TOWN OF DUANESBURG
SCHENECTADY COUNTY

Town of Duanesburg
Planning Board Minutes
October 21st, 2021
Final Copy

MEMBERS PRESENT: Jeffery Schmitt Chairman, Elizabeth Novak, Joshua Houghton, Michael Santulli, Matthew Hoffman, Michael Walpole, Planning Board Attorney Terresa Bakner, Town Planner Dale Warner and Clerk Melissa Deffer.

INTRODUCTION: Chairman Jeffery Schmitt opened the meeting and welcomed everyone to tonight's Planning Board meeting. Schmitt asked for the board to introduce themselves to the public: Jeff Schmitt- Chairman, Elizabeth Novak- Planning Board Member, Terresa Bakner- Legal Counsel for the Planning Board, Mike Walpole- Planning Board Member, Matt Hoffman- Planning Board Member, Josh Houghton- Planning Board Member, Mike Santulli- Planning Board Member, Melissa Deffer-Planning Board Clerk, Dale Warner-Town Planner.

Chairman Schmitt also welcomed the Esperance Volunteer Fire Department, Chief Matt Deffer and Mutual Aid Chief Scott Johnson from Central Bridge Volunteer Fire Department. Chairman Schmitt thanked the gentlemen for serving their local community.

OPEN FORUM:
Schmitt/Hoffman made a motion to open the open forum at 7:05pm.
Schmitt yes, Hoffman yes, Walpole yes, Houghton yes, Santulli yes, Novak yes. **Approved.**

Lynne Bruning located at 13388 Duanesburg Rd **(Please see attachment)**

Schmitt/Novak made a motion to close the open forum at 7:08 pm.
Schmitt yes, Novak yes, Hoffman yes, Walpole yes, Houghton yes, Santulli yes. **Approved.**

PUBLIC HEARINGS:
None

OLD BUSINESS:
The amendment of application **#19-12 Murray, Richard/Eden Renewables:** SBL#74.00-2-5. (R-2) located at 13590 Duanesburg Rd is seeking an amendment to an existing special

use permit under local law #1-2016 of the solar energy facilities law and section 14.6.2.5 of the Town of Duanesburg Zoning Ordinance.

Chairman Schmitt explained that The Duanesburg Planning Board is continuing its review of the application by Oak Hill Solar 1 and 2 LLC for amended special use permit and site plan approvals for the two, 5 megawatt solar projects including battery energy storage, located on NYS Route 7. As you will recall the approvals for this project were previously issued in September of 2019 and were litigated with the NYS Appellate Division third department upholding the decision of the Planning Board. Since the end of the litigation and the end of the executive orders limiting construction due to Covid, Oak Hill submitted an application for a building permit with drawings at a substantially higher level of detail, to Dale, the Town Building Inspector. Due to the changes in the battery energy storage, the higher maximum tilt of the panels, the greater acreage of disturbance and the addition of an interior access road, Dale determined that the project had to come back to the Planning Board for review of an application to amend the special use permit and site plan approvals for the project.

The Project was back before the Planning Board at its July meeting, a public hearing was held at its August meeting and the written public comment period was continued until this Planning Board meeting (10 days before the meeting). A workshop was held during September and the focus of the workshop was the changes to the project and a thorough presentation by the Applicant and its consultants on the BESS and the changes to the project.

The Town retained AE Prime to review the application with a particular focus on the changes to the project. AE Prime has entered all of this comment letters into the public record and they have worked with the Applicant to obtain changes to the plans, additional information and clarification—all to establish compliance with the solar law and to address any SEQRA issues. The Town retained an expert in BESS: ESRG group, Paul Rogers to review the proposed BESS. The Town also reached out to NYSERDA on BESS and issues associated with solar projects in general and have had several representatives of NYSERDA provide information and speak at meetings on Solar issues.

The Town has also referred the project to Schenectady County Planning and received a recommendation back from the County that this is a local issue not of county wide concern with the recommendation that a visual analysis be required from the Applicant due to the project changes. The Applicant provided a new visual analysis as well as a noise analysis.

The Town Planning Board members have been carefully reviewing the application materials, all of which are available to the public in a drop box link that is on the Town website. The meetings are open to in person or zoom participation by the public. Many written public comments have been received all of them have been reviewed and the applicant has provided a response to community comment documents that has also been posted in the drop box.

All public comments and the responses have been reviewed by the Town Planning Board members.

Tonight the following steps will occur concerning this application:

1) A presentation from ESRG on the report that they complete for the Town Planning Board and set forth how any remaining issues will be addressed by AMP;
2) Gain insight on the project from the fire chief of the Village of Esperance volunteer Fire Company and a mutual aid fire chief who is accompanying him;
3) Discuss with Bill Oderkehr from NYSERDA any concerns regarding the panel composition related to PFOAs;
4) A summary of any remaining issues from Prime AES and the status of the remaining plan changes;
5) Commencement of the review of the EAF Part II with the assistance of Prime AES.

The review of Oak Hill will take some time tonight given the volume of materials received by the Planning Board since the last Planning Board meeting. The Planning Board intends to make a decision on the project at the November meeting of the Planning Board, assuming that all of the Planning Board's remaining concerns are addressed and that its technical consultants have completed their review of the project.

Paul Rogers and Michael Bowes from ESRG (Energy Safety Response Group) prepared a report for tonight's meeting and went over their findings and any questions, comments or concerns with the Board. (**Please See Attachment**)
The fire chiefs had no questions for Paul or Mike.
Bill Pederson state that there will be 2 scheduled walk throughs for the fire department. First, will be during the construction of the solar project. Second, will be when the project is completed and then a yearly training will be held. The Chiefs agreed that one training a year is sufficient. Mr. Pederson will be the liaison and will connect the fire department to Powin or the appropriate departments.
Bill Oderkehr from NYSERDA went over the concerns regarding the panel composition related to PFOAs. Bill explained that PFOA's is a group of 1000's of different chemicals that are subgrouped into different functional groups and most of those subgroups have different chemistry within them. PFOA can be found in a variety of different everyday items such as scotch guard, water repellents, firefighting foam, cleaning products, some clothing, and fuel. Bill does not know which of the chemicals are in the solar panels, how toxic the chemicals are, or how many solar panels the PFOA's are in, there is a fact sheet from the University of Michigan said that the solar industry does not typically use panels that contain the PFOA because there are alternatives that are commercially valuable on the market. For there to be potential water contamination from the solar panels you would need to have panels that contain PFOA, and it would have to be toxic. It would have to erode off the panels at such a volume that would be able to contaminate soil and ground water. All three of those factors are unknown. There was a study done on a Solar farm in the State of New Hampshire and there was no POFA found when the study was completed,
Board Member Novak went over the Part 2 of the FEAF (**Please See Attachment**)

Schmitt/Santulli made a motion to table the amendment of application **#19-12 Murray, Richard/Eden Renewables** until November 18th, 2021, meeting.
Schmitt yes, Santulli yes, Houghton yes, Walpole yes, Hoffman yes, Novak yes. **Approved.**

NEW BUSINESS:

#21-13 Obour, Jules: SBL# 74.00-2-9, (R-2) located at 13998 Duanesburg Rd is seeking a Special Use Permit for use of motor vehicle sales under Local Law #6 2017of the Town of Duanesburg Zoning Ordinance Section 8.4(18). Attorney Gerald Dwyer is representing Mr. Obour. Mr. Dwyer explained that he has submitted an updated survey. A title search and nothing was found going back 35 years. Jules does not want to do repairs to any vehicles, he will only be selling. If there is any work that needs to be done, he will outsource it. The Board would like to see for the next meeting Mr. Dwyer revise the EAF to the accurate number of acres that will be disturbed.

Novak/Hoffman made a motion to **declare our preliminary SEQRA to be a negative impact declaration for this unlisted action.**

Novak yes, Hoffman yes, Walpole yes, Houghton yes, Santulli yes, Schmitt yes. **Approved.**

Novak/Santulli made a motion to set a public hearing on November 18th, 2021, for the application of #**21-13 Obour, Jules**.

Novak yes, Santulli yes, Houghton yes, Walpole yes, Hoffman yes, Schmitt yes. **Approved**.

#21-17 Daigle, Howard/Blevins, Jonathan: SBL# 67.00-3-19.21, (C-2) located at 3851 Western Turnpike is seeking a special use permit under section 12.4.33 of the Town of Duanesburg Zoning Ordinance. Howard Daigle property owner and Jody Thorpe Purchasing foreman from Northern Clearing Inc explained that they are going to be leasing the building with the possibility of a rent to own agreement. The company is working on the power lines and will be working up this way for about 2-3 more years on the project and will need a place to store their equipment. They will not be changing anything in or around the building except adding a fuel container. After reviewing the application, the Planning Board Determined that it is the same type of use and Jody can rent it and use Howard Daigle's special use permit and so the matter was referred back to Dale Warner, Building Inspector.

SKETCH PLAN REVIEW:

#21-16 Kirker, Richard: SBL#65.00-1-31.131, (R-2) located at 696 Gage Rd is seeking a Minor Subdivision under section 3.4 of the Town of Duanesburg Subdivision Ordinance. Project Manager John Hitchcock, Jr from ABD Engineers, LLP represent Mr. Richard Kirker. Mr. Kirker is purposing a 2-lot subdivision. Lot one to the North of the property will be 10.7 acre to build his house on. Lot 2 will be 5.61 acres and Richard will be giving to his daughter and son in law to build their house on. Both lots will be flag lots and are in front of the ZBA for Road Frontage. Lot 2 will have a private road that will connect to lot number 1 driveway. A turn around will be added to both driveways. The Board would like to have a driveway agreement for the next meeting.

#21-18 Armstrong, Glenn: SBL#44.00-1-12, (R-2) located at 2663 Duanesburg Churches Rd is seeking a Minor Subdivision under section 3.4 of the Town of Duanesburg Subdivision Ordinance. David Bogardus from the Northeast Land Survey & Land Development Consultants, P.C. representing the Armstrong estate. David is purposing a 2-lot minor subdivision. Lot 1 will be 29 acres and Lot 2 will be 12 acres with an existing house with 3 barns, out house and existing well and septic. Lot number 1 has part of the Delanson Upper Reservoir on the property. The board would like to know for the next meeting if there are

access rights to the reservoir and a title search to be completed to ensure ownership of the reservoir.

OTHER:
None

MINUTES APPROVAL:
Schmitt/ Walpole made the motion to approve September 16th, 2021, Planning Board minutes with no corrections.
Schmitt yes, Walpole yes, Hoffman yes, Novak yes, Santulli yes, Houghton yes. **Approved.**

ADJOURNMENT:
Walpole/ Houghton made the motion to adjourn.
Walpole yes, Houghton yes, Santulli yes, Schmitt yes, Novak yes, Hoffman yes. **Approved.**

PO Box 160
Quaker Stret, NY 12141

Jeffery Schmitt, Chair
Planning Board
Town of Duanesburg
5853 Western Turnpike
Duanesburg, NY 12056

October 21, 2021

Re: Privilege of the Floor Planning Board Meeting,

Please include my statement in the meeting minutes as posted on the town website.

The Planning Board webpage, https://www.duanesburg.net/planning-board, lists board members Elizabeth Novack, Jeffery Schmitt, Thomas Rulison and Michael Harris. Mr. Rulison is no longer with the board. It appears that Dale Warner's name is erroneously listed under "Board Members."The list omits many names that are now on the board. I request that the planning board webpage is updated to accurately reflect board membership.

The Planning Board webpage does not include Planning Board Clerk name or contact information.

The Planning Board Calendar does not reflect meeting dates. According to the calendar it appears that the board never meets. I request that the town and planning board calendar be updated to reflect all board meetings and workshops.

Thank you for posting recordings of the board meetings again. Board meeting videos from January 18, 2018 through October 18, 2028 are posted. Recordings are not posted again until September 9, 2021 Battery Storage Workshop. Recordings of the meeting provide all citizens with valuable information about board actions and town development.

Planning Board Agendas are posted with a date and time stamp. This affords all citizens to follow changes in the Agenda.

Planning Board Meeting Minutes omit the date and time stamp. This omission prevents the citizens to following draft minutes, changes, and posting of final minutes. This system lacks transparency and accountability for board members as well as residents. Once again, I request that the board close the possible loophole for impropriety and prove a date and time stamps on the meeting minutes.

Thank you for your time and consideration.

Respectfully,

Lynne Bruning
720-272-0956
lynnebruning@gmail.com

Melissa Deffer

From: lynne bruning <lynnebruning@gmail.com>
Sent: Thursday, October 21, 2021 7:50 PM
To: Melissa Deffer
Subject: Bruning to Planning Board Privilege of the Floor October 21 2021

PO Box 160
Quaker Street, NY 12141

Jeffery Schmitt, Chair
Planning Board
Town of Duanesburg
5853 Western Turnpike
Duanesburg, NY 12056

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lynnebruning@gmail.com

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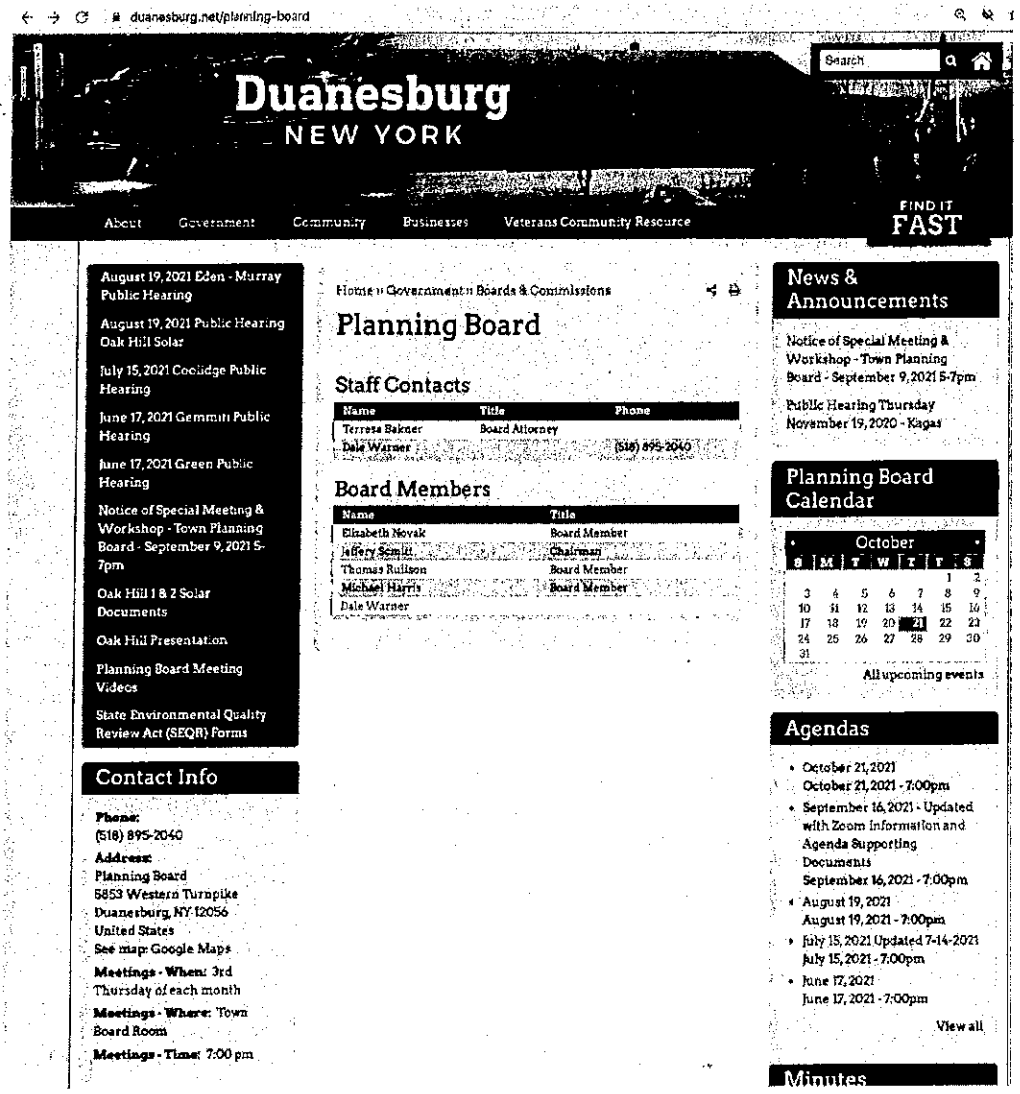
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August 19, 2021 Public Hearing Oak Hill Solar
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June 17, 2021 Gemmiti Public Hearing
June 17, 2021 Green Public Hearing
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Oak Hill 1 & 2 Solar Documents
Oak Hill Presentation
Planning Board Meeting Videos
State Environmental Quality Review Act (SEQR) Forms
Contact Info
Phone:
(518) 895-2040
Address:
Planning Board
5853 Western Turnpike
Duanesburg, NY 12056
United States
See map: Google Maps
Meetings - When: 3rd Thursday of each month
Meetings - Where: Town Board Room
Meetings - Time: 7:00 pm
Home » Government » Boards & Commissions
Planning Board
Staff Contacts
Name
Title
Phone
Terresa Bakner
Board Attorney
Dale Warner
(518) 895-2040
Board Members
Name
Title
Elizabeth Novak
Board Member
Jeffery Schmitt
Chairman
Thomas Rullson
Board Member
Michael Harris
Board Member
Dale Warner
News & Announcements
Notice of Special Meeting & Workshop - Town Planning Board - September 9, 2021 5-7pm
Public Hearing Thursday November 19, 2020 - Kagas
Planning Board Calendar
October
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All upcoming events
Agendas
October 21, 2021
October 21, 2021 - 7:00pm
September 16, 2021 - Updated with Zoom information and Agenda Supporting Documents
September 16, 2021 - 7:00pm
August 19, 2021
August 19, 2021 - 7:00pm
July 15, 2021 Updated 7-14-2021
July 15, 2021 - 7:00pm
June 17, 2021
June 17, 2021 - 7:00pm
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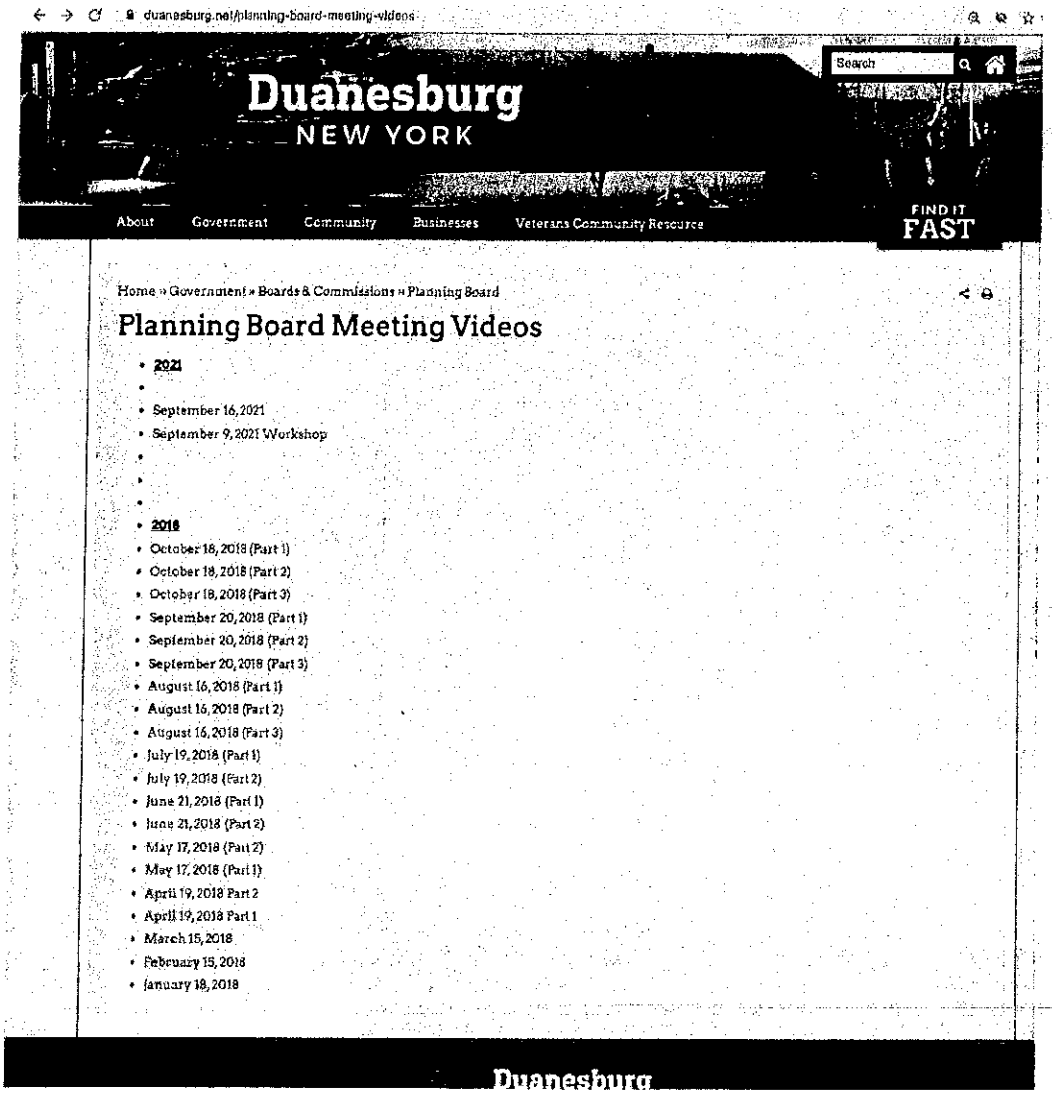
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September 16, 2021
September 9, 2021 Workshop
2018
October 18, 2018 (Part 1)
October 18, 2018 (Part 2)
October 18, 2018 (Part 3)
September 20, 2018 (Part 1)
September 20, 2018 (Part 2)
September 20, 2018 (Part 3)
August 16, 2018 (Part 1)
August 16, 2018 (Part 2)
August 16, 2018 (Part 3)
July 19, 2018 (Part 1)
July 19, 2018 (Part 2)
June 21, 2018 (Part 1)
June 21, 2018 (Part 2)
May 17, 2018 (Part 2)
May 17, 2018 (Part 1)
April 19, 2018 Part 2
April 19, 2018 Part 1
March 15, 2018
February 15, 2018
January 18, 2018
Duanesburg

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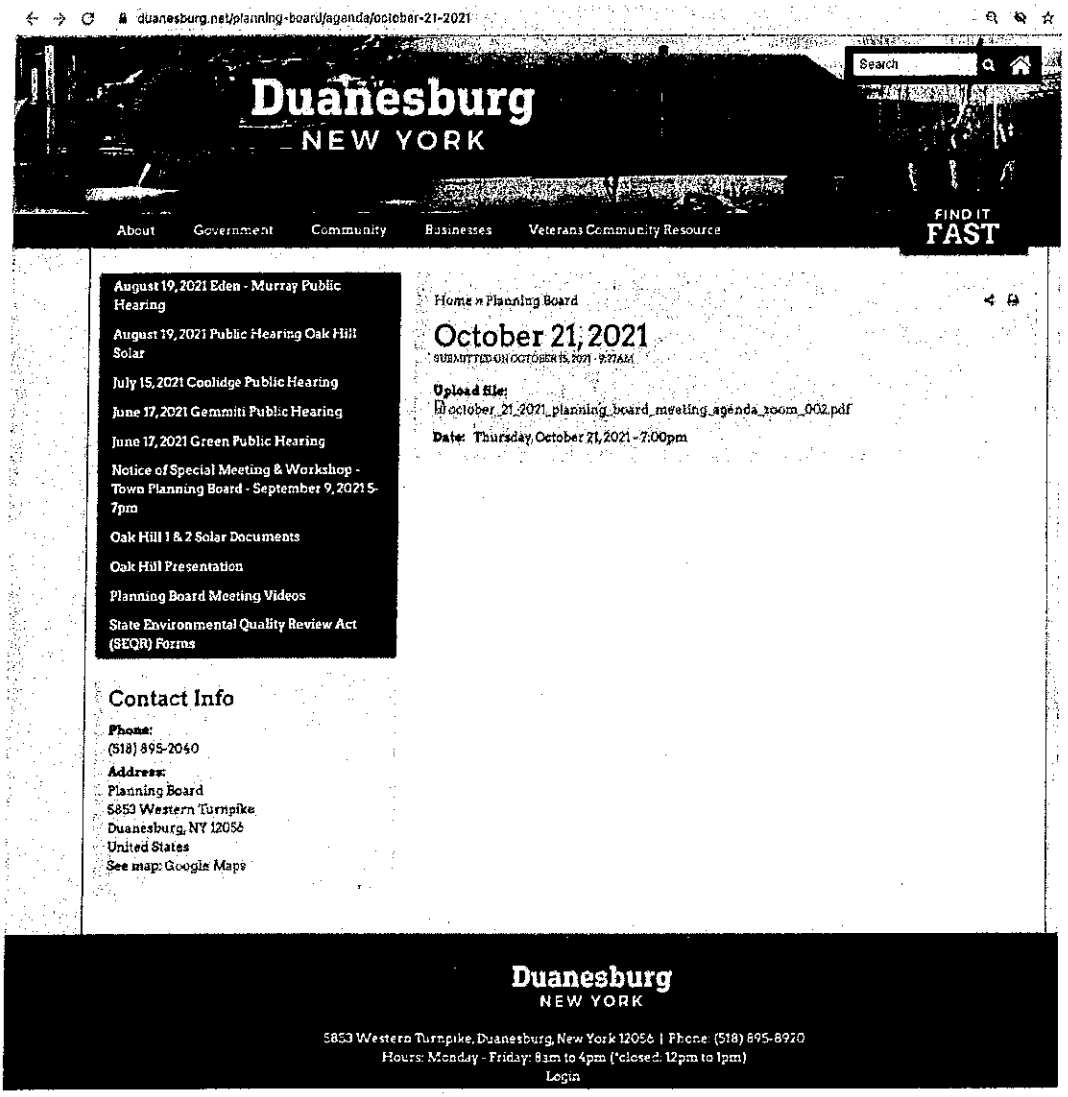
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October 21, 2021
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october_21_2021_planning_board_meeting_agenda_zoom_002.pdf
Date: Thursday, October 21, 2021 - 7:00pm
Duanesburg
NEW YORK
5853 Western Turnpike, Duanesburg, New York 12056 | Phone: (518) 895-8920
Hours: Monday - Friday: 8am to 4pm (*closed: 12pm to 1pm)
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ESRG

ENERGY SAFETY
RESPONSE GROUP

OAK HILL BESS

FCNYS 1206.8 Peer Review

Summary

This document serves as a third-party peer review for the Oak Hill 1 and Oak Hill 2 ESS projects, performed in compliance with 2020 Fire Code of New York State §1206.8.

Prepared For:

Town of Duanesburg
5853 Western Turnpike
Duanesburg, NY 12056

Energy Safety Response Group, LLC
8350 US Highway 23 North
Delaware, OH 43015

www.energyresponsegroup.com
1-833-SAFE-ESS

Rev. 1
10/21/2021

PROJECT INFORMATION

Project Name	Oak Hill 1 and Oak Hill 2 ESS
Prepared For	Town of Duanesburg
Customer Address	5853 Western Turnpike Duanesburg, NY 12056
Revision No.	Rev. 1
Date of Issue	10/21/2021

Prepared by:

Michael Bowes

Senior Project Engineer

Approved by:

Paul Rogers

Founding Principal

Revision History

Revision No.	Date of Issue	Substance of Change	Prepared By	Approved By
Rev. 0	10/20/2021	First issue	M. Bowes	P. Rogers
Rev. 1	10/21/2021	Background revision	M. Bowes	P. Rogers

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Further, the contents of this document are in no way meant to address specific circumstances, and the contents are not meant to be exhaustive and do not address every potential scenario associated with the subject matter of the document. Site and circumstance-specific factors and real-time judgment and reason may significantly impact some of the subject matter conveyed in this document. Additional resources and actions, which may be beyond the scope of this document, may be required to address your specific issues.

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 Background

The Town of Duanesburg has retained Energy Safety Response Group LLC to perform a third-party peer review of the Amp Solar Development, Inc. Oak Hill battery energy storage system (BESS, or ESS) project to be located in Duanesburg, NY. This report provides an assessment of code compliance with *2020 Fire Code of New York State (FCNYS) §1206 Electrical Energy Storage Systems*, in fulfillment of *§1206.8 Peer Review,* as well as additional commentary on relevant safety concerns regarding fire service response for the Oak Hill BESS site.

1.2 Applicable Codes and Standards

The following codes and standards apply to this document:

- *2020 Fire Code of New York State §1206 Electrical Energy Storage Systems*
- *UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, 2019 Edition*

Additional supporting codes, standards, or other documents that may inform this report include:

- *International Fire Code (IFC), Section 1206 Electrical Energy Storage Systems, 2018 Edition*
- *NFPA 1 Fire Code, 2018 Edition*
- *NFPA 68 Standard on Explosion Protection by Deflagration Venting, 2018 Edition*
- *NFPA 69 Standard on Explosion Prevention Systems, 2019 Edition*
- *NFPA 70 National Electric Code, 2020 Edition*
- *NFPA 72 National Fire Alarm and Signaling Code, 2019 Edition*
- *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems, 2020 Edition*
- *NFPA 1142 Standard on Water Supplies for Suburban and Rural Firefighting, 2022 Edition*
- *UL 1741 Standard for Inverters, Converters, Controllers and Interconnection Equipment for Use With Distributed Energy Resources, 2016 Edition*
- *UL 1973 Standard for Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications, 2016 Edition*
- *UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, 2019 Edition*
- *UL 9540 Standard for Energy Storage Systems and Equipment, 2020 Edition*

1.3 Summary of Findings

Based on the information on the Oak Hill ESS project provided by Amp Solar Development, ESRG finds that the project is largely compliant with *FCNYS §1206*, with some additional documentation outstanding, as noted throughout the report. These documents and any other required items should be provided to the local fire code official / authority having jurisdiction for review.

- Several construction commissioning, and other documents not provided at the time of this writing.
- A hazard mitigation analysis should be provided per *FCNYS §1206.5* as a basis for increasing of maximum allowable quantities of energy storage onsite.
- Where variance from code is required (e.g., maximum allowable quantities), it is recommended that a report demonstrating that no adverse risks are present based on large-scale fire testing be provided.
- Fire remediation and on-scene first responder information should be finalized and provided to the local fire code official and / or authority having jurisdiction prior to commissioning of the system. Several recommendations for emergency response plan are also provided.
- Dedicated onsite water supply is recommended for mitigating propagation of fire from ESS to nearby exposures. Further discussion with the local fire department should be coordinate to determine if needed and, if so, what criteria shall be required.

2 ENERGY STORAGE SYSTEM AND SITE DESCRIPTIONS

2.1 Energy Storage System Description

The Powin Stack230 energy storage system (ESS – also referred to as BESS) to be used for the Oak Hill project consists of battery racks populated with LFP battery cells, HVAC system, heat, smoke, and gas detection systems, Stat-X fire extinguishing system, and StackOS EMS and BMS, all integrated into a cabinet-style enclosure. Each ESS unit provides approximately 4.5 MWh of energy storage capacity.

2.2 Site Description

The Oak Hill energy storage project consists of two sites (Oak Hill Solar 1 and Oak Hill Solar 2), each consisting of two Powin ESS units (four units total), for a total of 7.68 MW / 18 MWh. The lot is subdivided into two parcels, for an aggregate lot size of approximately 140 acres. The battery enclosures are over 475 feet apart at their closest point, drastically reducing risk of fire spread across units. The site also houses a large number of PV solar arrays, with a minimum 23-foot setback from all ESS enclosures.

Wetlands are noted on the site drawings, though it has been indicated that these pose limited to no risk to the ESS, PV arrays, or fire apparatus access roads. No water source is available onsite for firefighting purposes.

3 FCNYS §1206 COMPLIANCE REQUIREMENTS

3.1 Code Compliance Summary

The following section provides a summary of compliance with primary sections of *FCNYS §1206 Electrical Energy Storage Systems*, with a focus on sections related to BESS safety and protection systems. *§1206* requirements are described in greater detail in Sections 3.2 – 3.17 of this report. Items which are outside the scope of this report are not included in the summary table.

Table 1 - Code Compliance Summary Table

Section	Compliance Requirement	Compliance
§1206.4 Construction Documents	-	Partially compliant.
§1206.5 Hazard Mitigation Analysis	-	Not compliant.
§1206.6 Large-Scale Fire Test	-	Partially compliant.
§1206.7 Fire Remediation	-	Partially compliant.
§1206.8 Peer Review	-	Compliant.
§1206.9 Commissioning, Decommissioning, Operation and Maintenance	§1206.9.1 Commissioning	Partially compliant.
	§1206.9.2 O&M Manual	Partially compliant.
	§1206.9.3 Decommissioning	Compliant.
§1206.10 Equipment	§1206.10.1 Energy Storage System Listings	Not compliant.
	§1206.10.2 Equipment Listing	Partially Compliant.
	§1206.10.3 Utility Interactive Systems	Compliant.
	§1206.10.4 Energy Storage Management System	Compliant.
	§1206.10.5 Enclosures	Compliant.
§1206.11 General Installations Requirements	-	Partially compliant.
	§1206.12.1 Size and Separation	Not applicable.

§1206.12 Electrochemical Energy Storage System Protection	§1206.12.2 Maximum Allowable Quantities	Not compliant.
	§1206.12.4 Fire Detection	Not applicable.
	§1206.12.5 Fire Suppression Systems	Not applicable.
	§1206.12.7 Vegetation Control	Compliant.
	§1206.12.8 Means of Egress Separation	Compliant.
§1206.13 Electrochemical Energy Storage System Technology Specific Protection	§1206.13.3 Explosion Control	Not applicable.
	§1206.13.5 Thermal Runaway	Compliant.
§1206.15 Outdoor Installations	§1206.15.1 Remote Outdoor Installations	Compliant.
	§1206.15.3 Clearance to Exposures	Compliant.

3.2 General Requirements

General provisions for energy storage systems are provided in *FCNYS §1206.1 - §1206.3,* as listed below, though are not further elaborated on as they are either self-explanatory or outside the scope of this report.

Per *FCNYS §1206.1,* lithium-ion energy storage systems exceeding 20 kWh (252 Megajoules) shall comply with §1206.2 through *§1206.17.7.7.*

Per *FCNYS §1206.2,* the provisions of *§1206* shall apply to the installation, operation, maintenance, repair, retrofitting, testing, commissioning, and decommissioning of stationary energy storage systems.

Per *FCNYS §1206.2.1,* electrical wiring and equipment used in connection with energy storage systems shall be installed and maintained in accordance with *FCNYS Chapter 12 Energy Systems* and *NFPA 70,* though further assessment of these requirements is outside the scope of this report.

Per *FCNYS §1206.3,* building permits and operating permits shall be provided in accordance with *Section 105,* though review of these is outside the scope of this report.

3.3 Construction Documents (*§1206.4*)

Per *FCNYS §1206.4,* the following information shall be provided with the permit application:

Table 2 - §1206.4 Construction Document Requirements

Compliance Requirement	Comments
1. Location and layout diagram of the room or area in which the energy storage system is the be installed.	**Compliant.** Location and layout diagram of ESS provided.
2. Details on the fire-resistance rating of assemblies enclosing the energy storage system.	**Not compliant.** While enclosure is rated to IP 54 (NEMA 3R) and is assumed to be of noncombustible construction, information on fire-resistance rating of the enclosure is not provided.
3. The quantities and types of energy storage systems to be installed.	**Compliant.** Installation will consist of four (4) Powin Stack230 ESS enclosures, totaling 7.68 MW / 18 MWh.
4. Manufacturer's specifications, ratings, and listings of each energy storage system.	**Compliant.** Manufacturer's specifications, ratings, and listings provided.
5. Description of energy storage management systems and their operation.	**Compliant.** Powin StackOS product manual provided.
6. Location and content of required signage.	**Not compliant.** Signage provided in *Schedule 4 Sigage-Signage.pdf,* though signage specific to the ESS must be provided per *§1206.11.8.*
7. Details on the fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.	**Compliant.** Details on fire suppression, heat, smoke, and gas detection systems provided.
8. Support arrangement associated with the installation, including any seismic restraint.	**Not compliant.** Support arrangement including seismic restraint not provided.
9. A commissioning plan complying with 1206.9.1.	**Partially compliant.** See Section 3.8.1 of this report for more information.
10. A decommissioning plan complying with 1206.9.3.	**Compliant.** System-specific decommissioning plan provided.
11. A peer reviewer identification and qualifications, where required by the authority having jurisdiction.	**Compliant.** ESRG statement of qualifications provided.

- **PARTIALLY COMPLIANT.** Most construction documents are provided per *§1206.4,* with the exception of items 2, 6, 8, and 9, as described above.

3.4 Hazard Mitigation Analysis (*§1206.5)*

Per *FCNYS §1206.5,* a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided where allowed as a basis for increasing maximum allowable quantities.

- **NOT COMPLIANT.** A system risk mitigation strategy document has been provided by Amp Solar Development, describing several mitigation strategies for a battery-related incident onsite, though does not meet all requirements prescribed by *FCNYS §1206.5* as a basis for increasing maximum allowable quantities. A hazard mitigation analysis should be provided in accordance with *§1206.5 and* should evaluate the consequences of all conditions given in *§1206.5.1 Fault Conditions* and demonstrating that all conditions of *§1206.5.2 Analysis Approval* are met.

3.4.1 Fault Conditions (§1206.5.1)

Per *FCNYS §1206.5.1,* a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided as a basis for increasing maximum allowable quantities per *FCNYS Table 1206.12* (600 kWh for lithium-ion systems) and shall evaluate the consequences of the following failure modes:

1. *A thermal runaway condition in a single energy storage system rack, module, or unit.*
2. *Failure of any energy storage management system.*
3. *Failure of any required ventilation or exhaust system.*
4. *Voltage surges on the primary electric supply.*
5. *Short circuits on the load side of the energy storage system.*
6. *Failure of the smoke detection, fire detection, fire suppression, or gas detection system.*
7. *Required spill neutralization not being provided or failure of a required secondary containment system.*

3.4.2 Analysis Approval (§1206.5.2)

Per *FCNYS §1206.5.2,* the fire code official may approve the hazardous mitigation analysis provided the consequences of the hazard mitigation analysis demonstrate:

1. *Fires will be contained within unoccupied energy storage system rooms or areas for the minimum duration of the fire-resistance rated assemblies identified in Section 1206.14.4.*
2. *Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.*
3. *Toxic and highly toxic gases released during fires will not reach concentrations in excess of OSHA-regulated IDLH levels in the building or in adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.*

4. *Flammable gases released from energy storage systems during charging, discharging, and normal operation will not exceed 25 percent of their lower flammability limit (LFL).*
5. *Flammable gases released from energy storage systems during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation or by deflagration venting.*

3.4.3 Additional Protection Measures (§1206.5.3)

Per *FCNYS §1206.5.3,* construction, equipment, and systems that are required for the energy storage system to comply with the hazardous mitigation analysis, including, but not limited to, those specifically described in *FCNYS §1206* shall be installed, maintained, and tested in accordance with nationally recognized standards and specified design parameters.

3.5 Large-Scale Fire Test (*§1206.6)*

Per *FCNYS §1206.6,* large-scale fire testing shall be conducted on a representative energy storage system in accordance with UL 9540A or approved equivalent. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one energy storage system will not propagate to an adjacent energy storage system. The test report shall be provided to the fire code official for review and approval.

- **PARTIALLY COMPLIANT.** *UL 9540A* (4th Edition) unit level testing conducted by TÜV Rheinland has been provided for the Powin Stack 230P unit, though cell and module level test reports have not been provided. Both cell and module level UL 9540A test reports should be provided for further review. Furthermore, where large-scale fire testing is to be used as a basis for variance from code requirements, it is recommended that a report demonstrating that no adverse risks are present based on UL 9540A testing be provided.

3.6 Fire Remediation (*§1206.7)*

Per *FCNYS §1206.7,* where a fire or other event has damaged the energy storage system, the system owner, agent, or lessee shall, at their expense, comply with *Sections 1206.7.1* and *1206.7.2*, or remove damaged equipment from the premises to a safe location.

3.6.1 Fire Mitigation Personnel (§1206.7.1)

Per *FCNYS §1206.7.1,* where required by the code official, the system owner, agent or lessee shall, at their expense, immediately dispatch one or more fire mitigation personnel to the premises. The person shall remain on duty continuously after the fire department leaves the premises and until the damaged energy storage system equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.

- **NOT COMPLIANT.** Amp Solar has provided a site-specific safety plan including Powin Remote Operations Center (ROC) contact information and emergency response guide provided by Powin. Specific details on the fire mitigation personnel to be provided per

FCNYS §1206.7.1 have not yet been provided. It is recommended that a dedicated subject matter expert, trained and knowledgeable on the specific site and units be made available to arrive onsite in a reasonable amount of time in the case of an emergency. Amp has also indicated in this plan that it will work closely with the local fire department to ensure there is adequate familiarity with the solar and storage equipment onsite, as well as the safety plan, which they note can be updated based on feedback from the Town of Duanesburg, their safety consultants, and the local fire department.

3.6.2 Duties (§1206.7.2)

Per *§1206.7.2,* on-duty fire mitigation personnel shall have the following responsibilities:

1. *Keep diligent watch for fires, obstructions to means of egress, and other hazards.*
2. *Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.*
3. *Take prompt measures for remediation of hazards in accordance with decommissioning plan in Section 1206.9.3.*
4. *Take prompt measures to assist in evacuation from the structures.*

- **COMPLIANT**. Actions in line with above duties provided in Powin emergency response plan. As noted in Section 3.6.1 above, fire mitigation personnel should be identified and contact information provided prior to commissioning.

3.7 Peer Review (*§1206.8)*

Per *FCNYS §1206.8,* where required by the authority having jurisdiction, the owner or the owner's authorized agent shall be responsible for retaining and furnishing the services of a registered design professional or special expert, who will perform as a peer reviewer, subject to the approval of the fire code official.

- **COMPLIANT**. This report is in fulfillment of requirement for peer review per *FCNYS §1206.8.* ESRG statement of qualifications has been provided to the Town of Duanesburg.

3.8 Commissioning, Decommissioning, Operation and Maintenance (*§1206.9)*

3.8.1 Commissioning (§1206.9.1)

Per *FCNYS §1206.9.1,* commissioning of a newly installed energy storage system shall be conducted prior to being placed in service and in accordance with a commissioning plan approved prior to initiating commissioning. Commissioning plan requirements per *§1206.9.1* are outlined in the table below.

Table 3 - §1206.9 Commissioning Requirements

Compliance Requirement	Comments
1. A narrative description of the activities that will be accomplished during each phase of commissioning including the personnel intended to accomplish each of the activities.	**Compliant.** Description of activities to be accomplished during phases of commissioning provided.
2. A listing of the specific energy storage system and associated components, controls and safety related devices to be tested, a description of the tests to be performed and the functions to be tested.	**Compliant.** Description of tests to be performed for ESS and associated components, controls, and safety related devices provided.
3. Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.	**Compliant.** Conditions under which testing will be performed provided.
4. Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the energy storage system.	**Not compliant.** It is stated that commissioning checks / tests are to be conducted by Powin field engineers or technicians trained and certified by Powin, though requirements and basis of design necessary to understand the installation and operation of the ESS is not documented.
5. Verification that required equipment and systems are installed in accordance with the approved plans and specifications.	**Compliant.**
6. Integrated testing for all fire and safety systems.	**Compliant.**
7. Testing for any required thermal management, ventilation or exhaust systems associated with the energy storage system installation.	**Compliant.**
8. Preparation and delivery of operation and maintenance documentation.	**Not compliant.** Preparation and delivery of O&M documentation not described.
9. Training of facility operating and maintenance staff.	**Not compliant.** Facility operating and maintenance staff training information not provided.
10. Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.	**Not compliant.** Identification and documentation of requirements for maintaining system performance to meet original design intent during operation not provided.
11. Identification and documentation of personnel who are qualified to service, maintain and decommission the energy storage system, and respond to incidents involving the energy storage system, including documentation that such service has been contracted for.	**Partially compliant.** It is stated that commissioning checks / tests are to be conducted by Powin field engineers or technicians trained and certified by Powin, though documentation of services provided for incidents involving the ESS not provided.

12. A decommissioning plan in accordance with Section 1206.9.3.	**Compliant.** See Section 3.8.3 of this report for more information.

- **PARTIALLY COMPLIANT.** As summarized in the table above, most requirements for Operation and Maintenance Manual per *§1206.9.1* are either *Compliant* or *Partially Compliant.* Additional documentation, as noted in the table above, should be provided in fulfillment of this requirement.

3.8.2 Operation and Maintenance Manual (§1206.9.2)

Per *FCNYS §1206.9.2,* an Operation and Maintenance Manual (O&M) shall be provided to both the energy storage system owner or their authorized agent and to the energy storage system operator before the energy storage system is put into operation. The energy storage system shall be operated and maintained in accordance with the manual. A copy of the manual shall be retained at an approved onsite location and be available to the fire code official. The O&M shall include the information in the following table.

Table 4 - §1206.9.2 O&M Manual Requirements

Compliance Requirement	Comments
1. Manufacturer's O&M for the entire energy storage system or for each component of the system requiring maintenance, that clearly identifies the required routine maintenance actions.	**Not compliant.** While spec sheets are provided for the Powin ESS, an O&M manual with required maintenance actions for the ESS has not been provided.
2. Name, address and phone number of a service agency that has been contracted to service the energy storage system and its associated safety systems.	**Compliant.** Powin contact information provided.
3. Maintenance and calibration information, including wiring diagrams, control drawings, schematics, system programming instructions and control sequence descriptions, for all energy storage system controls.	**Compliant.** O&M manual provided for Powin StackOS system.
4. Desired or field-determined control set points that are permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.	**Partially compliant.** Control points are defined in the StackOS manual, though predetermined values for the Oak Hill project have not been documented.
5. A schedule for inspecting and recalibrating all energy storage system controls.	**Partially compliant.** Maintenance schedule provided for FSS components, but still needed for Powin ESS and StackOS.
6. A service record log form that lists the schedule for all required servicing and maintenance actions and space for logging such actions that are completed over time and retained on site.	**Not compliant.** A service record log should be developed prior to putting the ESS into operation.

7. Inspection and testing records shall be maintained in the O&M.	**Partially compliant.** It is expected that all inspection and testing records be maintained in the O&M.

- **PARTIALLY COMPLIANT.** As summarized in the table above, many requirements per *§1206.9.2* are either *Compliant* or *Partially Compliant.* At the time of this writing, while a product manual for the StackOS energy management system has been provided, no maintenance instructions or schedule have been included. Additional documentation, as noted in the table above, should be provided in fulfillment of this requirement.

3.8.3 Decommissioning (§1206.9.3)

Per *FCNYS §1206.9.3,* the authority having jurisdiction shall be notified prior to energy storage system decommissioning. Decommissioning or removal of the energy storage system from service, and from the facility in which it is located, shall be provided in accordance with the decommissioning plan. Details to be included in the decommissioning plan per *§1206.9.3* are outlined in the table below.

Table 5 - §1206.9.3 Decommissioning Requirements

Compliance Requirement	Comments
1. A narrative description of the activities to be accomplished for removing the energy storage system from service, and from the facility in which it is located.	**Compliant.** Narrative description of activities for removal of the ESS from service and facility provided.
2. A listing of any contingencies for removing an intact operational energy storage system from service, and for removing an energy storage system from service that has been damaged by a fire or other event.	**Compliant.** Information on emergency decommissioning provided.

- **COMPLIANT.** A decommissioning plan has been provided including decommissioning activities, cost of decommissioning, establishment of decommissioning fund, demolition instructions, and information for emergency decommissioning.

3.9 Equipment (*§1206.10)*

The following sections of this report detail equipment requirements per *FCNYS §1206.10.1* through *1206.10.9.*

3.9.1 Energy Storage System Listings (§1206.10.1)

Per *FCNYS §1206.10.1,* energy storage systems shall be listed in accordance with *UL 9540* or approved equivalent. At the time of this report, UL 9540 certification had not been achieved for the Powin Stack230 ESS. This is not uncommon for energy storage systems at this time, as there is generally a long backlog for certification. It is recommended that Powin provide a timeline of when they expect UL 9540 certification, and that this is provided to the Town of Duanesburg upon completion.

- **NOT COMPLIANT.** UL 9540 certification not provided at time of this writing.

3.9.2 Equipment Listing (§1206.10.2)

Per *FCNYS §1206.10.2,* chargers, inverters, energy storage management systems shall be covered as part of the UL listing or shall be listed separately. See Section 3.9.1 of this report above for information on UL 9540 listing.

- **PARTIALLY COMPLIANT.** UL 1741 inverter certification provided. UL 9540 and energy storage management system certifications not provided.

3.9.3 Utility Interactive Systems (§1206.10.3)

Per *FCNYS §1206.10.3,* only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads. Inverters shall be listed and labeled in accordance with UL 1741.

- **COMPLIANT.** FS3190K inverters to be used for the Oak Hill projects are listed to UL 1741.

3.9.4 Energy Storage Management System (§1206.10.4)

Per *FCNYS §1206.10.4,* where required by the energy storage system listing an approved energy storage management system shall be provided that monitors and balances cell voltages, currents, and temperatures within the manufacturer's specifications. The system shall disconnect electrical connections to the energy storage system or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage, or under voltage are detected.

- **PARTIALLY COMPLIANT.** The Powin StackOS energy storage management system (ESMS) provides all capabilities listed in *§1206.10.4,* though the Stack230 ESS has still not received *UL 9540* listing. It is, however, expected that this system shall comply with requirements above.

3.9.5 Enclosures (§1206.10.5)

Per *FCNYS §1206.10.5,* enclosures of energy storage systems shall be of noncombustible construction.

- **PARTIALLY COMPLIANT.** While it is assumed that the Powin 230 ESS enclosures are of noncombustible construction, no documentation of materials used is provided.

3.9.6 Repairs (§1206.10.6)

Per *FCNYS §1206.10.6,* repairs of energy storage systems shall only be done by qualified personnel. Repairs with other than identical parts shall be considered a retrofit and comply with *§1206.10.7.* Repairs shall be documented in the service records log.

While it is anticipated that only Powin field engineers or technicians trained and certified by Powin shall provide repairs to the energy storage systems, this is not stated anywhere (e.g., in a Stack230 O&M manual – also not provided in this submittal package, as noted in Section 3.8.2 of this report).

- **NOT APPLICABLE**. Repairs requirements are outside the scope of this report.

3.9.7 Retrofits (§1206.10.7)

While outside the scope of this report, it is assumed that any future retrofitting of the Oak Hill energy storage systems shall comply with the following requirements, as listed in FCNYS *§1206.10.7:*

1. *A building permit shall be obtained in accordance with Section 105.*
2. *New batteries, battery modules, capacitors and similar energy storage system components shall be listed.*
3. *Energy storage management systems and other monitoring systems shall be connected and installed in accordance with the manufacturer's instructions.*
4. *The overall installation shall continue to comply with UL 9540 listing requirements, where applicable.*
5. *Systems that have been retrofitted shall be commissioning in accordance with Section 1206.9.1.*
6. *Retrofits shall be documented in the service records log.*

- **NOT APPLICABLE**. Retrofit requirements are outside the scope of this report.

3.9.8 Replacements (§1206.10.8)

While outside the scope of this report, it is assumed that replacements of energy storage systems shall be considered new energy storage installations and shall comply with the provisions of *FCNYS §*1206 as applicable to new energy storage systems, as required by *FCNYS §1206.10.8.* Furthermore, the energy storage system being replaced shall be decommissioned in accordance with *FCNYS §1206.9.3.*

- **NOT APPLICABLE**. Replacement requirements are outside the scope of this report.

3.9.9 Reused and Repurposed Equipment (§1206.10.9)

While outside the scope of this report, it is assumed that equipment and materials shall only be reused or reinstalled as approved by the fire code official, along with all other conditions of FCNYS *§1206.10.9.*

- **NOT APPLICABLE**. Reused and repurposed equipment is outside the scope of this report.

3.10 General Installations Requirements (*§1206.11)*

3.10.1 Electrical Disconnects (§1206.11.1)

Per *FCNYS §1206.11.1,* where the energy storage system disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of the stationary storage battery system disconnecting means, in accordance with *NFPA 70.*

- **NOT APPLICABLE.** Electrical disconnects in accordance with *NFPA 70* are outside the scope of this report.

3.10.2 Working Clearances (§1206.11.2)

Per *FCNYS §1206.11.2,* access and working spaces shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment, in accordance with *NFPA 70* and the manufacturer's instructions.

- **NOT APPLICABLE.** Working clearances in accordance with *NFPA 70* are outside the scope of this report.

3.10.3 Fire-Resistance-Rated Construction (§1206.11.3)

Per *FCNYS §1206.11.3,* rooms and other indoor areas containing energy storage systems shall be separated from other areas of the building in accordance with Section 1206.14.4 and Chapter 7 of FCNYS. Energy storage systems shall be permitted to be in the same rooms as the equipment they support.

- **NOT APPLICABLE.** All Powin ESS units are located outdoors and not confined within any room or other indoor area.

3.10.4 Seismic and Structural Design (§1206.11.4)

Per *FCNYS §1206.11.4,* stationary energy storage systems shall comply with the seismic design requirements in Chapter 16 of the *Building Code New York State* and shall not exceed the floor loading limitation of the building.

- **NOT APPLICABLE.** Compliance with seismic and structural design requirements is outside the scope of this report.

3.10.5 Vehicle Impact Protection (§1206.11.5)

Per *FCNYS §1206.11.5,* where energy storage systems are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312 of *FCNYS.*

- **NOT APPLICABLE.** Though assessment of vehicle impact protection in accordance with *Section 312 of FCNYS* is outside the scope of this report, the Oak Hill project is located away from public roads and it is not anticipated that the area will be heavily trafficked by motor vehicles. Further assessment of compliance with *Section 312*, however, should be conducted, and vehicle impact protection installed if required.

3.10.6 Combustible Storage (§1206.11.6)

Per *FCNYS §1206.11.6,* combustible materials shall not be stored in energy storage system rooms, areas, or walk-in energy storage system units. Combustible materials in occupied work centers covered in *Section 1206.11.10* shall be stored at least 3 feet (914 mm) from energy storage system cabinets.

- **NOT APPLICABLE.** The Powin cabinet-style ESS enclosures are not walk-in units and are not located in an occupied work area.

3.10.7 Toxic and Highly Toxic Gases (§1206.11.7)

Per *FCNYS §1206.11.7*, energy storage systems installed indoors and that have the potential to release toxic and highly toxic gas during charging, discharging, and normal use conditions shall be provided with a hazardous exhaust system in accordance with *Section 502.9 of the Mechanical Code of New York State.*

- **NOT APPLICABLE.** Lithium-ion energy storage units do not release toxic and highly toxic gases during charging, discharging, or normal use conditions.

3.10.8 Signage (§1206.11.8)

Per *FCNYS §1206.11.8,* approved signs shall be provided on or adjacent to all entry doors to energy storage system rooms or areas, to walk-in energy storage system units located outdoors, on rooftops, or in open parking garages, and on enclosures of energy storage system cabinets. Signs shall be designed to meet both the requirements of this section and of NFPA 70. The signage shall include the following or equivalent:

1. *"Energy Storage System," "Battery Storage System", "Capacitor Energy Storage System," or the equivalent.*
2. *The identification of the electrochemical energy storage system technology present and its rated capacity.*
3. *"Energized electrical circuits."*
4. *If water reactive electrochemical energy storage systems are present the signage shall include "APPLY NO WATER."*
5. *Current contact information, including phone number, for personnel with technical knowledge of the system who is authorized to service the equipment and for fire mitigation personnel required by Section 1206.7.1.*

- **NOT COMPLIANT**. Signage for the energy storage system in compliance with the above requirements not provided.

3.10.9 Security of Installations (§1206.11.9)

Per *FCNYS §1206.11.9,* rooms, areas and walk-in energy storage system units in which electrochemical energy storage systems are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrical energy storage system and its components.

- **NOT APPLICABLE**. The Powin cabinet-style enclosures are not walk-in units and are not confined within an energy storage room. The Oak Hill PV and ESS facility is also confined within an 8' security fence with access gate, though review of site securities is outside the scope of this report.

3.10.10 Occupied Work Centers (§1206.11.10)

Several requirements are presented for electrochemical energy storage systems located in rooms or areas occupied by personnel not directly involved with maintenance service and testing, per *FCNYS §1206.11.10,* however the ESS units are not located in an occupied work center, thus this item is not applicable to the Oak Hill ESS installation.

- **NOT APPLICABLE**. ESS units are not located in an occupied work center.

3.10.11 Open Rack Installations (§1206.11.11)

Per *FCNYS §1206.11.11,* where electrochemical energy storage systems are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack.

- **NOT APPLICABLE**. Powin ESS units are located outdoors, with battery racks installed within cabinet-style enclosures.

3.10.12 Walk-In Units (§1206.11.12)

Per *FCNYS §1206.11.12,* walk-in energy storage system units shall only be entered for inspection, maintenance and repair of energy storage system units and ancillary equipment and shall not be occupied for other purposes.

- **NOT APPLICABLE**. The cabinet-style Powin ESS enclosures cannot be physically entered at any time and thus shall never be occupied.

3.11 Electrochemical Energy Storage System Protection *(§1206.12)*

Table 6 - FCNYS Table 1206.12 - Maximum Allowable Quantities of Electrochemical Energy Storage Systems (Lithium-ion)

Technology	Maximum Allowable Quantities[a]
Lithium-ion	600 kWh
a. For electrochemical energy storage systems units rated in Amp-Hours, kWh shall equal rated voltage times the Amp-hour rating divided by 1,000.	

3.11.1 Size and Separation (§1206.12.1)

Per *FCNYS §1206.12.1,* electrochemical energy storage systems shall be segregated into groups not exceeding 50 kWh (180 Mega joules). Each group shall be separated a minimum 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with *Chapter 10* of *FCNYS*. An exception may be made, allowing larger capacities or smaller separation distances to be permitted based on large-scale fire testing complying with *Section 1206.6.*

- **NOT APPLICABLE**. ESS units are located outdoors and not within any storage room or area.

3.11.2 Maximum Allowable Quantities (§1206.12.2)

Per *FCNYS §1206.12.2*, fire areas within rooms, areas, and walk-in energy storage units containing electrochemical energy storage systems shall not exceed the maximum allowable quantities in *FCNYS Table 1206.12.* An exception may be made where approved by the fire code official, electrochemical energy storage systems that exceed the amounts in Table 1206.12 shall be permitted based on a hazard mitigation analysis in accordance with *Section 1206.5* and large-scale fire testing complying with *Section 1206.6.*

- **NOT COMPLIANT**. The Oak Hill ESS exceeds the 600 kWh maximum allowable quantity limit for lithium-ion systems, and therefore an exception must be made by the fire code official based on large-scale fire testing and hazard mitigation analysis. UL 9540A unit level testing has been provided, though cell and module level test reports have not been submitted at the time of this writing. Additionally, no hazard mitigation analysis compliant with *FCNYS §1206.5* has been provided at this time.

3.11.3 Elevation (§1206.12.3)

Per *FCNYS §1206.12.3,* electrochemical energy storage systems shall not be located 1) where the floor is located more than 75 feet above the lowest level of fire department vehicle access, or 2) where the floor is located below the lowest level of exit discharge.

- **COMPLIANT.** ESS units are not located more than 75 feet above the lowest level of fire department vehicle access or located below the lowest level of exit discharge.

3.11.4 Fire Detection (§1206.12.4)

Per *FCNYS §1206.12.4,* an approved automatic smoke detection system or radiant energy – sensing fire detection system complying with *Section 907* shall be installed in rooms, indoor areas, and walk-in energy storage system units containing electrochemical energy storage systems. Alarm signals from detection systems shall be monitored by an approved supervising station in accordance with *NFPA 72.* Additionally, per *§1206.12.4.1,* where required by the authority having jurisdiction, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the energy storage system exist.

- **NOT APPLICABLE.** Per *FCNYS §1206.12.4,* fire detection is not required for the Powin ESS units, as they are not installed in rooms, indoor areas, and are not walk-in units. While not required, the Powin ESS shall be equipped with heat, smoke, and gas detection systems. Alarm signals from heat and smoke detectors should be provided in accordance with *NFPA 72.*

3.11.5 Fire Suppression Systems (§1206.12.5)

Per *FCNYS §1206.12.5,* rooms and areas within buildings and walk-in energy storage system units containing electrochemical energy storage systems shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:

1. *An automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm/ft^2 based on the fire area or on a 2,500 square feet (232 m^3) design area, whichever is smaller.*
2. *Where approved, based on large scale fire testing complying with Section 1206.6, an automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a sprinkler hazard classification.*
3. *Where approved, based on large scale fire testing complying with Section 1206.6, the following alternate automatic fire extinguishing systems designed and installed in accordance with Section 904:*

   3.1. NFPA 12, Standard on Carbon Dioxide Extinguishing Systems

   3.2. NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection

   3.3. NFPA 750, Standard on Water Mist Fire Protection Systems

   3.4. NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems

   3.5, NFPA 2010, Standard for Fixed Aerosol Fire Extinguishing Systems

- **NOT APPLICABLE.** The Powin ESS units are located outdoors and not within any room or area within a building or walk-in unit. Powin has opted to include Stat-X aerosol fire suppression system within each ESS enclosure.

3.11.6 Maximum Enclosure Size (§1206.12.6)

Per *FCNYS §1206.12.6,* outdoor walk-in energy storage system units housing energy storage systems shall not exceed 4,028 cubic feet (114 m^3), not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in energy storage system units exceeding these limitations shall be considered indoor installations and comply with the requirements in *Section 1206.14.*

- **NOT APPLICABLE.** The cabinet-style Powin ESS enclosures are not walk-in units and cannot be physically entered.

3.11.7 Vegetation Control (§1206.12.7)

Per *FCNYS §1206.12.7,* areas within 10 feet (3 m) on each side of an outdoor energy storage system shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted, provided that they do not form a means of readily transmitting fire.

- **COMPLIANT.** Area directly surrounding ESS units shall be cleared of vegetation, with gravel padding extending 10 feet or greater from each side of the ESS.

3.11.8 Means of Egress Separation (§1206.12.8)

Per *FCNYS §1206.12.8,* energy storage systems located outdoors shall be separated from any means of egress to ensure safe egress under fire conditions by no less than 10 feet (3048 mm).

- **COMPLIANT.** Energy storage systems are separated from any means of egress by greater than 10 feet.

3.12 Electrical Energy Storage System Technology Specific Protection *(§1206.13)*

Per *§1206.13,* electrochemical energy storage system installations shall comply with the following technology-specific requirements, as listed in *FCNYS Table 1206.13.* Requirements for lithium-ion systems are provided below.

Table 7 – FCNYS Table 1206.13 Electrochemical Energy Storage System Technology Specific Requirements (Lithium-ion)

Compliance Required[b]	Lithium-ion
§1206.13.1 Exhaust Ventilation	No
§1206.13.2 Spill Control and Neutralization	No
§1206.13.3 Explosion Protection	Yes

§1206.13.4 Safety Caps	No
§1206.13.5 Thermal Runaway	Yes[e]
b. Protection shall be provided unless documentation acceptable to the fire code official is provided that provides justification why the protection is not necessary based on the technology used. e. The thermal runaway protection is permitted to be part of an energy storage management system that has been evaluated with the battery as part of the evaluation to UL 1973.	

3.12.1 Exhaust Ventilation (§1206.13.1)

Per *FCNYS §1206.13.1,* where required by *FCNYS Table 1206.13,* exhaust ventilation shall be provided for rooms, areas, and walk-in energy storage system units containing electrical energy storage systems in accordance with the *International Mechanical Code and Section 1206.13.1* or *1206.13.1.2.*

- **NOT APPLICABLE.** Exhaust ventilation is not required for lithium-ion battery systems, per *FCNYS Table 1206.13.*

3.12.2 Spill Control and Neutralization (§1206.13.2)

Per *FCNYS §1206.13.2,* where required by *FCNYS Table 1206.13,* areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with *Section 1206.13.2.*

- **NOT APPLICABLE.** Spill control and neutralization is not required for lithium-ion battery systems, per *FCNYS Table 1206.13.*

3.12.3 Explosion Control (§1206.13.3)

Per *FCNYS §1206.13.3,* where required by *Table 1206.13*, explosion control complying with *Section 911* shall be provided for rooms, areas, or walk-in energy storage system units containing electrochemical energy storage system technologies.

Exceptions:

1. *Where approved by the fire code official, explosion control may be waived based on large scale fire testing complying with Section 1206.6 which demonstrates that flammable gases are not liberated from electrochemical energy storage system cells or modules.*
2. *Where approved by the fire code official, explosion control may be waived based on documentation provided that demonstrates that the electrochemical energy storage system technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in energy storage system unit or structure under thermal runaway or other fault conditions.*

- **NOT APPLICABLE.** Explosion control is not required, as the cabinet-style Powin ESS enclosure is not located within a room or area within a building, and is not a walk-in unit.

As an added layer of protection, the Powin ESS is also equipped with an HVAC system with emergency ventilation mode which provides at least 3800 CFM to fully exchange air within the enclosure. Stack level fans augment the HVAC to quickly dilute explosive gases and maintain concentrations below 25% of the LEL. CFD and ventilation analysis by third-party firms support that even in the case of multiple cells entering thermal runaway, explosive bases are maintained below the lower explosive limit and compliance with NFPA 69 is maintained.

3.12.4 Safety Caps (§1206.13.4)

Per *FCNYS §1206.13.4,* vented batteries and other energy storage systems shall be provided with flame arresting safety caps.

- **NOT APPLICABLE.** Safety caps are not required for lithium-ion battery systems, per *FCNYS Table 1206.13.*

3.12.5 Thermal Runaway (§1206.13.5)

Per *FCNYS §1206.13.5,* where required by *Table 1206.13,* batteries and other energy storage systems shall be provided with a listed device or other approved method to prevent, detect, and minimize the impact of thermal runaway. As noted in *FCNYS Table 1206.13 note e*, thermal runaway protection is permitted to be part of an emergency storage management system that has been evaluated with the battery as part of the evaluation to UL 1973.

- **COMPLIANT.** Powin ESS units are equipped with StackOS battery and energy management system to provide monitoring the system, early detection of abnormal conditions, triggering of corrective actions, and alarm notifications to minimize the potential for thermal runaway and minimize impact if a thermal runaway event should occur. Battery modules are certified to UL 1973.

3.13 Indoor Installations *(§1206.14)*

- **NOT APPLICABLE.** The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

3.14 Outdoor Installations *(§1206.15)*

Per *FCNYS §1206.15,* outdoor installations shall be in accordance with *§1206.15.1* through *1206.15.3.* The Oak Hill ESS is located more than 100 feet (30.5 m) from buildings, lot lines, public ways, hazardous materials, high piled stock, and other exposure hazards, and is therefore classified as a *remote* installation, per *FCNYS Table 1206.15.*

Table 8 - FCNYS Table 1206.15 Outdoor Energy Storage System Installations (Remote Installations)

Compliance Required	Remote Installations[a]

§1206.11 General Installation Requirements	Yes
§1206.12.1 Size and Separation	No
§1206.12.2 Maximum Allowable Quantities	No
§1206.12.4 Smoke and Automatic Fire Detection	Yes
§1206.12.5 Fire Suppression Systems	Yes[d]
§1206.12.6 Maximum Enclosure Size	Yes
§1206.12.7 Vegetation Control	Yes
§1206.12.8 Means of Egress Separation	Yes
§1206.15.3 Clearance to Exposures	Yes
§1206.13 Technology Specific Protection	Yes
a. See *Section 1206.15.1.* d. Where approved by the fire code official, fire suppression systems are permitted to be omitted.	

3.14.1 Remote Outdoor Installations (§1206.15.1)

For the purposes of *FCNYS Table 1206.15* (excerpt for remote installations above), remote outdoor installations include energy storage systems located more than 100 feet (30.5 m) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high piled stock, and other exposure hazards.

- **COMPLIANT.** The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

3.14.2 Installations Near Exposures (§1206.15.2)

- **NOT APPLICABLE.** The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

3.14.3 Clearance to Exposures (§1206.15.3)

The following table provides a summary of clearance requirements listed per *FCNYS §1206.15.3,* in which energy storage systems located outdoors shall be separated by a minimum 10 feet (3048 mm) from each exposure.

Table 9 - §1206.15.3 Clearance to Exposures

Compliance Required	Comments
1. Lot lines	**Compliance requirement met.** Nearest lot line is located greater than 500' from all ESS units.

2. Public ways	**Compliance requirement met.** Nearest public ways are located greater than 900' from all ESS units.
3. Buildings	**Compliance requirement met.** No buildings are located in the immediate area or within the Oak Hill ESS fenceline (~300 from nearest ESS).
4. Stored combustible materials	**Compliance requirement met.** No stored combustibles identified near ESS units.
5. Hazardous materials	**Compliance requirement met.** No hazardous materials identified near ESS units.
6. High-piled storage	**Compliance requirement met.** No high-piled storage identified near ESS units.
7. Other exposure hazards	**Compliance requirement met.** No other exposure hazards identified near ESS units.

Exceptions:

1. Clearances from exposures are permitted to be reduced to 3 feet (914 mm) where a 1-hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1.5 m) above and 5 feet (1.5 m) horizontally beyond the physical boundary of the energy storage system installation is provided to protect the exposure.
2. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible walls without openings or combustible overhangs are provided on the wall adjacent to the energy storage system and the fire-resistance rating of the exterior wall is no less than 2 hours.
3. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the energy storage system, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large scale fire testing complying with Section 1206.6.
4. Where exterior wall installations in accordance with Section 1206.15.4 are provided, the clearance between the energy storage system and the wall in which it is mounted, is permitted to be reduced to zero.

3.15 Special Installations *(§1206.16)*

- **NOT APPLICABLE**. The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

3.16 Mobile Energy Storage System Equipment and Operations *(§1206.17)*

- **NOT APPLICABLE**. The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

3.17 Energy Storage Systems in Group R-3, and R-4 Occupancies *(§1206.18)*

- **NOT APPLICABLE.** The Oak Hill ESS is classified as a *remote outdoor installation*, per *FCNYS Table 1206.15.*

4 ADDITIONAL CONSIDERATIONS

The following considerations and recommendations around battery safety and emergency response are provided for the Oak Hill energy storage site.

4.1.1 Water Supply

While not explicitly required by *FCNYS §1206*, an onsite water supply may provide an extra layer of defense against propagation of fire from a lithium-ion system to the surrounding area such as electrical equipment or solar panels (and vegetation beneath the panels) near the ESS units. Given that the site is remotely located with no fire hydrants or other sources of water, and the ability of the fire department to shuttle water may be limited, it is advisable that water tanks or other dedicated source of water are provided onsite in case of emergency. Coordination with the local fire department should be pursued to determine if additional resources are needed and, if desired, what design criteria or other requirements should be provided.

Guidance on water supply is also given in *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems §4.13:*

Table 10 - NFPA 855 §4.13 Water Supply Requirements

4.13.	***Water Supply.***
4.13.1	*Where required elsewhere in this standard, sites where nonmechanical ESS are installed shall be provided with a permanent source of water for fire protection.*
4.13.2	*Where no permanent adequate and reliable water supply exists for fire-fighting purposes, the requirements of NFPA 1142 shall apply.*

4.1.2 Emergency Response Plan

The following items may be helpful to include in the site-specific emergency response plan:

- Emergency power off and confirmation procedures should be more clearly delineated in the emergency response plan as it pertains to specific site equipment and protocols.
- Alarm system notification to the fire department should be more clearly explained.
- Enlarged site plan with key equipment and other locations highlighted.
- It is recommended that the emergency response plan be securely stored in a lock box or other secure, all-weather enclosure onsite which shall be readily available to first responders.

5 CONCLUSIONS

Based on the information on the Oak Hill ESS project provided by Amp Solar Development, ESRG finds that the project is largely compliant with *FCNYS §1206*, with some additional documentation outstanding, as noted in the sections above. These documents and any other required items should be provided to the local fire code official / authority having jurisdiction for approval prior to commissioning of the system.

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer **"Yes"** to a numbered question, please complete all the questions that follow in that section.
- If you answer **"No"** to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land
Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1)
If "Yes", answer questions a - j. If "No", move on to Section 2.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☑	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☑	☐
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☑	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☑	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☑	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☑	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☑	☐
h. Other impacts: _____		☐	☐

2. Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____	E2g	☐	☐
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	☐	☐
c. Other impacts: _____		☐	☐

3. Impacts on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h) ☐ NO ☑ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	☑	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	☑	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	☑	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	☑	☐
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	☑	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	☑	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	☑	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	☑	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	☑	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	☑	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	☑	☐

l. Other impacts: _____ _____		☐	☐

4. Impact on groundwater

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t) ☑ NO ☐ YES

If "Yes", answer questions a - h. If "No", move on to Section 5.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	☐	☐
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	☐	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	☐	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	☐	☐
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	☐	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	☐	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	☐	☐
h. Other impacts: _____ _____		☐	☐

5. Impact on Flooding

The proposed action may result in development on lands subject to flooding. (See Part 1. E.2) ☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", move on to Section 6.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	☐	☐
b. The proposed action may result in development within a 100 year floodplain.	E2j	☐	☐
c. The proposed action may result in development within a 500 year floodplain.	E2k	☐	☐
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	☐	☐
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	☐	☐
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	☐	☐

g. Other impacts: _____		☐	☐

6. Impacts on Air

The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO_2)	D2g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N_2O)	D2g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF_6)	D2g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐
vi. 43 tons/year or more of methane	D2h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐
f. Other impacts: _____		☐	☐

7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) ☐ NO ☑ YES

If "Yes", answer questions a - j. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☑	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☑	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☑	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☑	☐

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	☑	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	☑	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	☑	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____ _____	E1b	☑	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	☑	☐
j. Other impacts: _____ _____		☐	☐

8. Impact on Agricultural Resources
The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☐NO ☑YES
If "Yes", answer questions a - h. If "No", move on to Section 9.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	☑	☐
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, E1b	☑	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	☑	☐
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	☑	☐
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E1 a, E1b	☑	☐
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	☑	☐
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	☑	☐
h. Other impacts: _____		☐	☐

9. Impact on Aesthetic Resources
The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.)
If "Yes", answer questions a - g. If "No", go to Section 10.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☐	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☐	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	☐ ☐	☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	☐ ☐	☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☐	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile ½ -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☐	☐
g. Other impacts: _____		☐	☐

10. Impact on Historic and Archeological Resources
The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.)
If "Yes", answer questions a - e. If "No", go to Section 11.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☑	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☑	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☑	☐

d. Other impacts: _____		☐	☐
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	☑	☐
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	☑	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	☑	☐

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
(See Part 1. C.2.c, E.1.c., E.2.q.)
If "Yes", answer questions a - e. If "No", go to Section 12.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2c, E1b E2h, E2m, E2o, E2n, E2p	☑	☐
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	☑	☐
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	☑	☐
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	☑	☐
e. Other impacts: _____		☐	☐

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d)
If "Yes", answer questions a - c. If "No", go to Section 13.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	☐	☐
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	☐	☐
c. Other impacts: _____		☐	☐

13. Impact on Transportation
The proposed action may result in a change to existing transportation systems. ☑ NO ☐ YES
(See Part 1. D.2.j)
If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☐	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☐	☐
c. The proposed action will degrade existing transit access.	D2j	☐	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☐	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☐	☐
f. Other impacts: _____		☐	☐

14. Impact on Energy
The proposed action may cause an increase in the use of any form of energy. ☑ NO ☐ YES
(See Part 1. D.2.k)
If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☐	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☐	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☐	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☐	☐
e. Other Impacts: _____			

15. Impact on Noise, Odor, and Light
The proposed action may result in an increase in noise, odors, or outdoor lighting. ☐ NO ☑ YES
(See Part 1. D.2.m., n., and o.)
If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☑	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☑	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☑	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☑	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☑	☐
f. Other impacts: _____		☐	☐

16. Impact on Human Health
The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.) ☑ NO ☐ YES
If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No,or small impact may occur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	☐	☐
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	☐	☐
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	☐	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	☐	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	☐	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	☐	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	☐	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	☐	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	☐	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	☐	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	☐	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	☐	☐
m. Other impacts: _____			

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. (See Part 1. C.1, C.2. and C.3.) ☐ NO ☑ YES

If "Yes", answer questions a - h. If "No", go to Section 18.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☑	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☑	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☑	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☑	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, E1b	☑	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☑	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☑	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character

The proposed project is inconsistent with the existing community character. (See Part 1. C.2, C.3, D.2, E.3) ☐ NO ☑ YES

If "Yes", answer questions a - g. If "No", proceed to Part 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☑	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☑	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☑	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☑	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☑	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☑	☐
g. Other impacts: _____ _____		☐	☐

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