vent, ignite and produce sparks when
- subjected to high temperatures (> 150°C (302°F)), when damaged or abused (e.g., mechanical damage or electrical overcharging).
- May burn rapidly with flare-burning effect.
- May ignite other batteries in close proximity.

HEALTH

- Contact with battery electrolyte may be irritating to skin, eyes and mucous membranes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Burning batteries may produce toxic hydrogen fluoride gas (see GUIDE 125).
- Fumes may cause dizziness or asphyxiation.

PUBLIC SAFETY

- CALL 911. Then call emergency response telephone number on Emergency Numbers list located at the FACP or at the end of this guide, if necessary escalate via the escalation protocol with Sungrow.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering, but only if properly trained and equipped.
- Stay away zone for a Battery Unit in thermal runaway is shown

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing provides thermal protection but only limited chemical protection.

EVACUATION

Immediate precautionary measure

- At least 75 feet (about 23m) in all directions.
- Consider initial downwind evacuation for at least 100 meters (330 feet), more for fire.

Fire

- If Battery Unit is involved in a fire, ISOLATE for 500 meters (1/3 mile) in all directions; consider also evacuation of emergency responders for 30 meters (100 feet) in all directions and establish an approach plan for the situation. Refer to the “exclusion zone” diagram in figure 16.

EMERGENCY RESPONSE

FIRE

Small Fire (Battery Module in spare parts depot)

- Dry chemical, CO₂, water spray. Fire is class B so any class B extinguisher.

(Foam is not recommended as battery fire may restart from under the foam)

Large Fire (Battery Unit – looks like shipping container)

- Water spray or fog.
- If it can be done safely, move undamaged Battery Units or Battery Modules away from the area around the fire.

FUMES OR MATERIAL SPILL (case: gas sensor triggered but no obvious fire, liquid emitted in a rupture but no obvious fire)

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames) from immediate area.
- Do not touch or walk-through spilled material.
- Absorb with earth, sand or other non-combustible material.
- Leaking batteries and contaminated absorbent material should be placed in metal containers.

FIRST AID

- Call 911 or emergency medical service.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air if it can be done safely.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Containing a fire exposure

Spray water in a curtain between each BESS from 150m (500ft) or less and allow the product to burn out. If there is a shortage of water, then direct spraying the container may be preferable. Many fire departments opt to let the primary source burn out and protect exposures. The Battery Units are not walk in so there will be no persons inside. Refer to fire fighters flow chart.

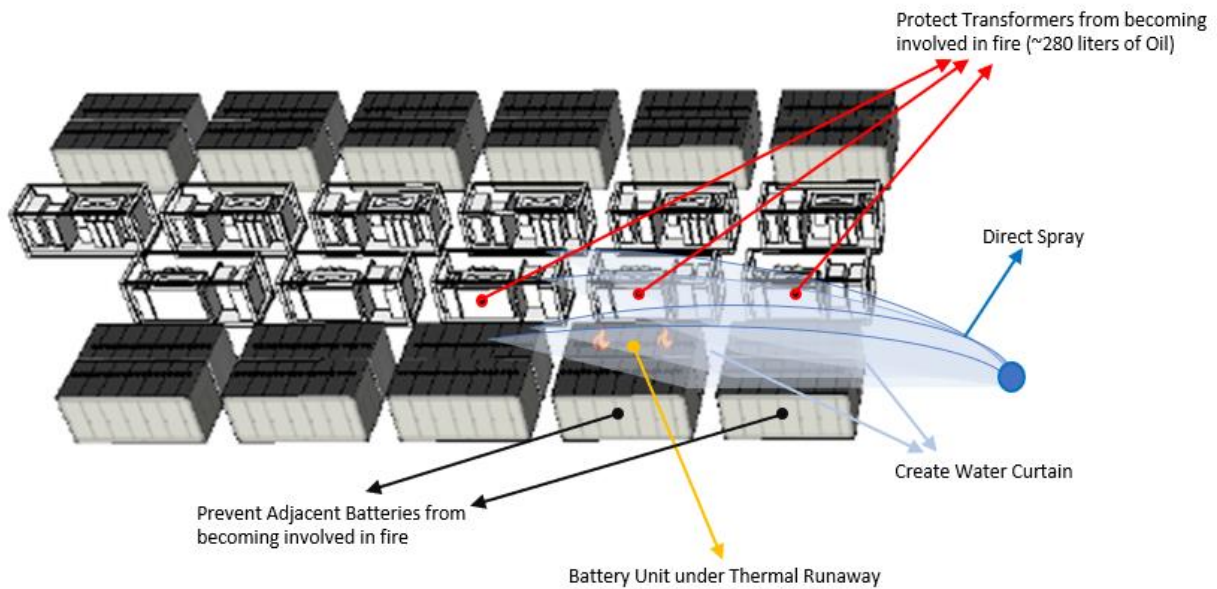


Figure 15: Example of preventing exposures from becoming involved in the fire using water curtains and direct spray. Note it may be preferable to let the fire burn out more quickly by not spraying the Battery Unit that is on fire.

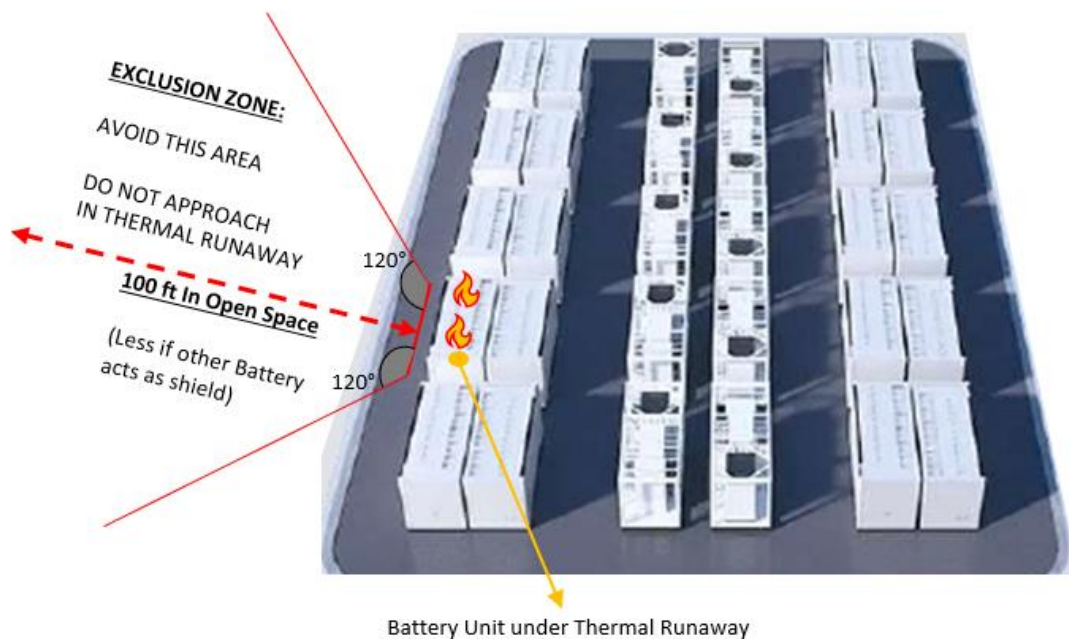


Figure 16: Recommend approach angles are outside the "AVOID THIS AREA" "EXCLUSION ZONE" if in that Unit is in thermal runaway.

Lithium-Ion Battery Transportation Emergency Response

Refer to the Department of Transport Pipeline and Hazardous Materials Safety Administration Emergency response guidebook (edition 2020 is freely available for [download](#) from the DOT).

PowerTitan 2 batteries are Lithium-ion UN3536 Class 9 miscellaneous hazardous materials. Material ID 147 for the battery and ID 125 for hydrogen fluoride in the guidebook.

DRAFT

Handling Method of Leaked Coolant

3.1.1 Basic Information

1. Note the CDC provides a detailed emergency response card¹, this is a summary tailored for the energy storage system
2. Each Battery Unit contains 50-50 ethylene glycol and water². 150L for the Power Titan 2 models (ST5015UX).
3. The fluid is blue in color and does not emit a strong odor.
4. Coolant is not part of the safety system.
5. Coolant can leak and not pose a fire risk or thermal runaway risk³.
6. Large leaks drain at the two glycol drain holes at the front center of each battery compartment a hose may be connected for gravity or pumped drainage.
7. Refer to the ethylene glycol Material Safety Data Sheet (MSDS) for toxicological hazards.
8. Keep run-off water out of sewers and water sources.
9. Under the right conditions 50-50 glycol is flammable

3.1.2 Minimum Equipment Required

1. If engineering controls do not maintain airborne concentrations to a level⁴ which is adequate to protect worker health, an approved respirator must be worn
2. Use protective gloves which are chemically resistant to this material
3. Chemical goggles, or safety glasses with side shields
4. Use protective clothing and shoes which are chemically resistant to this material

3.1.3 Procedure

1. Shut off the system. Refer to “Shut down options and processes”
2. Contact the operators immediately, and let the irrelevant personnel evacuate to the safety zone
3. If the leak is not related to a fire or thermal runaway: Approach the Battery Unit and cut off the leakage source as much as possible. If the leak is related to a fire or thermal runaway manage the thermal situation first and then attempt to manage run off at a safe distance when the situation permits and is appropriate.
4. Provide good natural ventilation conditions.
5. In case of leakage, use protective equipment to protect the human body when removing the leakage liquid.
 - a. For large spills: remove with a vacuum truck or pump to storage/salvage vessels
 - b. For small spills: soak up residue with an absorbent such as clay, sand, or other suitable material. Place in a non-leaking container and seal tightly for proper disposal
6. Do not drain glycol into sewers, rivers, streams, or the natural environment.

3.1.4 Poison emergency

1. Call the poison center immediately at 1-800-222-1222.

¹ CDC [glycol emergency response card](#)

² This is automotive antifreeze but colored blue and not green or yellow as is common in the USA

³ Battery modules are waterproof to IP67, leaks will not enter the module. Least to control systems will cause the battery string to be disconnected including the case of power supply failure. Pyro fuses are not used and when wet these have failed to trigger and lead to battery fires.

⁴ 75 mg/m³ in the USA according to the CDC as of 2022

2. If the poisoned person cannot wake up, has a hard time breathing, or has convulsions, call 911 emergency services.
3. For information on who to contact in an emergency, see the CDC website at emergency.cdc.gov or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY).

Handling Method of Leaked Refrigerant

3.2.1 Basic Information

1. Refrigerant is not part to the safety systems but may leak
2. Refrigerant may appear as white smoke when leaking
3. R410A:75-10-5 and 354-33-6. 14.4 kg for ST2752UX and 28.8kg for ST2236UX.
 - a. Difluoromethane and Pentafluoroethane mixed refrigerant in a sealed system.
4. Refer to the R410A Material Safety Data Sheet (MSDS) for toxicological hazards.

3.2.2 Minimum Equipment Required

1. Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US))
2. Wear cold insulating protective gloves (such as butyl rubber), passing the tests according to EN 374, US F739 or AS/NZS 2161.1 standard
3. Experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK(EN 14387) respirator cartridges.
4. Wear fire/flare resistance/retardant clothing and antistatic boots
5. Suitable Extinguishing Media after ignition: Dry chemical or carbon dioxide
6. Suitable Extinguishing Media to cool cylinder containing R410A inside Cooling Unit: Water
7. Dry sand or inert absorbent

3.2.3 Procedure

1. Shut off the system. Refer to “Shut down options and processes”
2. Ensure adequate ventilation. Remove all sources of ignition
3. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak
4. Use personal protective equipment. Avoid breathing vapors, mist, gas, or dust
5. Cool Cooling Unit by spraying water between heat source and Cooling Unit or spraying Cooling Unit directly (see Containing a fire exposure).
6. Prevent further leakage or spillage if safe to do so
7. Discharge into the environment must be avoided
8. Absorb spilled material in dry sand or inert absorbent. In case of a large amount of spillage, contain a spill by bunding
9. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations
10. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment

Handling Method of Hazards Related to Hot Cells

3.3.1 Basic Information

1. Cells are at immediate risk of fire or venting above 150°C (302°F).
2. Cells exceeding >65°C indicate some trouble. Contact the Certificate of Fitness holder and shut down the system
3. Cell temperature up to 60°C is normal
4. Long-term overheating of Battery Units from heat flux or heating of battery modules from internal fire or other thermal runaway can cause cell thermal runaway, fire, or even explosion typically seen as cells exceed

3.3.2 Minimum Equipment Required

1. Remote temperature sensing equipment: Infrared temperature probe, infra-red camera, or SCADA/EMS (site computer system)
2. Safety glasses
3. Helmet with impact resistant face shield
4. Non-conductive extended pliers
5. Gloves

3.3.3 Procedure

1. As soon as a hot cell over >65°C is detected, completely evacuate the area of all personnel.
2. Shut off the system. Refer to “Shut down options and processes”
3. Periodically monitor the temperature of the cell with the remote probe or through the SCADA or Energy Management System as guided by the Certificate of Fitness Holder (if that fails then consult the SME) for the first two hours or until one of the three following situations occurs:
 - a. The cell starts to cool.
 - b. The cell vents
 - c. The cell explodes.
4. If the cell starts to cool, monitor its temperature once an hour via the BMS/SCADA or infrared camera until it returns to ambient temperature.
5. If remote temperature sensing equipment is not available, do not handle the cell for a period of 24 hours.
6. If the cell reached over >75°C we can assume the cell is compromised and should be replaced or the entire module replaced.
7. Typically the cell will be inside a Module: Remove the Module from the work area once it has cooled and returned to normal operations.
8. If the cell is accessible due to Module disassembly, accident on factory line etc. remove the cell from the work area once it has cooled and returned to normal operations.
9. Dispose of the cell in accordance with local, state, and federal hazardous waste regulations.

Handling Method of Vented Electrolyte

3.4.1 Basic information

All lithium batteries are hermetically sealed in a case. A seal is used as an electrical feedthrough for the positive terminal. Under normal operating conditions, a cell will not leak or vent electrolyte. However, cell leakage or venting could occur if the cell or tray(pack) is overheated or subjected to excessive physical abuse.

The severity of a vent condition can range from a slight leak around pressure vent of the cell to a release of combustible gas and possibly ignition of this gas. The electrolyte contained within the lithium cells can cause severe irritation to the respiratory tract, eyes. It would be unusual to come into contact with the electrolyte as it is in small quantities as a gel and the cells are contained within a IP65 module enclosure. In addition, violent cell/tray venting could result release or flammable vapors within the Battery Unit which could explode.

The first responder should take all precautions and wear proper devices like SCBA to limit exposure to the electrolyte vapor.

3.4.2 Minimum Equipment Required

1. A Class B fire extinguisher
2. Eye protection or face shield
3. Respirator suitable for toxic vapors
4. Neoprene rubber gloves
5. Lab coat or chemically resistant apron
6. Bicarbonate of soda (baking soda), calcium oxide (lime), or acid spill cleanup kit
7. Vermiculite, 3M Power Sorb (universal absorbent material)
8. Speedy-Dry (clay absorbent)
9. Individual thick plastic bags with sealing mechanism

3.4.3 Procedure

1. Evacuate personnel from all areas which are affected by the gas.
2. If possible, shut off the system. Refer to "Shut down options and processes"
3. Ventilation should be initiated and continued until after the cell is removed from the area and the pungent odor is no longer detectable.
4. If the cell/tray vented as a result of excessive heating, it must be allowed to cool to ambient temperature before handling. (Refer to hot cell procedure in section 4.1)
5. Put on a lab coat, rubber gloves, safety glasses, and respirator. Remove the cell/tray to a well-ventilated area.
6. Place each leaking cell in a separate, sealable plastic bag. Eliminate excess air and seal the bag.
7. Place one cup of vermiculite or other absorbent material in a second bag along with the first bag. Eliminate excess air and seal.
8. Place the double-bagged cell in a third bag containing approximately one cup of lime or baking soda. Seal the bag.
9. Absorb and/or neutralize spilled electrolyte with an absorbent material or baking soda.
10. Sweep contaminated baking soda or absorbent material into a sealable plastic bag for disposal.
11. Clean the area with copious amounts of water or an ammonia-based cleaner.
12. Dispose of the vented cell and contaminated absorbent material in accordance with local, state, and federal hazardous waste disposal regulations.

Handling Method of Batteries after Explosion

3.5.1 Basic information

It is unlikely that any lithium battery would involuntarily explode. These events are rare and are usually the result of an abusive condition that raises the cell's temperature above its critical point. However, in the event of a lithium battery explosion, a warehouse or confined environment could fill quickly with dense white smoke which could cause severe irritation to the respiratory tract, eyes, and skin. All precautions must be taken to limit exposure to these fumes.

3.5.2 Minimum Equipment Required

1. B Class fire extinguisher (e.g. Class ABC)
2. ABC Class fire extinguisher for any secondary fires
3. Anti-fire cloth, in case of a fire after the explosion
4. Respirator suitable for toxic vapors
5. Fire-proof suit
6. Eye protection or face shield
7. Rubber gloves, lab coat or chemically resistant apron.
8. Bicarbonate of soda or calcium oxide (lime) –or acid spill clean-up kit (J.T. Baker Co.)
9. Vermiculite, 3M Power Sorb (universal absorbent material), Speedy-Dry (clay absorbent)
10. Individual thick plastic bags with sealing mechanism, glass jars.

3.5.3 Procedure

1. Evacuate personnel from all areas which are affected by the smoke.
2. Shut off all the related power systems such as circuit breakers, PV systems, chargers, etc. Refer to “Shut down options and processes” on how to shut down the Battery Units.
3. Ventilation should be initiated and continued until after the cell is removed from the area and the pungent odor is no longer detectable.
4. Although this scenario is unlikely, should there be a fire resulting from an explosion, methods for dealing with this contingency are addressed in the next section about fire handling.
5. The exploded cell may be hot. It must be allowed to cool to ambient temperature before handling (see hot cell procedures).
6. Put on a lab coat, rubber gloves, safety glasses, and respirator.
7. If a cell explodes the surrounding area may be covered with black carbonaceous material along with metal parts from the cell. Cover the black carbonaceous material with a 50/50 mixture of baking soda (or lime) with vermiculite or other universal absorbent material.
8. Sweep the contaminated baking soda/vermiculite mixture into a sealable plastic bag. Gather in such a way as to avoid excessive dust. Metal parts can also be included in this container. Note: Metal fragments should never be packaged with live cells. This could cause the cell to become shorted.
9. Seal the plastic bags in a glass jar and dispose of contents in accordance with local, state, and federal hazardous waste disposal regulations.
10. Clean the area with copious amounts of a baking soda/water solution, or an ammonia-based cleaner. Follow with soapy water.

Handling Method of Fires Involving Lithium Batteries

3.6.1 Basic information

Wear SCBA apparatus and operate upwind of a lithium-ion fire.

In the event of a lithium-ion battery fire, a confined space could become filled with dense white smoke, mostly comprised of carbon dioxide, carbon monoxide, hydrogen, hydrocarbon species, hydrogen fluoride, nitrogen monoxide and dimethyl carbonate. This condition could cause severe irritation to the respiratory tract, eyes, and skin. All precautions must be taken to limit exposure to these fumes.

3.6.2 Minimum Equipment Required

- A Class B compliant fire extinguisher (not class D as this is not metal Lithium).
- Self-contained breathing apparatus
- Full fire-fighting protective clothing
- Heat resistant gloves
- Goggles or safety glasses
- Non-conductive extended pliers
- Shovel, mineral oil

3.6.3 Procedure

1. Initial Response

In order to respond adequately to any emergency situation a primary response team should be established. After training in safety and handling procedures, along with first aid and fire fighting methods, the primary response team will be able to respond to situations involving lithium batteries.

When a fire is detected the first action is to completely evacuate all personnel from the area and sound the fire alarm immediately.

Shut off all related systems except those used for auxiliary safety functions (ventilation, FACP and battery management system monitoring) if one can access the MCCB/switch without danger. Please refer to the site specific diagram. Refer to “Shut down options and processes”

The primary response team is paged to the area where the fire is located. The team is informed of any pertinent information regarding the situation by the person who reported the fire.

Quarantine the area. Ventilation should be initiated and continued until the burning material is removed from the area and the pungent odor is no longer detectable.

Two members of the team will then enter the area with the appropriate fire-fighting and safety equipment.

Never leave the fire unattended because it may reignite.

If necessary, attend to any secondary fires with the appropriate extinguishing agent.

After all the material has apparently burned and cooled, carefully turn over the remaining residue and be prepared to extinguish, should recognize occur.

Carefully place the residue in a steel drum using a long-handled shovel.

2. Clean-up

A lab coat, rubber gloves, safety glasses or goggles, and a respirator should be worn during cleanup.

The surrounding area may be covered with black carbonaceous material along with metal parts from the cell. Cover the black carbonaceous material with a 50/50 mixture of baking soda (or lime) with vermiculite. A wet sweeping compound may also be used to avoid dust. Nonetheless, gather the material in such a way as to avoid excessive dust.

Sweep the contaminated baking soda/vermiculite mixture into a sealable plastic bag. Metal parts can also be included in this container.

Seal the plastic bags in a glass jar or other suitable container.

Clean the area with copious amounts of a baking soda/water solution, or an ammonia-based cleaner. Follow with soapy water.

Dispose of all materials in accordance with local, state and federal hazardous waste disposal regulations.

First Aid Measures

4.1 Contact with Electrolyte

EYES -- Immediately flush eyes with a direct stream of water for at least 15 minutes while forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. GET IMMEDIATE MEDICAL ATTENTION.

SKIN -- Flush with cool water or get under a shower, remove contaminated garments. Continue to flush for at least 15 minutes. Get medical attention, if necessary.

4.2 Inhalation of Harmful Gases

Move to fresh air. If breathing is difficult have a trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET IMMEDIATE MEDICAL ATTENTION.

4.2 Contact with coolant R410A

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Site Specific Exhibits

[EPC to attach exhibits here, some exhibit examples follow]

DRAFT

Shut down options and processes

[EPC to replace or reuse exhibit example material under this same heading “Shut down options and processes” as this is referenced in the ERG text]

These processes are general. Contact Certificate of Fitness holder or SME if necessary and check for site specific procedures.

Partial stop

1. Press Estop on Battery Unit or FACP. Both stop the PCS and Battery Units from charging or discharging but main power and auxiliary power typically remain connected and energized.

Main power shutdown

1. Turn off BESS main power switch at power room

Main power and auxiliary power shutdown

1. Turn off site main switch or
2. BESS main power switch at power room AND BESS auxiliary power switch (after the site UPS or generator if applicable)

Battery Unit local shutdown

1. Press Estop on any Battery Unit within a “block” that share one PCS.
2. Turn off PCS motorized AC and DC breakers via the SCADA or webUI under assistance of the Certificate of Fitness Holder
3. Open the Local Controller and open all the breakers to cut the feed of backup power to the Battery Units.
4. If it is safe to open the BESS, open the auxiliary cabinet door, open the auxiliary cabinet, and open the 480V auxiliary breaker and any breakers in the cabinet. Open any DC battery switches on switch gear or DC-DC converters.
5. Lock out and tag out as work is performed to avoid accidental shock from others switching on switches by mistake.

Site drawings specific to first responders

[EPC to place map and single line drawing of site, specific and understandable to first responders working in a stressful situation. Showing labels and locations of switches that must be used by first responders, consider marking the auxiliary systems switch or UPS output switches clearly so that first responders do not accidentally turn these off. Add notes to make the process simple]

DRAFT

Exhibit project specific electrical datasheets

[EPC to attach from Technical Agreement or from External Portal or Project data]

>PCS+MV skid

>Battery Unit

>Battery Module and Rack

>Other relevant datasheets and or information on other products such as Main Power Transformer, FACP etc.

DRAFT



KENNEDALE FIRE DEPARTMENT

Cypress Creek Renewables Review:

In regards to the proposed battery storage facility located at 509 & 501 S. New Hope Road, I have the following concerns about the facility. I am concerned about the access to the site and what kind of hazard it will pose to the neighboring properties. I know the units will be self-contained and in the event of a fire will most likely extinguish themselves with their internal systems. The concern is having to evacuate the citizens from their homes and businesses when we do have a fire. The isolation distance can range anywhere from a quarter mile to half a mile depending on the wind speed and direction. The hazardous fumes created from a fire could also pose a threat to the animals in the neighboring fields. Kennedale has several areas where farming and livestock are a way of life for the citizens.

I have spoken to several cities where the storage facilities have been placed. The cities explained, they have not had many calls for service since the installation. The major concern they have is when the facility has a fire, they will not have enough resources to contain the blaze. The other concern was the fumes from the off-gassing batteries and evacuations of their citizens.

I believe the location proposed for the battery storage facility would not be suitable for this area. The storage facility would need to be located away from urban areas where the risks would be at a minimum.

Best regards,

Melvin Wilson - Fire Marshal