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August 21, 2026

VIA EMAIL AND FEDERAL EXPRESS

Town of Saugerties Planning Board
Attn: Becky Bertorelli, Planning Board Secretary
Saugerties Town Hall
4 High Street, Saugerties, NY 12477

RE: KCE NY 34, LLC - Site Plan Review and Special Use Permit
Project Located: 7 Tomsons Road (SBL 18.1-4-5.100)
Submission for the August Planning Board Meeting

Dear Ms. Bertorelli:

Our office serves as local counsel to KCE NY 34, LLC. Please find enclosed nine (9) copies of KCE NY 34, LLC's August submission documents.

Very truly yours,



E. Hyde Clarke, Esq.

cc: Paul Williamson, KCE NY 34, LLC (email only)
Amanda Stank, EDR (email only)
Robin James (email only)

August 21, 2026

KCE NY 34 LLC Response to Nelson Pope Voorhis (NPV) Memorandum
Dated July 17, 2026

NPV Memorandum Sent To: *Howard Post, Planning Board Chair*
Members, Saugerties Planning Board

Sent From: *Adriana Beltrani, AICP*
Dylan Tuttle

Re: KCE NY 34 LLC, 7 Tomsons Road, #150, SBL 18.1-4-5.100

Please note that all KCE responses are in red.

Previously reviewed items are enumerated in prior memoranda.

The proposed project includes the construction of a 100MW/400MWh battery energy storage system (BESS) with associated transformer, breakers, and fencing on a 59-acre parcel that gains access from Tomsons Road. The project is located within the Industrial district and the Aquifer Protection Overlay district, and the use is permitted with site plan and special use permit as Electric, Gas and Sanitary Services.
New comments are in **bold**. Prior comments that remain relevant are underlined. Previously addressed comments where no further action is required have been removed for clarity and can be found on prior memos.

Submission Status 7/21:
1. **Application Status. The applicant has included additional studies, most notably a project-specific draft Emergency Response Plan and updated noise study, along with an updated plan set. At this stage, we believe that the only outstanding studies left to be submitted are the geotechnical report and the plume analysis. This should be confirmed by the applicant.**
The Plume Study Report, Geotech Report, Property Value Report, and Site Specific Adjacent Property Value Impact Reports are being submitted with this response package.

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As the Board is aware, we received submissions from firms interested in serving as a consultant to the Board to review safety-related materials and answer Board members' questions. At the June meeting the Board authorized the chairman to select from among the respondents. Since that time, the responses were reviewed and interviews were conducted. A final selection is expected shortly. 2. **The Town Engineer provided comments on the SWPPP in a memo dated July 17th, 2026. We continue to defer to the engineer on these issues.**
A response to comments and questions from the Town Engineer is being provided as a separate document with this response package.

3. Emergency Response Plan. The applicant has clarified that this is an example ERP from their most recent similar project. Project ERPs are generally done further along in the process for reasons outlined in the applicant's response memo. We suggest the following: a. Town review of the draft example ERP to commence prior to the issuance of any conditional approvals;
b. Final approval to be conditioned on review and approval of the ERP by NYSERDA, the Centerville Fire Chief, Planner, Engineer and/or Planning Board Attorney as may be necessary. In addition, a third-party consultant may be retained by the Town to review the ERP prior to approval;
c. Special Use Permit to be conditioned upon adherence to the ERP. The applicant should notify the Building Department and Centerville Fire Chief of any changes to the ERP, specifically changes in technology, contact information, or approaches to hazard management. Should the Fire Chief or third-party consultant deem these changes substantive, amendments to the Special Use Permit may be required. We will work with the Town and Planning Board Attorney to ensure that these conditions are clearly outlined.

5/19 – Having now been involved with multiple BESS reviews in other communities, we note that it appears to be standard for applicants to include a draft version of the ERP specific to the project site in their application materials. We question why that is not possible for this project. We suggest that a special BESS subconsultant could opine on this if retained.
6/16 – The applicant has agreed to develop a draft site-specific ERP, which will be submitted on completion. **7/21 – A Draft ERP has been included with this submission. We defer detailed review of this document to the safety subconsultant. We do note that the emergency contact information will need to be updated. The hospital in Kingston is known as HealthAlliance Hospital, and we believe that the Centerville and Cedar Grove fire departments are the appropriate fire contacts.**
KCE has made note of this and the information will be updated in future iterations.

4. The site survey and entrance details to this site and the Esopus Ridge Solar project need to be further coordinated. We note a number of discrepancies between the applications. *4/21 – comment remains, applicant states that this work is in progress. 5/19 – The applicant states that the two applicants have compared preliminary designs, but that the substation tie-in route and the Esopus Ridge access drive are not yet finalized. Once the Esopus Ridge access drive design is finalized (assuming it is finalized during review of KCE NY 34), we request that the overlay be depicted on a plan sheet. If Central Hudson has not yet selected a tie-in route at that time, both should be shown. 6/16 – Comment remains, a coordinated sheet is to be provided. Our recent site visit for an Esopus Ridge ecological review reinforced the need to show this overlap, as it appears the Esopus Ridge access drive and gen-tie route 1 (should that option be selected by CHGE) may be close enough to require some adjustment.* **7/21 – An overlay has been provided in this submission, and the gen-tie riser pole location has been adjusted. Comment addressed.**

5. A memorandum from our ecologist is attached to this memo. A site visit is requested to confirm the wetland delineation provided to the Board. *4/21 – the applicant responded to the ecology memo. A site visit is scheduled. 5/19 – A site visit occurred on April 17. An updated ecology memo is attached. 6/16 – The applicant provided responses to the ecology memo. Several comments need to be addressed on the next plan set submission and thus remain open. Once that has happened, our biologist will address any remaining concerns.* **7/21 – The applicant has provided an updated response to the ecology memo. The tree survey has been conducted. 245 trees with a dbh of 6 inches or more have been identified. Roughly half of these are at the proposed battery/substation site, and the other half are along Gen-Tie Route 1. The identified vernal pool has been added to the site plans and incorporated into the "Listed Species Review, Habitat Assessment, and Preliminary Impact Determination" memo and the EAF. Seeding notes have also been added to the plans. The response letter and plan/memo updates are being reviewed by our biologist.**
6. A public hearing will be required for the special use permit.
7. Referrals. As an unlisted action with a disturbance greater than one acre of land, this project does need to be submitted to the Ulster County Planning Board for GML-239 review. The County has requested that all documentation deemed necessary by the Board for a SEQR determination be submitted prior to this referral.
8. Peer review by NYSERDA will be required prior to the receipt of building permits.

Zoning

1. The project requires a Special Use Permit and is thus subject to §245-34. Of particular importance to this review is D(2)(b), Fire and explosion hazards; (2) (g) and (i) Smoke and other forms of air pollution; (j) discharge of water. We note that concerns related to these topics relate exclusively to emergency hazard scenarios. The applicant has provided a response to Special Permit considerations in their cover letter, and exploration of these topics will continue through the State Environmental Quality Review of the project. *3/17- Comments: a. Noise: The applicant should submit manufacturers' noise rating data for all major components and ancillary equipment, as well as compute the sound level reduction to the lot line (using SEQR noise impact analysis policy procedures) to demonstrate compliance. 4/21 – The applicant states that they have engaged a consultant for a noise study. 5/19 – A sound study has been included in this submission. The study indicates that the project will meet the Special Permit requirement of a maximum of 70 dBa at the property line with the inclusion of three sound wall sections. We offer the following comments on the study. 6/16 – The applicant has provided responses to these comments as detailed below and indicates that the study will be updated.* **7/21 – an updated sound study was included with this submission. We have begun to review it and will provide detailed comments in our next memo.** *Comments related to regulatory requirement/study methodology: i. Is 2-hour discharge the loudest operating mode? 6/16 – Applicant confirms that this is the loudest operating condition.*
ii. Do other factors (such as level of cooling required) impact noise levels? 6/16 – Applicant states that cooling is the primary noise generator, and that it is modeled at full power.

iii. The study uses sound pressure data from the manufacturer for the containers and inverters. These data should be included as an appendix. Are vendor data not available for the transformer? 6/16 – Applicant states that underlying vendor data for the containers is considered proprietary and may not be shared by KCE, that data for the inverters will be included in the updated submission, and that transformers are generally custom and thus specifications are not available and transformer noise was estimated using a noise study guidance document.
iv. Include a description of assumed temperature/wind/humidity/etc. and describe how different weather conditions can impact noise. 6/16 – Applicant states that sound was modeled under worst-case conditions, which they describe.
v. How much would adjustments to the G-factor impact the study results? 6/16 – Applicant states that sound could vary by about 6 dBA between very hard and vary soft ground.
Comments related to an acoustically comprehensive study:

vi. We recommend that ambient sound levels be collected for day and night conditions. We believe this was discussed at the April 21st meeting. 6/16 – Applicant states that this will be incorporated into a revised study.
vii. We recommend that the study include a discussion of cumulative noise impacts, discussing the real-world impact of adding the project's sound to the existing traffic/substation/commercial/etc. noise in the area during daytime and nighttime conditions. 6/16 – Applicant states that this will be incorporated into a revised study.
viii. We recommend that a tonal analysis be provided and the nature of the sounds produced by the project be described. 6/16 – Applicant states that this will be incorporated into a revised study.
b. In their cover letter, the applicant states that the project would have no impact on Smoke/Odors/Other Forms of Air Pollution or Discharge of Water, but the response should consider emergency hazard scenarios and should note where in the Safety, Fire, and Explosion Prevention documents these issues are addressed. This should be included in a SEQR Part 3 response once the Part 2 EAF is adopted. 4/21 – The applicant has provided a response to this comment in their April 7, 2026 response letter. As noted above, this issue will also be addressed in a SEQR Part 3.
c. Established best practices for BESS should be considered by the Board during their Special Use Permit evaluation. We note that the Planning Board may "impose additional conditions and safeguards upon the special use permit as may be reasonably necessary."
2. §245-25, Aquifer Protection Overlay District. The applicant should provide a narrative regarding project compliance with this section, including any hazards to the aquifer associated with an emergency event- see subsection D.(3), particularly subsection (e), (f), (h). The Board should be aware that D.(4) of this section outlines criteria for site plan review. *3/17- To be provided.*

4/21 –The applicant has provided an Aquifer Protection District compliance narrative that addresses §245-25 and includes a list of system chemicals. We will evaluate compliance with this section as SEQR progresses.

Planning/Site Plan
1. The applicant has provided two options for the connection to the Central Hudson substation. Option one includes a portion of underground utilities to connect to overhead lines crossing through a small portion of the federal wetlands, with a note that tree removal in this area would be non-mechanical, with stumps to remain. Option two is a fully underground connection that avoids the wetlands. The applicant should provide documentation to the Board outlining the rationale for each option. Wetland and tree

disturbance should be minimized to the maximum extent practical per §245-35, special use permit criteria. *3/17- The applicant has clarified that their preference is Option Two, but because of the proximity of that connection to the substation they had to provide Central Hudson with an alternative that gave a wider berth. Will the easement area be adjusted if Option Two is selected? 4/21 – Comment addressed, applicant is still awaiting a decision from Central Hudson.*

2. Applicant states that they have secured access to the site through parcel number 17.16-2-25.110. Documentation should be provided. *3/17- Comment remains, copies of agreements and deed records should be provided. 4/21 – Comment addressed, we defer to the attorney on the details of the easements and agreements.*

3. A decommissioning plan has been provided. We will work with the Planning Board Attorney to review and comment regarding the conditions of same, bonds, agreements or other sureties to be submitted.

4. Utilities are proposed to cross a Central Hudson right-of-way- does this require an easement? *3/17: Comment remains, applicant states that a crossing agreement application has been submitted to Central Hudson.*

5. Sheet C-001, C-002- the area of tree disturbance should be quantified on the plan set. *3/17: Comment remains- please see ecology memo for additional context- the nature of tree clearing such as individual trees with a DBH of six inches or greater, and snags/dead/dying trees should be identified, particularly adjacent to the wetlands. 4/21 – Comment partially addressed. Applicant has calculated that tree clearance is approximately 3.5 acres, not 4.6 as initially presented. This change is reflected in the EAF and represented on the plans. Individual trees with a DBH greater than 6 inches are not shown. 5/19 – The provision that trees greater than 6 inches be shown on the plans can be found at §245-33C(2)(t). This provision can be waived by the Board. The purpose of this provision is a) to determine if any project adjustments could be made to save specimen trees, and b) to evaluate the maturity of the forest in order to better assess the impact of the project. The latter consideration is more applicable to this project. Given that we have identified impacts to the forest and its inhabitants as potential Moderate to Large Impacts in the EAF Part 2, we recommend that the Board not waive this provision. We note that it only applies to the area proposed to be cleared, not to the entire parcel. 6/16 – The applicant states that this will be included in the next submission. Our understanding is that field work has been conducted, but that additional work remains to be done and the applicant is seeking confirmation from the Board that the work is required.* **7/21 – As noted above, the tree survey has been included in the plan set with this submission and is being reviewed by our ecologist.**

6. The applicant has provided a desktop viewshed analysis. The legend includes points that are not shown on the map. It is unclear what this analysis is showing and what methods

were utilized in its determination- this document should be updated. *3/17: Comment remains. 4/21 – The applicant has provided an updated visual assessment. The submission is a desktop analysis*

using a Digital Surface Model, which uses LIDAR to make a 3D rendering of site conditions and allows for a desktop visual assessment that considers trees, buildings, etc., and not just topography. This is likely a more accurate approach, but a less conservative one than the simpler digital elevation model. The result indicates limited project visibility, with some view lines in the Route 32/Kings Highway area and a few points near Augusta Savage Rd (Winston Farms project). Note that in many of these locations only the tallest project components (such as transmission poles) would be visible. **7/21 – The visual analysis report was included again with this submission, but it is not clear that anything was updated besides the date. The applicant should note if there was a substantive reason for the resubmission.**

The Visibility Analysis Report dated July 1, 2026 was updated to incorporate the proposed sound walls as a data input parameter in the viewshed modeling. The updated viewshed analysis determined that the sound walls resulted in no discernable changes to the viewshed analysis. This is due to the forested nature of the surrounding area, as well as the taller lightning protection, A-frames, and light posts that had previously been included.

Therefore, the only update reflected in the July 1, 2026 Visibility Analysis memo is the addition of the following text to the list of data parameters:

"2 sample points representing the sound wall at a 12-foot height"

See highlighted text in the below exert from page 2 of the updated memo:

- 136 sample points representing the proposed battery storage units (9.5-foot height), 35 sample points representing proposed transformers (7.5-foot height), 19 sample points representing light posts (30-foot height), 4 sample points representing lightning protection (65-foot height), 4 sample points representing transmission structures (55-foot height), 11 sample point representing the sound walls at a 14-foot height, 2 sample points representing the sound wall at a 12-foot height, and 2 sample points representing A-frame structures (55-foot height);

7. The applicant is proposing light poles that are no higher than 30 feet. Best practice is a maximum height of 18 feet for non-pedestrian areas. We do understand that these lights will

only be used during maintenance. Regardless, a lighting plan should be provided. *3/17: Comment remains. 4/21 – The applicant has provided a lighting plan. Fixtures are dark-sky compliant, but the 3,000K option should be selected. Lights are still proposed at 30 feet. Given that these fixtures are only for use during maintenance, we do not have a strong opinion on the height. 5/19 – The applicant has indicated that they will use the 3,000K option. This should be updated on the lighting plan. 6/16 – Comment remains, a new plan set has not yet been submitted.* **7/21 – Comment addressed.**

8. Survey comments: a. General note 7 states that the parcels have "access to a dedicated public right-of-way known as Tomsons Road." The access easement shown on the survey only extends part of the way down Tomsons Road, though the entirety is on private property. The applicant should clarify the status of the road from the end of the access easement to the road's intersection with Route 32 and provide any appropriate documentation. We note that the proposed Esopus Ridge solar project includes an easement that runs the length of Tomsons Road. *4/21 – Comment addressed. We recommend the easement be provided to the Planning Board Attorney for review.*

b. The survey includes a set of green lines labeled "Access Easement Lines" in the legend. Given that easements are proposed for this project, it would be helpful if the survey specified any easements that are associated with other developments and listed to whom they were granted. *4/21 – Applicant states that they have requested an updated title report and will add any newly-recorded easements to the survey.*

9. The applicant should provide a plan showing the proposed access for the neighboring solar project as well as any easements associated with that project, overlaid on the plans for KCE NY 34. The applicant should ensure that any adjoining wetland delineations align on the materials provided by the two projects. The applicant states that they have met with the solar developer and will compare and coordinate access, environmental mapping, and other relevant project elements. *4/21 – Applicant states that they are working to coordinate with solar project representatives. 5/19 – As noted above, the two applicants have compared preliminary designs, but the substation tie-in route and the Esopus Ridge access drive are not yet finalized. Once the Esopus Ridge access drive design is finalized (assuming it is finalized during review of KCE NY 34), we request that the overlay be depicted on a plan sheet. If Central Hudson has not yet selected a tie-in route at that time, both should be shown. We defer to the Biologist on wetland delineations. 6/16 – As noted above, a plan showing the Esopus Ridge driveway and the KCE gen tie option 1 will need to be shown as their proximity may necessitate site changes.* **7/21 –Comment addressed.**

1. The lease area, the easement area between the lease area and the substation, and the access easement that runs along part of Tomsons Road are all

described on Page 2 of the survey. As noted above, we are awaiting clarification on the status of the remainder of Tomsons Road between the access easement area and Route 32. Copies of agreements and deed records should be provided. *4/21 – Comment addressed. We recommend the easement be provided to the Planning Board Attorney for review.*

2. The applicant should provide a photometric plan and light fixture spec sheets. As noted in the Planning best practice comments below, fixtures should be full cut-off and light trespass onto neighboring properties should be strictly limited. *4/21 – Comment addressed. Fixtures selection should be adjusted to the 3,000K option. As noted above, we do not have a strong opinion on the height given that the lights are turned on for maintenance only. 5/19 – As noted above, the lighting plan should be updated to reflect 3,000K fixtures. 6/16 – Comment remains, a new plan set has not yet been submitted.* **7/21 – Comment addressed.**

3. Sheet C-101/201/301: The applicant should clarify the "battery containers and MV transformers for future augmentation" shown at the north end of the site. Is this an area for future expansion? If so, how much capacity could be added, what would trigger the expansion, and how will that be built into the emergency response documents? If expansion is built into the project, the special use permit review and SEQR should consider future phases of the project if they can be reasonably anticipated. The threshold for any site plan/SUP amendments needs to be clearly understood. *4/21 – Applicant states that this area is to accommodate additional batteries to account for the lower efficiency of batteries on the site over time. As batteries become less efficient, the applicant could supplement them in order to remain at the 100MW capacity. Will the augmentation containers and transformers be constructed at the same time as the rest of the project?*
5/19 – Applicant clarifies that containers and other equipment would be constructed later. They are seeking plan approval for that now to avoid needing to come in for a site plan amendment. The Board should determine whether they are comfortable approving a multi-phase plan. If the Board retains a BESS consultant, it may wish to get input on whether this approach is advisable, and what future review would be required pursuant to the Fire Code at the time of future installation. 6/16 – Comment remains and should be discussed by the Board, potentially with a hired BESS safety specialist.

4. Sheet C-103: The applicant has provided a signage plan including five

safety/informational signs posted on the fencing and addressed signage in their Cover Letter. Best practice materials considered as part of our review recommend the following:

a. All signs shall comply with ANSI Z535 standards and shall include the type of technology associated with the battery energy storage system, any special hazards associated with the system, the type of suppression system installed in the area of the battery energy storage system, and 24-hour emergency contact information, including reach-back phone number.

b. As required by the National Electrical Code, disconnect and other emergency shutoff information shall be clearly displayed on a light-reflective surface. A clearly visible warning sign concerning high voltage shall be placed at the base of all pad-mounted transformers and substations.

While some of these recommendations are met by the proposed signage plan, for others it is not clear. The applicant should expand on their cover letter comment, discussing how the signage plan meets these recommendations. *4/21 - Comment remains. Was the signage plan updated in response to this comment, or is it the applicant's position that the initial plan met these recommendations? If so, please explain. 5/19 – Applicant requests that because signage requirements and best practices may change, compliance with ANSI Z535 be a condition of approval. We recommend that this is acceptable but ask the applicant to confirm that the signage plan shown on the plan set meets the current requirements as described in our original comment.* *6/16 – Applicant states that any necessary changes will be made to the next site plan submission.* **7/21 – Comment addressed.**

SEQR/Coordination 7/21

1. Classification. This is an unlisted action. An NOI was circulated after the February meeting and circulation to an additional identified agency (the NYS Department of Public Service) occurred in April. **The applicant provided an updated EAF Part 1 with this submission. In June NYSDEC released an updated version of the EAF with additional questions. We recommend that all applicants who have not completed SEQR resubmit the EAF using this new form. We will then provide an updated EAF Part 2 response.**

A revised EAF using the updated form is provided with this submission.

2. *6/16 – The applicant has provided a response to many of the items marked as potential Moderate to Large Impacts on the draft EAF Part 2 and requested that certain items be reconsidered and moved to "No or Small Impact." This includes 3.h. (on stormwater), 3.i. (on water quality), 7.g. (on habitat), and 15.a. (on noise). Identification of a potential Moderate to Large Impact is not a guarantee of a finding of significance, as the potential impact can be mitigated by appropriate measures. In each of the above-listed instances, the applicant cites mitigation measures they have proposed, including through the SWPPP, tree-cutting seasonal limits, and a sound study that recommends sound walls. Those measures can be considered by the Board in their Part 3 analysis. We do not recommend that those items be changed.*
3. We note a letter of no effect has been provided by SHPO.

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EDR

August 21, 2026

Mr. Paul Larios, PE
Brinner and Larios P.C.
67 Maiden Lane
Kingston, NY 12401

RE: NY-34 SWPPP Review Comment Responses
KCE NY-34
Ulster County, New York
EDR Project No. 20198

Dear Mr. Larios:

This letter is in response to your comment letter dated July 17, 2026, to Key Capture Energy (KCE) regarding the Stormwater Pollution Prevention Plan (SWPPP) for the NY-34 Battery Energy Storage Project. Our responses below correspond with the comments within your letter.

1. The SWPPP report characterizes this as a redevelopment project that disturbs existing impervious area. The existing 59.8-acre property appears to contain approximately 1 acre of existing gravel area, with much of the remaining property being previously undisturbed forested area. Thus, we disagree that this is a redevelopment SWPPP and would guide the applicant to consider this a new development.

Response: The SWPPP is referred to as redevelopment with an increase in impervious area because of the disturbance of existing impervious portions of the site plus the addition of new impervious area. The requirements remain for 25% of existing disturbed impervious and 100% of new impervious surface to be treated as described in Part II.C.2.d of the SPDES general permit. The stormwater management approach complies with these requirements.

2. The SWPPP cites a proposed disturbance area of 7.1 acres. This would require a phasing plan, as no more than 5 acres may be disturbed at once.

Response: A phasing plan has been included in the SWPPP. Refer to section 6.2b. of the SWPPP and drawing C-303.

3. Section 8.2 of the SWPPP report cites "Channel Protection Volume is provided through the alternative cross section via complete infiltration." However, no supporting calculations are provided to support this.

Response: The channel protection volume (CPv) requirement is met because reduction of the entire CPv is achieved through infiltration. The CPv requirement is the attenuation of the stormwater runoff generated from the 1 year 24-hour storm. The stormwater management approach is to attenuate the 100-year storm through infiltration, therefore also meeting overbank flood control and extreme flood control criteria, Qp and Qf. In accordance with the SPDES general permit part II.C.2.c CPv, Qp, and Qf are not required if there is not an increase in the discharge rate and volume from the site. Refer to the Appendix H stormwater management memo table 2 for pre and cost construction flows showing a decrease in runoff from the site.

4. The values for existing impervious area of 2.0 acres and future impervious area of 3.6 acres as cited in the NOI do not match what is displayed in the HydroCAD model or what is used in the Water Quality Volume (WQv) calculations. The HydroCAD model shows 2.48 acres of existing impervious area, and 4.07 acres of proposed impervious area. The applicant should provide accurate area calculations that match for all calculations. The proposed work appears to include a 1.6-acre increase in impervious area, and a 2.6-acre decrease in forested area.

Response: The ENOI online form limits the input value to one decimal place. The values are as stated in Table 1 of the Stormwater Management Memo. The watersheds described in the HydroCAD model include areas that are outside of the Limit of Disturbance of the project. They are not counted as part of the project's existing impervious area however they are a part of the surrounding watersheds. The additional impervious area is from the cell tower access road and associated buildings in watershed P-2 and E-2. The impervious areas described in table 1 of the stormwater management memo are accurate. Note that there is 0.15 acres of the reconstructed gravel access road that is outside the site watershed P-5, accounting for the difference between the impervious area treated by the practice and the total post construction impervious area.

5. In the NOI (#62), it is stated that the linear work being done outside of the main project area is being omitted from water quality (WQv) calculations. Unless justification is provided for this omission, we believe the linear work should be included in the water quality calculations.

Response: WQv calculations are derived from the change in impervious area of the site. The proposed linear utility work will not result in a change in land cover types. The linear work is included in the total disturbance of the project but it does not necessitate additional post construction controls. The linear work will be governed by part 6 of the SWPPP, stormwater controls during construction.

6. The WQv calculations use a 90% rainfall value of 1.0 inches. Figure 4.1 in the NYS DEC Stormwater Design Manual shows that the 90% rainfall for this project area would likely be either 1.5 or 1.6 inches. These calculations will need to be revised accordingly.

Response: The WQv storm has been changed to 1.5 inches and the revised calculations are shown in the WQv calculation sheet and table 1 of the stormwater management memo. Note the project is already designed to the 100-year storm rainfall of 8.51 inches, not the 1-year 24-hour 90% storm.

7. It is unclear what water quality treatment is being proposed, and which areas are being treated. There are several references to the alternative cross section that provides WQv and runoff treatment, but the specific treatment approach is not clearly described in the visible portion of the image. reduction for the entire site via infiltration. In Appendix H of the SWPPP report, the post-construction drainage areas are described, and none of the four areas described are being conveyed to a treatment practice. The calculation in this appendix includes just 1.97 acres as the total disturbed impervious area. The calculations should be revised to include full areas and should utilize a form of the DEC's Runoff Reduction Worksheets if possible.

   The drainage area maps and the HydroCAD model include a 5th drainage area (P5) of 3.46 acres. This is the only area that appears to be receiving water quality treatment, despite other drainage areas (P2 and P3) including proposed new road and significant land grading.

   We would also like clarity on which Stormwater Management Practice from the NYS DEC Stormwater Design Manual is being proposed with the alternative cross section. Is this an "I-2 Infiltration Basin", an

"I-1 Infiltration Trench", porous pavement, or another treatment practice? There are no basin shown. There is no pretreatment, conveyance, or outlets/overflow shown for the infiltration practice. There is also no observation well or maintenance access shown on the plans. A design that clearly meets the NYS DEC design standards will be required.

Response: The Alternative Cross Section is an approved stormwater infiltration practice that was developed for National Grid substation sites several years ago. Refer to section 3.3.2 of the stormwater design manual for information on the alternative practice approval process. DEC approved use of the design and it has been implemented at several substation and BESS sites. Correspondence from DEC and National Grid documenting the approval process is attached. The design meets the 2024 stormwater design manual chapter 3 performance requirements and chapter 4 sizing requirements, refer to the Post Construction Site Conditions and Stormwater Management section of the Stormwater Management Memo. The alternative cross section exceeds the required treatment for the entire site and a discussion on sizing has been added to the Stormwater Management Memo. See drawing sheets C-203 and C-602 for reference.

8. The construction sequence should be included on the Erosion and Sediment Control Plan and should include removal of organic material for access road as noted in geotechnical report.

Response: The construction sequence has been included on sheet G-002. A note on removal of organic matter has been added.

9. Regarding the HydroCAD modeling for Infiltration:
    a. Device 2 and 3 outlets are utilized but no mechanism is shown on the plans or in detail. Are there overflow weirs?
    b. We are unsure what type of conveyance mechanism is proposed that allows for Pond 1P (Alternative Cross Section) to be routed to nodes POA 1 and POA 2 in the HydroCAD model, as is shown on the routing diagram.

Response: Events up to the 100-year storm will be infiltrated through the alternative cross section. Events greater than the 100-year storm have the potential to overflow to POA 1 and 2. The earth perimeter surrounding the alternative cross section was modeled as the overflow weirs. Overflow devices are included for practices that are designed to store and treat the WQv storm, where the inflow would exceed the practice's designed storage volume. An overflow device is not included here as it is not required to design beyond the 100-year storm.

10. The applicant will need to include a legally binding Operation and Maintenance Agreement.

Response: An O&M agreement, including maintenance of the post construction stormwater management practices prepared by KCE is in included with this submission.

Please contact us if you have any questions.

Sincerely,

Samuel Schneider

Samuel Schneider, PE
Project Engineer

cc: Amanda Stank, EDR,
Charles Prior, PE, EDR

Michael McPeck, P.E.
Lead Civil/Structural Engineer-
Substation Design & Engineering
National Grid

nationalgrid

February 25, 2016

Mr. David Gasper, P.E.
NYSDEC
Division of Water
625 Broadway, 4th Floor
Albany, NY 12233-3505

RE: Approval of National Grid's Alternative Stormwater Management Practices for Substations

Dear Mr. Gasper:

National Grid has been working with Environmental & Design and Research for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad cross-section and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the attached package Alternative Stormwater Management for National Grid Substations, dated February 12, 20116. The attached design memorandum provides a stormwater management system that is compliant with the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). The **systems** listed below include the following on-site infiltrations rate scenarios:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101, dated February 12, 2016
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102, dated February 12, 2016

National Grid requests official approval of these **systems,** as compliant stormwater management practices with the New York State Stormwater Management Design Manual (current version), and approval as a NYSDEC Stormwater Standard Stormwater Management Practice. Following the receipt of this approval, the projects utilizing this system will be subject to the standard of five or ten business day permit authorization, provided that the other portions of the project follow the standard General Permit and the Design Manual requirements.

National Grid also grants NYSDEC permission to distribute these **system** designs to other potential users with the understanding that the following disclaimer is to be added to all stormwater reports and contract drawings by the user:

> "National Grid (NG) together with the consulting firm, Environmental Design & Research (EDR), prepared a NYSDEC approved stormwater management prototype system (**system**), which may be applicable to substations projects. The user assumes the sole responsibility for the use of this system, its applicability to the project site, and the verification of appropriate use and compliance with village, town, city, county, state and federal stormwater requirements for this location."

Thank you for your continued support and consideration of this system.

Sincerely,

Michael McPeck, P.E.
Lead Civil/Structural Engineer

300 Erie Boulevard West, Syracuse, NY 13202
T: 315 428-5727 ■ Michael.McPeck@nationalgrid.com ■ www.nationalgrid.com

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000, Syracuse, New York 13202
P. 315.471.0688 • F. 315.471.1061 • www.edrcompanies.com

memorandum

To:	David Gasper, PE, NYSDEC	EDR Project No:	12073
From:	Carolyne Bean, EIT & Thomas Dussing, PE		
Date:	February 25, 2016		
Reference:	Alternate Stormwater Management for National Grid Substations		

Discussion

Environmental Design and Research (EDR) has worked with National Grid, the New York State Department of Environmental Conservation (NYSDEC), and the State University of New York, College of Environmental Science and Forestry (SUNY ESF) for more than 24 months to develop a stormwater management system (system) that is integrated into National Grid's substation pad construction and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The system that has been developed is included in the substation pad cross-section and provides a stormwater management compliant design that meets the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). Our combined efforts have produced two systems for the following on-site soil infiltrations rate scenarios, which include:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102

National Grid requests approval of these two systems, as compliant stormwater management practices with the New York State Stormwater Manual (current version), and that they be approved as standard stormwater management practices, as required by the current version of the NYSDEC Stormwater General Permit. If a project utilizing one of the cross sections is subject to review by a Municipal Separate Storm Sewer System (MS4), it would be responsibility of the MS4 to review and approve the Stormwater Pollution Prevention Plan (SWPPP) by signing the MS4 SWPPP Acceptance form. If the project is not subject to review by a MS4, the SWPPP would follow the normal approval process for a non-MS4 project that is in conformance with the current version of the NYSDEC Stormwater General Permit.

Based on the demonstration project results, we offer the following in support of this request:

- The proposed stormwater management systems are designed for 7 inches of rainfall. This represents the largest 100-year storm rainfall depth within National Grid's service area or greater than six back to back 90% storms (1.1 inches).
- The systems provide treatment and management of WQ_v, RRv, Cp_v, Q_p, and Q_f by providing storage and infiltration (as applicable), of all rain events, up to and including, the 100-year storm.
- The systems are self-contained which reduces the impact to the surrounding environment by eliminating additional site disturbance that would be necessary for green infrastructure and traditional stormwater practices.
- National Grid has provided testing at a demonstration area that is supported by laboratory tested infiltration rates and porosities. A portion of the construction and testing of the demonstration project was witnessed by a former NYSDEC representative, Ellen Hahn Kubek. The demonstration area testing results show that the systems can accept and hold the 100-year storm volume without ponding or surface runoff.

Demonstration Area Test Results

100-Year Storm Demonstration

Ellen Hahn Kubek, a former NYSDEC representative, was present for the 100-Year storm test on November 21, 2013. 1,800 gallons of water was applied uniformly with a hose over a 30-minute duration, or at rate of 9.2 inches per hour. (Note that according to the Natural Resource Conservation Service (NRCS) Type 2 Rainfall Distribution, the highest 30-minute precipitation intensity of a 24-hour storm is between 11.5 hours and 12 hours. During this 30-minute time frame, 35% of the storm rainfall depth occurs. For a 7 inch, 100-Year Storm this translates to 2.5 inches of rainfall, or a rate of 5.0 inches per hour. Therefore, the application rate used during the test was greater than the maximum intensity that would occur during an NRCS Type 2 rain event.) The November 21, 2013 demonstration showed that the proposed cross section does have an acceptable infiltration rate, with no surface runoff being created during the test even with the high application intensity. (Also, note that the compaction results for the demonstration area were greater than National Grid's requirement of 95% standard proctor for the filter course.)

Demonstration Area Volume Correction

Following the construction of the demonstration area, it was determined that an insufficient depth of the reservoir course had been placed. Measurements from the surface of the test area to the bottom of the observation wells determined that it had been constructed with 4 inches of reservoir course material rather than the 10 inches that is proposed in the attached drawings. Since the 100-Year storm is proposed to be stored within the reservoir and filter courses, EDR calculated the equivalent storage volume required for testing the 100-Year storm based on the cross section as constructed (4–inch reservoir course). Based on this calculation the volume of water used for the 100-Year storm test was 1,800 gallons rather than initially proposed 2,800 gallons.

NYSDEC Stormwater Requirements

Runoff Reduction and Water Quality Volume Management

The proposed system for sites with infiltration rates greater than or equal to 0.5 inches per hour provides 100% storage and infiltration of the 7-inch rainfall event. This exceeds minimum RRv and WQv requirements for any Hydrologic Soil Group (HSG).

The proposed system for sites with infiltration rates less than 0.5 inches per hour will meet the RRv and WQv requirements by using practices from the 2010 NYS Stormwater Management Design Manual (Design Manual): vegetated filter strip or riparian forest buffer. Per the Design Manual, a maximum of 75 feet of flow length over impervious area can discharge to these practices. According to the hydrologic modeling reports attached, a 50 feet-wide by 75 feet-long impervious area with CN of 98 creates a peak discharge rate of 114 gallons per minute and an average discharge rate of 57 gallons per minute. Per the Design Manual, this discharge rate can be directed to a 50 feet wide by 60 feet long filter strip or buffer with a slope of 0% to 8% on HSG D soils. A 1-acre substation was modeled using the average porosity provided by the system with a 4 inch underdrain outlet. This resulted in a peak discharge rate of 56 gallons per minute. The average discharge rate from the impervious area is similar to the peak discharge rate from the substation area; therefore, it is reasonable to consider the same stormwater management via sheet flow to a filter strip or buffer to be acceptable. National Grid proposes for their system to meet the RRv and WQv requirements for sites with an infiltration rate of less than 0.5 inches per hour by using the following design criteria:

- A filter strip or buffer 50 feet wide, with the necessary length per the Design Manual, will be provided for each acre of substation area.
- Per the Design Manual, the length of the filter strip or buffer would be based on the attainable or existing site slopes. Filter strips or buffers with slopes of 0% to 8% would be 50 feet long, 8% to 12% would be 75 feet long and 12% to 15% would be 100 feet long. In HSG C or D soils, the length will be increased by 15% or 20%, respectively.

National Grid proposes that in this site condition, the substation underdrain(s) discharge to a flow dissipater (to create sheet flow) then to a filter strip or buffer sized as described. An example layout for a 5-acre substation on HSG D soils is shown on drawing C-103.

Volume Management

The proposed system for sites with infiltration rates greater than or equal to 0.5 inches per hour provide storage of Cp_v, Q_p, and Q_f and discharged via infiltration. The proposed system for sites with infiltration rates less than 0.5 inches per hour will provide storage for volume management and will discharge via an underdrain system that will be appropriately sized to meet the Cp_v, Q_p, and Q_f requirements. The underdrains will discharge to a flow dissipater and sheet flow over a filter strip or buffer as previously discussed to meet RRv and WQv requirements. Supporting stormwater detention calculations are attached.

Stormwater Management System Summary

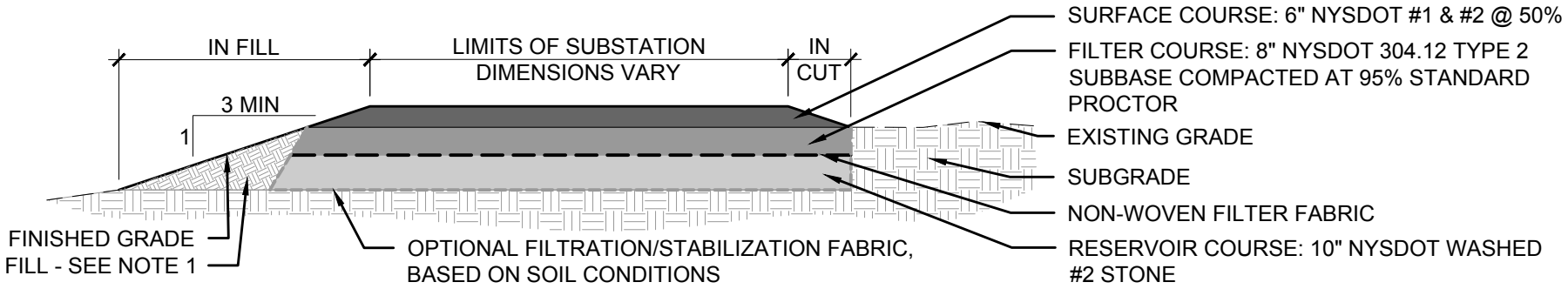
In summary, the systems proposed by National Grid would provide stormwater management as detailed in the table below.

Site Infiltration (in/hr)	RRv & WQv	Cp_v	Q_p	Q_f
≥ 0.5	100% Infiltration (2.5 hours or less)*	100% Infiltration	100% Infiltration	100% Infiltration (14 hours or less)**
< 0.5	100% Vegetated Filter or Riparian Forest Buffer	Attenuation	Attenuation	Attenuation

* Calculated based on the largest 90% storm rainfall depth within National Grid's service area – 1.1 inches.
** Calculated based on the largest 100-Year storm rainfall depth within National Grid's service area – 7.0 inches

Attachments:
C-101 Proposed Substation Sections for Infiltration Rates of 0.5 in/hr and Greater
C-102 Proposed Substation Sections for Infiltration Rates Less Than 0.5 in/hr
C-103 Example Substation Filter Strip Layout for Infiltration Rates Less Than 0.5 in/hr
1 and 100 year Hydrologic Modeling Reports
National Grid Proposed Sections – Volume Storage Calculation
Photo of 11/22/20130 White Board Discussion with Ellen Hahn Kubek
12/27/2013 Email from Ellen Hahn Kubek

Copies To:
Michael McPeck, National Grid
Carol Lamb-Lafay, NYSDEC
David Follansbee, NYSDEC
File



1 / C-101

SUBSTATION SECTION - INFILTRATION RATE ≥ 0.5 IN/HR

Scale: NTS

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NOTES:

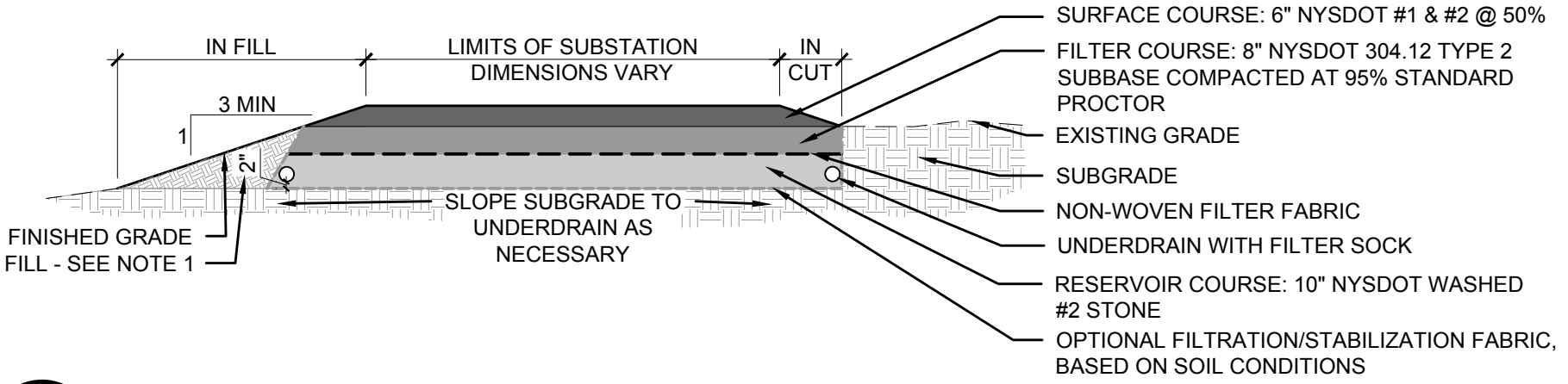
1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. INFILTRATION TESTING SHALL BE COMPLETED AS REQUIRED BY APPENDIX D OF THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, OR AS APPROVED BY THE NYS DEC REGIONAL OFFICE OR MS4 REPRESENTATIVE.
3. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES OF GREATER THAN OR EQUAL TO 0.5 INCHES PER HOUR.
4. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**		edr JOB NUMBER: **12073**	
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES OF 0.5 IN/HR AND GREATER**		DRAWING NUMBER: **C-101**	
DRAWN BY: **CB**	CHECKED BY: **TD**	SCALE: **NTS**	DATE: **2/25/2016**

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
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1 C-102 SUBSTATION SECTION - INFILTRATION RATE < 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

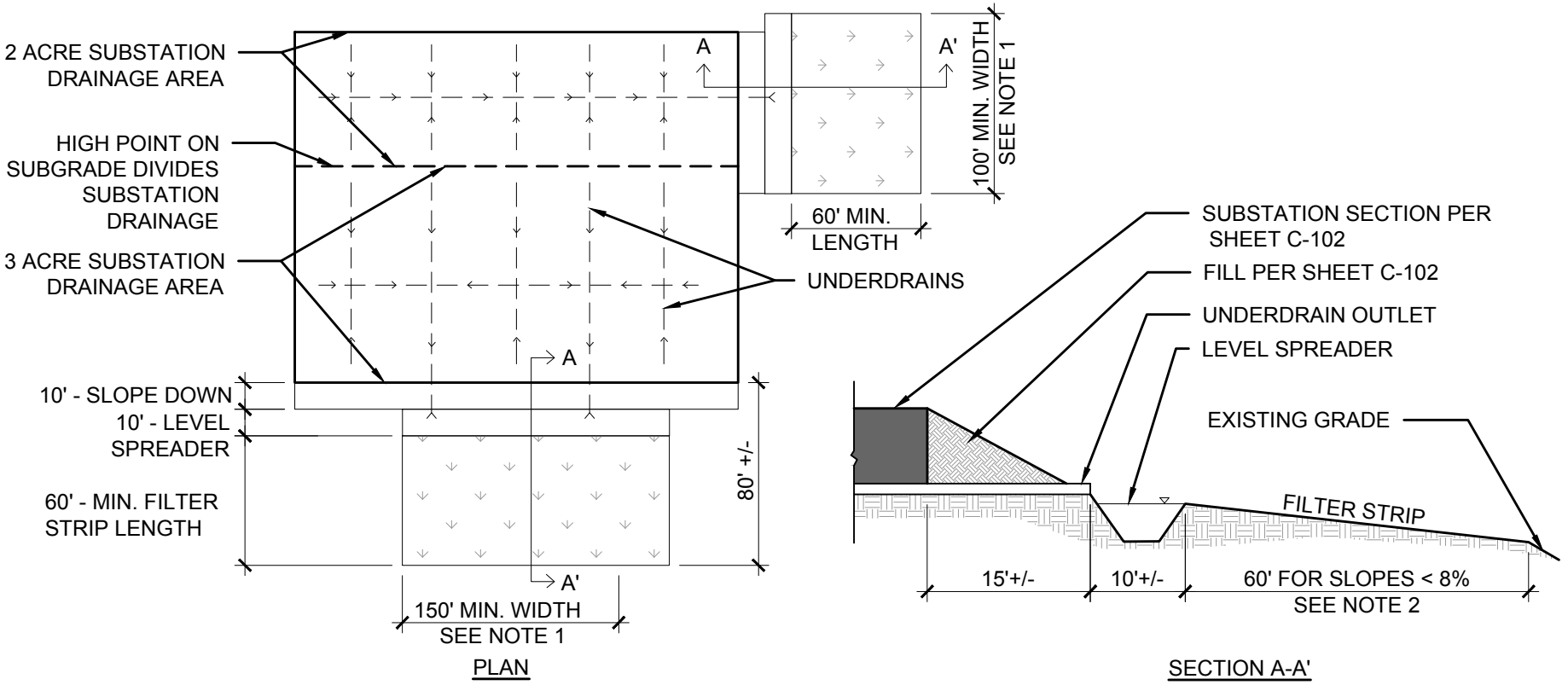
1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. UNDERDRAIN SIZE AND LAYOUT WILL VARY DEPENDING ON THE SIZE OF THE SUBSTATION.
3. UNDERDRAIN WILL DAYLIGHT AND DISCHARGE TO A LEVEL SPREADER THEN A VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER TO MEET RUNOFF REDUCTION VOLUME REQUIREMENTS.
4. LEVEL SPREADER SHALL BE DESIGNED PER THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO CREATE SHEET FLOW PRIOR TO DISCHARGE TO THE VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER.
6. VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER WIDTH SHALL BE 50 FEET PER ACRE OF SUBSTATION. LENGTH AND REMAINING DESIGN CRITERIA SHALL BE PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL.
7. UNDERDRAINS SHALL BE SIZED TO MEET CHANNEL PROTECTION VOLUME (Cpv), OVER BANK FLOOD CONTROL (Qp) AND EXTREME FLOOD CONTROL (Qf) DESIGN CRITERIA.
8. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES LESS THAN 0.5 INCHES PER HOUR.
9. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**	DRAWING NUMBER: **C-102**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

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NOTES:

1. FILTER STRIP WIDTH PER ACRE = 50'
   5 ACRES X 50' WIDTH = 250' TOTAL WIDTH
2. SEE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL FOR FILTER STRIP LENGTH REQUIREMENTS BASED ON SITE SLOPES AND HSG. EXAMPLE IS FOR HSG D.
3. FILTER STRIP LAYOUT/ORIENTATION IS AN EXAMPLE. FILTER STRIPS SHOULD BE LOCATED BASED ON SITE CHARACTERISTICS. UNDERDRAIN LAYOUTS MUST BE CONFIGURED TO DRAIN AN AREA THE SUBSTATION TO AN APPROPRIATELY SIZED FILTER STRIP.
4. SLOPE DOWN AND LEVEL SPREADER WIDTH ARE EXAMPLES AND REQUIRE PROJECT SPECIFIC DESIGN.
5. SEE NOTE 9, DRAWING NUMBER C-102.

1 / C-103

5 ACRE SUBSTATION EXAMPLE

Scale: NTS

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PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **EXAMPLE SUBSTATION FILTER STRIP LAYOUT FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**	DRAWING NUMBER: **C-103**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Bureau of Water Permits
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www.dec.ny.gov

1/20/2017

Michael McPeck, P.E.
Lead Civil/Structural Engineer
National Grid
300 Erie Boulevard West
Syracuse, NY 13202

Re: National Grid's Stormwater Management Practices for Substations – Final Design Report

Dear Mr. McPeck:

We have completed our review of Environmental Design & Research's (EDR's) final design report, dated February 25, 2016, for the post-construction stormwater management practices to be used at National Grid's substation pads and have determined that the two designs comply with the NYS Stormwater Management Design Manual (2015 version).

EDR's final report calls for the use of an "Infiltration" practice at sites with soils that have an infiltration rate greater than or equal to 0.5 in/hr; and "Sheetflow to Riparian Buffer or Filter Strip" practice at sites with soils that have an infiltration rate less than 0.5 in/hr. Please be reminded that the system designs must comply with all applicable criteria in Chapters 5 and 6 of the Design Manual (i.e. separation distance to groundwater/bedrock for infiltration practices, minimum width of the riparian buffer /filter strip is 50 feet, etc.).

If you have any questions or require additional information, please contact me at (518) 402-8114.

Sincerely,

David Gasper

David Gasper, P.E.

cc: Tom Dussing, EDR

KCE NY 34 BESS

Plume Analysis

SolBank 3.0

Saugerties, New York



Revision: DRAFT - REV00

Date: July 21, 2026

The distribution of this document to third parties is prohibited without written approval from Fire & Risk Alliance, LLC

FIRE & RISK ALLIANCE

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EXECUTIVE SUMMARY

Fire and Risk Alliance, LLC (FRA) was contracted by Key Capture Energy, LLC (KCE) to perform a plume analysis for the proposed battery energy storage system (BESS) installation at the KCE NY 34 site located in Saugerties, New York. This analysis evaluated pre-combustion (i.e., non-flaming event) and post-combustion (i.e., flaming event) plume dynamics resulting from BESS failures. The KCE NY 34 site will utilize 136 CSI Energy Storage Co. Ltd. SolBank 3.0 BESS enclosures. The SolBank 3.0 enclosure is equipped with 12 battery units and has a total capacity of 5,016 kilowatt hours (kWh).

The purpose of this analysis was to model pre-combustion battery vent gas release scenarios (i.e., non-flaming) and post-combustion gaseous product release scenarios (i.e., flaming) due to BESS failure events. Release scenarios were modeled using the Process Hazard Analysis Software Tool (PHAST) Unified Dispersion Model (UDM) to calculate the downwind extents of flammable and toxic gases, as well as associated secondary consequence extents that may arise from early or delayed ignition of a flammable gas cloud. The consequence extents were compared to key exposure distances to understand potential impacts to the surrounding area.

This analysis considered multiple potential release scenarios. Scenarios for pre-combustion releases included a five-cell UL 9540A unit-level test-based release, as well as hypothetical scenarios for a full-volume module release, a full-volume unit release (four modules), and a full-volume enclosure release of all 12 units (48 modules). Fire scenarios and subsequent gas generation for post-combustion releases included a fire within a 48-module enclosure. Release terms for pre- and post-combustion plume consequence modeling were developed based on the UL 9540A and large-scale fire test (LSFT) data, respectively.

The composition of the smoke plume for a BESS fire is directly related to battery chemistry, as the electrolyte and anode/cathode composition determine the available combustion reactants and post-combustion products (gases and other compounds resulting from a primary, secondary, and/or tertiary combustion reaction). Other flammable components within the BESS are limited to small contributions of common plastics, such as polypropylene used for wiring sheaths, seals, and other small components. The cells utilized for the SolBank 3.0 are lithium iron phosphate (LFP) cells, which do not contain any heavy metals such as nickel, manganese, or cobalt within the anode, cathode, or electrolyte solution, as can be found in other battery chemistries such as nickel manganese cobalt and nickel cobalt aluminum. As such, there is no potential for wet or dry deposition of heavy metals related to burning or off-gassing of the SolBank 3.0 LFP batteries from a flaming or non-flaming failure event.

Worst-case consequence extents for all modeled scenarios are summarized in Table 1.

The results show that the majority of consequences are maintained within the site property boundary. For conservative release conditions represented by pre-combustion scenario 4.1 and post-combustion scenario 2.1, the maximum AEGL-2 extent for CO and SO_2 respectively may extend beyond the property boundary to the North and to the East depending on the wind direction. The CO and SO_2 AEGL-2 extents do not reach any off-site receptors of interest.

DRAFT

Table 1: Summary of maximum consequence extents

Consequence Measurement	Scenario	Maximum Extent (m)	Minimum Distance to Property Boundary[1] (m)	Distance to Nearest Receptor of Interest[1] (m)	Analysis Summary
HF IDLH (30 ppm)	Post-combustion full enclosure fire (S2.1)	10.71	15	83.8	Maintained within the property boundary.
CO IDLH (1,200 ppm)		2.81			Maintained within the property boundary.
SO2 IDLH (100 ppm)		10.65			Maintained within the property boundary.
HF AEGL-2 (24 ppm)		12.28			Maintained within the property boundary.
CO AEGL-2 (83 ppm)		19.0			May surpass property boundary depending on wind conditions, but do not reach any receptors of interest.
SO2 AEGL-2 (0.75 ppm)		58.55			May surpass property boundary depending on wind conditions, but do not reach any receptors of interest.
CO IDLH (1,200 ppm)	Pre-combustion full enclosure release (S4.1)	21.55			Maintained within the property boundary.
CO AEGL-2 (83 ppm)		76.13			May surpass property boundary depending on wind conditions, but do not reach any receptors of interest.
½ Lower Flammability Limit (LFL) (4.05%)		7.05			Maintained within the property boundary.
LFL (8.1%)		3.88			Maintained within the property boundary.
Fireball (3 kW/m² heat flux)	Pre-combustion five-cell instantaneous release (S1.2)	7.92			Maintained within the property boundary.

The recommended minimum approach distances (MAD) are based on the toxic gas dispersion extents summarized in Table 1. This analysis calculates approach distances based solely on the dispersion scenarios.

[1] Measured from the nearest BESS enclosure.

Although Scenario 4.1 (48-module full enclosure pre-combustion release) was included in the analysis for understanding the worst-case bounding scenario of a non-flaming release from all cells within all modules of all 12 units per BESS, it is not a likely or even feasible scenario as the UL 9540A reports show no propagation between modules. There are no single failures identified in the failure modes and effects analysis, documented in the available BESS failure literature, or reported in anecdotal case reports that show or support a mechanism of failure that would cause thermal runaway to occur in 416 cells within a single four-module unit simultaneously, especially not for all 4,992 cells for the entire 48-module, 12-unit BESS. Realistically, thermal runaway would spread sequentially over an extended period. By assuming instantaneous failure, the modeling maximizes the volumetric release rate while maintaining sufficient duration to assess one-hour exposure levels for hazardous substances such as CO at IDLH concentrations. This conservative approach ensures that if the modeled scenario demonstrates acceptable safety outcomes, actual incidents involving lower release rates over longer periods would remain within safe limits. A suitable emergency response plan shall be developed along with training for the responding fire department.

Secondary consequences do not inform these distances; however, all consequence extents fall within the recommended MADs. The recommended distances are as follows:

- A MAD of 32.33 m (106.1 ft) directly downwind should be maintained for non-flaming releases. This is based on the maximum carbon monoxide (CO) Immediately Dangerous to Life or Health (IDLH) extent from Scenario 4.1, incorporating a safety factor of 1.5.
- A MAD of 16.07 m (52.7 ft) directly downwind should be maintained for flaming failure events. This is based on the maximum hydrogen fluoride (HF) IDLH extent from the Scenario 2.1 representation of a full-enclosure, 5-hour flaming event, incorporating a safety factor of 1.5.

Staging locations upwind may be located within closer proximity to the involved BESS, to be determined by the emergency responder incident command. Although this analysis assumes a BESS failure occurs and evaluates the plume consequence extents of the battery vent gas and combustion gases; it is important to consider the likelihood of BESS failure in this discussion. The likelihood of BESS failure has decreased over the past six years as technology has matured. According to the Electric Power Research Institute (EPRI) BESS Failure Incident Database, failure incidents dropped from 16 in 2018 to just eight in 2024, while cumulative global deployment grew from approximately 10 gigawatt-hours (GWh) to over 300 GWh[2]. The failure incident rate per deployed GWh has declined from approximately 1.5 incidents per GWh in 2018 to nearly 0.03 incidents per GWh in 2024[6]. A review of 35 documented large-scale BESS fire incidents in the United States between 2012 and 2024 reveals that many involved legacy systems predating modern safety codes, with nearly half of the incidents (where system age was reported) occurring within the first six months of operation[3]. These statistics confirm that, while BESS fires remain a reality, the overall failure rate has significantly decreased as the expanding installation base

[2] Electrical Power Research Institute. *Battery Energy Storage System (BESS) Failure Incident Database.* Available at: https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database. Accessed: October 22, 2025

[3] Clean Power Association and Fire & Risk Alliance. Assessment of Potential Impacts of Fires at BESS Facilities. 2025.

benefits from improved safety measures, including advanced thermal management, fire detection systems, explosion control systems, and containment enclosures[4].

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[4] INERIS and Sandia National Laboratory. Environmental impact of Li-Ion BESS incidents compared to other types of fires. Task I: literature review. 2024.

DISCLAIMER

This report and its contents are provided for informational purposes only and are based on the specific conditions, data, and product specifications available at the time of their preparation. The recommendations, designs, and conclusions presented herein are applicable solely to the specific product, site, or application described in this report.

The results presented in this report do not constitute a guarantee or warranty of performance in the field. All designs, calculations, and recommendations should be verified through appropriate field testing and site-specific evaluations. The accuracy and applicability of this report's findings may be subject to changes in conditions, technology, and standards that are beyond the scope of this analysis.

It is the responsibility of the owner, contractor, or designated party to conduct comprehensive testing and obtain all necessary approvals to confirm the validity of the design in the field. The authors, engineers, and firms involved in the creation of this report assume no liability for performance, errors, omissions, or failures that may arise during construction or operation, and no warranty of fitness for a particular purpose is implied.

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LIMITATIONS

At the request of Key Capture Energy, FRA performed a plume analysis of pre- and post-combustion releases due to failure of the CSI SolBank 3.0 BESS. The SolBank 3.0 BESS is a fully-integrated BESS consisting of battery units, power electronics, control systems, a battery management system, a thermal management system, a fire detection and notification system, and an explosion control system. It is intended for outdoor installations mounted to the ground for commercial, industrial, and utility applications. This assessment evaluated the plume dynamics resulting from modeled releases due to a propagating thermal-runaway event from the SolBank 3.0 BESS at the proposed NY 34 BESS site. The modeled release scenarios are representative of flaming and non-flaming propagating thermal runaway events affecting specified numbers of cells and modules. Heavy particulate matter was not evaluated in this analysis, as the primary hazard from battery thermal-runaway venting is toxic gas components, such as CO or HF. Particulates generated during venting are heavier than the gas phase and would settle near the source as opposed to dispersing to far distances of interest. This analysis is based on one SolBank 3.0 BESS that contains 12 units, each with four modules. Each module contains 104 cells, for a total of 4,992 cells per BESS enclosure.

The scope of services performed during this analysis may not adequately address the needs of other users of this report, and any re-use of this report or its conclusions presented herein are at the sole risk of the user. The opinions and comments formulated during this assessment are based on observations and information available at the time of the analysis from the UL 9540A and LSFT reports provided to FRA by KCE NY 34.

Any engineering analysis that utilizes modeling and calculations, such as the one presented in this report, has inherent limitations. While the methodology and assumptions are based on best practices and available data, any analysis involves inherent assumptions, and additional uncertainties and unknown factors may affect the accuracy of the results. Additionally, the analysis is limited by the quality and quantity of the data available at the time of the study. Therefore, the results of this analysis should be interpreted with these limitations in mind and should not be considered as absolute or definitive. No guarantee or warranty as to future performance is expressed or implied.

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1 INTRODUCTION

Fire and Risk Alliance, LLC (FRA) was contracted by Key Capture Energy, LLC (KCE) to perform a plume analysis for the proposed battery energy storage system (BESS) installation at the KCE NY 34 BESS site located in Saugerties, NY. The analysis evaluated pre-combustion (i.e., non-flaming event) and post-combustion (i.e., flaming event) plume dynamics resulting from BESS failures. The KCE NY 34 BESS site will utilize 136 CSI Energy Storage Co., Ltd. (CSI) SolBank 3.0 BESS enclosures. Each SolBank 3.0 is equipped with 48 modules across 12 units and has a total capacity of 5,016 kilowatt hours (kWh). The SolBank 3.0 consists of battery modules, power electronics, control systems, a battery management system (BMS), a thermal management system (TMS), a fire detection and notification system, and an explosion control system. It is intended for outdoor installations mounted to the ground for commercial, industrial, and utility applications.

This narrative, developed by FRA, summarizes our analysis. It is intended to be used as a tool for the fire code official, authority having jurisdiction, or other project stakeholders to assist in their review of the proposed KCE NY 34 BESS installation.

1.1 Scope

The scope of this analysis includes evaluating the plume resulting from pre-combustion and post-combustion release scenarios following a BESS failure. The inputs of this analysis were developed based on tests conducted by others and subsequent test reports provided to FRA for use in this analysis. FRA accepted reports provided by others as-is for use in this analysis.

This analysis is limited to evaluating the extent of gaseous consequences, including toxic and flammable components of the resulting gas cloud, as well as associated secondary consequences due to early or delayed ignition of the flammable gas cloud. This analysis does not explicitly evaluate particle deposition from the plume or any other environmental impacts. It should be noted that the cells utilized for the SolBank 3.0 are lithium iron phosphate (LFP) cells, which do not contain heavy metals such as nickel, manganese, or cobalt within the anode, cathode, or electrolyte solution, as can be found in other battery chemistries such as nickel manganese cobalt and nickel cobalt aluminum. As such, there is no potential for wet or dry deposition of heavy metals related to burning or venting of the SolBank 3.0 LFP batteries from a flaming or non-flaming failure event.

This analysis does not address container level explosion hazards. Explosion hazards are required by code to be mitigated with an appropriate explosion control system design, stamped by a professional engineer. The SolBank3.0 is equipped with an NFPA 69 combustible concentration reduction system, to mitigate explosion hazards. Proper design and activation of the NFPA 69 system would result in release of gases to the exterior of the cabinet which would dissipate into the environment. The scope of this plume analysis is limited to the release of pre-combustion (venting) and post-combustion (flaming) releases from a BESS container.

Lastly, this analysis assumes a BESS failure occurs and evaluates the consequences of that failure; however, it should be noted that the likelihood of BESS failures has decreased over time as the technology has matured. According to the Electric Power Research Institute (EPRI) BESS Failure Incident Database, while 16 failure incidents were recorded in 2018, this number dropped to just 8 incidents in 2024, even as cumulative global

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deployment grew from approximately 10 gigawatt-hours (GWh) to over 300 GWh during this period.[5] The failure incident rate per deployed GWh has declined dramatically from approximately 1.5 incidents per GWh in 2018 to nearly 0.03 incidents per GWh in 2024.[5] A review of 35 documented large-scale BESS fire incidents in the United States between 2012 and 2024 reveals that many involved legacy systems predating modern safety codes, and that nearly half of the incidents (for which system age was reported) occurred within the first six months of operation.[6] These statistics confirm that while BESS fires remain a reality, the overall failure rate has significantly decreased as the installation base expands, with newer systems benefiting from improved safety measures, including advanced thermal management, fire detection systems, explosion control systems, and containment enclosures.[7]

1.2 Objectives

The main objectives of this analysis were to:

1. Model pre-combustion battery total vent gas (TVG) releases (i.e., non-flaming event) and post-combustion gaseous product releases (i.e., flaming event) using the Process Hazard Analysis Software Tools (PHAST) Unified Dispersion Model (UDM).
2. Calculate the downwind consequence extents, including flammable and toxic gaseous component extents and associated secondary consequence extents that may arise due to early or delayed ignition of a flammable gas cloud (pre-combustion releases only).
3. Compare calculated consequence extents to key exposure distances to understand the potential impact on the surrounding area.
4. Inform the site owner and project stakeholders of the extent of consequences from potential failure events and inform emergency response planning.

1.3 Reference Materials

The following reference materials were utilized as the basis of this analysis:

- Xiamen Hithium Energy Storage Technology Co., Ltd UL 9540A Cell Level Test Report (CN23F118 001), TUV Rheinland (Shenzhen) Co., Ltd., Dated 2023.12.06
- CSI Energy Storage CSI-SolBank-P-104.5-2h-H UL 9540A Module Level Test Report (CN248UKE 001), TUV Rheinland (Sanghai) Co., Ltd., Dated 2024.06.28
- CSI Energy Storage CSI-SolBank-R-418-2h-H UL 9540A Unit Level Test Report (CN24M32L 001), TUV Rheinland (Sanghai) Co., Ltd., Dated 2024.06.28.

[5] Electrical Power Research Institute. *Battery Energy Storage System (BESS) Failure Incident Database.* Available at: https://storagewiki.epri.com/index.php/BESS_Failure_Incident_Database. Accessed: October 22, 2025

[6] Clean Power Association and Fire & Risk Alliance. *Assessment of Potential Impacts of Fires at BESS Facilities*. August 21, 2025

[7] INERIS and Sandia National Laboratory. Environmental impact of Li-Ion BESS incidents compared to other types of fires. Task I: literature review. 2024

- CSI Energy Storage CSI-SolBank-S-5016-2h-NA CSA/ANSI C800:25 Large-Scale Fire Test Report (80247651), CSA Group – Kunshan, Dated 2025.06.06
- AHJ Interpretation Guide: Large-Scale Fire Test (LSFT) – SolBank 3.0 Unit, Energy Safety Response Group, LLC (ESRG), Dated 2025.06.27
- CSI SolBank 3.0 Data Sheet, Version 1.62_NA, Dated 2025.08
- LSFT Raw Gas Data (Confidential), Dated 2025.04.21

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1.4 Acronyms and Abbreviations

Acute Exposure Guideline Level 2	AEGL/2	Minimum Approach Distance	MAD
Battery Energy Storage System	BESS	Medium Voltage	MV
Battery Management System	BMS	National Fire Protection Association	NFPA
Carbon Monoxide	CO	National Institute for Occupational Safety and Health	NIOSH
Core Support Enclosure	CSE	Power Conversion System	PCS
Electric Power Research Institute	EPRI	Process Hazard Analysis Software Tool	PHAST
Fire & Risk Alliance, LLC	FRA	Sulfur Dioxide	SO_2
Fourier-Transform Infrared Spectroscopy	FTIR	Thermal Management System	TMS
CSI Energy CO., Ltd. SolBank 3.0	SolBank 3.0	Thermal Runaway Propagation Protection	TRPP
Hydrogen Fluoride	HF	Theoretical Upper-bounding Release Condition	TUBR
Immediately Dangerous to Life or Health	IDLH	Total Hydrocarbons	THC
Lower Flammability Limit	LFL	Total Vent Gas	TVG
Lithium Iron Phosphate	LFP	Unified Dispersion Model	UDM
Liters Per Minute	LPM	Underwriters Laboratory, LLC	UL
Large-Scale Fire Test	LSFT	Vapor Cloud Explosion	VCE

1.5 Nomenclature

Ampere-hour	Ah	kilowatt-hour	kWh
Carbon dioxide	CO2	Megapascals	MPa
Carbon monoxide	CO	Meter	m
Cubic feet per minute	CFM	Miles per hour	mph
Degree Celsius	°C	Millimeter	mm
Degree Fahrenheit	°F	Liter	L
Feet	ft	Parts per million	ppm
Gigawatt hour	GWh	Pounds per square inch gauge	psig
Hydrogen fluoride	HF	Second	s
Kilowatt	kW	Volts	V

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2 METHODOLOGY & APPROACH

The following steps were used to complete this analysis:

1. **Endpoint criteria development (Section 2.1):** Endpoint criteria are threshold values that are used to evaluate the results of this analysis and define consequence extents[8].
2. **NY 34 BESS site & SolBank 3.0 BESS product overview (Section 3):** The proposed site plan and surrounding area were reviewed to identify off-site exposures and offset distances between BESS units, the property line, and exposures. The BESS product details were also reviewed in preparation for this analysis, and key information is summarized herein.
3. **PHAST model inputs (Section 4):**
   a. Gas release term development: Pre- and post-combustion source terms were developed to represent the resulting plume from various BESS failure scenarios based on UL 9540A and LSFT data.
   b. PHAST model parameters: General PHAST model parameters were identified, and a sensitivity analysis was performed to verify that model inputs were conservative (see Appendix C).
   c. Model scenario summary: Model scenarios included in this analysis are summarized in a condensed table.
4. **Pre-combustion results (Section 5):** PHAST was used to model pre-combustion battery TVG release scenarios and report the maximum toxic gas extent (CO extent) and flammable gas extent (lower flammability limit (LFL) and ½ LFL extent) over the release duration. Secondary consequences, including flash fire envelope and fireball radii (from ignition of the vapor cloud in air), are identified where potential for conditions exists.
5. **Post-combustion results (Section 6):** PHAST was used to model post-combustion gaseous product release scenarios and report the maximum extent of toxic gases (CO, HF, SO_2, and NH_3) over the release duration.

2.1 Endpoint Criteria

Endpoint criteria are threshold values used to evaluate the results of a consequence analysis and to provide an understanding of the impacted areas and their severity. Endpoint criteria may indicate the extent to which unacceptable damage occurs or a threat to personnel is observed. The endpoint criteria adopted in this study provide a conservative and technically defensible basis for plume assessment. This analysis evaluates pre- and post-combustion TVG and plume releases and the associated potential consequences:

- Toxic gas cloud extent[8]
- Flammable gas cloud extent[8] and potential secondary consequences if ignition occurs early or is delayed.

[8] Extent is utilized in this analysis to refer to the distance at which the monitored component is equal to the endpoint criteria.

2.1.1 Toxic Gas Extent Threshold

Toxic gases released during BESS thermal runaway events include species with acute toxic effects. The actual components released vary between BESS products but typically include CO and HF. These gases may be released during pre-combustion releases or flaming events. The health impact of exposure depends on the dosage received, considering both concentration and exposure duration. Threshold exceedance at a receptor location requires that an individual remain at that location for the full averaging period (e.g., 30 minutes for IDLH and 60 minutes for AEGL-2) while concentrations remain above the threshold. Several regulatory frameworks establish concentration thresholds for short-duration exposures relevant to emergency scenarios. The following sections provide detailed information on the threshold systems and population basis for which the threshold values were designed:

- Immediately Dangerous to Life or Health (IDLH)
- Acute Exposure Guideline Levels (AEGL)
- Emergency Response Planning Guidelines (ERPG)

2.1.1.1 Immediately Dangerous to Life and Health

The National Institute of Occupational Safety and Health (NIOSH) has established a guideline of concentrations to protect workers from toxic, corrosive, or asphyxiant chemical exposure. The IDLH values reflect any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space. IDLH values indicate the concentration threshold given personnel exposure for a 30-minute duration. IDLH thresholds are associated with discomfort, serious injury, or fatality, and can be used to assess personnel exposure, emergency planning zones, and risk to surrounding receptors.

2.1.1.2 Acute Exposure Guideline Levels

The U.S. Environmental Protection Agency (EPA) has established AEGLs to guide emergency planners and responders handling short-term releases of chemicals into the air. AEGLs are expressed as specific concentrations of airborne chemicals at which health effects may occur and are designed to protect susceptible individuals such as the elderly, children, people with asthma, and those with other illnesses. AEGLs are calculated for five exposure durations: 10 minutes, 30 minutes, 60 minutes, 4 hours, and 8 hours. Three levels of severity are defined by the EPA:

- AEGL-1: Notable discomfort, irritation, or asymptomatic non-sensory effects; transient and reversible upon cessation of exposure.
- AEGL-2: Irreversible or other serious, long-lasting adverse health effects, or impaired ability to escape.
- AEGL-3: Life-threatening health effects or death.

AEGL values explicitly account for susceptible subpopulations and are the most conservative of the three threshold systems presented. These threshold values may be used for community risk assessments and emergency response planning for locations with sensitive populations and to establish protective action zones for off-site sensitive receptors.

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2.1.1.3 Emergency Response Planning Guidelines

The American Industrial Hygiene Association (AIHA) has established ERPGs that provide threshold exposure levels to protect communities from single, short-term airborne chemical exposures during emergency events. ERPGs are air concentration guidelines for single exposures to agents and are intended to assess the adequacy of accident prevention and emergency response plans, including transportation emergency planning, community emergency response plans, and incident prevention and mitigation. ERPG values indicate the concentration threshold for personnel exposure over a 60-minutes duration. Three severity levels are defined for ERPG values:

- ERPG-1: Maximum airborne concentration below which nearly all individuals could be exposed for up to 60 minutes without experiencing more than mild, transient adverse health effects or perceiving a clearly defined objectionable odor.
- ERPG-2: Maximum airborne concentration below which nearly all individuals could be exposed for up to 60 minutes without experiencing or developing irreversible or other serious health effects, or symptoms that could impair the ability to take protective action.
- ERPG-3: Maximum airborne concentration below which nearly all individuals could be exposed for up to 60 minutes without experiencing or developing life-threatening health effects.

ERPG values are representative of the general population, not inclusive of sensitive subpopulations. These threshold values may be used for community risk assessments and emergency response planning when the exposed population is generally healthy and capable of evacuating or sheltering.

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Summary of Industry Thresholds

Table 2 summarizes the IDLH, AEGL, and ERPG toxic gas thresholds for all constituents monitored in the pre-combustion vent gas release (see Section 4.1.1 for details) and post-combustion plume (see Section 4.1.2 for details). The table includes the exposure duration required for the specified concentration. The table only specifies 60-minute exposure duration AEGL values for direct comparison with ERPG values which are only published for 60-minute exposures.

Table 2. Summary of Threshold Toxic Gas Values (in ppm)[9]

Species	IDLH	AEGL-1	AEGL-2	AEGL-3	ERPG-1	ERPG-2	ERPG-3
	30-min	60-min	60-min	60-min	60-min	60-min	60-min
CO	1200	NR	83	330	200	350	500
HF	30	1	24	44	2	20	50
SO_2	100	0.2	0.75	30	0.3	3	25
NO	100	NR	NR	NR	NE	NE	NE
N_2O	N/D	NR	NR	NR	NE	NE	NE
CH_4	N/D	NR	NR	NR	NE	NE	NE
$C_3H_6O_3$	N/D	NR	NR	NR	NE	NE	NE
CH_4	N/D	NR	NR	NR	NE	NE	NE
C_2H_4	N/D	NR	NR	NR	NE	NE	NE
C_2H_6	N/D	NR	NR	NR	NE	NE	NE
C_3H_6	N/D	NR	NR	NR	NE	NE	NE
C_3H_8	2100	NR	17000	33000	NE	NE	NE

N/D – not determined – no IDLH has been formally established.
NR – not recommended – insufficient data to derive a value
NE- not established – substance not prioritized of no data available in ERPG program

Based on the threshold values provided in the table it is observed that CO, HF, and SO_2 are the most prominent toxic gases generated from a post-combustion release scenario (see Section 4.1.2 for details). And CO is the most prominent toxic gas generated from a pre-combustion release scenario (see Section 4.1.1 for details).

It is important to note that the AEGL-2 value for CO (83 ppm, 60-min) is derived from patients with coronary artery disease. This population exhibits health effects at lower carboxyhemoglobin (COHb) concentrations than children, pregnant women, or healthy adults and thus constitutes the most susceptible subpopulation. At an exposure level of 4% COHb, those with coronary artery disease may experience earlier onset of chest pain (angina) during physical activity, but not at rest. Healthy adults, children, and pregnant women tolerate significantly higher exposures before exhibiting comparable effects. For context, CO concentrations measured directly behind idling vehicle exhaust systems (340–735 ppm) far exceed AEGL-2 thresholds. The basis for derivation makes AEGL-2 values highly protective even when considering susceptible individuals. The CO AEGL-

[9] Bollinger, 2004; Environmental Protection Agency, n.d.; AIHA Guideline Foundation's Emergency Response Planning Guideline Working Group, 2026

2 values primarily account for the most vulnerable group, which makes up a small subset of susceptible individuals.

Similarly, the AEGL-2 for SO_2 (0.75, 60-minutes) is derived from patients with respiratory effects such as bronchoconstriction and heavily relies on a study of exercising asthmatic individuals. These values are significantly lower than the ERPG-2 values, representative of the general population.

The AEGL-1 and ERPG-1 values for HF are 1 and 2 ppm, respectively. However, this concentration is low compared to the AEGL-2 and ERPG-2 values. This difference is due to how AEGL-1 and ERPG-1 values are defined. AEGL-1 and ERPG-1 evaluate transient effects, which makes these values very conservative. Occupants are expected to safely egress at concentrations approaching AEGL-2 and ERPG-2. Furthermore, the current portable sensors utilized in emergency response have a detection limit of 4 ppm for HF. While the HF AEGL-1 and ERPG-1 values are available, it is important to note that without highly specialized and calibrated equipment, these thresholds cannot currently be applied to real-time emergency response air monitoring.

2.1.1.4 Toxic Gas Threshold Criteria For Plume Analysis

For the purpose of this analysis, IDLH and AEGL-2 values are used to represent toxic gas thresholds in the main body of the report. The IDLH value is representative of conditions which are used to guide workplace safety and is considered a threshold value which healthy occupants can be exposed to for 30 minutes. The AEGL-2 values represent the threshold below which only transient effects are observed for susceptible individuals within the general population as discussed in Section 0. These are conservative values for healthy individuals in the general public and consider even the most susceptible persons who may or may not be present within the modeled release zones.

Table 3. Toxic Gas Threshold Criteria for Plume Analysis Assessment

Species	IDLH	AEGL-2
	30-min	60-min
CO	1200	83
HF	30	24
SO_2	100	0.75

In addition to the threshold criteria evaluated in the main body of the report, Appendix C provides supplemental results for the AEGL-1 extent of HF and SO_2, as requested by the AHJ.

2.1.2 Flammable Gas Extent Threshold

The lower flammability limit is used as a threshold concentration for assessing the impacts of ignitable gas cloud dispersion on humans. A concentration at or above the LFL is associated with the potential for irreversible harm or fatality if ignition occurs. In this assessment, the ½ LFL, in which the flammable components (i.e., TVG) of the gas cloud are at half their established LFL, was applied to determine the maximum extent of hazardous dispersion for pre-combustion releases. Establishing a boundary using ½ LFL rather than LFL aligns with industry best practices. This allows for levels of uncertainty and allows for mitigating actions to be taken earlier.

It is important to note that even when the average concentration of a gas cloud is below the LFL of the mixture, there is always the possibility that the cloud is non-homogeneous and may have gas concentration gradients at or above the LFL or other thresholds, such as IDLH. The consequences of flammable gas are limited to pre-combustion release scenarios.

Table 4: Threshold values for flammable vapor cloud dispersion*

Concentration of TVG	Endpoint Value (%)	Consequence
½ LFL extent	4.05	Safety factor for ignitable vapor cloud
LFL extent	8.10	Irreversible harm to and fatality of persons within an ignited gas or vapor cloud

*Only applicable to pre-combustion releases

2.1.3 Secondary Consequence Thresholds

Secondary consequences can occur when a flammable vapor cloud encounters ignition, either early or delayed, after release. The consequences can vary depending on the failure mode and conditions of release. Secondary consequences evaluated in this analysis include flash fire, jet fire, fireball, and vapor cloud explosions. Where modeled release scenarios result in secondary consequences, the results are included in this report.

2.2 Process Hazard Analysis Software Tool (PHAST)

PHAST is a consequence modeling software package used to evaluate the potential impacts of accidental releases of hazardous materials from process facilities. It is widely applied in fire protection engineering, process safety, and quantitative risk assessment to support hazard identification, facility layout decisions, and mitigation design. For the purpose of this plume analysis, PHAST is used to model pre-combustion TVG and post-combustion gaseous product releases, and to evaluate the primary and secondary consequence extents for each release scenario.

PHAST models the physical behavior of a hazardous material release from the point of failure through subsequent dispersion and ignition. The PHAST UDM was used to calculate the downwind dispersion distances, concentration profiles, and widths of the flammable TVG and toxic gas constituents. The dispersion model requires an averaging time to calculate the maximum concentration and plume width for the duration of the release and subsequent time until the cloud concentration falls below threshold values for flammable and toxic levels, as described in Section 2.1. The default core averaging time in PHAST is 18.75 seconds for flammable dispersion models and 30 minutes for IDLH (i.e., toxic gas) thresholds. This parameter defines the time over which plume concentration calculations are averaged to estimate the maximum concentrations and plume extents over the full release interval. The centerline concentrations in the dispersion model are calculated using this core time. The core averaging time is shorter for flammable releases, where the peak concentration is more important than the long-term concentration. The default values in PHAST have been validated for buoyant flammable gases and toxic exposure using the IDLH threshold. These averaging times are based on extensive empirical research that demonstrates a balance between short-term fluctuations in gas concentration and the required calculation time step.

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Table 5 summarizes the primary and secondary consequences evaluated in PHAST for gaseous hazardous material releases. The primary modeled consequences of a gaseous release include the extent of flammable and toxic components. The extent of the flammable component defines potential hazardous zones where ignition could lead to flash fires, jet fires, or vapor cloud explosions (secondary consequences), depending on confinement and ignition timing. Where PHAST calculates potential for secondary consequences, thermal radiation effects from secondary consequences are quantified. Consequence extents are defined based on the threshold values outlined in Section 2.1.

Table 5: PHAST model consequence summary

Primary Consequence	Secondary Consequence
Toxic gas extent	N/A
Flammable gas extent	Flash fire, jet fire, fireball

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3 BACKGROUND INFORMATION

The site layout and BESS equipment were reviewed to inform modeling inputs and identify offsite exposures. A brief overview of the KCE NY 34 BESS site layout and the SolBank 3.0 BESS equipment details are provided in the following sections.

3.1 KCE NY 34 BESS Site Layout

The KCE NY 34 BESS facility is proposed for installation in Saugerties, New York, approximately 0.3 miles north of Route 32. The site is accessible via an access road that connects with Tomsons Road, as shown in Figure 1. Medium-density housing and commercial properties exist on all sides of the proposed site. The nearest exposure is approximately 290 meters from the closest cabinet. An existing substation is located southwest of the property and will act as the point of interconnection with the grid for the KCE NY 34 BESS.

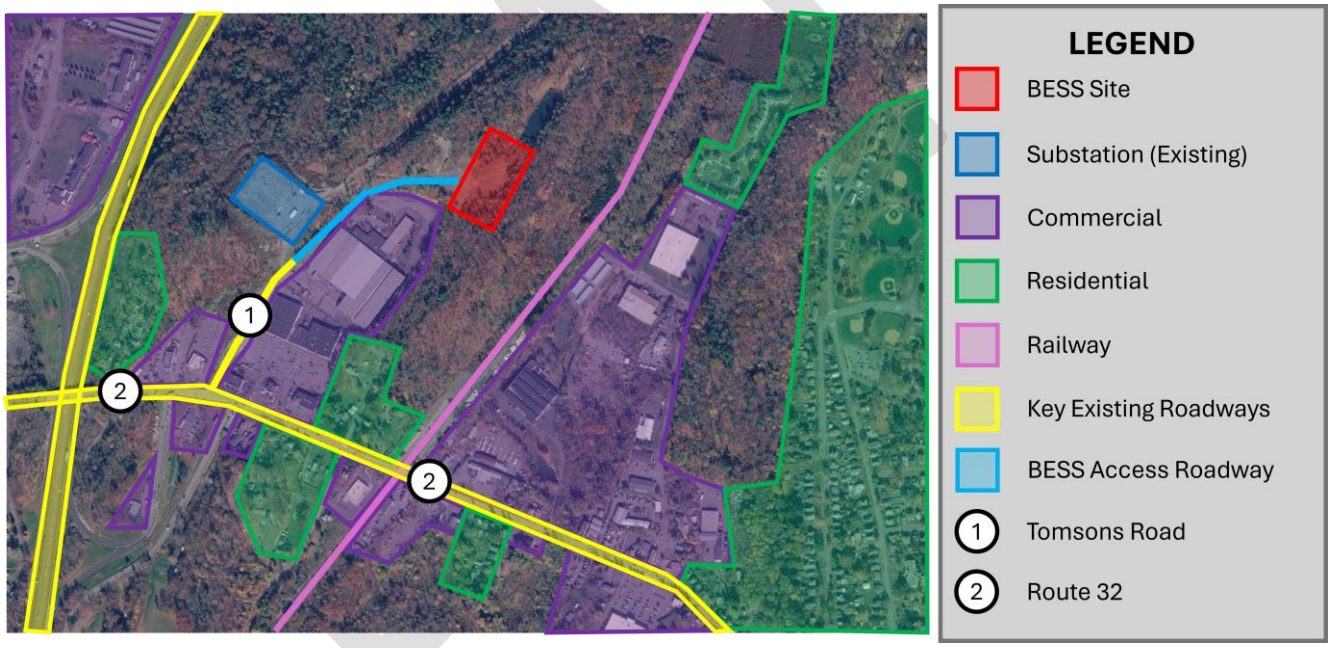


Figure 1: Site overview

The facility will contain 136 SolBank 3.0 cabinets, as shown in Figure 2. Each core consists of two (2) to four (4) SolBank 3.0 cabinets, one power conversion system (PCS), a core support enclosure (CSE), and a core auxiliary equipment panel. Each PCS consists of inverters, a medium voltage (MV) transformer, and disconnects. The site will also include a project substation.

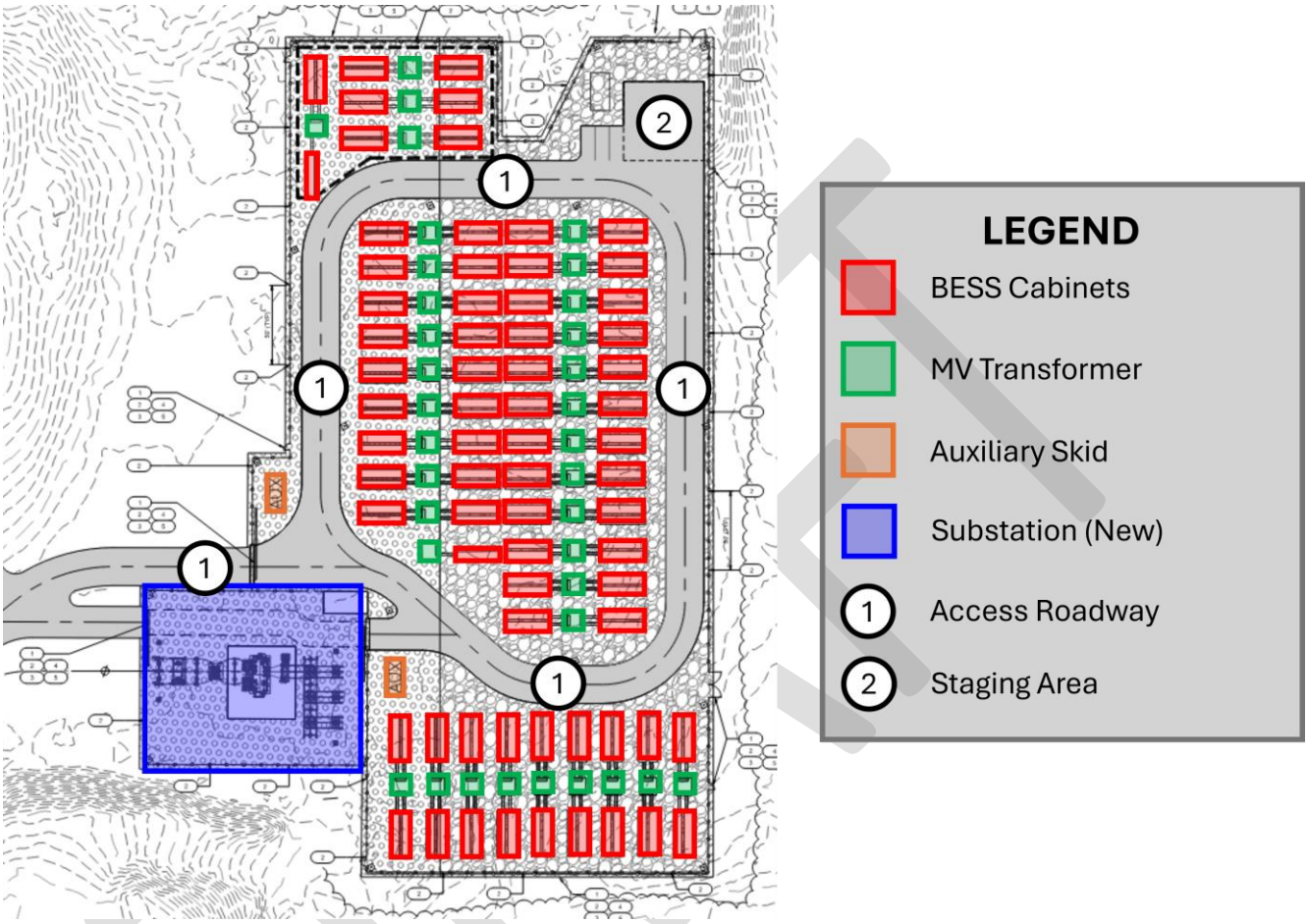


Figure 2: General equipment arrangement

3.1.1 Receptors of interest

The receptors of interest are any occupied buildings (e.g., schools, housing, restaurants), community areas (e.g., water bodies, parks, recreational areas), or any critical infrastructure (e.g., substations, solar panels, industrial sites) that could potentially be exposed to primary or secondary consequences. These distances serve as reference points for evaluating potential impacts associated with the NY 34 BESS facility. Consequence extents are evaluated relative to these respective distances to assess potential off-site impact on the surrounding area. This approach ensures that evaluations are based on the proximity of critical boundaries and access points, which are essential for understanding site-specific risks and exposure.

The closest receptors of interest in each of the categories are listed in Table 6, and shown in Figure 3.

Table 6: Receptors of Interest

Receptor of Interest	Location	Distance from the BESS yard (m(ft))
Occupied Buildings	Sheldon Hill Forestry Supply	83.8 (275)
Critical Infrastructure	Substation	289.9 (951)

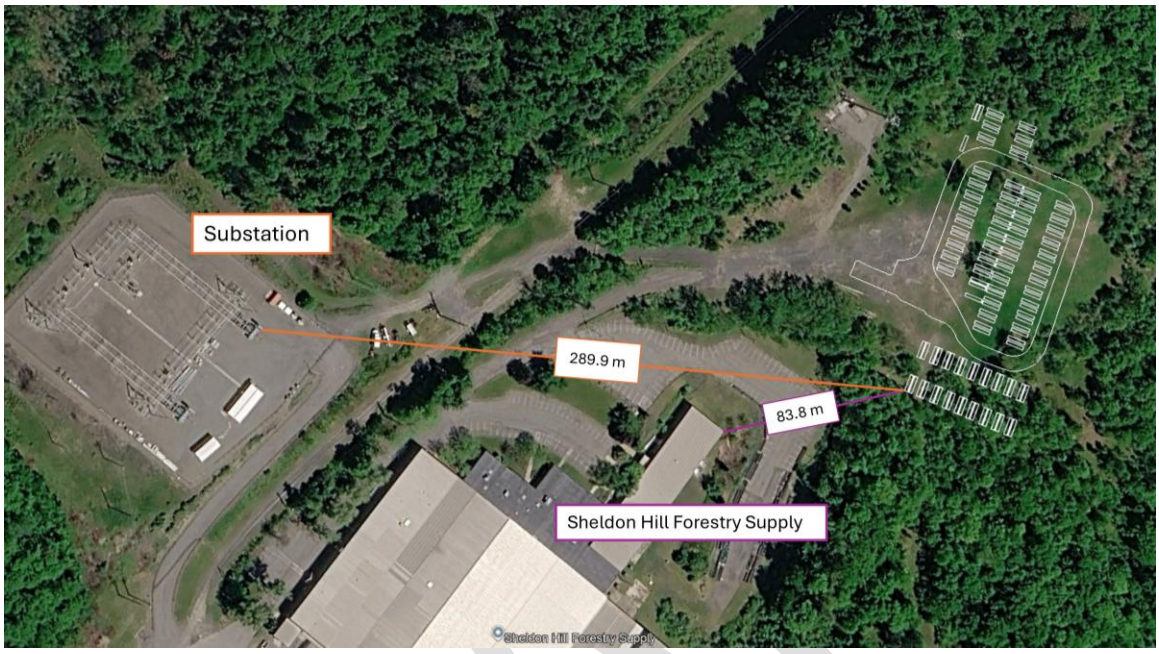


Figure 3: Site receptors of interest

3.1.2 Points of Interest

In addition to the receptors of interest, the facility is surrounded by a fence, which provides access control, limiting site access to authorized personnel only. The distance to the project fence has also been identified as a point of interest in this analysis.

The closest distance to the project fence is illustrated in Figure 4 and summarized in Table 7.

Table 7: Points of Interest

Point of Interest	Distance from the nearest BESS enclosure (m(ft))
Project Fence	2.03 (6.7)
Property Boundary	15.17 (50)

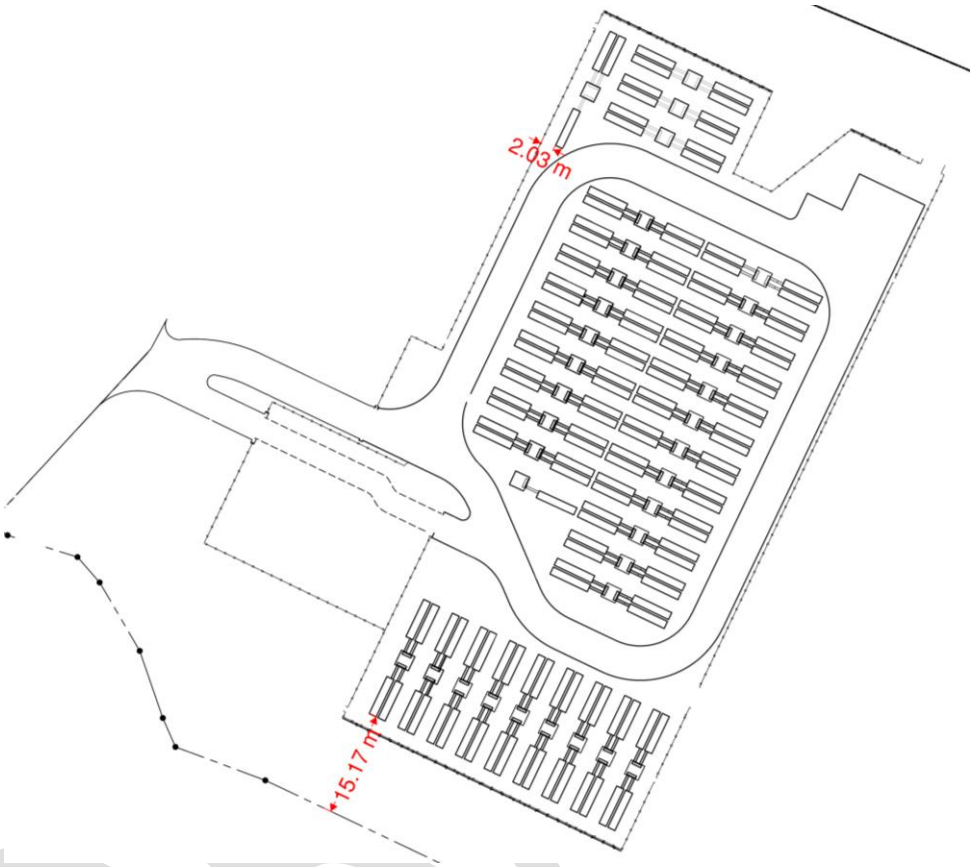


Figure 4: Distances to points of interest

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3.2 SolBank 3.0 Anatomy & Fire Testing Overview

The SolBank 3.0 is a fully integrated BESS comprising battery modules, power electronics, control systems, a battery management system, a thermal management system (TMS), and an explosion control system. A brief overview of the SolBank 3.0 BESS and relevant fire testing is provided in Section 3.2.2 through 0 below. Before reviewing the BESS anatomy and fire test results, it is important to understand battery failures that lead to thermal runaway. A high-level overview of thermal runaway is provided in Section 3.2.1 for reference.

3.2.1 Battery Failure: Thermal Runaway

Thermal runaway is a condition in which a self-heating chemical reaction occurs within a battery cell. This occurs when the battery cell generates heat faster than it can dissipate it. Thermal runaway can be initiated by physical damage (e.g., puncture, crushing, water damage), electrical malfunctions (e.g., overcharging, water damage), exposure to elevated ambient temperatures (e.g., adjacent cells in thermal runaway with elevated temperatures), manufacturing defects, and other internal conditions that may develop inside aging battery cells (e.g., dendrites).

Thermal runaway typically results in an overpressure event within the battery cell, due to internal heat generation inside the casing, causing hot battery gases to be ejected from the cell via the pressure relief valve. Depending on the conditions, thermal runaway may be limited to the initiating cell(s) or may propagate to adjacent cells. Thermal runaway propagation typically occurs through conductive and convective heating or through physical damage to adjacent cells due to swelling of the initiating cell. Conductive heating is the primary mode of heat transfer to adjacent cells for a non-flaming event (i.e., pre-combustion), and convective heating is the primary mode of heat transfer to adjacent cells for a flaming event (i.e., post-combustion). Non-flaming events are typically limited to the initiating module(s) due to a common initiating event. Flaming events typically involve module-to-module propagation over an extended duration due to pre-heating of cells by convective heating from combustion. Non-flaming events result in the release of battery vent gas[10] generated through thermal runaway. This vent gas is usually a flammable mixture containing toxic components, with CO being the most significant. Flaming events result in the combustion of the flammable battery vent gas and the generation of toxic combustion products. HF and CO can be generated by combustion and are typically considered the most prominent and impactful toxic gases of interest.

In summary, thermal runaway is a chemical reaction that occurs within a battery cell, which results in uncontrolled self-heating. This process can occur from an initiating event without an ignition source (i.e., non-flaming thermal runaway) or with an ignition source (i.e., flaming thermal runaway). Thermal runaway can be limited to a single cell or may generate enough heat to propagate to adjacent cells and/or modules. The primary mode of heat transfer in a non-flaming thermal runaway event is conduction, and the primary mode of heat transfer in a flaming thermal runaway event is via convection and radiation. Depending on the specific external conditions during a thermal runaway event, a non-flaming or a flaming event may occur. Non-flaming events

[10] Often referred to in this report as TVG.

release a flammable mixture containing toxic components, and flaming events cause combustion of flammable battery vent gas, generating toxic combustion products.

3.2.2 Cell

The cell is the smallest level of anatomy of the battery assembly. The SolBank 3.0 utilizes an LFP prismatic cell, as shown in Figure 5. The cells are manufactured by Xiamen Hithium Energy Storage Technology (model: LFP71173207/314Ah) and are UL 1973 compliant. Each cell has a nominal capacity of 314-amp hours (Ah), a nominal voltage of 3.2 volts (V), and a nominal energy capacity 1.0 kWh. The cell measures 8.15 in (207.11 mm) × 6.87 in (174.70 mm) × 2.82 in (71.70 mm). TUV Rheinland (Shenzhen) Co., Ltd performed UL 9540A cell level testing and issued a report.[11] A total of five cells were tested. Each cell was charged to 100% SOC prior to testing. Thermal runaway was initiating via fil strip heaters installed on both of the wide surfaces of each prismatic cell, meaning two heaters were installed on each cell. The heaters were programmed to increase the temperature of the cells surface by 4 °C to 7 °C per minute until the cell vented and went into thermal runaway. One of the five cells was placed within a gas collection chamber during testing and the flammable gases released were collected and analyzed. The battery gas composition and flammability properties from the UL 9540A cell-level test are summarized in Table 8 and Table 9 for reference. All cell level tests resulted in non-flaming thermal runaway (i.e., no flaming was observed during the cell level test).

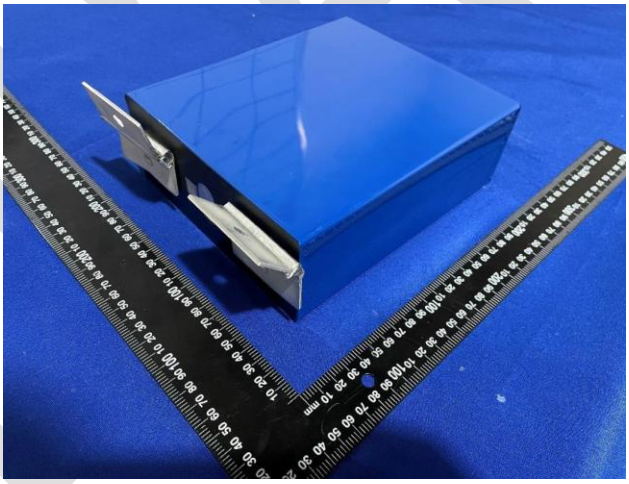


Figure 5: SolBank 3.0 battery cell (LFP71173207/314Ah)

[11] Project # CN23F118 001, TUV Rheinland (Shenzhen) Co., Ltd. Dated 2023.12.06

Table 8: Battery vent gas composition

Gas Name	Chemical Structure	Concentration (%)
Carbon Monoxide	CO	16.202
Carbon Dioxide	CO_2	26.861
Hydrogen	H_2	49.875
Methane	CH_4	3.671
Ethylene	C_2H_4	1.389
Ethane	C_2H_6	0.548
Propylene	C_3H_6	0.745
Propane	C_3H_8	0.180
C_4	n-C_4 H_{10}	0.068
C_4	n-C_4H_8	0.22
C_5	n-C_5H_{12}	0.076
C_5	iso-C_5H_{12}	0.112
C_5	n-C_5H_{10}	0.053
Total	-	100

Table 9: Battery vent gas flammability properties

Vent Gas Information and Flammability Properties	Value
Average cell surface temperature at gas venting	203.7 °C
Average cell surface temperature at thermal runaway	295.7 °C
Cell vent gas volume released	130 L
LFL, % volume in air at the ambient temperature	8.1%
LFL, % volume in air at the venting temperature	6.5%
Burning Velocity (Su)	77.9 cm/s
Maximum pressure (P_{max})	0.78 MPa

3.2.3 Module

The module is the second level of the BESS anatomy. The SolBank 3.0 module (model: CSI-SolBank-P-104.5-2h-H and CSO-SolBank-P-104.5-4h-H) has a nominal capacity of 314Ah, a nominal voltage of 332.8 V, and measures approximately 0.25 m (0.81 ft) by 0.79 m (2.59 ft) by 2.18 m (7.15 ft). Each module consists of 104 LFP

cells in a 1P104S configuration, housed in a liquid-cooled, plastic-and-aluminum enclosure. UL (Changzhou) Quality Technical Service Co., Ltd. performed UL 9540A module-level testing and issued a report.[12]

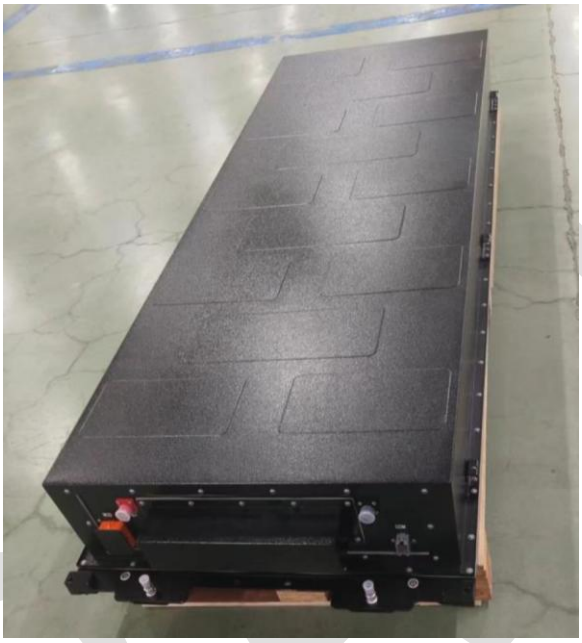


Figure 6: SolBank 3.0 battery module

The module was charged to 100% SOC prior to testing. The test was initiated using film heaters, identical to initiation in the cell level test. The test resulted in non-flaming thermal runaway propagation to two additional cells. The timeline of the test is provided in Table 10 and shows 15 minutes between venting and thermal runway for the first cell. No flaming was observed during the module level test.

Table 10: UL9540A Module Test Timeline

Location (Cell #)	Event	Time (hh:mm)
-	Test start	15:45
40 (initiating)	vent	16:40
40 (initiating)	Thermal runaway	16:55
39 (initiating)	Thermal runaway	17:04
41 (initiating)	Thermal runaway	17:06
38	Thermal runaway	17:09
42	Thermal runaway	17:14

[12] Project # CN248UKE 001, TUV Rheinland (Shanghai) Co., Ltd. Dated 2024.06.28

3.2.4 Unit

The unit is the third level of BESS anatomy. Each unit is constructed of four modules and has a sub-control box. There are two units per rack, as shown in Figure 7. The SolBank 3.0 unit utilizes a 4S12P module configuration. Each unit has a nominal capacity of 314 Ah, a nominal voltage of 1,331.2 V, a nominal energy capacity of 418 kWh and has overall dimensions of 7.15 ft (2180mm) × 2.59 ft (790 mm) × 3.25 ft (992 mm). The unit is manufactured for use in the SolBank 3.0 and is intended to be part of the enclosure -level assembly. UL performed UL 9540A unit level testing and issued a report.[13]

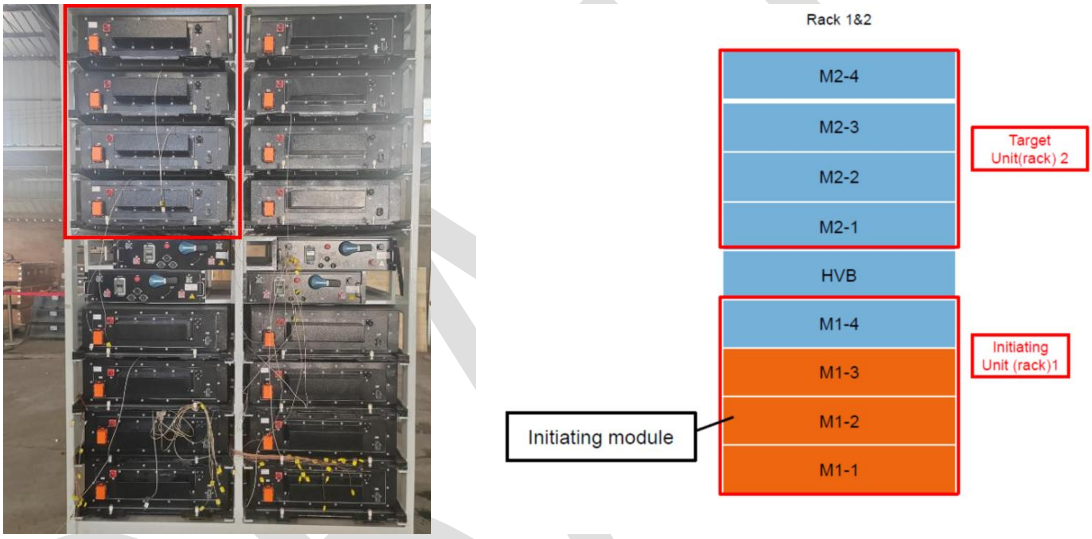


Figure 7: (a) SolBank 3.0 unit assembly (red box = 1 unit) (b) initiating unit & initiating module location

The four units (1 initiating and 3 target) were charged to 100% SOC prior to unit level testing. The test was initiated using film heaters, identical to initiation in the cell and module level test. The initiating module was selected to be the second lowest module in the unit configuration. The test resulted in non-flaming thermal runaway propagation to two additional cells within the initiating module. The unit level test provided similar results to the module level test for propagation demonstrating thermal runaway propagation was limited to 5 cells within a single module when initiated via cell overheating. No flaming was observed during the unit level test.

[13] Project # CN24M32L 001, TUV Rheinland (Shanghai) Co., Ltd. Dated 2024.06.28

3.2.5 Enclosure

The enclosure[14] is the final and largest level of the BESS anatomy. The SolBank 3.0 unit is a non-walk-in style, rigid metal (steel) enclosure designed to house the batteries, associated controllers, and appurtenances. The enclosure is composed of 12 packs, for a total of 4,992 cells per container. The enclosure supports the safe operation of the BESS through its rigid exterior housing, which protects the batteries from mechanical damage and weather conditions. It is 2 m (8 ft) wide, 6.1 m (20 ft) long, 2.9 m (9.5 ft) tall. The enclosure has an IP-55 rating and is intended for outdoor, ground-mounted installations. The SolBank 3.0 contains a battery compartment, an electrical controls compartment (not shown in image, located behind the TMS), and a TMS compartment (shown as liquid cooling chiller), as shown in Figure 8.

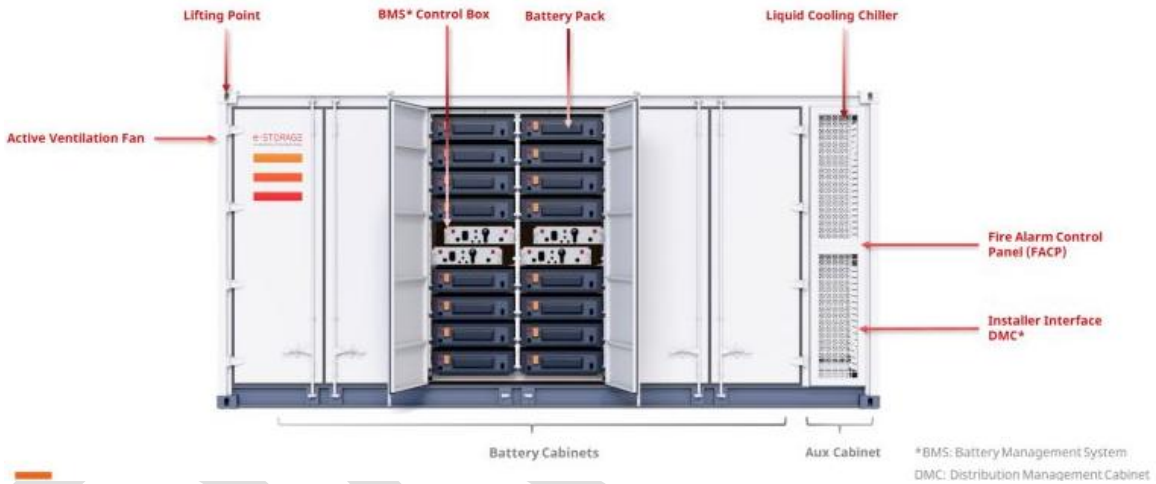


Figure 8: SolBank 3.0 enclosure assembly with doors open

3.2.6 Large Scale Fire Test (LSFT)

CSA group performed a destructive LSFT on a fully populated SolBank 3.0 and issued a report[15]. The test was initiated by overheating 10 cells to failure which resulted in thermal runaway propagation to all racks and full fire involvement of the entire enclosure of 12 units (48 modules total). The initiating battery cells were heated using eight film heaters until thermal runaway initiation, and the resultant battery vent gas was then ignited by an instrumented propane burner. Upon ignition, the fire propagated to full involvement and burned until all fuel was consumed and self-extinguished. While the LSFT lasted approximately 10.5 hours from sustained ignition until full self-extinguishment, a consistent burning time of approximately five hours from first peak flaming until initial decay was reported. The LSFT was performed outdoors under a vent hood, where post-combustion gas products were sampled and analyzed using FTIR to record continuous concentrations of post-combustion gaseous products, including acid gases such as HF. Figure 9 shows the measured gas concentrations in parts

[14] Interchangeably referred to as container throughout report.
[15] Project # 80247651, CSA International Certification Co., Ltd, Kunshan Branch. Dated 2025.06.06

per million and percentage, respectively over the fire test duration. The results show constituent gas measurements over the 10.5-hour fire duration with sustained burning occurring from approximately the 1-hour to 6-hour mark. The results show that peak gas constituent measurements are instantaneous, lasting for less than a few minutes at a time. The average gas volume released over the full fire duration is significantly less than the gas volume released assuming constant instantaneous peak rates. Figure 10 shows the data for toxic gases (CO, HF, and SO_2) and the measured flow rate from the hood over the course of the test. The graphs show that the peak generation rate of each constituent occurs at different periods of the fire.

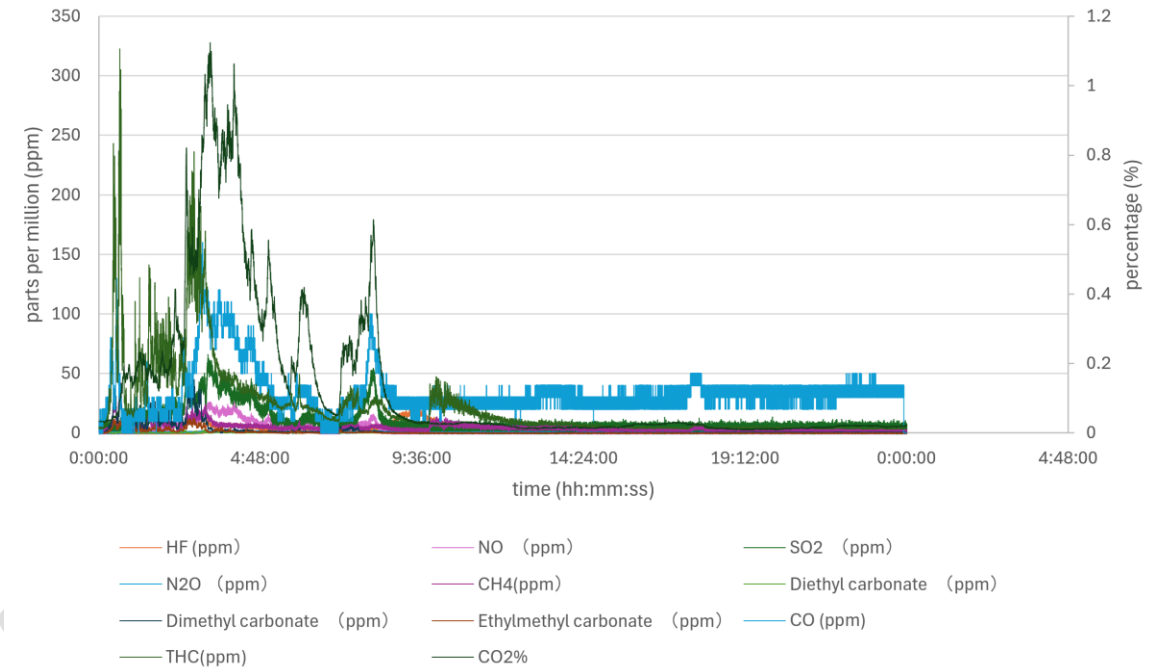


Figure 9: LSFT all gas constituent measurements vs time

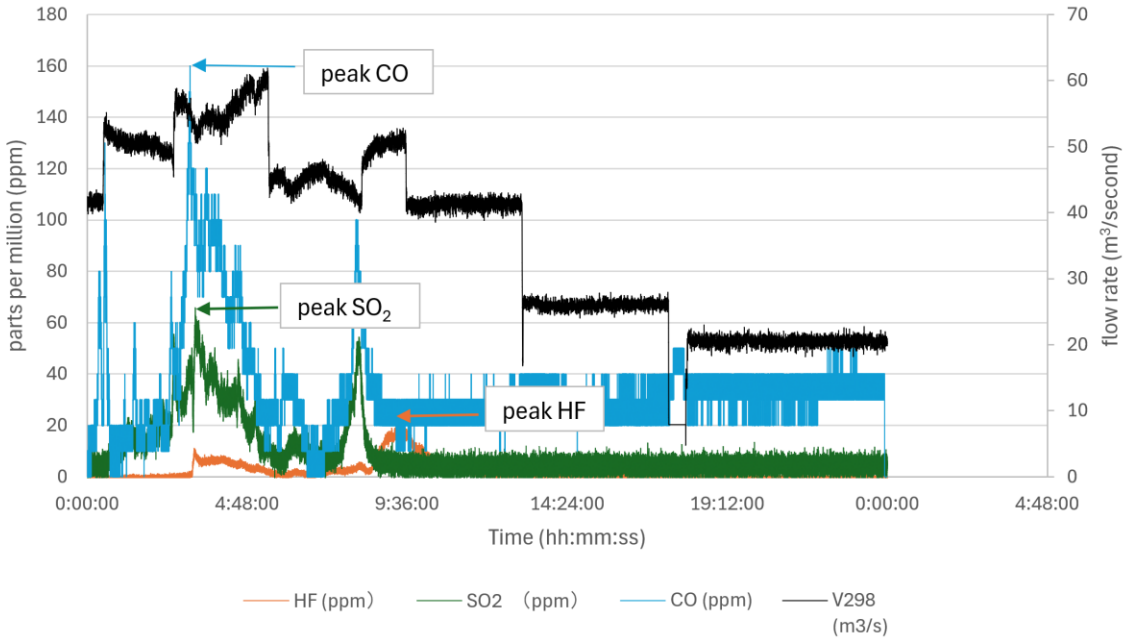


Figure 10: LSFT toxic gas constituent measurements vs time

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4 PHAST MODEL INPUTS

The following sections summarize key model inputs used to inform the PHAST model inputs. The final model inputs and modeled scenarios are summarized in Section 4.4. For more information on the selection of these inputs, refer to the weather sensitivity analysis presented in Appendix C.

4.1 Plume Release Source Term Development

4.1.1 Pre-Combustion TVG Release

The pre-combustion release scenarios represent a non-flaming battery failure event when thermal runaway occurs in the absence of a competent ignition source. For all pre-combustion release scenarios, the battery TVG composition, volume, and release durations are based on UL 9540A testing. For all pre-combustion release scenarios, the battery TVG composition was modeled as a mixture, with component concentrations based on the UL 9540A cell level test report (see Section 3.2.2). The following pre-combustion failure scenarios are included in this analysis and represent failure scenarios resulting in varying number of cells being involved. Scenario 1 should be considered the most realistic, as this scenario aligns with observed test results from UL9540A module and unit level testing. Scenarios 2 – 4 are provided as hypothetical release scenarios to bound theoretical worst-case consequence extents.

In development of release scenarios, all battery modules are assumed to fail simultaneously with zero propagation between modules, leading to a larger volumetric release rate than through module-to-module propagation. Realistically, thermal runaway propagation between modules would occur sequentially over an extended period as the adjacent battery cells are slowly heated and then fail sequentially after a time delay. By assuming instantaneous initiation in all involved modules, the modeling maximizes the volumetric release rate while maintaining sufficient duration to assess one-hour exposure levels for hazardous substances at IDLH and AEGL-2 concentrations. This conservative approach ensures that if the modeled scenario demonstrates acceptable safety outcomes, actual incidents, involving lower release rates over longer periods, would remain within safe limits.

Scenario 1: UL9540A based 5- cell release scenario

Based on the UL9540A cell level test, each battery cell releases 130 L of TVG during thermal runaway. Based on the module level UL9540A test report, five cells experienced thermal runaway over a 25-minute duration. By scaling the UL9540A cell level gas volume and using the release duration from the UL9540A module level test, a 5 cell failure scenario results in a release rate of 26 liters per minute (LPM). This is the basis for the 5-cell failure scenario which aligns with the results of the UL9540A module and unit level tests. In addition to the 25 minute 5-cell release scenario, an additional hypothetical bounding scenario was evaluated assuming that all 5 cells enter thermal runaway simultaneously and instantaneously vent all gas. This is the basis for the instantaneous release scenario.

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Scenario 2: hypothetical one-module release scenario

The UL9540A calculated release duration was scaled up to define a hypothetical full module release where a single battery failure propagates to all 104 cells within a module. This is a conservative release scenario as both the UL9540A module and unit level testing resulted in thermal runaway propagation to 5 cells and not throughout the entire module. The total volume of gas released was determined by scaling the single cell volume up to the number of cells in a module. Using the observed propagation time in the UL9540A module tests, the 5-cell vent duration was scaled to account for an entire module release assuming propagation from involved cells to adjacent cells in all directions every 10 minutes. This results in a 65-minute release duration, and a corresponding constant 208 LPM TVG release rate for a single module. This is the basis for the hypothetical module level release scenario.

Scenario 3: hypothetical one-unit release scenario

To develop a hypothetical unit level release scenario, in which all four modules fail simultaneously, the single module release duration (i.e., 65 minutes) was uniformly applied to all four modules involved in a unit. This is a conservative approach that assumes a single failure results in immediate thermal runaway propagation in all four modules simultaneously. The total volume of gas released was calculated by scaling the single cell volume up to the number of cells in a unit. This method yields a constant TVG release rate of 832 LPM for a single unit over a 65-minute release duration.

Scenario 4: hypothetical full enclosure release scenario

To develop a hypothetical full enclosure level release scenario, in which all 12 units in the enclosure fail simultaneously, the single module release duration (i.e., 65 minutes) was uniformly applied to all 48 modules involved in a unit. This is a conservative approach that assumes a single failure results in immediate thermal runaway propagation in all modules within the enclosure simultaneously. The total volume of gas released was calculated by scaling the single cell volume up to the number of cells in the enclosure (i.e., 4,992). This method yields a constant TVG release rate of 9,984 LPM for the entire enclosure over a 65-minute release duration.

4.1.2 Post-Combustion Gaseous Product Release

The post-combustion release scenarios represent a flaming battery failure event when thermal runaway occurs in the presence of a competent ignition source. The LSFT post-combustion plume data (see Section 3.2.6) was analyzed to determine representative individual constituent and overall mixture release rates using the methods defined in Table 11.

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Table 11. Gas Source Term Methodology Definition

ID #	Conservative? (y/n)	Realistic? (y/n)	Definition	LSFT Reference Time[16]
1	Y	N	Peak instantaneous generation rate for each constituent	varies by constituent
2	Y	Y	Individual constituent release rate at the time of peak CO generation	03:05:00
3	Y	Y	Individual constituent release rate at the time of peak HF generation	09:24:24
4	N	Y	Average release rate during peak CO generation	02:35:00-05:11:00
5	N	Y	Average release rate over the entire fire duration	00:45:00-09:30:00

The release rates were calculated using the volumetric flow rate from the hood at the corresponding LSFT time or specified averaging duration and the ideal gas law. It was assumed that hydrocarbon constituent measurements such as CH_4, $C_4H_8O_3$, and $C_3H_6O_3$ were double counted and only the THC contribution was considered for development of the source term. The calculated release rates for each method are summarized in Table 12. The calculated release rates vary between conservative and non-conservative and realistic and nonrealistic generation rates as specified in Table 11. For informing model source term inputs, the calculated generation rates are applied as constant release rates over a 5-hour burning duration. The calculated total mixture volume released over the 5-hour duration for each source term option is also shown in Table 12. The calculation methodology aligns with the definition provided in Table 11.

[16] See **Error! Reference source not found.** for more details

Table 12. LSFT Post-Combustion Plume Generation Rates Analysis

Gas Name		Generation Rate (l/s)				
		#1	#2	#3	#4	#5
Carbon Monoxide	CO	8.56	8.56	1	4.12	2
Carbon Dioxide	CO_2	582.8	448.5	15.3	366.1	163.3
Hydrogen Fluoride	HF	1.02	0.11	1.02	0.24	0.18
Nitric Oxide	NO	1.36	0.9	0.06	0.79	0.34
Sulfur Dioxide	SO_2	3.37	2.25	0.38	1.83	0.94
Nitrous Oxide	N_2O	0.11	0.062	0.017	0.057	0.034
Total Hydrocarbons	THC	16.2	7.07	0.36	3.7	2
	Total mixture release rate (L/s)	613.42	467.45	18.14	376.84	168.79
	Total mixture volume (m^3)	11,041.56	8,414.14	326.47	6,783.07	3,038.29

This analysis shows that the source term developed using the instantaneous peak release rate (#1) results in the largest volume of gas released. The source term developed using the actual gas generation rates at the time of peak HF generation (#3) results in the smallest volume of gas released. The calculated release rates are bounded between the two. As shown in Figure 10, peak release rates are only observed for short durations over the course of the fire scenario, and they do not occur at the same time, making the release source term #1 conservative and unrealistic based on the observed behavior from the LSFT. Peak CO generation (#2) is observed during peak burning and represents a realistic release rate at an instantaneous portion in time; however, these this source term is less conservative than source term #1. Peak HF generation (#3) is observed in the later stages of the fire when other gas constituent generation rates are relatively low, making this source term realistic but non-conservative for other toxic gas constituents. Source terms #4 and #5 show the impact of averaging duration; each uses a different averaging duration, which results in total gas release rates and associated volumes 50-75% less than the peak generation rates.

This analysis was used to inform the selected post-combustion release source terms as follows.

Scenario 1: hypothetical one-unit release scenario

A hypothetical one-unit post-combustion (i.e., 4-module) release scenario was developed to represent the post-combustion plume resulting from a fire scenario which consumes a single unit in the enclosure. The release term was developed by scaling down the total peak gas generation rate from the LSFT (i.e., release ID #1 presented in Table 11) based on the number of units in the enclosure. The release was modeled at the constant peak generation rate for a 5-hour duration to simulate the fire incident. This is conservative because the peak release rates were only observed instantaneously during the LSFT and modeling them at a constant release for a 5-hour duration results in conservative release volumes and extents for each toxic gas constituent.

Scenario 2: full enclosure release scenario

A full enclosure post-combustion release scenario was developed to represent a fire scenario that consumes the entire BESS enclosure. The gas generation rates calculated via methodology #1 and #5, as shown in Table 12, were used to model the consequences associated with post-combustion plume release scenarios. Release source term #1 (peak instantaneous rates) is a conservative and non-realistic scenario to determine upper-bounding exposure extents. Release source term #5 (average rates of fire duration) results in a non-conservative realistic scenario to evaluate representative plume consequence extents. For input to PHAST, the hydrocarbon species were modeled as an equivalent quantity of methane based on the THC measurement in lieu of using the individual hydrocarbon measurements (i.e., CH_4, $C_4H_8O_3$, and $C_3H_6O_3$). Both releases were modeled at a constant generation rate for a 5-hour duration.

4.2 PHAST Model Parameters

This section outlines the model inputs for weather conditions and release parameters and identifies the selected worst-case scenarios.

4.2.1 Release Height & Direction

For all modeled scenarios, the release elevation was set to 2.0 m to simulate a release from the side of the battery enclosure. In the case that the extent of the consequence did not reach this height due to plume buoyancy, measurements were taken at the release height of 2.0 m.

Additionally, the release direction was oriented horizontally to predict the maximum downwind extent. Using a horizontal release direction follows a conservative approach, aligning with a worst-case scenario, pre- and post-combustion plumes are buoyant and will typically be released vertically, and modeling them as such would result in shorter maximum horizontal extents.

4.2.2 Weather Conditions

Atmospheric stability and wind speed affect the plume analysis results by increasing or decreasing the turbulence of the airflow, thereby maximizing or minimizing the dispersion of the vapor cloud. Pasquill stability classes are given in Table 13, representing atmospheric stability conditions, with more stable classes having less turbulent mixing. Stability Class F was used for all models as it is the most conservative approach and maximizes the extent and concentration of the vapor cloud downwind from the release location.

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Table 13: Pasquill stability classes

Stability Class	Definition	Stability Class	Definition
A	Very unstable	D	Neutral
B	Unstable	E	Slightly stable
C	Slightly unstable	F	Stable

In the PHAST UDM, it is understood that lower wind speeds result in farther plume extents at the concentrations of interest. Lower wind speeds are generally associated with lower turbulence; as such, they result in less mixing of air with the plume, thereby minimizing plume disturbance and maximizing plume dispersion. Long-term weather data was gathered from the nearest weather station, New York Stewart Airport, approximately 66 km (41 mi) from the proposed KCE NY 34 BESS site.

The minimum wind speeds were determined for both the summer and winter periods (2.2 mph and 2.8 mph for August and December, respectively). Associated temperature and humidity conditions were also determined, and these sets of weather conditions were used in a sensitivity analysis to determine which produced the furthest extent of the cloud for pre- and post-combustion releases. The results of the sensitivity analysis are provided in Appendix C for reference.

The release temperature can also affect the downwind dispersion results. The release temperature for pre-combustion venting was specified as ambient temperature because battery vent gases in non-flaming scenarios rapidly mix with ambient air and cool to ambient temperature. The release temperature for post-combustion venting was specified as 500 °C, representing conservative post-combustion conditions near the fire source, as plume temperatures regularly exceed 1000 °C. A sensitivity analysis was conducted to evaluate the impact of this input on the post-combustion results and is provided in Appendix C for reference.

4.3 Selected Input Parameters

The sensitivity analysis results show that the winter weather conditions produce the farthest consequence extents for both pre- and post-combustion scenarios. As such, winter weather conditions were used as the baseline for all PHAST modeling scenarios.

Table 14 summarizes the weather conditions and other general release detail inputs utilized for all PHAST models.

Table 14: PHAST model inputs

Model Parameter	Model Value
Average minimum wind speed (mph)	2.2
Pasquill stability class	F
Ambient temperature (°F)	71 (21.7 °C)
Relative humidity (%)	72.6
Outdoor release direction	Horizontal impingement
Release height (m)	2.0

Table 15 summarizes the modeled release temperatures for pre- and post-combustion releases, respectively.

Table 15: Model release temperatures

Model Parameter	Model Value
Pre-Combustion Release temperature (°C)	25
Post-Combustion Release temperature (°C)	500

All other PHAST modeling parameters for release conditions were taken directly from the UL 9540A and LSFT reports, as well as from conservative calculations of the battery TVG release rate, release duration, and propagation rate for individual cells.

4.4 PHAST Model Scenarios Summary

The following sections summarize the modeled release scenarios evaluated in this plume analysis.

4.4.1 Pre-Combustion Scenarios

The pre-combustion scenarios evaluated in this analysis are summarized in Table 16.

Table 16: Pre-combustion model scenarios summary

Scenario	Sub-Scenario	# Cells Involved	Release Duration (min)	Release Rate (LPM)
1. UL 9540A release (five cells)	1.1	5	25	26
	1.2	5	Instantaneous*	N/A
2. Module release	2.1	104	65	208
3. Unit release (four modules)	3.1	416	65	832
4. Full enclosure release (48 modules)	4.1	4,992	65	9,984

** Instantaneous release was modeled for the five-cell volume only, as module, unit, and enclosure level releases exceed the interior cabinet volume space.*

In addition to the scenarios indicated in Table 16, the theoretical upper-bounding release condition (TUBR) was also modeled, and results for these sub-scenarios (1.3, 2.2, 3.2, and 4.2) are presented in Appendix B. The TUBR is achieved by condensing the entire released TVG volume into a 10-minute release for module, unit, and enclosure-level failure scenarios. The TUBRs represent simultaneous venting from all cells within all involved modules and are specifically included in this analysis for use as a comparison for understanding the hypothetical peak potential impacts from a condensed release (all cells initiate venting and thermal runaway at time=0) and are not representative of the consequences to be expected from a propagating non-flaming thermal runaway event, nor are they utilized for evaluating facility siting. The TUBR scenarios assume that all cells involved fail simultaneously and release all gases within 10 minutes. These scenarios help define the maximum potential impacts but are unrealistic, as actual events would occur via cell-to-cell and module-to-module propagation.

4.4.2 Post-Combustion Scenarios

The post-combustion scenarios evaluated in this analysis are summarized in Table 17.

Table 17: Post-combustion model scenarios summary

Scenario	Sub-Scenario	# Cells Involved	Release Duration (hr)	Release Rate (LPS)
1. One-unit fire (4 modules)	-	416	5	51.12
2. Full enclosure fire (48 modules)	2.1 – peak generation rates	4,992	5	613.42
	2.2 – average generation rates	4,992	5	168.79

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5 PRE-COMBUSTION PHAST RESULTS

Pre-combustion battery TVG release scenarios identified in Section 4.4.1 were modeled in PHAST, and the resulting consequence extents are summarized in this section. Consequence extents were evaluated using flammable and toxic gas thresholds as described in Section 2.1.

5.1 Pre-Combustion: Summary of Results

Results of all modeled pre-combustion scenarios are summarized in the tables shown throughout this section.

Table 18 summarizes the maximum extent of flammable and toxic gas consequences for each pre-combustion release scenario. Each modeled scenario produces a flammable gas cloud and therefore presents a flash fire as a potential secondary consequence. A flash fire is a brief thermal event in which a dispersed flammable cloud ignites and burns out almost immediately, producing thermal effects but negligible overpressure. The maximum flash fire consequence extent for each scenario is also summarized in Table 18.

Graphical results for flammable and toxic gas consequence extents are provided in Sections 5.2.1 and 5.2.2, respectively. Graphical results for flash fire consequence extents are provided in Section 5.3.1.

Table 18: Pre-combustion results summary of flammable and toxic extents

Scenario	Sub-Scenario	Duration	Consequence Extent (m)				
			Flash-Fire	LFL	½ LFL	AEGL-2	CO IDLH
1. UL 9540A release (five cells)	1.1	25 min	1.02	0.23	0.45	5.74	1.68
	1.2	Instantaneous*	1.45	1.05	1.34	12.20	2.65
2. Module release	2.1	65 min	1.57	0.63	1.37	13.58	3.90
3. Unit release (four modules)	3.1	65 min	2.75	1.38	2.23	30.57	7.08
4. Full enclosure release (48 modules)	4.1	65 min	8.57	3.88	7.05	76.13	21.55

** Instantaneous release was modeled for the five-cell volume only, as module, unit, and enclosure level releases exceed the interior cabinet volume space.*

The release conditions for Scenario 1.2 resulted in the potential secondary consequence of a fireball, depending on ignition timing. No other modeled scenarios resulted in this potential consequence. Fireball consequence extents are summarized in Table 19. Graphical results are provided in Section 5.3.2.

Table 19: Pre-combustion results summary of fireball thermal radiation extents

Scenario	Sub-Scenario	Duration	Consequence Extent (m)				
			3 kW/m²	5 kW/m²	8 kW/m²	16 kW/m²	20 kW/m²
1. UL 9540A release (five cells)	1.2	Instantaneous*	7.92	6.18	4.91	3.50	3.15

**Instantaneous release was modeled for the five-cell volume only, as module-, unit-, and enclosure-level releases exceed the interior cabinet volume space.*

The thermal radiation levels are standard thresholds for radiation impacts resulting from fireballs with the following impacts[17]:

- 3 kW/m²
  - Lower threshold for pain to unprotected skin after approximately 30 seconds of exposure.
  - Allows sufficient time for emergency action and escape without serious injury; generally considered safe for short-duration exposure.
- 5 kW/m²
  - Pain to unprotected skin within approximately 15 seconds of exposure.
  - Limiting criterion for safe approach by emergency responders with PPE.
- 8 kW/m²
  - Level that causes death within minutes.
  - Exposure must be limited to a few seconds, sufficient for escape only.
- 16 kW/m²
  - Intensity on structures where operators are unlikely to be performing and where shelter is available.
- 20 kW/m²
  - Associated with significant structural damage and direct flame impingement conditions; used as a threshold for major property loss in consequence assessments

All visual results presented in the following section are at the 2.0 m plume centerline to provide a consistent comparison across scenarios and to represent a conservative estimate of the extent of consequences. Graphical results for flammable and toxic gas consequence extents are provided in Section 5.2.1 and 5.2.2, respectively. Graphical results for secondary consequence extents are provided in Section 5.3.

[17] Mannan, S. (Editor). Lees' loss prevention in the process industries. Chapter 16 - Fire. 4th Edition. 2012

5.2 Pre-Combustion Analysis Results: Primary Consequence Extents

5.2.1 Flammable Extent

Graphical results of the flammable gas extents for all modeled pre-combustion releases are provided in this section.

5.2.1.1 Half (½) LFL Extent

The maximum measured horizontal extent of the ½ LFL plume was 7.05 m (23.1 ft) for Scenario 4.1 (65-min enclosure release), measured at the plume centerline height of 2.0 m.

Figure 11 and Figure 12 present the ½ LFL horizontal plume extents for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1 at the release height of 2.0 m.

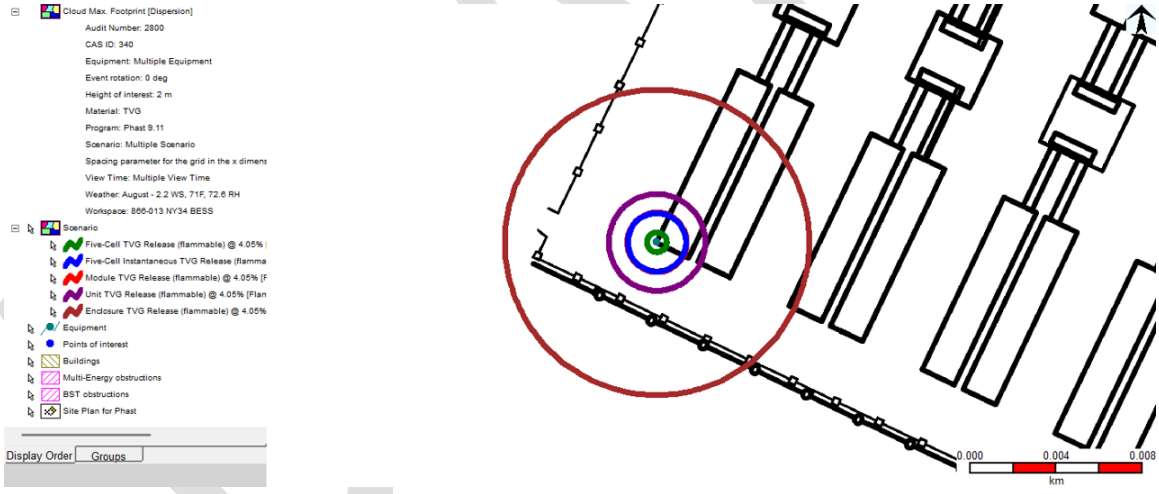


Figure 11: Map of horizontal extent of vapor cloud for ½ LFL (4.05%) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

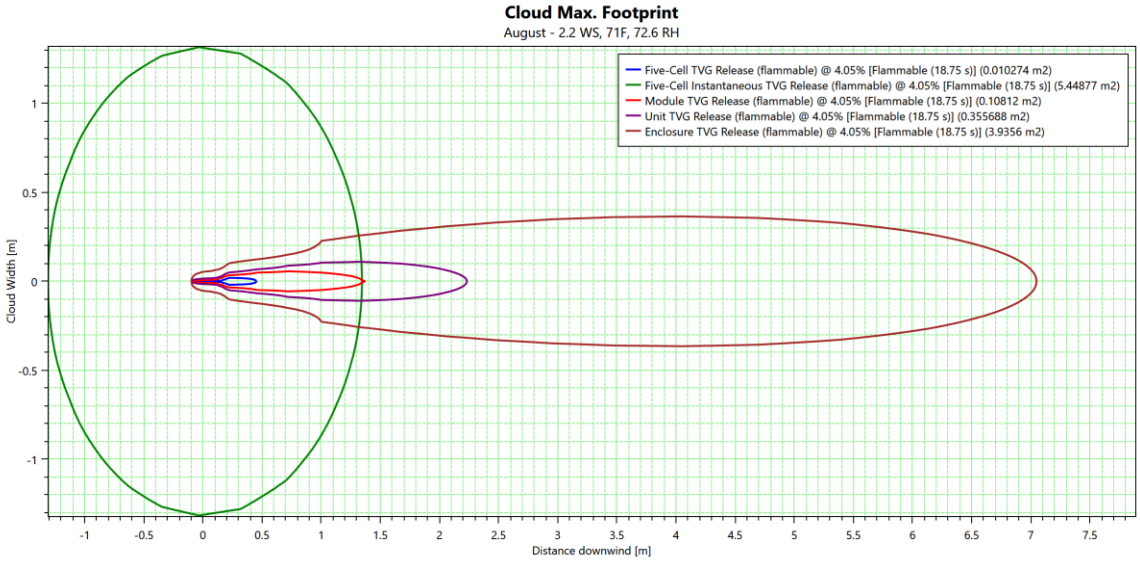


Figure 12: Graph of horizontal extent of vapor cloud for ½ LFL (4.05%) for Scenarios 1.1,1.2, 2.1, 3.1, and 4.1

5.2.1.2 LFL Extent

The maximum measured horizontal extent of the LFL plume was 3.88 m (12.7 ft) for Scenario 4.1 (65-min enclosure release), measured at the plume centerline height of 2.0 m. Figure 13 and Figure 14 present the LFL horizontal plume extents for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1 at the release height of 2.0 m.

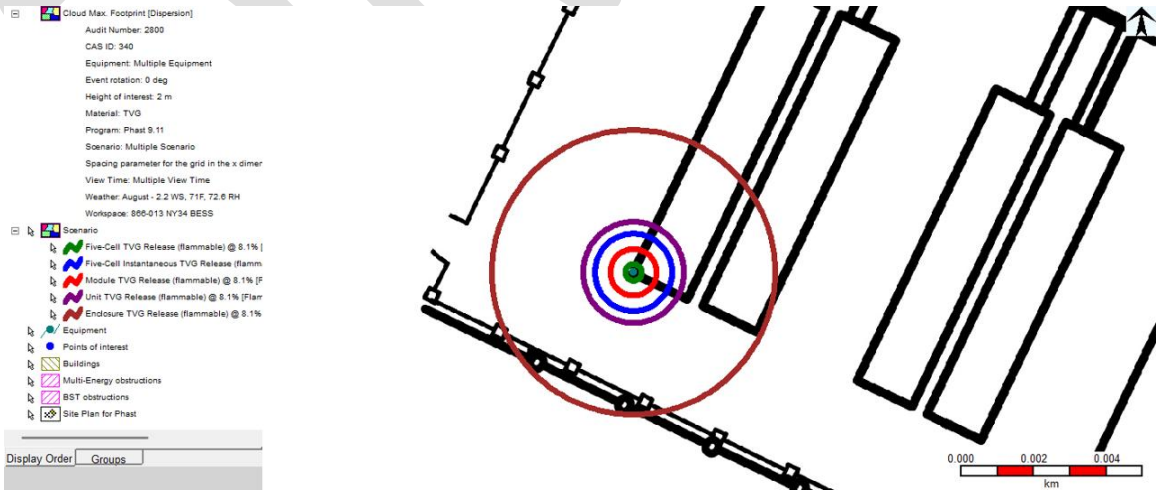


Figure 13: Map of horizontal extent of vapor cloud for LFL (8.1%) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

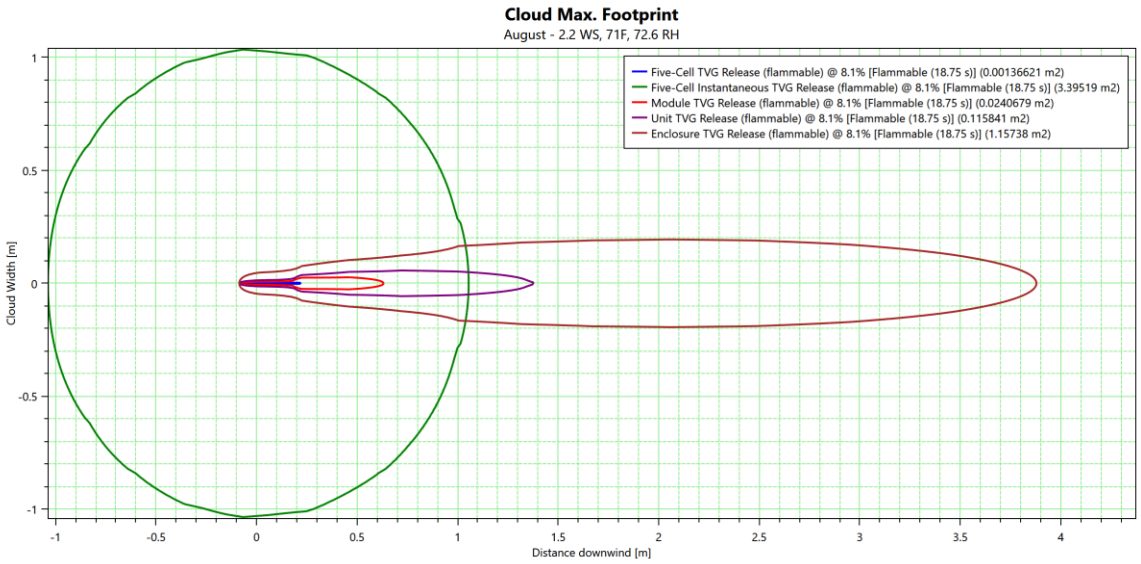


Figure 14: Graph of horizontal extent of vapor cloud for LFL (8.1%) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

5.2.2 Toxic Extent

The maximum measured horizontal extent of the AEGL-2 (83 ppm) plume was 76.13 m (249.8 ft) for Scenario 4.1 (65-min enclosure release), measured at the release height of 2.0 m. The CO AEGL-2 horizontal plume extent for Scenario 4.1 is presented in Figure 15 and Figure 16.

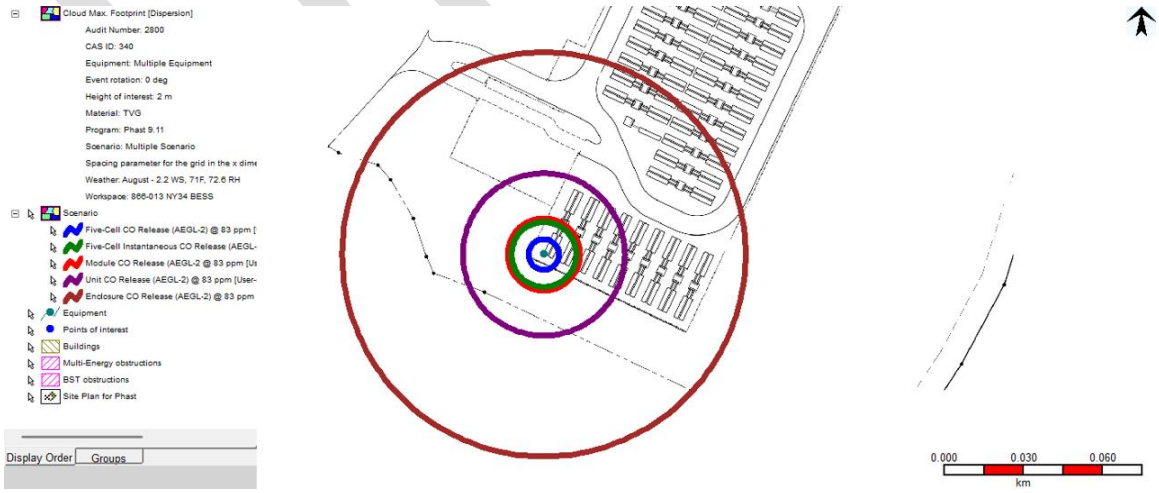


Figure 15: Map of horizontal extent of vapor cloud for AEGL-2 (83 ppm) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

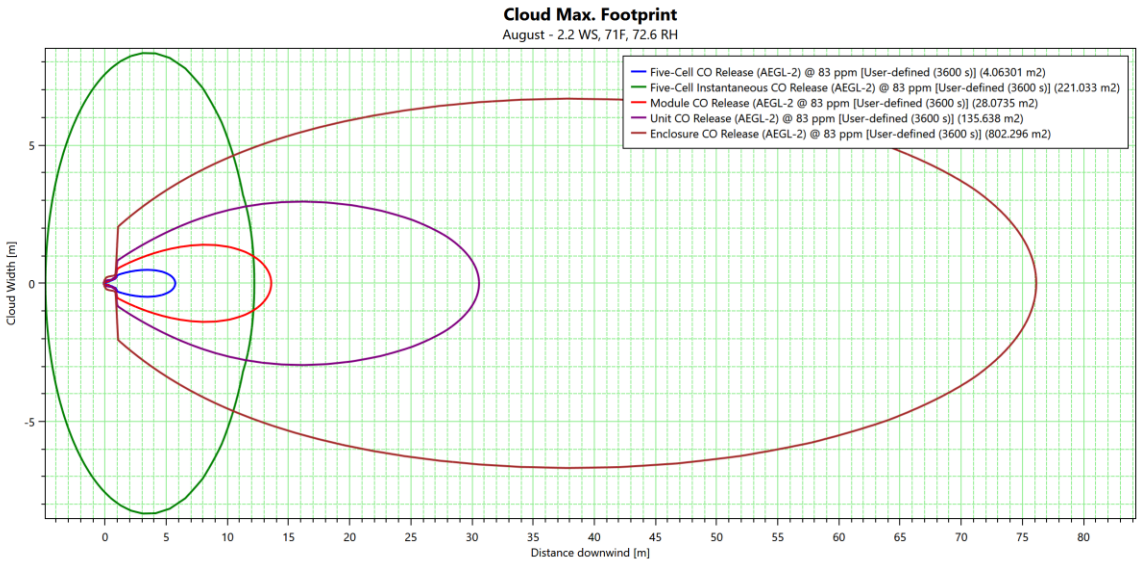


Figure 16: Graph of horizontal extent of vapor cloud for AEGL-2 (83 ppm) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

The maximum measured horizontal extent of the IDLH (1,200 ppm) plume was 21.55 m (70.7 ft) for Scenario 4.1 (65-min enclosure release), measured at the release height of 2.0 m. The CO IDLH horizontal plume extent for Scenario 4.1 is presented in Figure 17 and Figure 18.

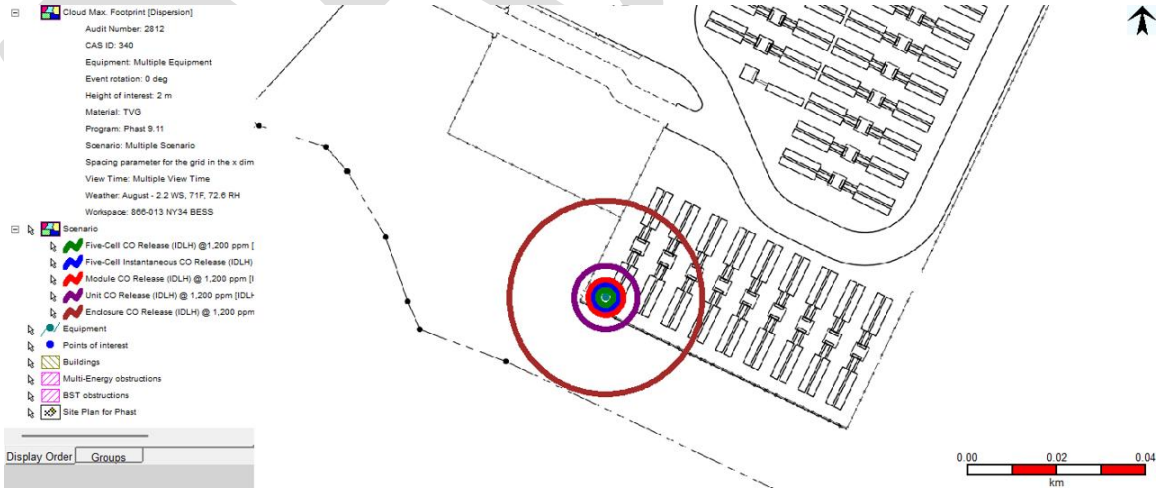


Figure 17: Map of horizontal extent of vapor cloud for CO IDLH (1,200 ppm) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

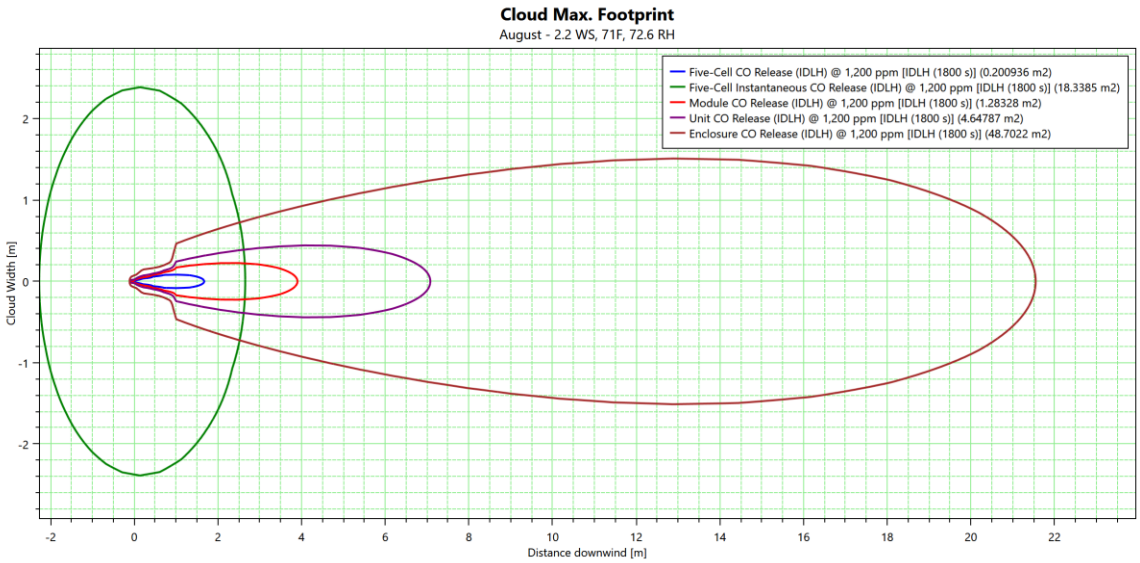


Figure 18: Map of horizontal extent of vapor cloud for CO IDLH (1,200 ppm) for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

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5.3 Pre-Combustion Analysis: Secondary Consequence Extents

5.3.1 Flash Fire Envelope Extent

A flash fire occurs when the battery's vent gas is released and dispersed in the air and ignites, consuming the flammable fuel almost instantly. In a flash fire, the flame front travels rapidly from the ignition point to the limit of the flammable cloud, after which it immediately goes out. Thus, heat fluxes sufficient to ignite flammable clothing or cause second-degree burns to exposed skin do not occur for more than three seconds[18] in any single location within the flash fire envelope. Each modeled scenario produces a flammable gas cloud and therefore presents a flash fire as a potential secondary consequence.

The maximum measured horizontal extent of a potential flash fire envelope was 8.57 m (28.1 ft) for Scenario 4.1 (65-min enclosure release). Figure 19 and Figure 20 present the maximum flash fire envelopes for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1 at the release height of 2.0 m.

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[18] NFPA defines the upper limit of a flash fire to be three seconds.

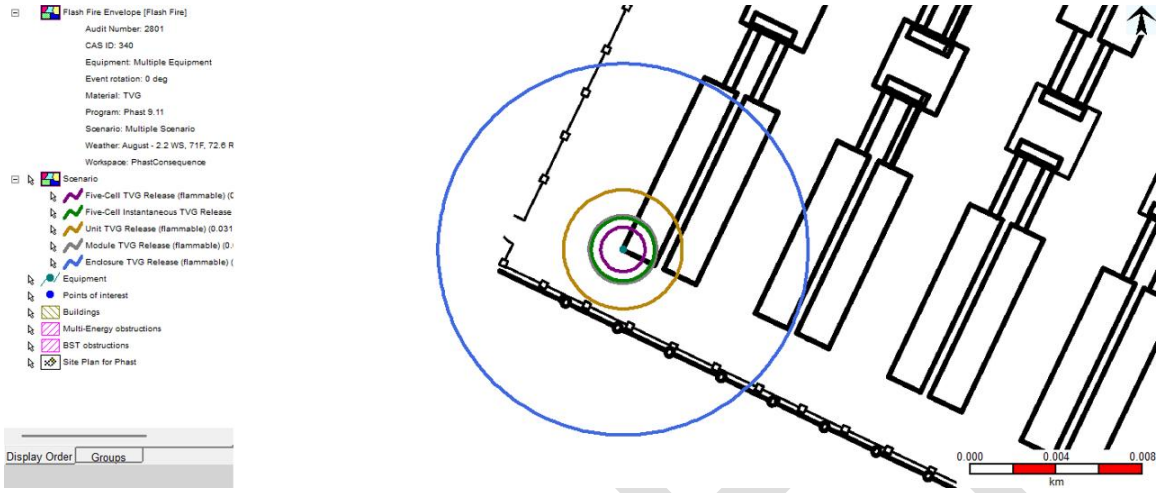


Figure 19: Map of maximum extent of flash fire envelope for Scenarios 1.1, 1.2, 2.1, 3.1, and 4.1

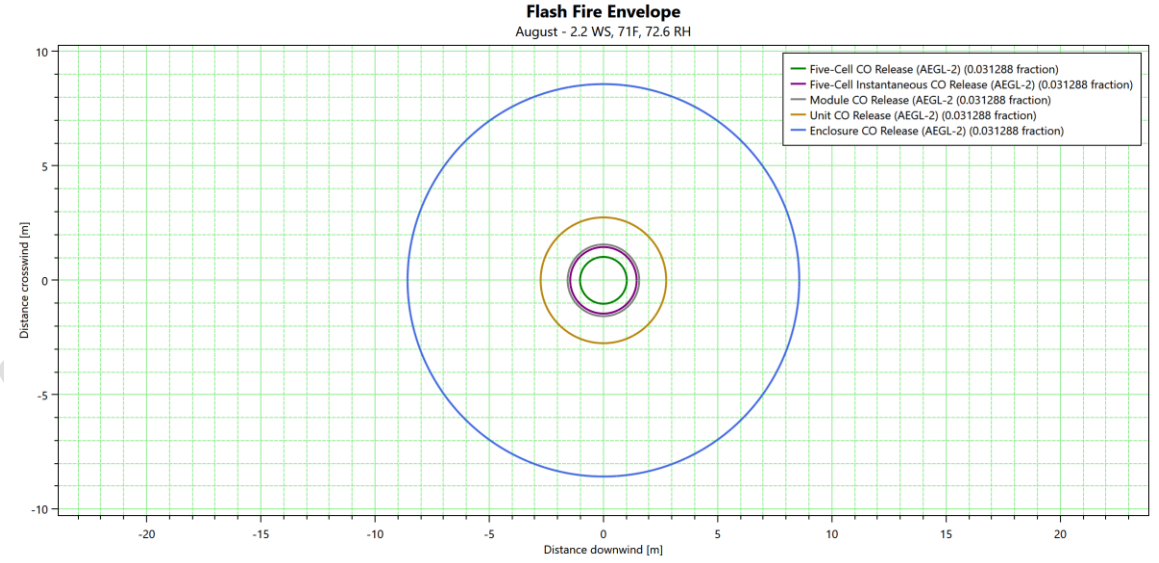
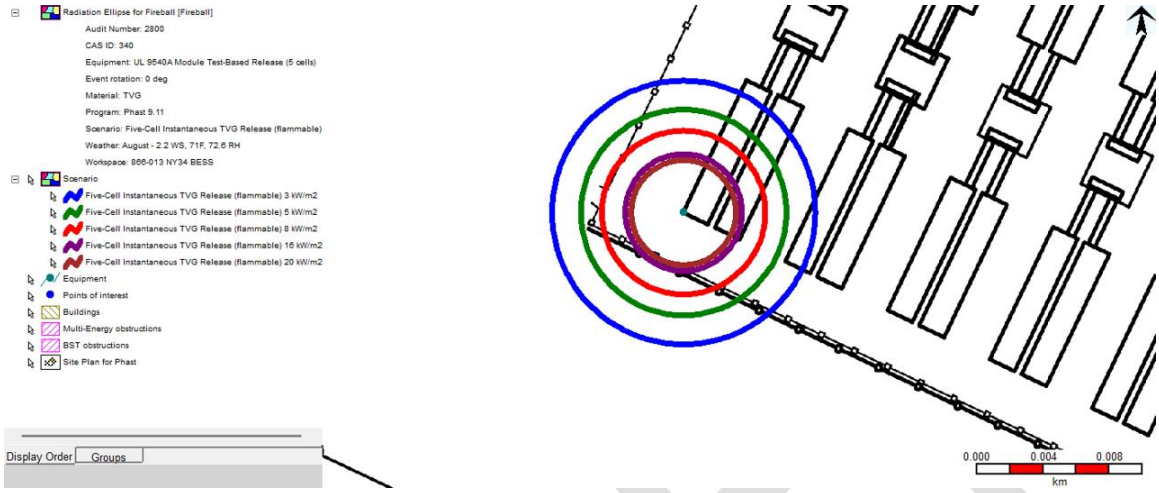


Figure 20: Graph of maximum extent of flash fire envelope for Scenarios 1.1, 2.1, 3.1, and 4.1

5.3.2 Fireball Heat Flux

A fireball may occur when vent gas accumulates and then ignites with limited mixing with the outside air. Thus, the potential secondary consequence of a fireball is only observed in this analysis for the instantaneous release scenario (Scenario 1.2), as this scenario allows minimal mixing with ambient air while the gas accumulates, and delayed ignition occurs upon release of the flammable gas into the ambient air.

The maximum extent of the modeled 3 kW/m^2 heat flux for a potential fireball was 7.92 m (26 ft) for Scenario 1.2 (instantaneous five-cell release), as shown in Figure 21 and Figure 22. It must be noted that the duration of the fireball was less than 0.91 seconds, as shown in Figure 23.



Legend: Blue = 3.0kW/m^2, Green = 5.0kW/m^2, Red = 8.0kW/m^2, Purple = 16.0kW/m^2, Maroon = 20.0kW/m^2

Figure 21: Map of fireball thermal radiation levels for Scenario 1.2

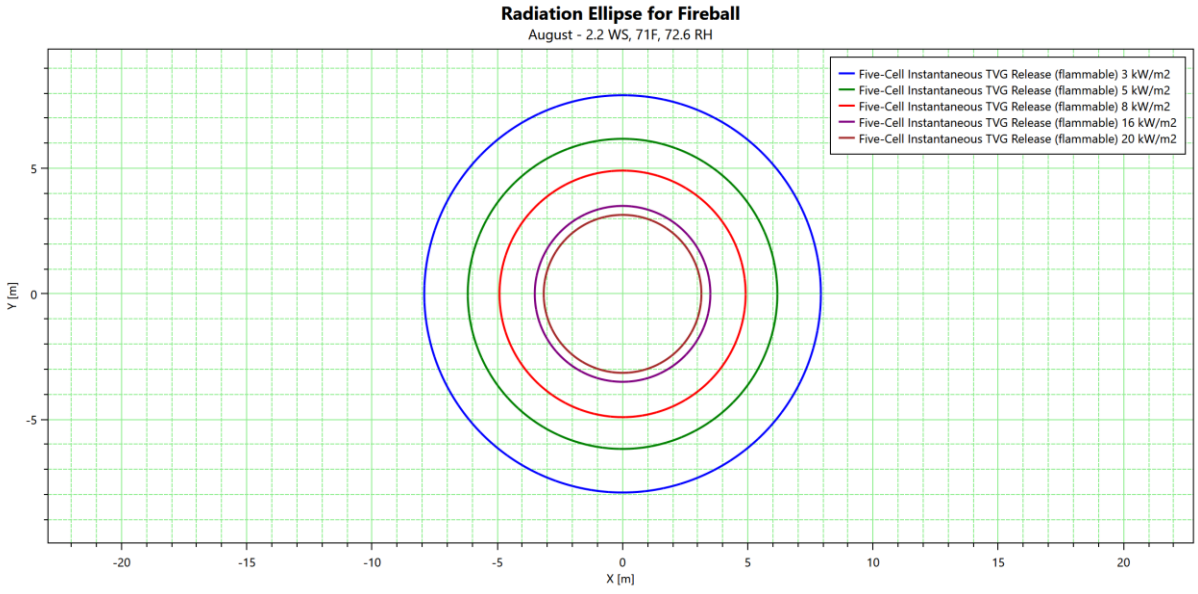


Figure 22: Graph of fireball thermal radiation levels for Scenario 1.2

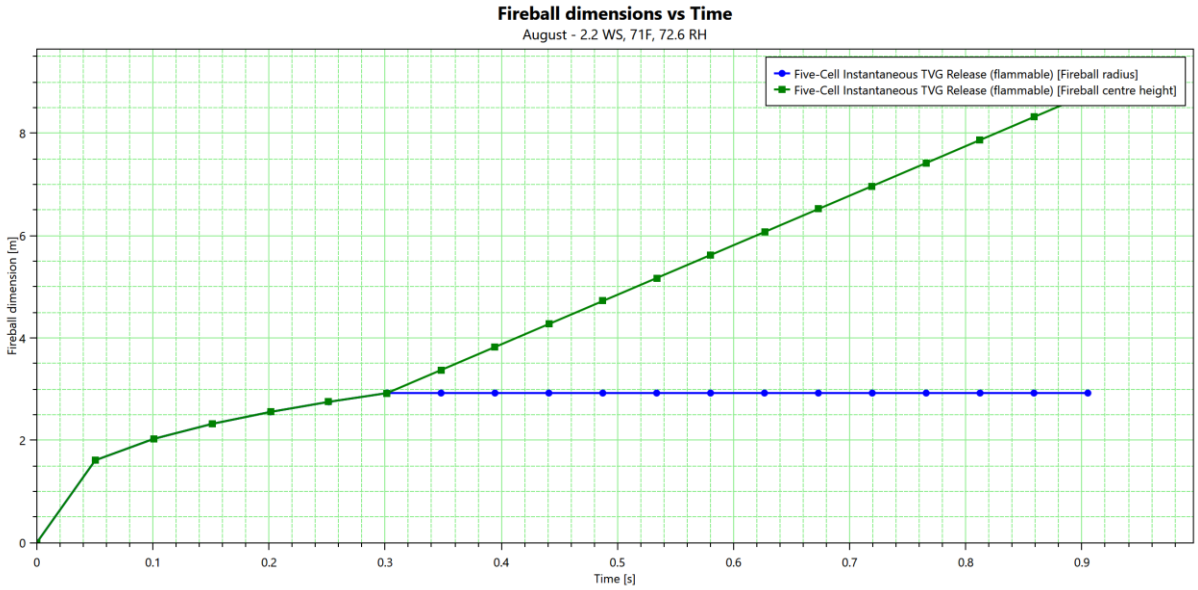


Figure 23: Scenario 1.2 fireball duration and extent

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6 POST-COMBUSTION PHAST RESULTS

Post-combustion fire plume release scenarios identified in Section 4.4.2 were modeled in PHAST, and the resulting consequence extents are summarized in this section. Consequence extents were evaluated using toxic gas thresholds as described in Section 2.1.

6.1 Post-Combustion: Summary of Results

The maximum toxic gas consequence extent for each post-combustion release scenario is summarized in Table 20. Graphical results for toxic gas consequence extents are provided in Sections 6.3 and 0. BESS locations and distances to property lines remain the same between the graphical results and the updated site plan in Section 3.1.

Table 20. Post-Combustion Scenario Results: Summary of Toxic Vapor Extents

Scenario	Sub-Scenario	IDLH Concentration Extent* (m)			AEGL-2 Concentration Extent* (m)		
		HF (30 ppm)	SO_2 (100 ppm)	CO (1,200 ppm)	HF (24 ppm)	SO_2 (0.75 ppm)	CO (83 ppm)
1. One unit fire (4 modules)	-	3.65	3.63	1.17	4.32	35.73	7.55
2. Full enclosure fire (48 modules)	2.1 – peak generation rates	10.71	10.65	2.81	12.28	58.55	19.0
	2.2 – average generation rates	4.29	6.15	1.44	5.14	49.13	11.01

** Consequence extent horizontal distance at 2 m elevation*

6.2 Post-Combustion Analysis: Impact on Exposures of Interest

The closest receptor of interest to toxic vapors is the residential building located approximately 83 m (275 ft) to the southwest from the closest proposed BESS cabinet (as shown in **Error! Reference source not found.**). A dditionally, the distance between the nearest BESS and the KCE NY 34 site property boundary is 15 m (60 ft).

Figure 24 through Figure 26 show the maximum horizontal IDLH and AEGL-2 plume extent for Scenario 2. The maximum downwind AEGL-2 gas extent of 58.55 m (192.1 ft) is expected for the SO_2 plume in Scenario 2.1, representing a 48-module full enclosure release using constant peak generation rates. Scenario 2.1 corresponds to a non-realistic release rate, identified as ID #1 in Table 11. It should be noted that the AEGL-2 for SO_2 is significantly lower than the AEGL-2 threshold for any other toxic constituent and results in consequence extents over 4x as severe as HF and CO for the same release scenarios. The maximum downwind extent of 49.13 m (161.2 ft) is expected for the SO_2 AEGL-2 plume in Scenario 2.2, representative of a more realistic and expected gas generation rate over the duration of a full enclosure involvement fire event.

The maximum downwind IDLH gas extent of 10.71 m (35.1 ft) is expected for the HF plume in Scenario 2.1, representing a 48-module full enclosure release using constant peak generation rates. All other toxic gases result in lower consequence extents when evaluated at IDLH thresholds.

The modeling results for all evaluated scenarios show minimal offsite impact with SO_2 AEGL-2 concentrations extending beyond the property boundary, but not reaching receptors of interest such as the commercial property located approximately 83.8 m (275 ft) to the southwest. The AEGL-2 consequence extent of other toxic gases such as CO and HF are maintained within the property boundary. Concentrations equivalent to IDLH thresholds are maintained within the property boundary for all toxic gases.

The AEGL-2 values are conservative thresholds which represent exposure conditions at which irreversible or other serious, long-lasting adverse health effects, or impaired ability to escape may occur when exposed consistently for 1-hour duration. The adverse health effects are representative of the most susceptible members of the general population, including the elderly, children, people with asthma, and those with other illnesses (Environmental Protection Agency, n.d.). In regard to actual impacts due to SO_2 exposure, the EPA explicitly states “exposure to concentrations at the level of derived AEGL-2 values is expected to have no effect in healthy individuals, but the concentrations are consistent with the definition of AEGL-2 for asthmatic individuals” (Sulfur Dioxide: Acute Exposure Guideline Levels, 2010). Additionally, the AEGL-2 threshold does not vary based on duration of exposure with the same threshold of 0.75 ppm specified for 10 minutes to 8-hours of exposure time.

IDLH thresholds represent any condition that poses an immediate or delayed threat to life given 30 minutes of sustained exposure. IDLH thresholds guide workplace safety limits and can be used to inform recommended MAD for emergency response personnel when approaching the site and staging equipment. The IDLH threshold exposure areas are maintained on-site.

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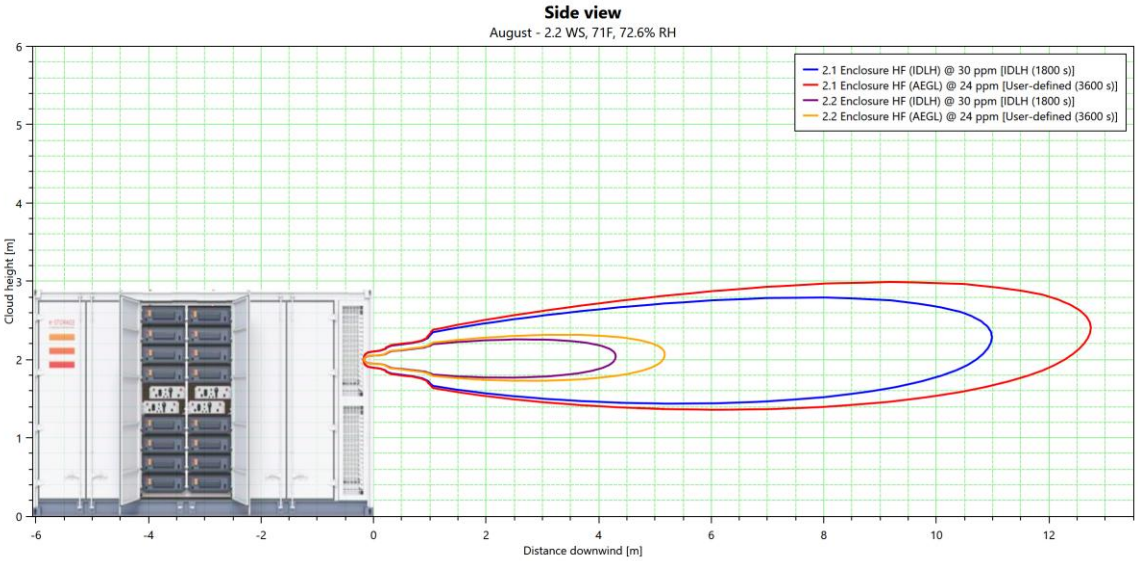


Figure 24. Maximum vertical extent of post-combustion enclosure release plume for HF IDLH & AEGL-2

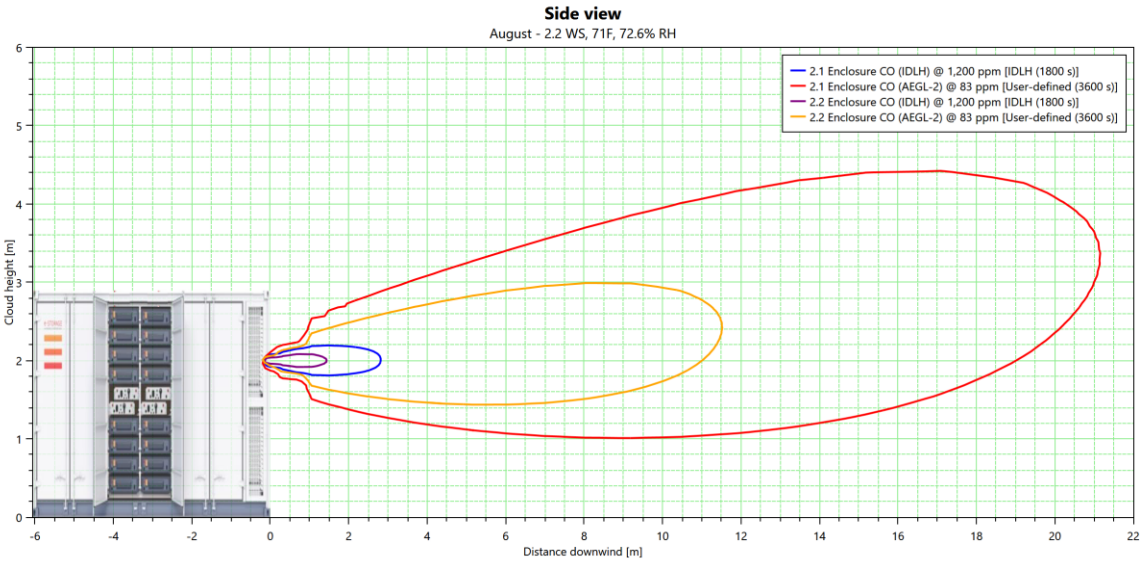


Figure 25. Maximum vertical extent of post-combustion enclosure release plume for CO IDLH & AEGL-2

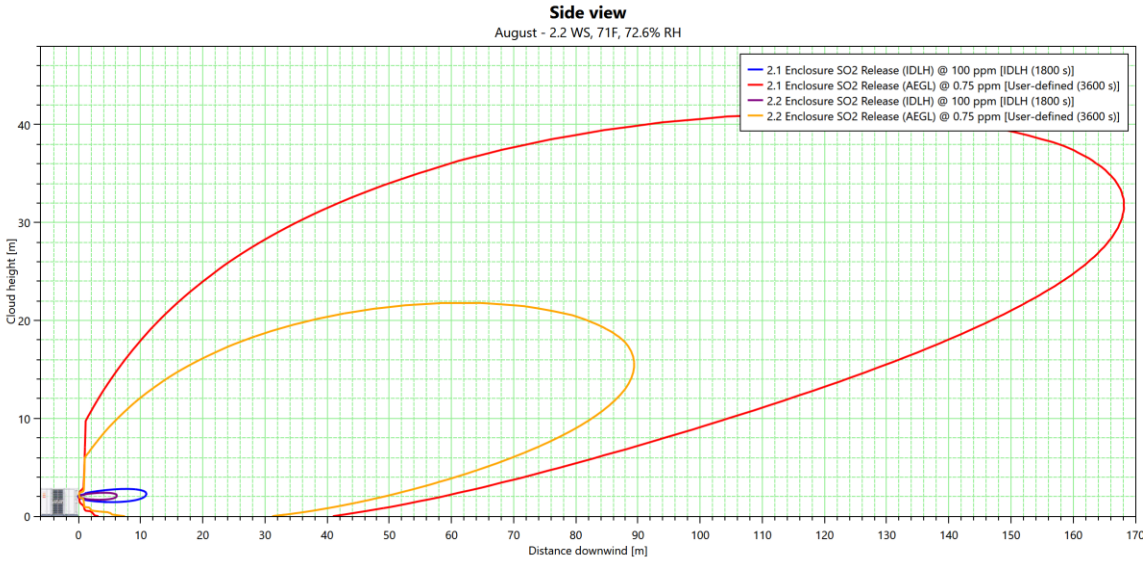


Figure 26. Maximum vertical extent of post-combustion enclosure release plume for SO_2 IDLH & AEGL-2

6.3 Scenario 1 (One-unit fire): Toxic Gas Extent Results

Figure 27 and Figure 28 show the maximum horizontal HF, CO, and SO_2 IDLH extent from a 5-hour burn duration release of a single unit in a SolBank 3.0 enclosure. Figure 29 and Figure 30 show the maximum horizontal HF, CO, and SO_2 AEGL-2 extent from a 5-hour burn duration release of a single unit in a SolBank 3.0 enclosure.

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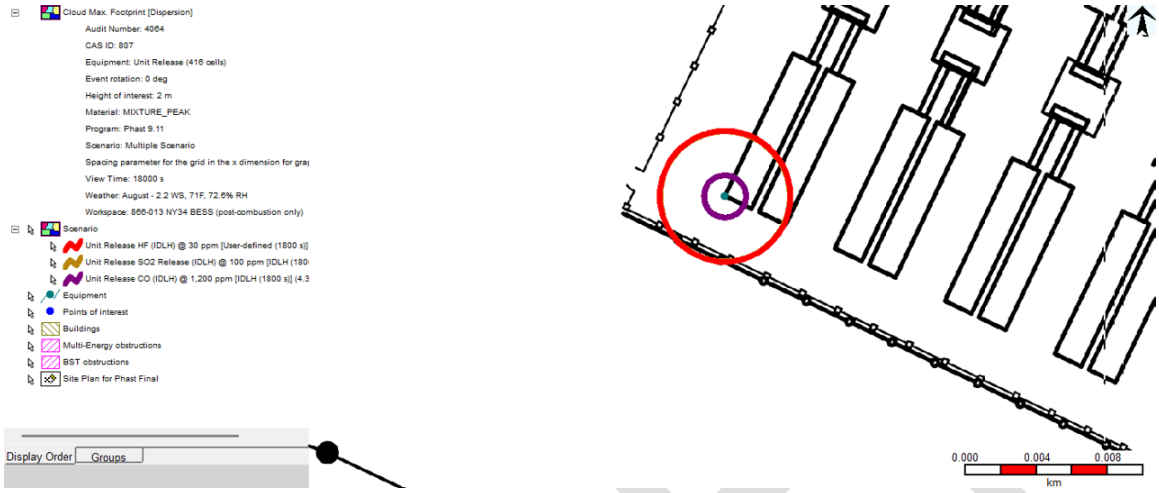


Figure 27. Scenario 1 map of horizontal extent of HF (in orange), CO (in purple), SO_2 (in gold) IDLH

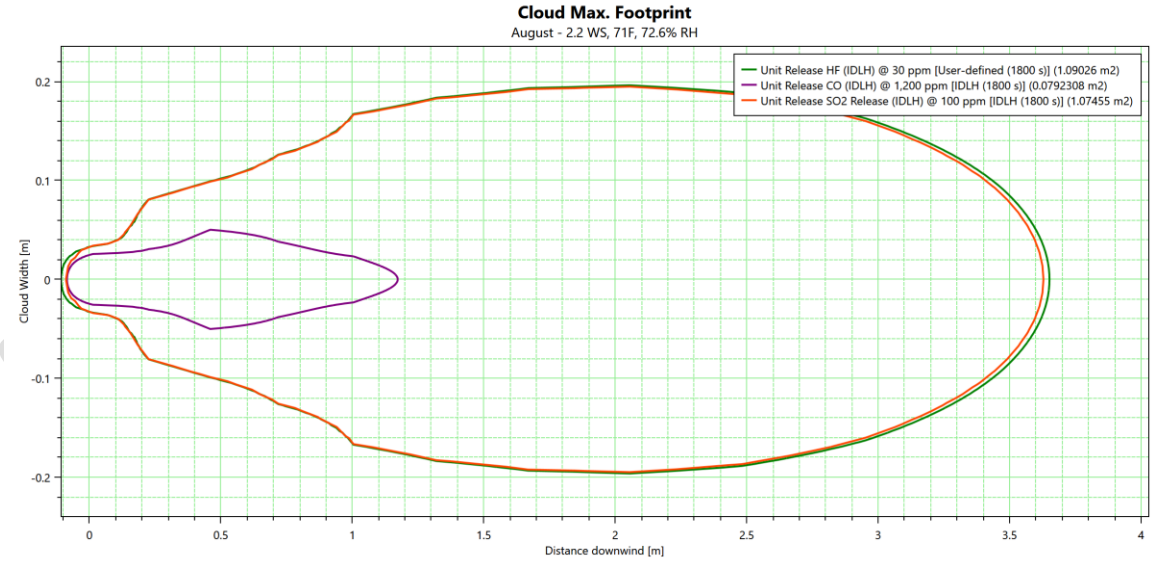


Figure 28. Scenario 1 graph of horizontal extents of HF, CO, and SO_2 IDLH

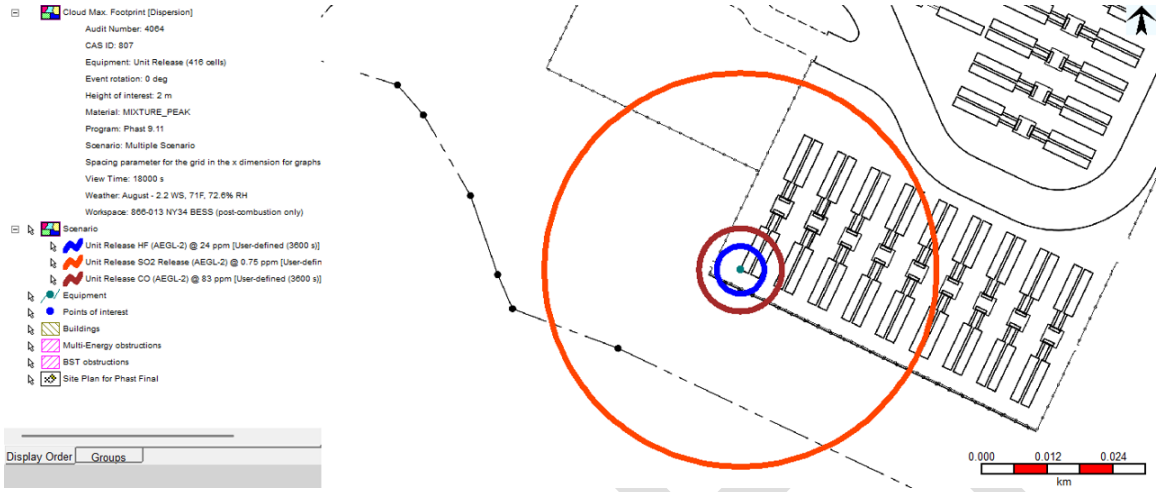


Figure 29. Scenario 1 map of horizontal extent of HF (in blue), CO (in maroon), SO_2 (in orange) AEGL-2

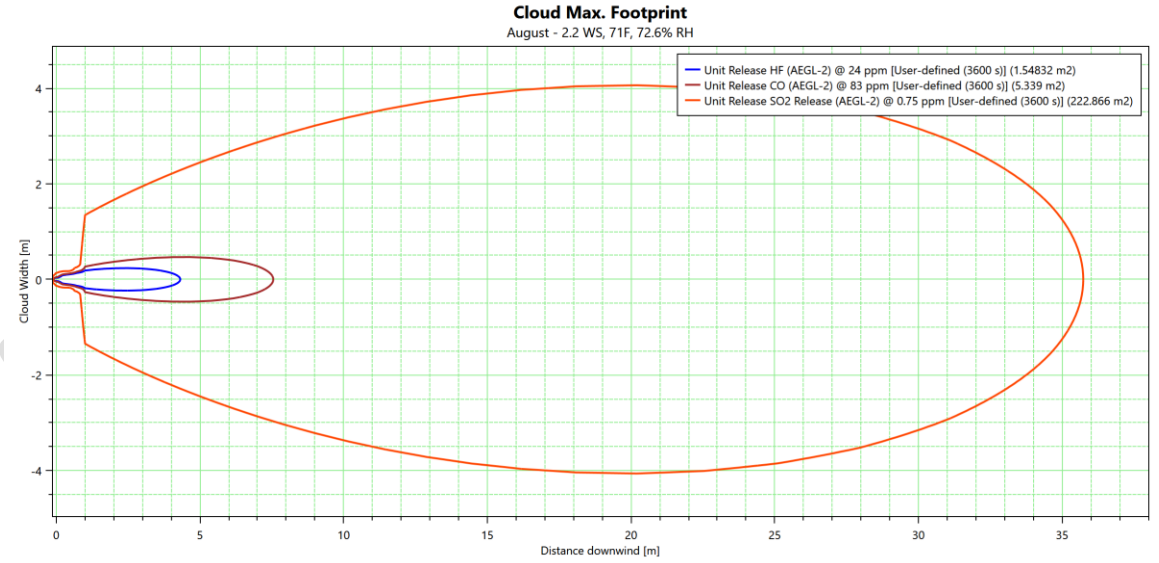


Figure 30. Scenario 1 graph of horizontal extents of HF, CO, and SO_2 AEGL-2

Scenario 2 (Full enclosure fire): Toxic Gas Extent Results

6.3.1 Sub-Scenario 2.1 (peak generation rates)

Figure 31 and Figure 32 show the maximum horizontal HF, CO, and SO_2 IDLH extent from a 5-hour burn duration release of a full SolBank 3.0 enclosure assuming conservative peak constituent generation rates. Figure 33 and Figure 34 show the maximum horizontal HF, CO, and SO_2 AEGL-2 extent from a 5-hour burn duration release of a full SolBank 3.0 enclosure with the same peak generation rate assumptions.

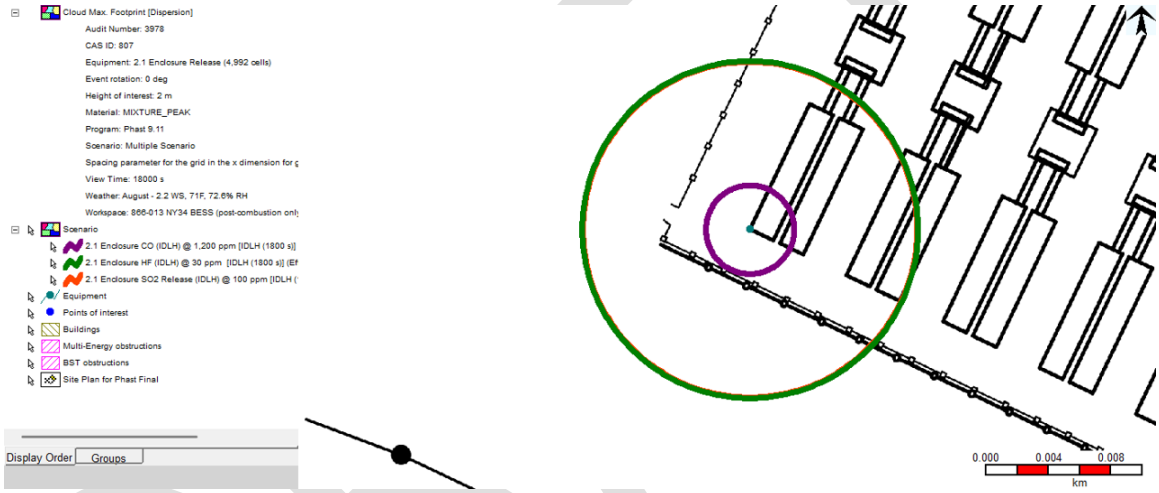


Figure 31. Scenario 2.1 map of horizontal extent of HF (in green), CO (in purple), SO_2 (in orange) IDLH

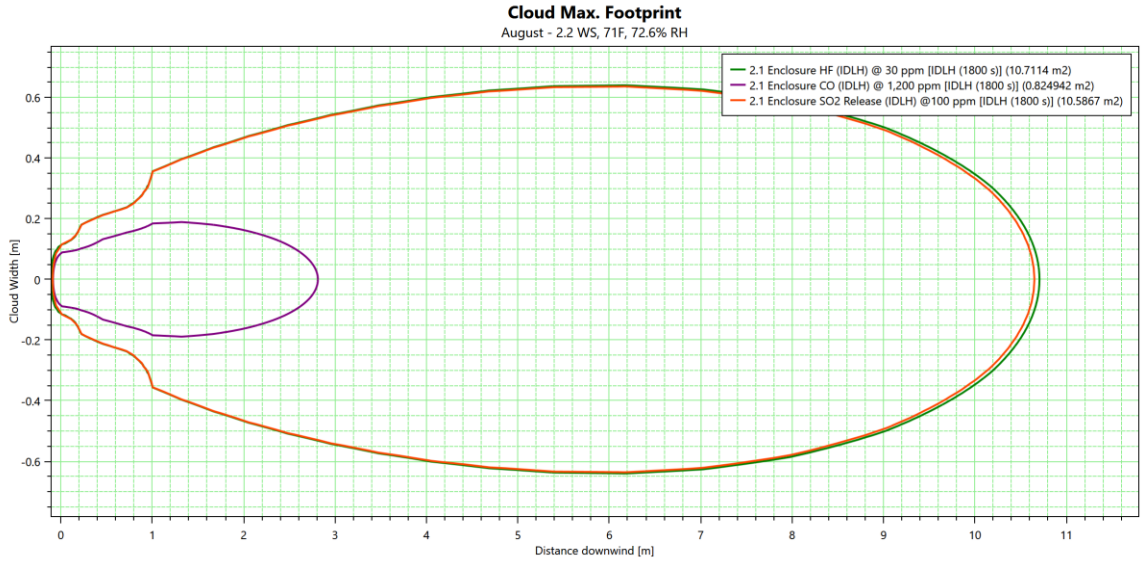


Figure 32. Scenario 2.1 graph of horizontal extents of HF, CO, and SO_2 IDLH



Figure 33. Scenario 2.1 map of horizontal extent of HF (in green), CO (in purple), and SO_2 (in orange) AEGL-2

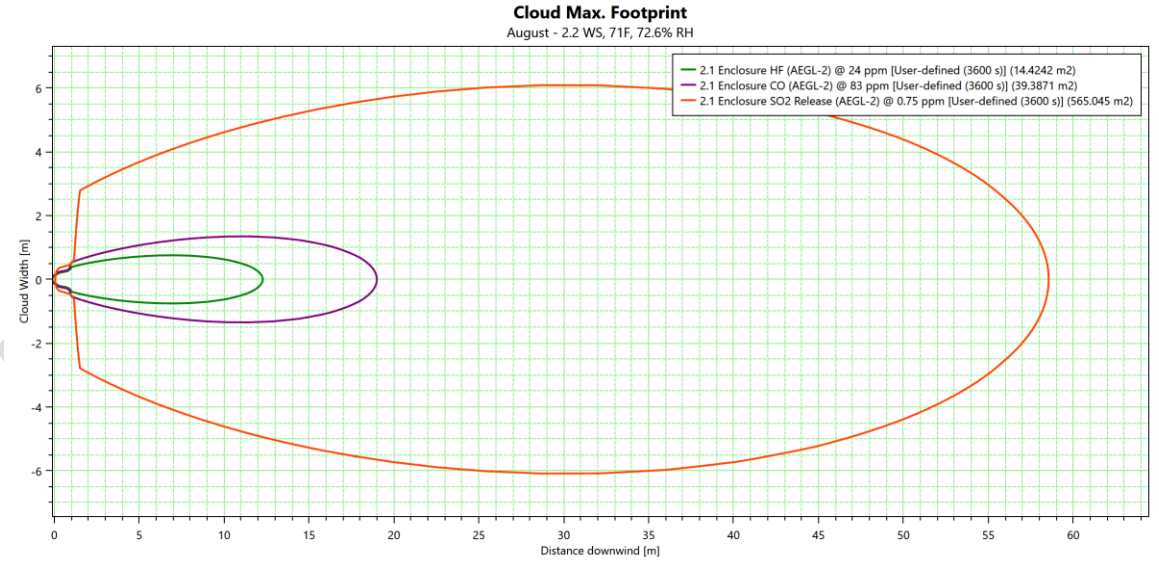


Figure 34. Scenario 2.1 graph of horizontal extents of HF, CO, and SO_2 AEGL-2

6.3.2 Sub-Scenario 2.2 (average generation rates)

Figure 35 and Figure 36 show the maximum horizontal HF, CO, and SO_2 IDLH extent from a 5-hour burn duration release of a full SolBank 3.0 enclosure assuming average constituent generation rates. Figure 37 and Figure 38 show the maximum horizontal HF, CO, and SO_2 AEGL-2 extent from a 5-hour burn duration release of a full SolBank 3.0 enclosure assuming average constituent generation rates.

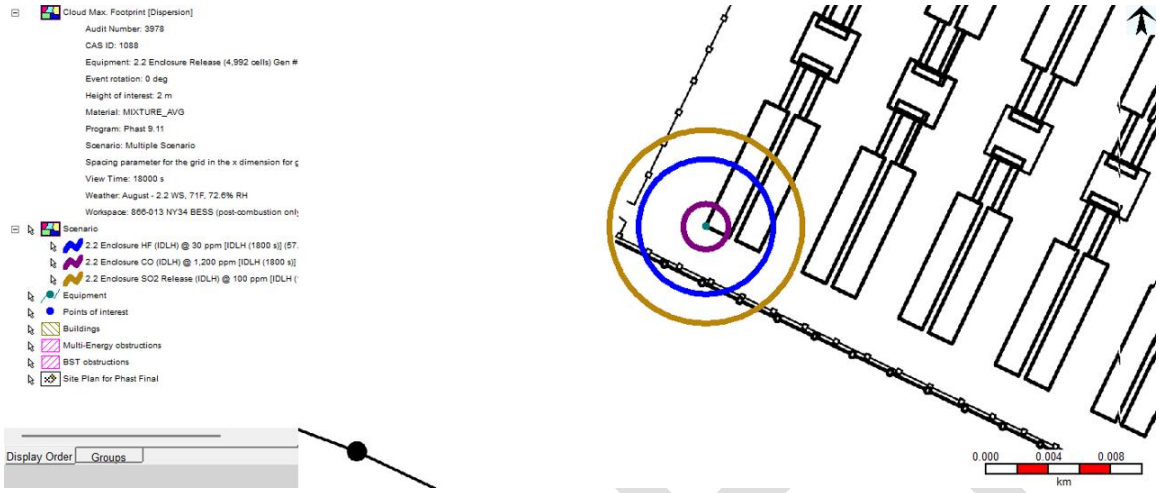


Figure 35. Scenario 2.2 map of horizontal extent of HF (in blue), CO (in purple), SO_2 (in gold) IDLH

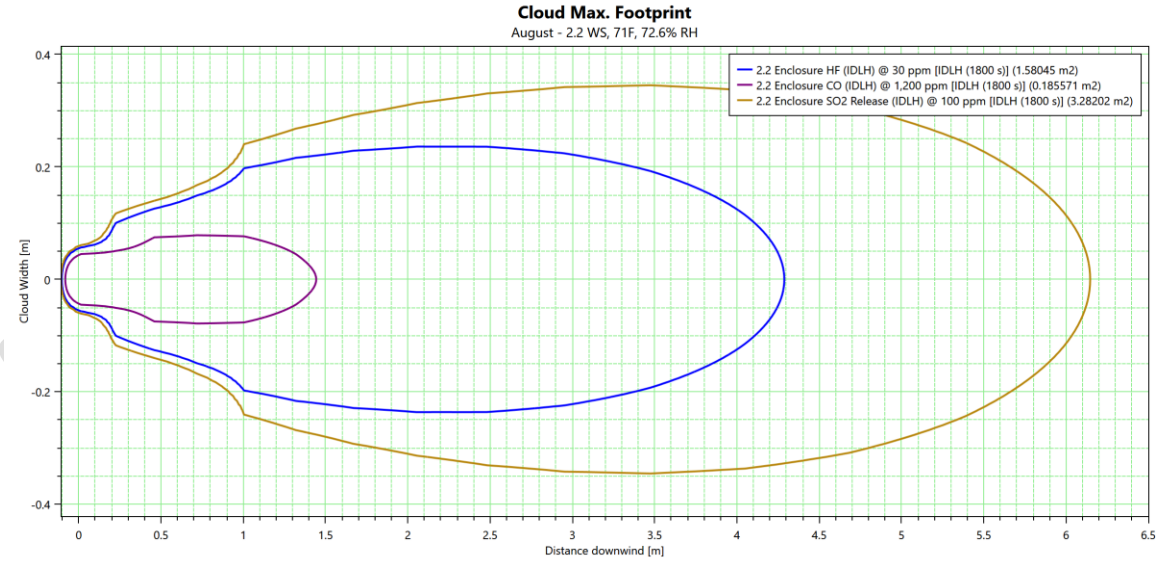


Figure 36. Scenario 2.2 graph of horizontal extents of HF, CO, and SO_2 IDLH

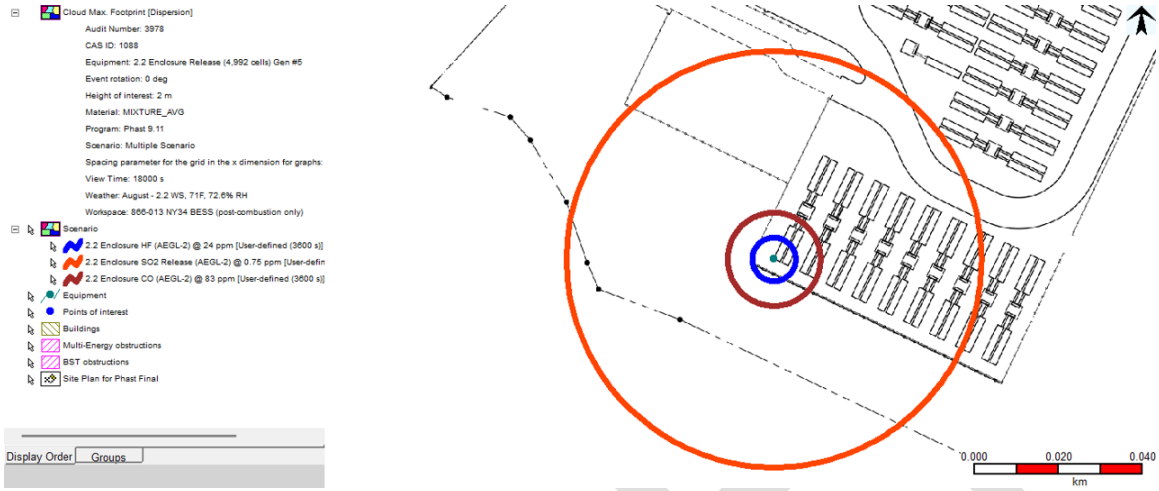


Figure 37. Scenario 2.2 map of horizontal extent of HF (in blue), CO (in maroon), and SO_2 (in orange) AEGL-2

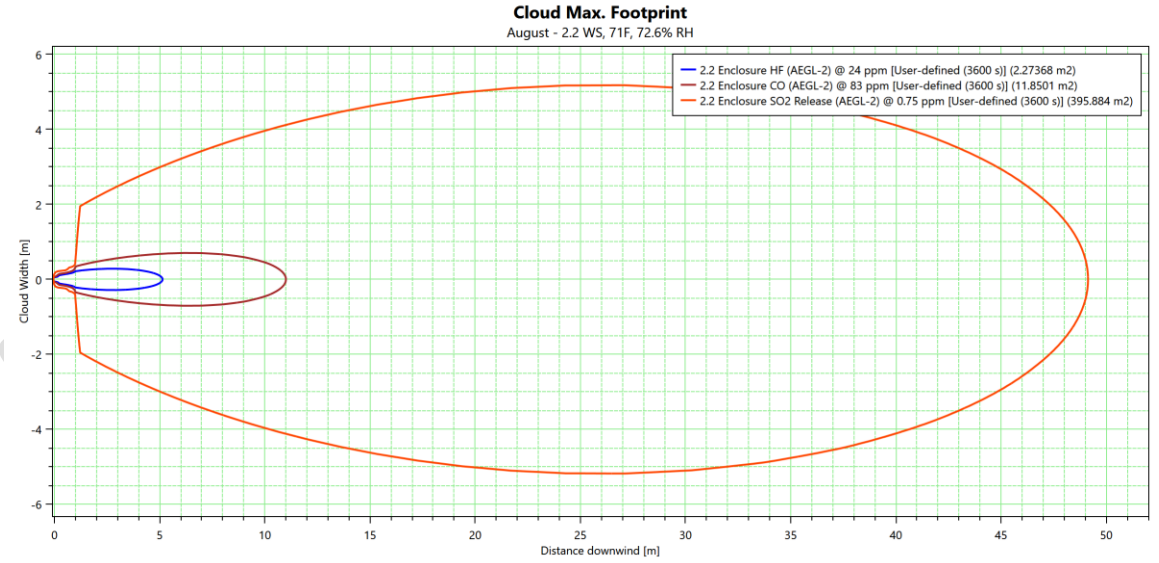


Figure 38. Scenario 2.2 graph of horizontal extents of HF, CO, and SO_2 AEGL-2

7 CONCLUSIONS

The analysis presented herein evaluated pre-combustion battery TVG and post-combustion gaseous product release scenarios, as well as the resulting plumes from a hypothetical SolBank 3.0 failure at the KCE NY 34 BESS site. The analysis used PHAST to model gaseous releases and quantify the extents of flammable and toxic gas consequences based on IDLH and LFL threshold criteria. The BESS failure and associated release source terms were developed based on the UL 9540A and LSFT reports for the SolBank 3.0.

Pre-combustion release scenarios included a five-cell UL9540A unit-level test-based release (Scenario 1.1), as well as hypothetical scenarios for a full-volume module release (Scenario 2.1), a one-unit release (four modules, Scenario 3.1), and a full-volume enclosure release of all 12 packs (48 modules, Scenario 4.1). Although Scenario 4.1 was included in the analysis to understand the worst-case bounding scenario of a release from all cells within all modules of all six packs per BESS, it is not a likely or even feasible scenario, as UL 9540A reports show no propagation between modules. There are no single failures identified in the failure modes and effects analysis, documented in the available BESS failure literature, or reported in anecdotal case reports that show or support a mechanism of failure that would cause thermal runaway to occur in 832 cells within eight (8) modules simultaneously, especially not in 4,992 cells for the entire 48-module, 12-pack BESS. Rather, propagation from cell to cell would remain a component of the release timing, conditions, and consequences of all potential single failures that lead to thermal runaway and battery gas venting events. The consequences associated with pre-combustion release scenarios are summarized in Section 7.1 and Section 7.2.

Fire scenarios and subsequent gas generation for post-combustion releases included a full enclosure release (48 modules). The consequences associated with the post-combustion release scenario are summarized in Section 7.3.

This plume analysis assumes BESS failure occurs and evaluates the corresponding consequence extents for conservative hypothetical release scenarios; however, it is important to evaluate the likelihood of failure. The likelihood of BESS fires has decreased over time as the technology has matured and safety standards have improved. According to the Electric Power Research Institute (EPRI) BESS Failure Incident Database, while 16 failure incidents were recorded in 2018, this number dropped to just 8 incidents in 2024, even as cumulative global deployment grew from approximately 10 gigawatt-hours (GWh) to over 300 GWh during this period.[5] The failure incident rate per deployed GWh has declined dramatically from approximately 1.5 incidents per GWh in 2018 to nearly 0.03 incidents per GWh in 2024.[5] A review of 35 documented large-scale BESS fire incidents in the United States between 2012 and 2024 reveals that many involved legacy systems predating modern safety codes, and that nearly half of the incidents (for which system age was reported) occurred within the first six months of operation.[6] These statistics confirm that while BESS fires remain a reality, given the expanding installation base, the overall failure rate has significantly decreased as newer systems benefit from improved safety measures, including advanced thermal management, fire detection systems, explosion control systems, and containment enclosures.[7]

7.1 Pre-Combustion Plume Analysis Summary: Primary Consequence Extents

7.1.1 Flammable Gas Extent

Given a release duration of 65 minutes, the maximum measured horizontal extent of the ½ LFL plume was 7.05 m (23.1 ft) for Scenario 4.1. This extent was measured at the release height, 2.0 m and does not exceed the offset distance to the project boundary, 15.2 m (50 ft).

As this worst-case extent is contained within the KCE NY 34 BESS site property boundary, modeling results for all scenarios showed no impact on persons or property off-site from the dispersion of flammable gas resulting from any of the modeled scenarios.

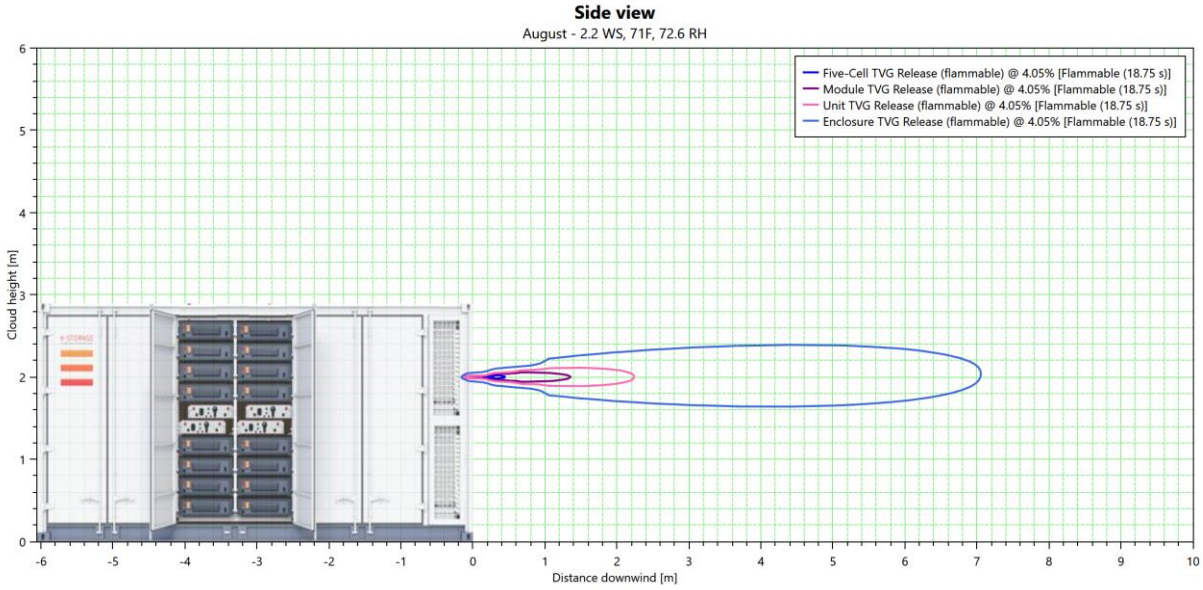


Figure 39: Side view of the maximum extent of ½ LFL (4.05%) vapor cloud

7.1.2 Carbon Monoxide (IDLH & AEGL-2) Extent

Given an exposure/release duration of approximately 65 minutes, the maximum CO IDLH extent was 21.55 m (70.7 ft) for Scenario 4.1 (48-module full enclosure release). Anyone remaining in this affected area for 30 minutes or longer may experience effects from exposure.

The maximum measured horizontal extent of the AEGL-2 (83 ppm) plume was 76.13 m (249.8 ft) for Scenario 4.1 (65-min enclosure release). Anyone remaining in this affected area for 30 minutes or longer may experience minor effects (slight headache) from exposure. While this extent exceeds the offset distance to the property boundary, 15.2 m (50 ft), it does not reach the closest receptor of interest to the KCE NY 34 BESS, which is the commercial property at 83.8 m (275 ft).

As this worst-case extent does not reach the nearest receptor of interest, modeling results for all scenarios showed minimal impact on persons or property off-site from the dispersion of CO resulting from any of the modeled scenarios.

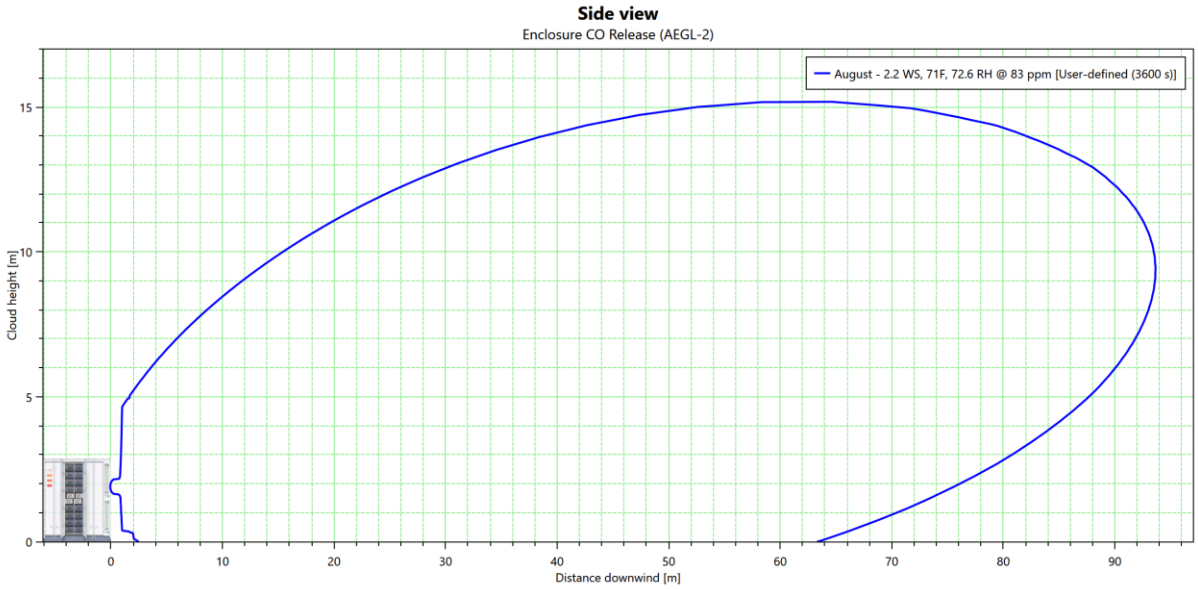


Figure 40: Side view of the maximum extent of AEGL-2 (83 ppm) vapor cloud

See the below quote from the Centers for Disease Control and Prevention CO IDLH publication as reference for exposure effects.

> *"It has been stated that a 1-hour exposure to 1,000 to 1,200 ppm would cause unpleasant but no dangerous symptoms, but that 1,500 to 2,000 ppm might be a dangerous concentration after 1 hour [Henderson et al. 1921a, 1921b].* ***In general, a carboxyhemoglobin (COHb) level of 10-20% will only cause slight headaches [NIOSH 1972]*** *and a COHb of 11-13% will have no effect on hand and foot reaction time, hand steadiness, or coordination [Stewart and Peterson 1970]. At a COHb of 35%, manual dexterity is impaired [Stewart 1975]. At 40% COHb, mental confusion, added to increasing incoordination, precludes driving an automobile [Stewart 1975].* ***A 30-minute exposure to 1,200 ppm will produce a COHb of 10-13% [NIOSH 1972].***"

7.2 Pre-Combustion Plume Analysis Summary: Secondary Consequence Extents

7.2.1 Flash Fire Envelope Extent

Flash fires were modeled as a consequence in all scenarios. The maximum measured horizontal extent of a potential flash fire envelope was 8.57 m (28.1 ft) for Scenario 4.1. While this extent does exceed the offset distance to the site fencing, it is confined within the property boundary at 15.2 m (50 ft).

Even within the affected area onsite, the duration of heat flux values sufficient to ignite flammable clothing or cause second-degree burns to exposed skin is not more than one to three seconds (NFPA defines the upper limit of a flash fire to be three seconds) in any single location within the flash fire envelope.

As this worst-case extent is contained within the NY 34 BESS property boundary, modeling results for all scenarios showed no significant impacts to persons or property off-site from a flash fire resulting from any of the modeled scenarios.

7.2.2 Fireball Heat Flux

Only Scenario 1.2, the five-cell instantaneous release, resulted in a fireball as a potential secondary consequence. The maximum extent of the modeled 3.0 kW/m^2 heat flux for this potential fireball was 7.92 m (26 ft). This extent does not exceed the offset distance to the property boundary, 15.2 m (50 ft). Additionally, it must be noted that the duration of the fireball was less than 0.91 seconds.

As this worst-case extent is contained within the NY 34 BESS property boundary, and based on the short duration of the fireball, there would be no significant risk to persons or property off-site from a fireball resulting from any of the modeled scenarios.

7.3 Post-Combustion Plume Analysis Summary

Post-combustion modeling results for HF, CO, and SO_2 dispersion showed IDLH concentrations extending to a maximum distance of 10.71 m (35.1 ft), 2.81 m (9.2 ft), and 10.65 m (34.9 ft) respectively, for Scenario 2.1 representing a fully involved fire of the entire 12-unit SolBank 3.0 enclosure. Anyone remaining in this affected area for 30 minutes or longer may experience minor effects (slight headache) from exposure.

Post-combustion modeling results for HF, CO, and SO_2 dispersion showed AEGL-2 concentrations extending to a maximum distance of 12.28 m (40.3 ft), 19 m (62.3 ft) and 58.55 m (192.1 ft), respectively, for Scenario 2.1 representing a fully involved fire of the entire 12-unit SolBank 3.0 enclosure. Scenario 2.1 corresponds to a non-realistic release rate, identified as ID #1 in Table 11. Any susceptible members of the general public remaining in this affected area for 1-hour or longer may experience effects from exposure.

Most concentrations equivalent to IDLH thresholds and HF and CO AEGL-2 thresholds are maintained within the KCE NY 34 BESS property boundary. Concentrations equivalent to AEGL-2 CO and SO_2 may extend beyond the property boundary depending on the wind conditions. The calculated consequence extent does not reach any nearby receptors of interest. As such, the model results show minimal offsite consequences.

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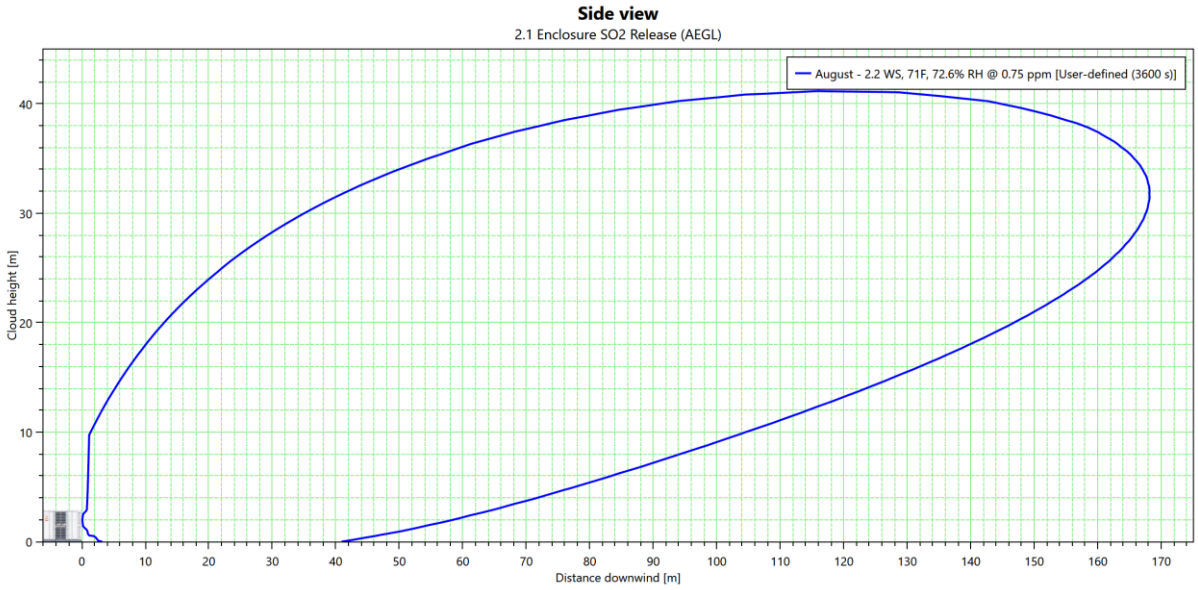


Figure 41: Side view of the maximum extent of the toxic post-combustion gaseous product release

Refer to the quote below from the CDC HF IDLH publication for reference.

> "*It has been stated that 50 ppm may be fatal when inhaled for 30 to 60 minutes [Deichmann and Gerarde 1969]. Volunteers tolerated concentrations as high as 4.7 ppm for 6 hours per day for 10 to 50 days without severe adverse effects [Largent 1961].*
>
> *Revised IDLH: 30 ppm [Unchanged] Basis for revised IDLH: Based on acute inhalation toxicity data in humans [Deichmann and Gerarde 1969; Largent 1961] and animals [Machle et al. 1934], the original IDLH for hydrogen fluoride (30 ppm) is not being revised at this time.*"

EPA SO_2 AEGL-2 exposure impacts reference:

> The AEGL-2 threshold is representative of concentrations which result in bronchoconstriction for exercise induced asthmatics. The AEGL-2 threshold does not vary based on duration of exposure with the same threshold of 0.75 ppm specified for 10 minutes to 8-hours of exposure time. The EPA states "the role of exposure duration to the magnitude of SO_2 included bronchoconstriction in asthmatics appears to decrease with extended exposure" (Sulfur Dioxide: Acute Exposure Guideline Levels, 2010). The modeled fire scenario is representative of a 5-hour exposure duration which is less than the maximum exposure duration for the specified AEGL-2 threshold for SO_2. Additionally, the EPA states *"exposure to concentrations at the level of derived AEGL-2 values is expected to have no effect in healthy individuals, but the concentrations are consistent with the definition of AEGL-2 for asthmatic individuals"* (Sulfur Dioxide: Acute Exposure Guideline Levels, 2010).

7.4 Recommended Minimum Approach Distance

The MAD for emergency response personnel based solely on potential toxic exposure shall be governed by the component with the largest IDLH footprint.

For non-flaming pre-combustion releases in which all battery vent gas is released via venting during thermal-runaway conditions alone, the component with the largest IDLH footprint and the longest required potential exposure duration is CO. The extent of the IDLH cloud was approximately 21.55 m (70.7 ft) for the full enclosure, 65-minute duration release. As such, it is recommended that by incorporating a safety factor of 1.5, the MAD for non-flaming release conditions be a minimum of 32.33 m (106.1 ft) directly downwind (staging locations upwind may be located within proximity to the involved BESS, to be determined by emergency responder incident command).

For dispersion from releases of post-combustion gaseous products resulting from a fully involved BESS enclosure fire, the component with the largest IDLH footprint and the longest required potential exposure duration is HF. The extent of the post-combustion HF IDLH cloud was approximately 10.71 m (35.1 ft) for the full enclosure 5-hour flaming event. As such, it is recommended that by incorporating a safety factor of 1.5, the MAD for flaming post-combustion gaseous release conditions be a minimum of 16.07 m (52.7 ft) directly downwind (staging locations upwind may be located within proximity to the involved BESS, to be determined by emergency responder incident command).

It should be noted that the MADs determined and established above are for distances directly downwind of a BESS involved in an event with a narrow gas cloud at those distances. Based on the site conditions, beyond the narrow bounds of the gas cloud downwind of an involved BESS, MADs may change based on the site's weather conditions, emergency response plan, and the direction of the incident response officer.

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REVISION SHEET

Date	Revision	Reason for Issue	Developed By	Reviewed By	Approved By
7/21/2026	00	Initial Issue	GH	-	-

Warning, this document is a preliminary draft.

Significant changes will occur once site design and equipment decisions are finalized.

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APPENDIX A: GRAPHICAL RESULTS (PHAST ANALYSIS)

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APPENDIX A: GRAPHICAL RESULTS (PHAST)

Appendix A provides additional graphical results showing the flammable and toxic gas extents for all pre-combustion scenarios identified in Section 4.4.1 of the main report. Consequence extents were evaluated using flammable and toxic gas thresholds as described in Section 2.1 of the main report.

1.Scenario 1 (Five-Cell Release): Flammable & Toxic Gas Extent Additional Results

1.1 Sub-Scenario 1.1 (Five-Cell, 25-minute release)

Figure 1 shows the maximum concentration versus distance of the flammable vapor cloud for a five-cell release over a 25-minute duration. Figure 2 and Figure 3 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from a five-cell release over a 25-minute duration. Figure 4 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a five-cell release over a 25-minute release duration.

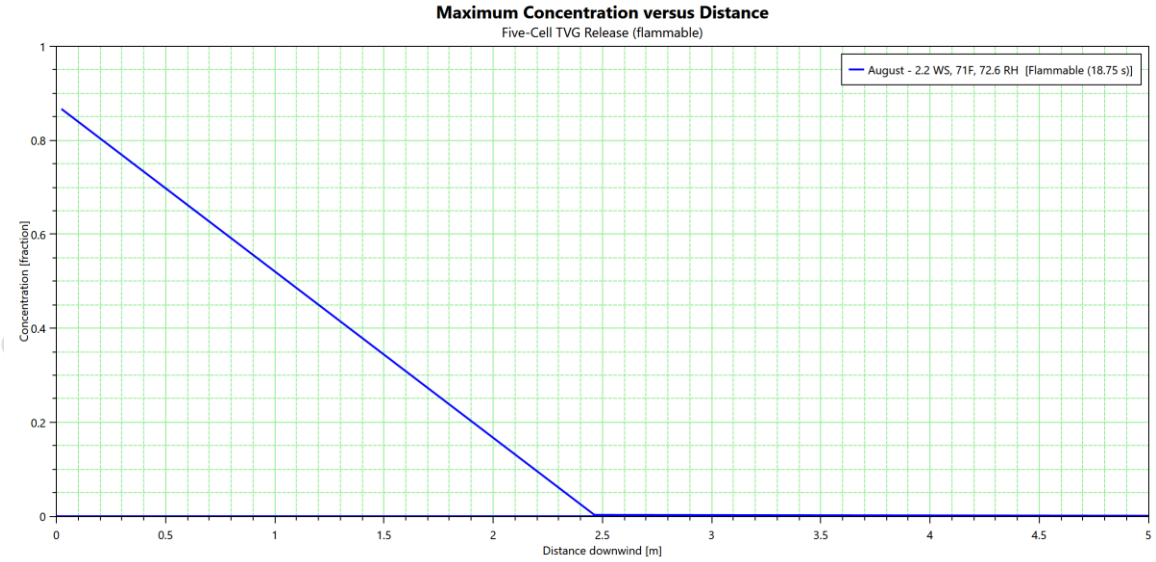


Figure 1.Maximum concentration vs distance for flammable vapor cloud

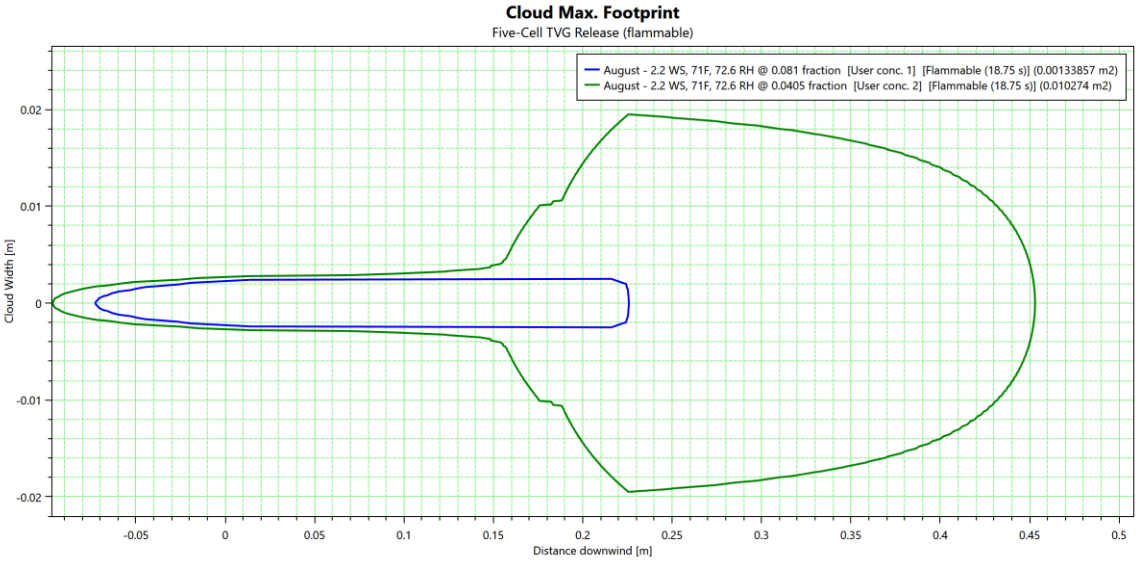


Figure 2. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

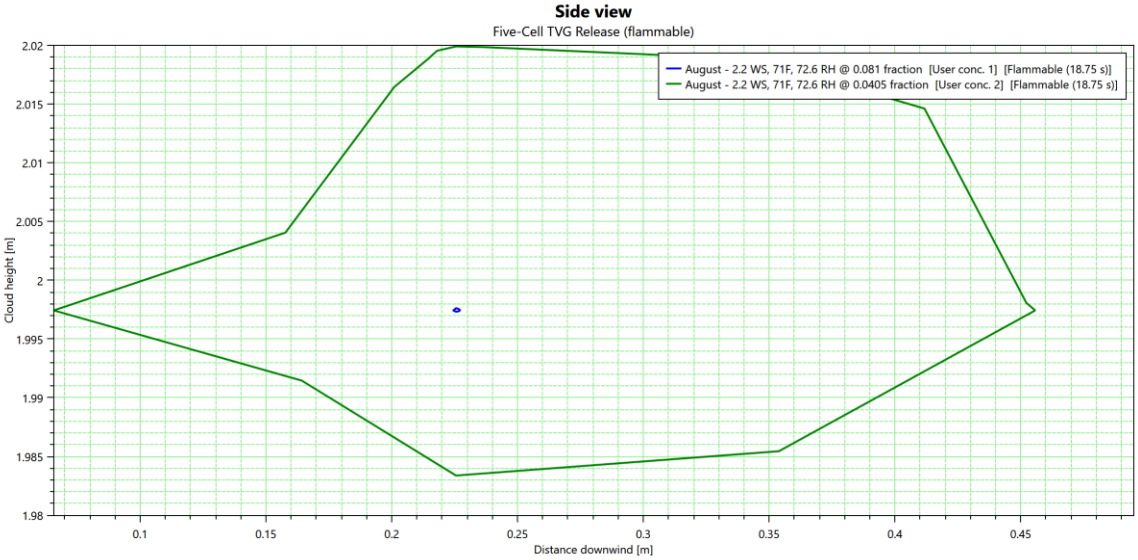


Figure 3. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

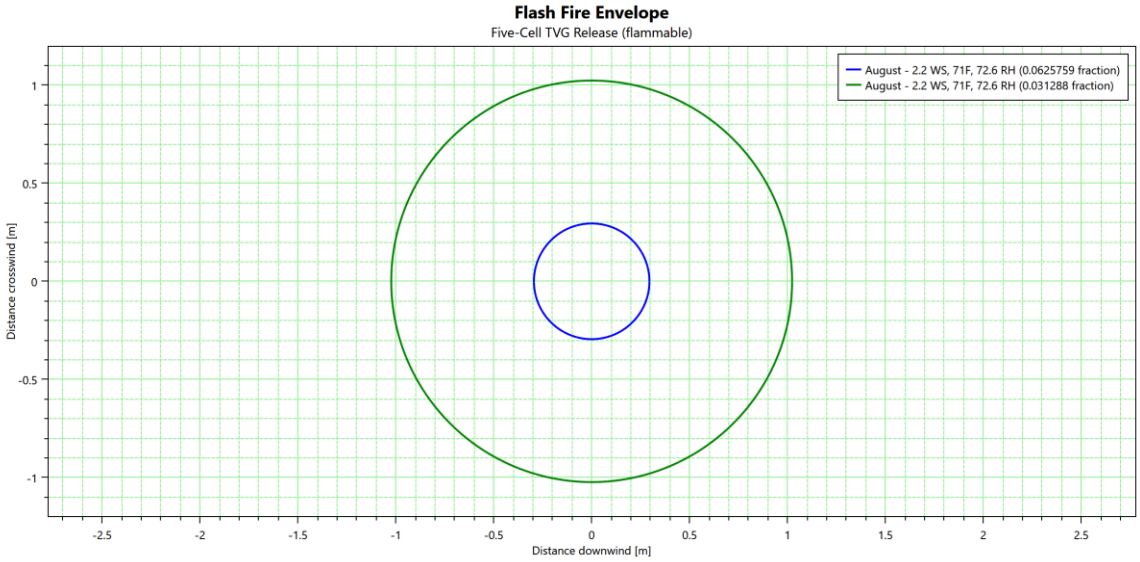


Figure 4. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 5 and Figure 6 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a five-cell release over a 25-minute duration.

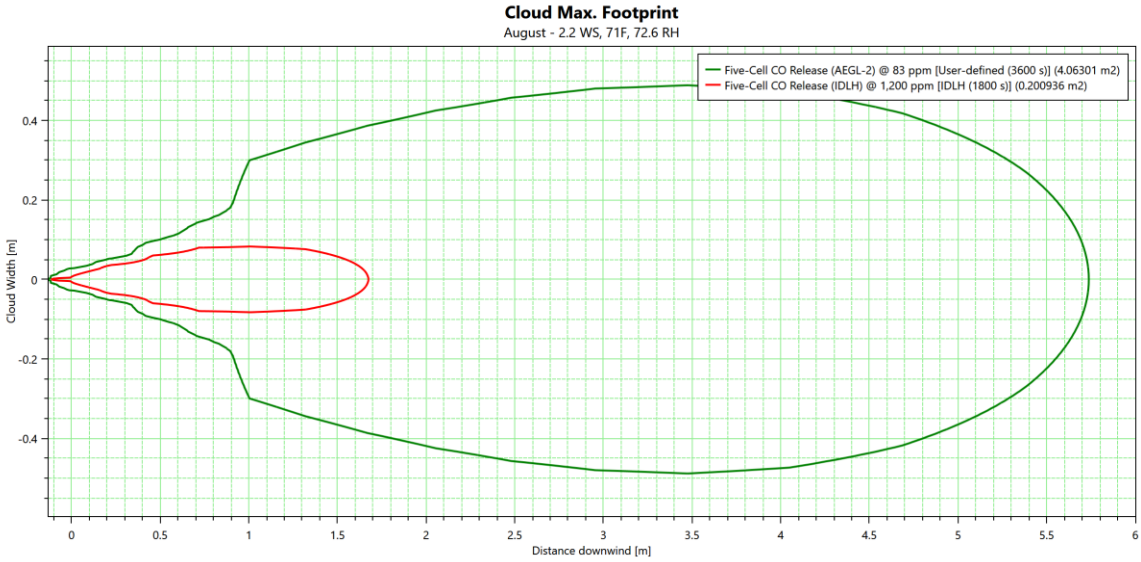


Figure 5. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

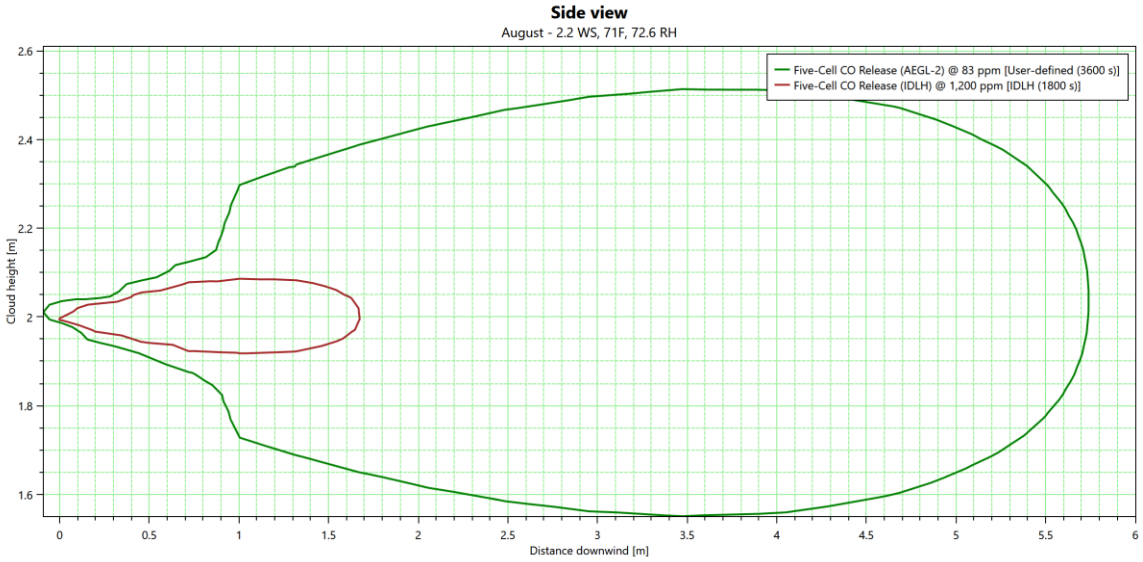


Figure 6. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

1.2 Sub-Scenario 1.2 (Five-Cell, instantaneous release)

Figure 7 shows the maximum horizontal extent of the flammable vapor cloud resulting from a five-cell instantaneous release. Figure 8 shows the maximum horizontal extent of the flammable vapor cloud resulting from a five-cell instantaneous release. Figure 9 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a five-cell instantaneous release.

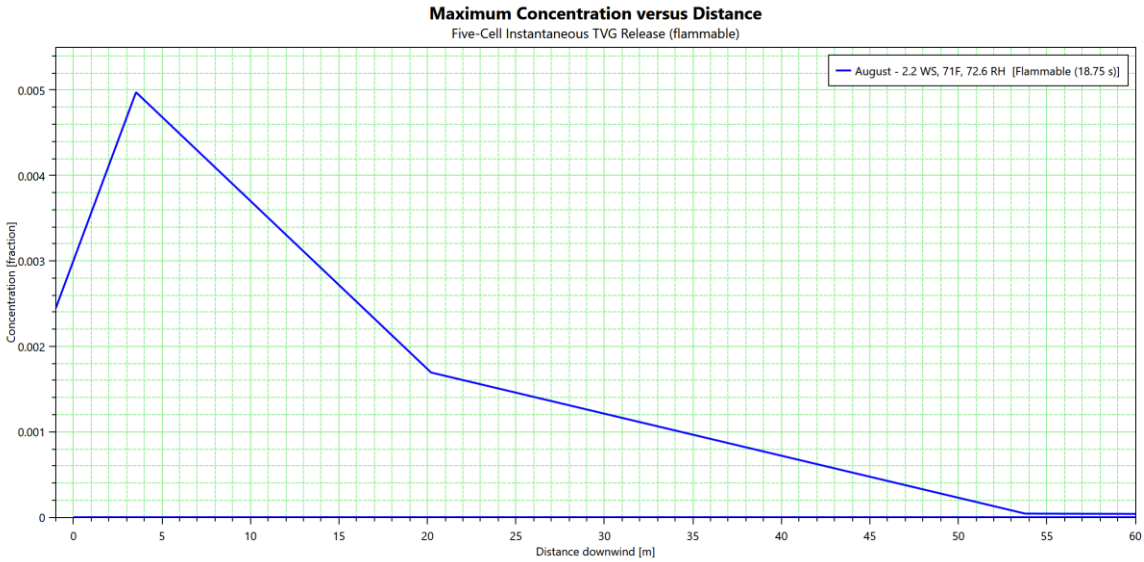


Figure 7. Maximum concentration vs distance for flammable vapor cloud

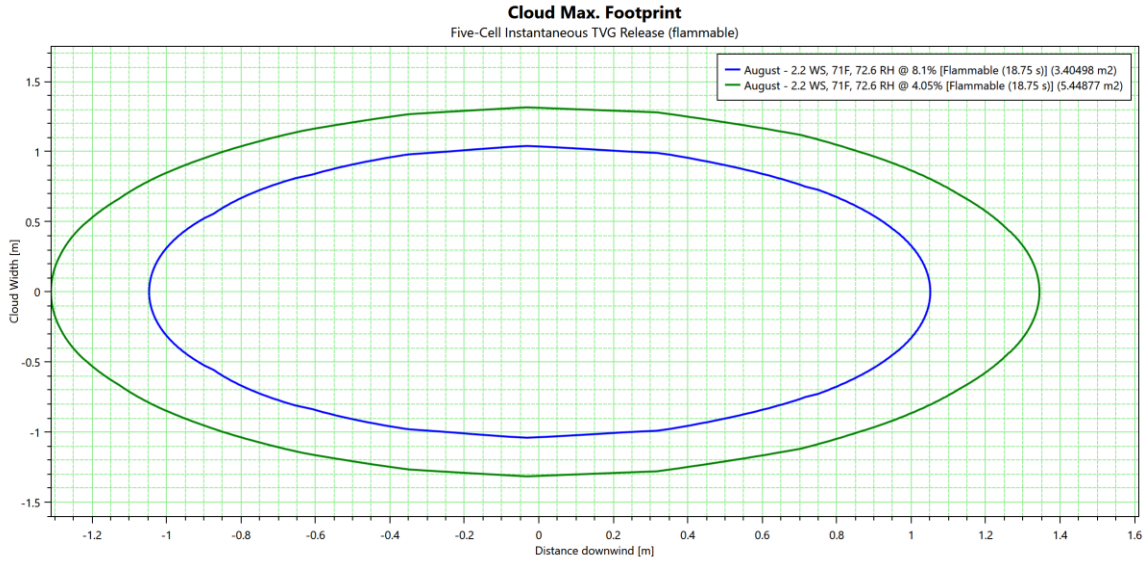


Figure 8. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

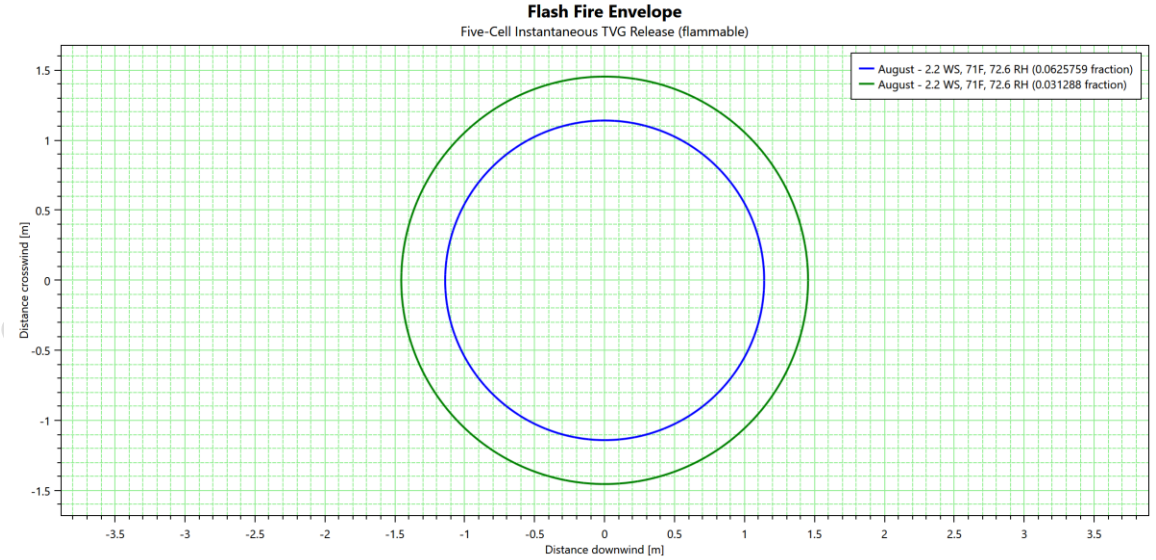


Figure 9. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 10 and Figure 11 show the maximum horizontal and vertical extents, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a five-cell instantaneous release.

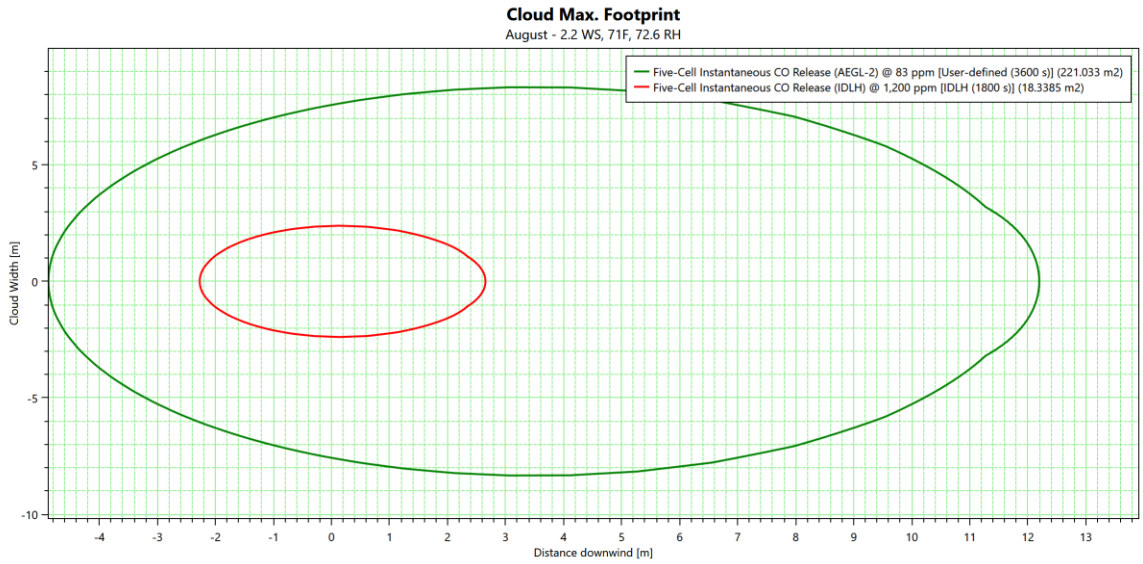


Figure 10. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

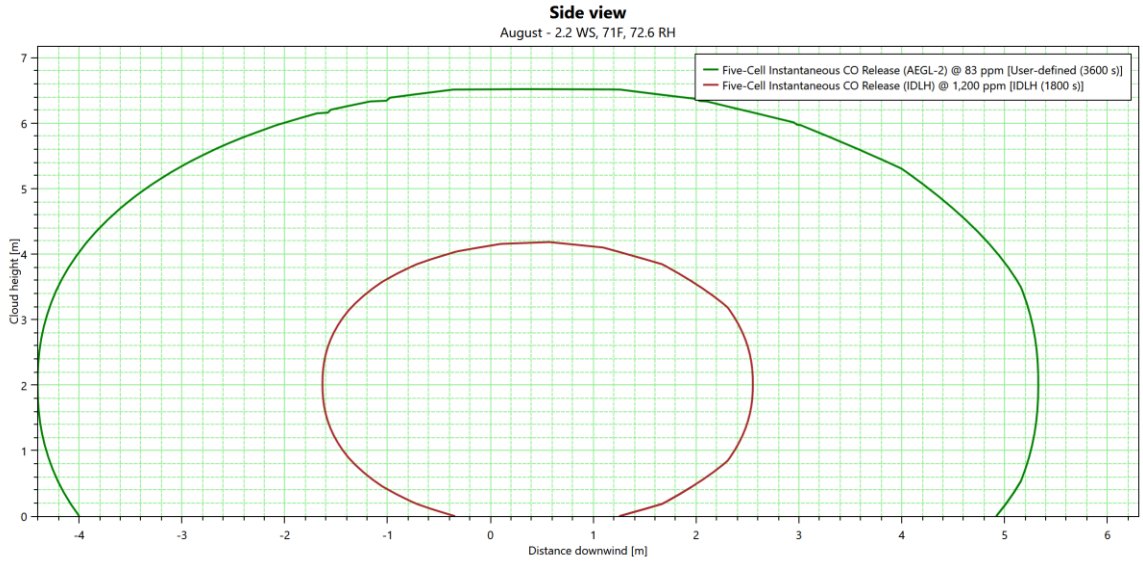


Figure 11. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

2.Scenario 2.1 (Module, 65-minute release): Flammable & Toxic Gas Extent Additional Results

Figure 12 shows the maximum concentration versus distance of the flammable vapor cloud for a module release over 65 minutes. Figure 13 and Figure 14 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from a module release over a 65-minute duration. Figure 15 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a module release over a 65-minute release duration.

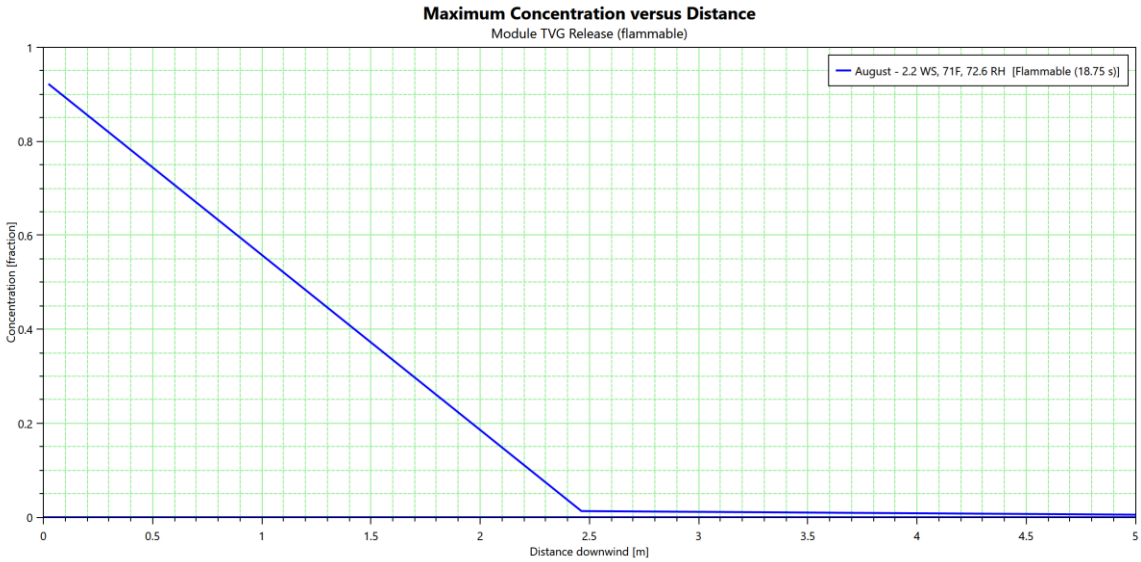


Figure 12. Maximum concentration vs distance for flammable vapor cloud

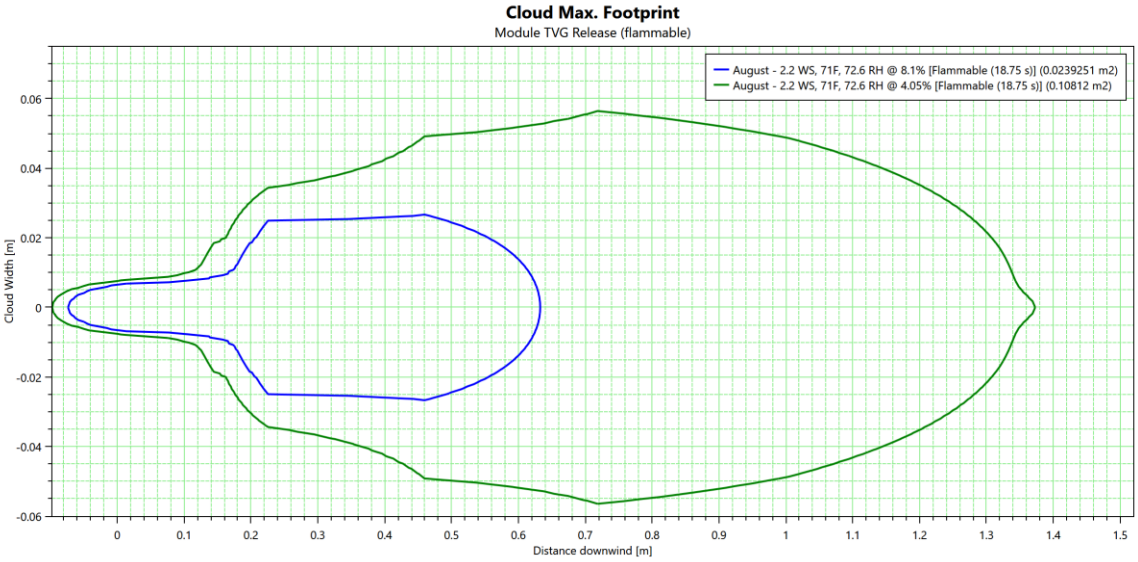


Figure 13. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

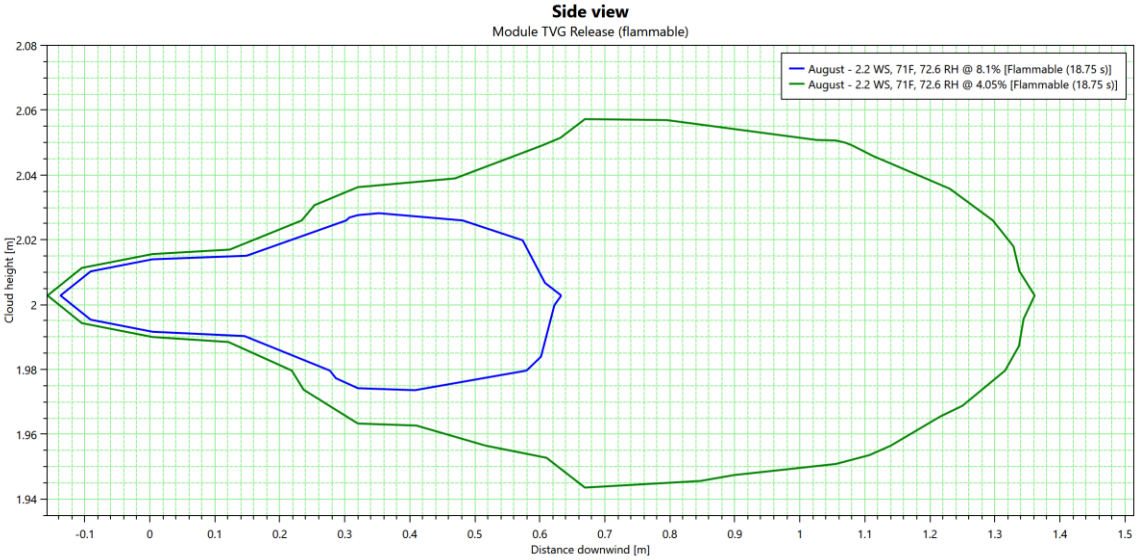


Figure 14. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

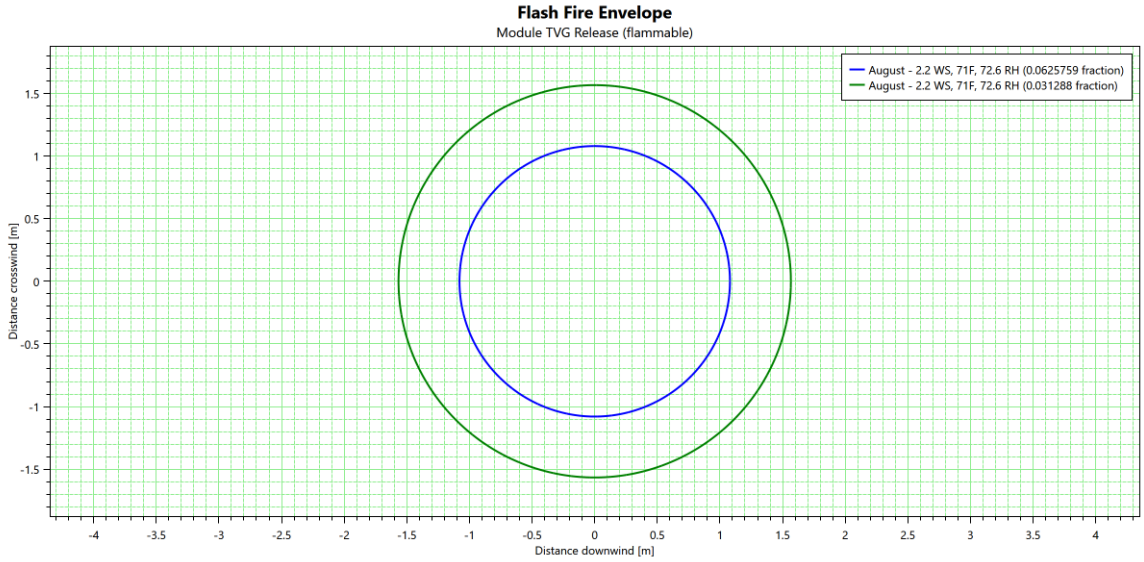


Figure 15. Flash Fire Envelope for LFL (8.10%) and ½ LFL (4.05%)

Figure 16 and Figure 17 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a module release over a 65-minute duration.

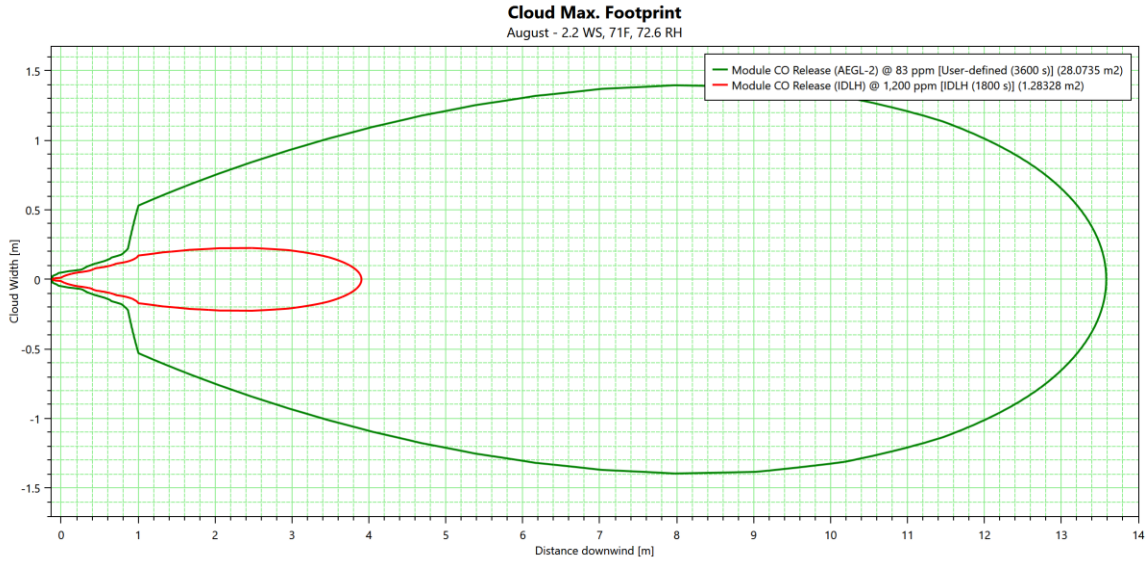


Figure 16. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

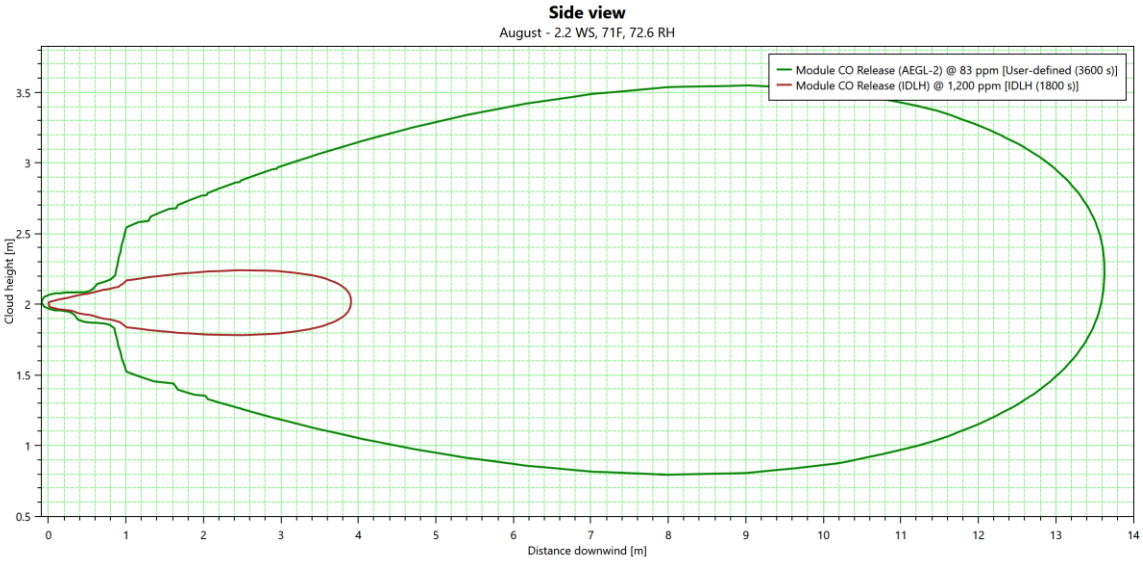


Figure 17. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

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3.Scenario 3.1 (One-Unit, 65-minute release): Flammable & Toxic Gas Extent Additional Results

Figure 18 shows the maximum concentration versus distance of the flammable vapor cloud for a one-unit release over 65 minutes. Figure 19 and Figure 20 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from a one-unit release over 65 minutes. Figure 21 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a one-unit release over a 65-minute release duration.

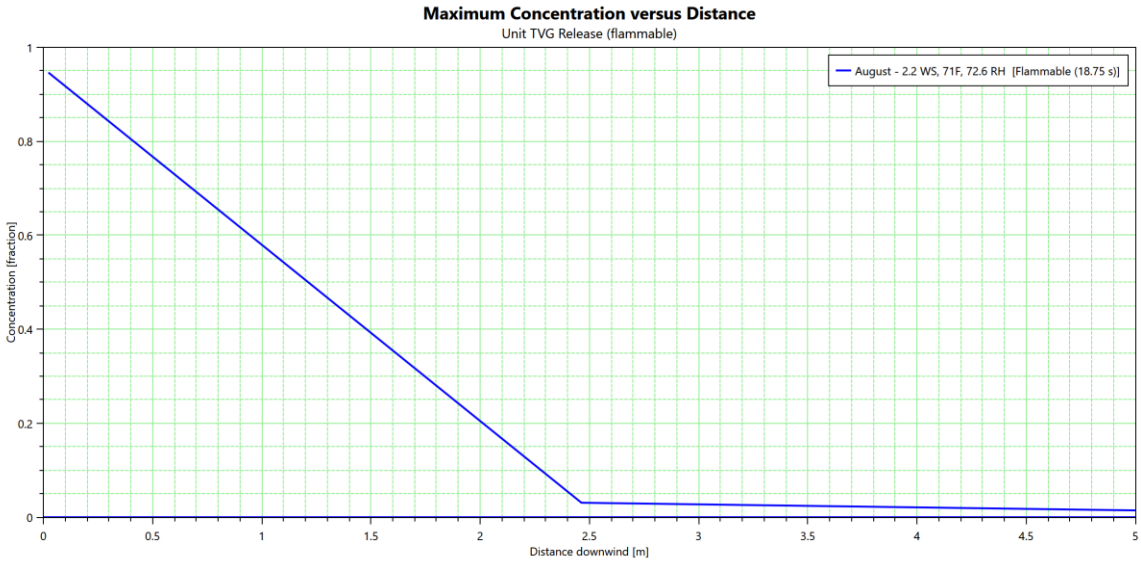


Figure 18. Maximum concentration vs distance for flammable vapor cloud

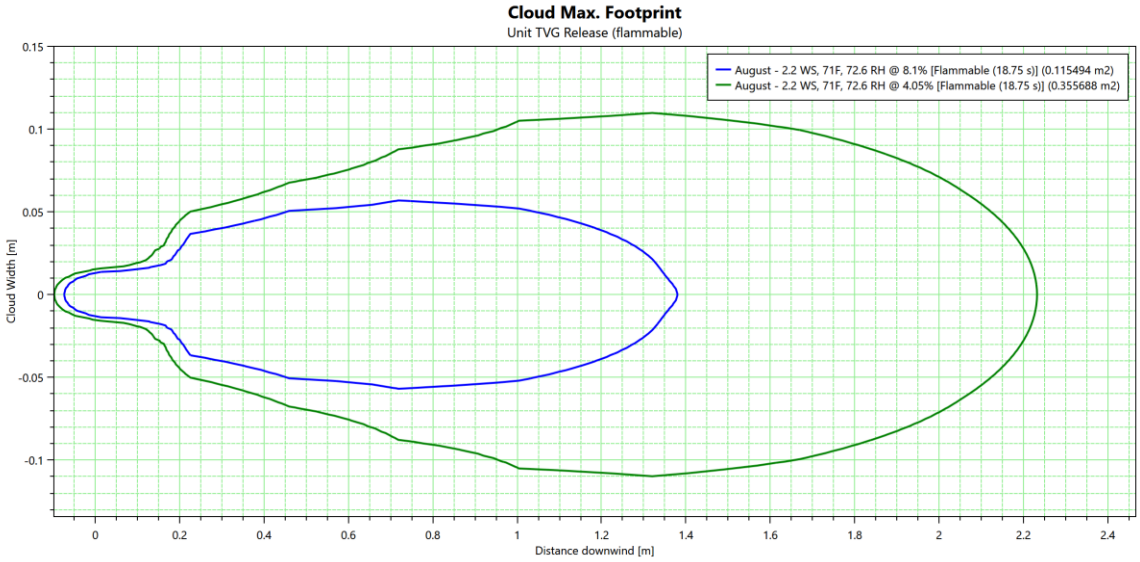


Figure 19. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

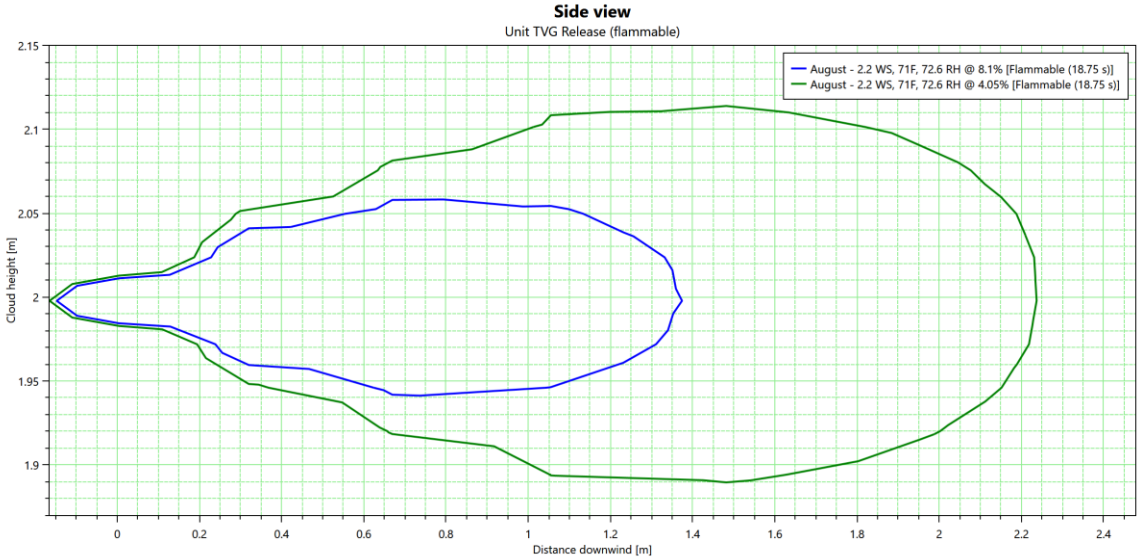


Figure 20. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

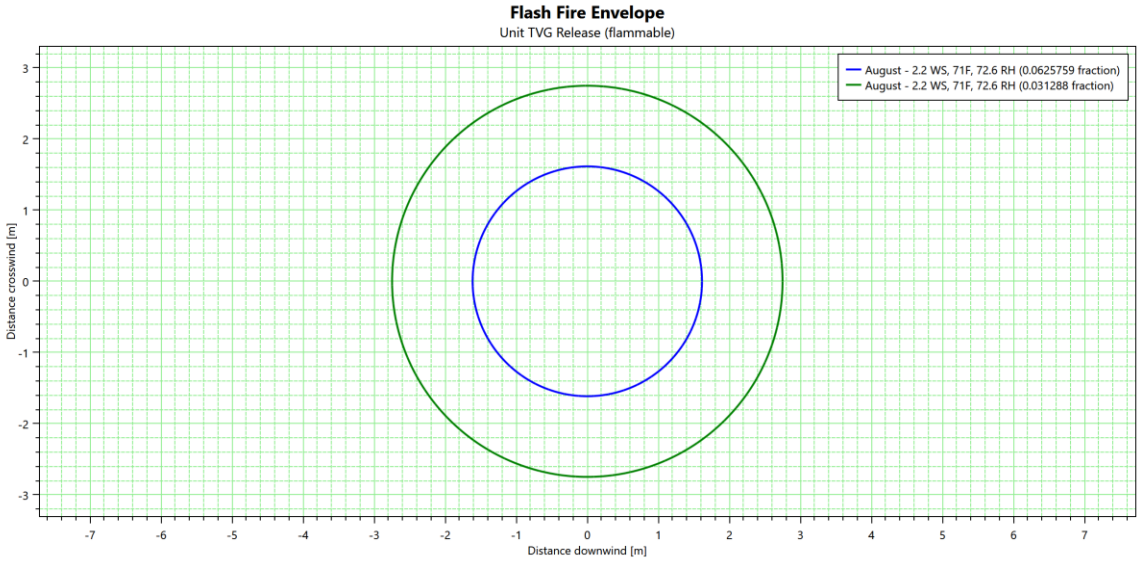


Figure 21. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 22 and Figure 23 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a one-unit release over a 65-minute period.

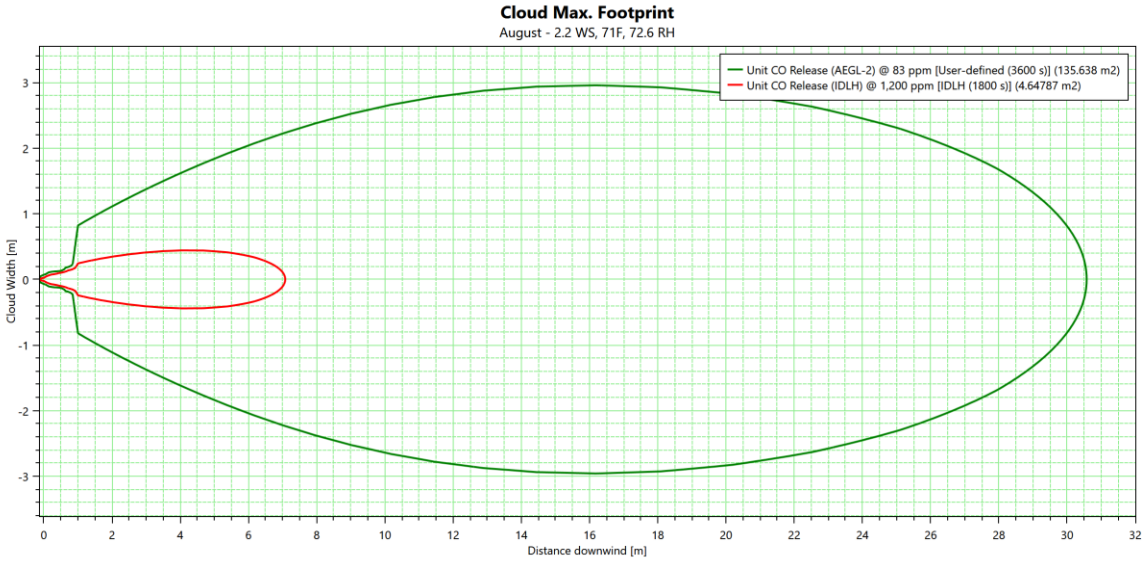


Figure 22. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

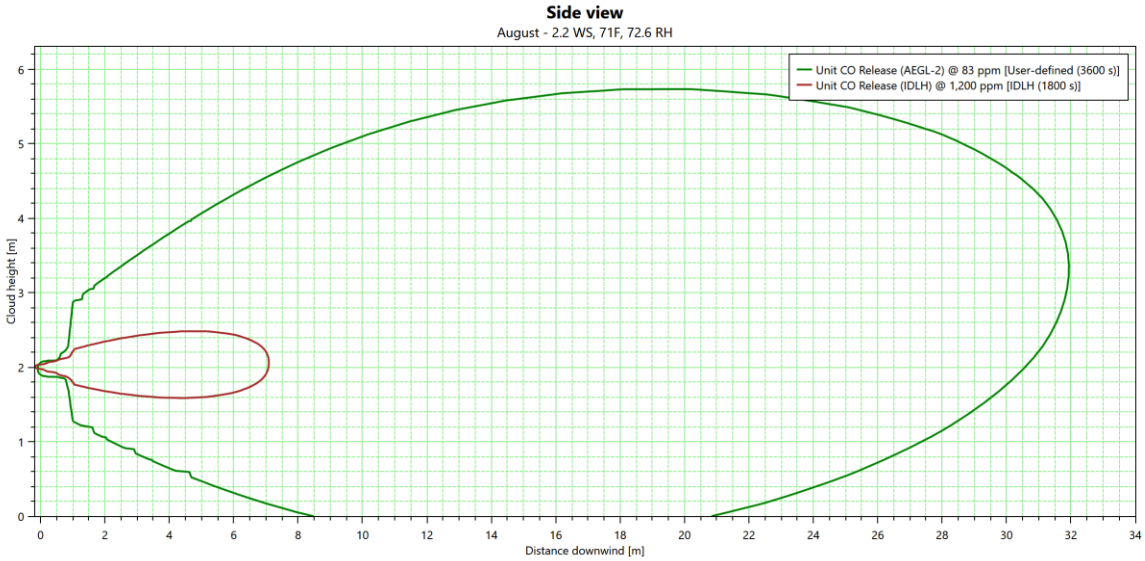


Figure 23. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

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4. Scenario 4.1 (Enclosure, 65-minute release): Flammable & Toxic Gas Extent Additional Results

Figure 24 shows the maximum concentration versus distance of the flammable vapor cloud for an enclosure release over 65 minutes. Figure 25 and Figure 26 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from an enclosure release over 65 minutes. Figure 27 shows the flash fire envelope resulting from the ignition of a flammable vapor cloud released from an enclosure over a 65-minute release duration.

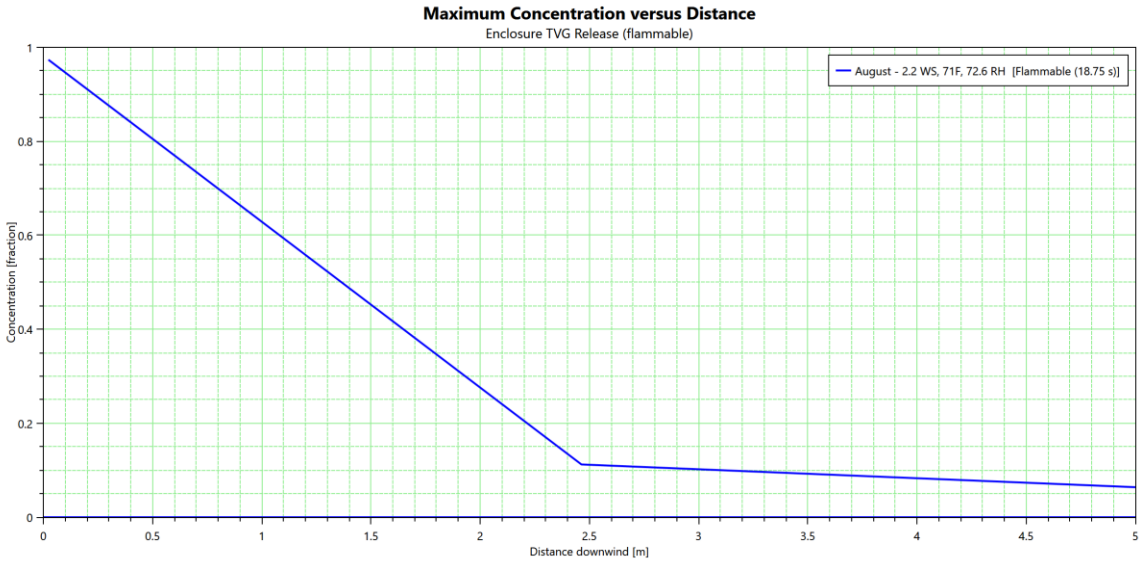


Figure 24. Maximum concentration vs distance for flammable vapor cloud

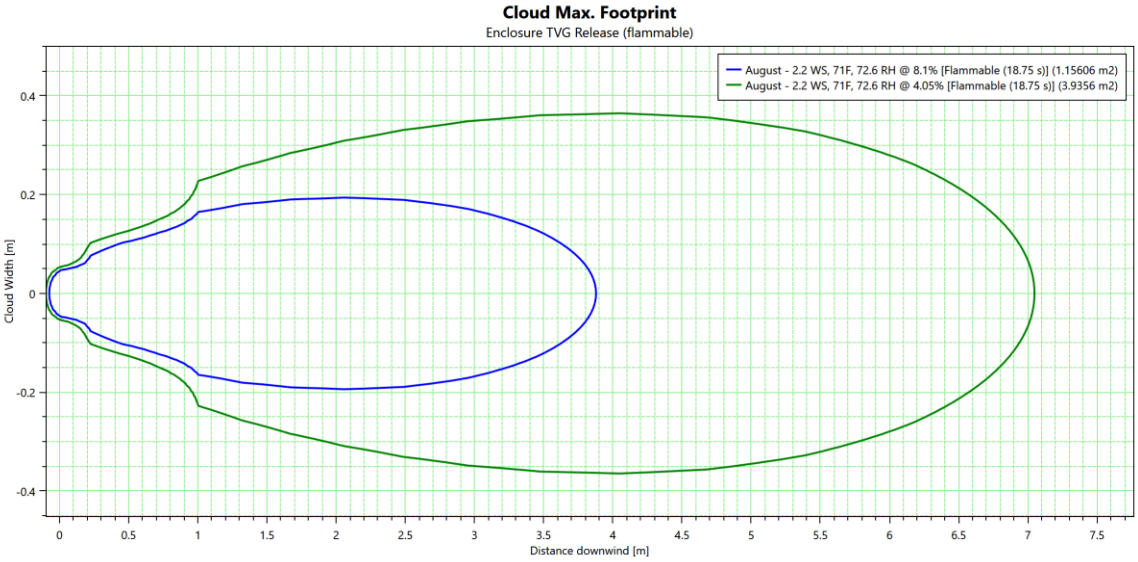


Figure 25. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

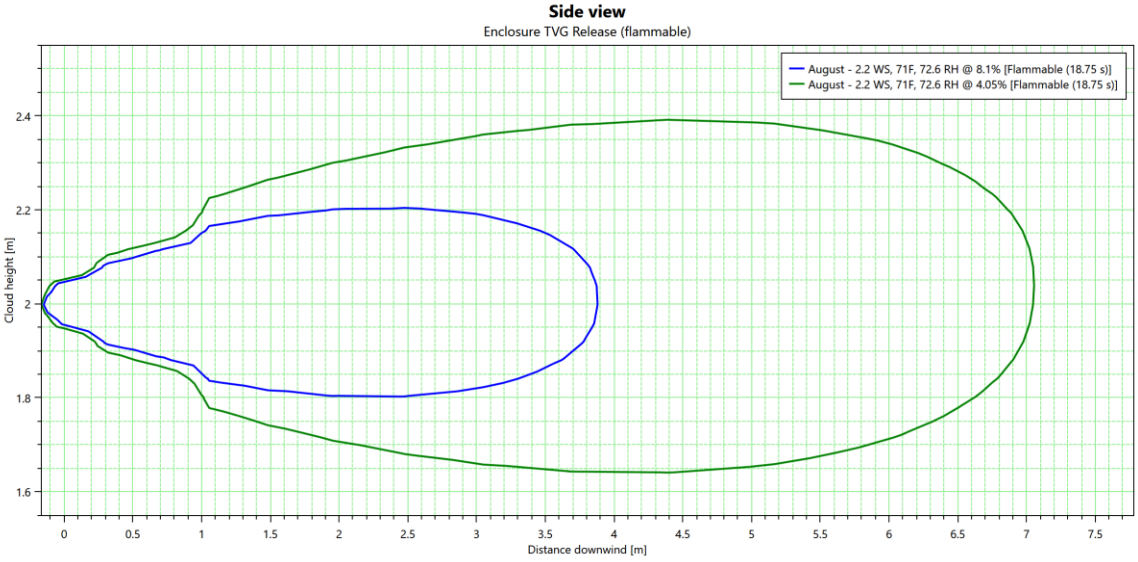


Figure 26. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

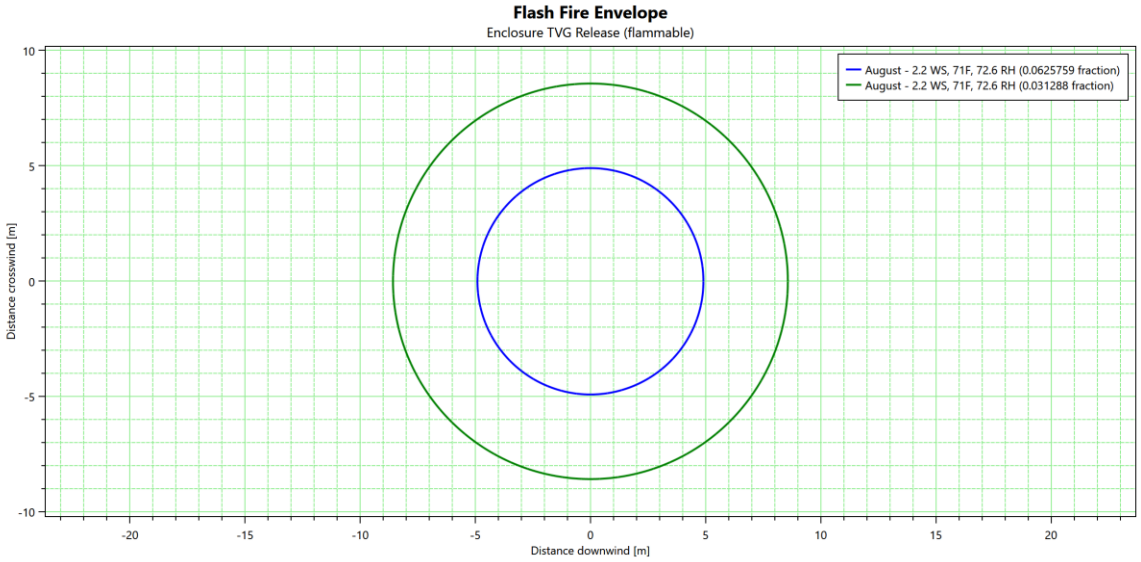


Figure 27. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 28 and Figure 29 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from an enclosure release over a 65-minute period.

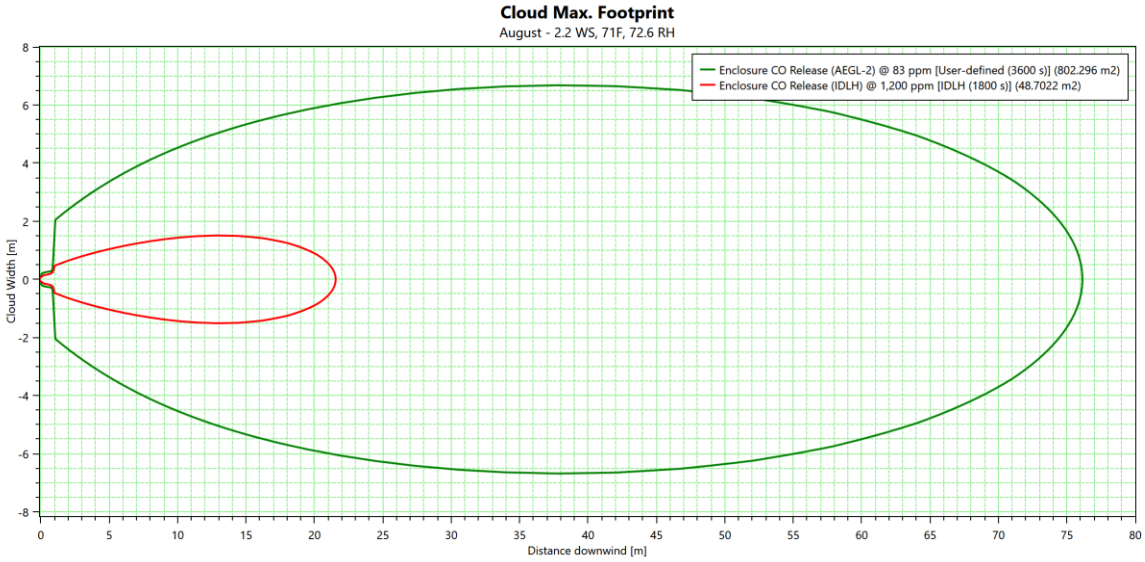


Figure 28. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

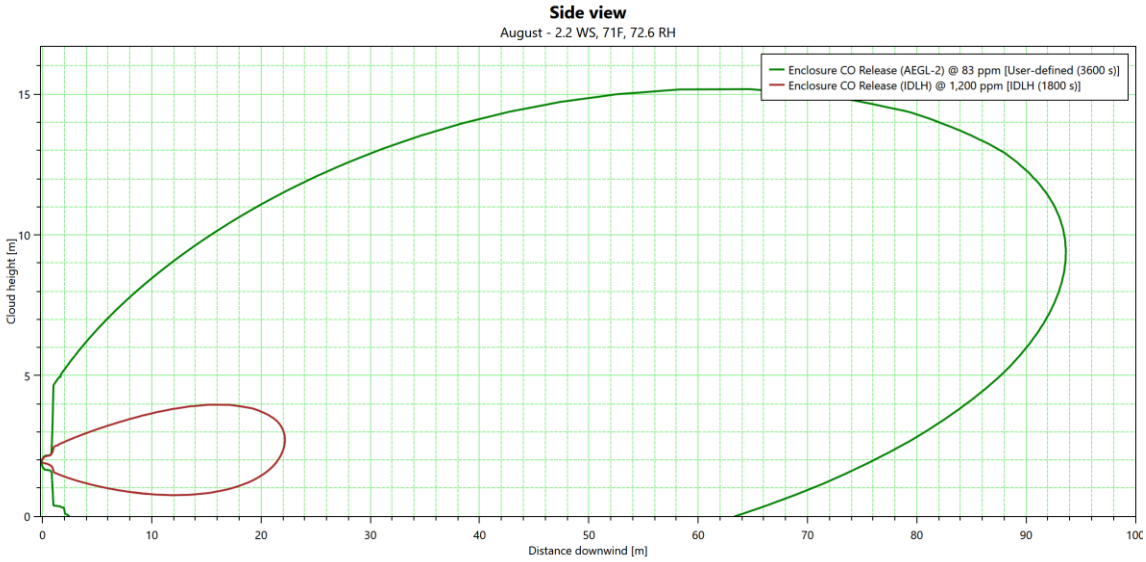


Figure 29. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

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APPENDIX B: THEORETICAL UPPER BOUNDING RELEASE SCENARIOS

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APPENDIX B: UPPER BOUNDING RELEASE SCENARIO RESULTS

In addition to the UL 9540A-based scenarios modeled as part of this analysis and documented in the body of the report and Appendix A, standardized 10-minute release durations were modeled as sub-scenarios of the five-cell release, module, unit, and enclosure releases. These sub-scenarios are not representative of findings within UL 9540A test data; thus, these models have been performed solely to capture theoretical upper-bounding release condition (TUBR) duration scenarios, providing conservative estimates of the theoretical worst-case maximum extents of resultant plumes. These modeled theoretical upper-bounding 10-minute duration release scenarios utilize the same input parameters as those described in the main body of the report. Additionally, when compared to threshold criteria such as IDLH and AEGL-2 the release duration is significantly lower than the required exposure duration for transient effects. Despite this short release duration, the results presented herein evaluate toxic gas extents based on IDLH and AEGL-2 thresholds as a point of reference.

It must be noted that a full-volume release at either the module, unit, or enclosure level within 10 minutes has no mechanism of occurrence documented in the BESS failure literature or described in anecdotal case reports; that is, there is no data to show or support a mechanism of failure that would cause thermal runaway to occur in all 104 cells within a module, 416 cells within a unit, or 4,992 cells within a full BESS in a 10-minute timeframe. Additionally, the UL 9540A reports show no propagation between modules for the unit-level test. As such, these results are only relevant as theoretical scenarios, and there is no inherent associated risk.

Results of the PHAST consequence analysis for Scenarios 1, 2, 3, and 4 using 10-minute release durations are presented below.

Table 1. Results Summary of Flammable and Toxic Gas Extents for TUBR Release Scenarios (10 min releases)

Scenario	Sub-Scenario	Flash Fire (m)	100% LFL (m)	50% LFL (m)	AEGL-2 (m)	CO IDLH (m)	Deflagration Pressure (0.02068 bar) (m)
1. UL 9540A release (five cells)	1.3	1.14	0.37	0.70	8.15	2.37	-
2. One-module release	2.2	3.43	1.60	2.79	38.48	8.72	-
3. One-Unit release (four modules)	3.2	6.48	2.90	5.31	63.20	16.26	-
4. Full enclosure release (48 modules)	4.2	20.53	9.44	16.89	137.88	47.46	40.92

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1. Scenario 1.3 (Five-Cell, 10-minute release): Flammable & Toxic Gas Extent Results

Figure 1 shows the maximum concentration versus distance of the flammable vapor cloud for a TUBR representative of a five-cell release over a 10-minute duration. Figure 2 and Figure 3 show the maximum horizontal and vertical extent, respectively, of the flammable vapor cloud resulting from a five-cell release over a 10-minute duration. Figure 4 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a five-cell release over a 10-minute duration.

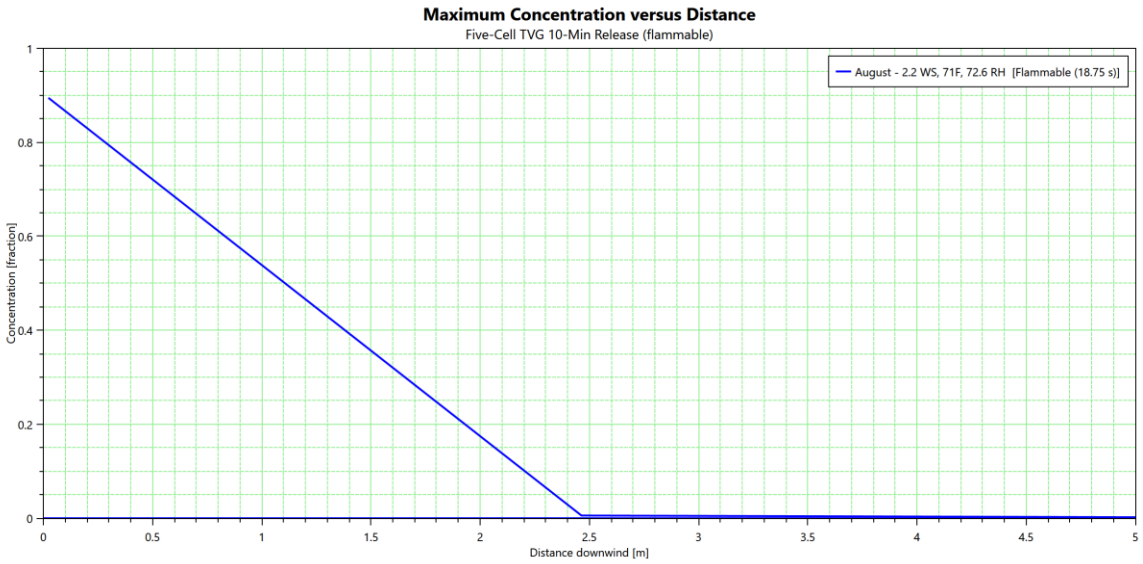


Figure 1. Maximum concentration vs distance for flammable vapor cloud

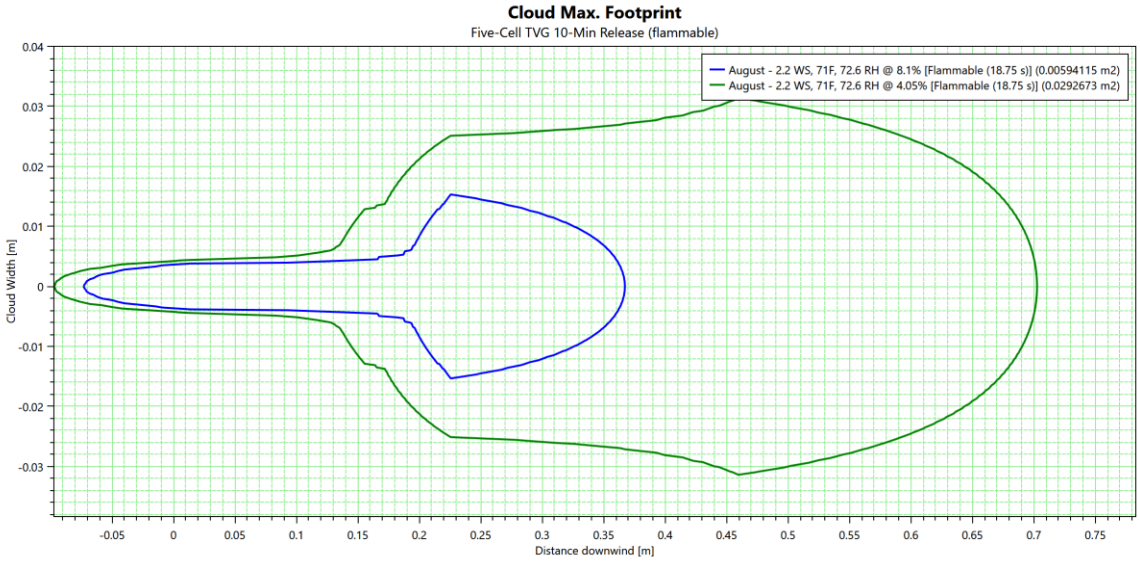


Figure 2. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

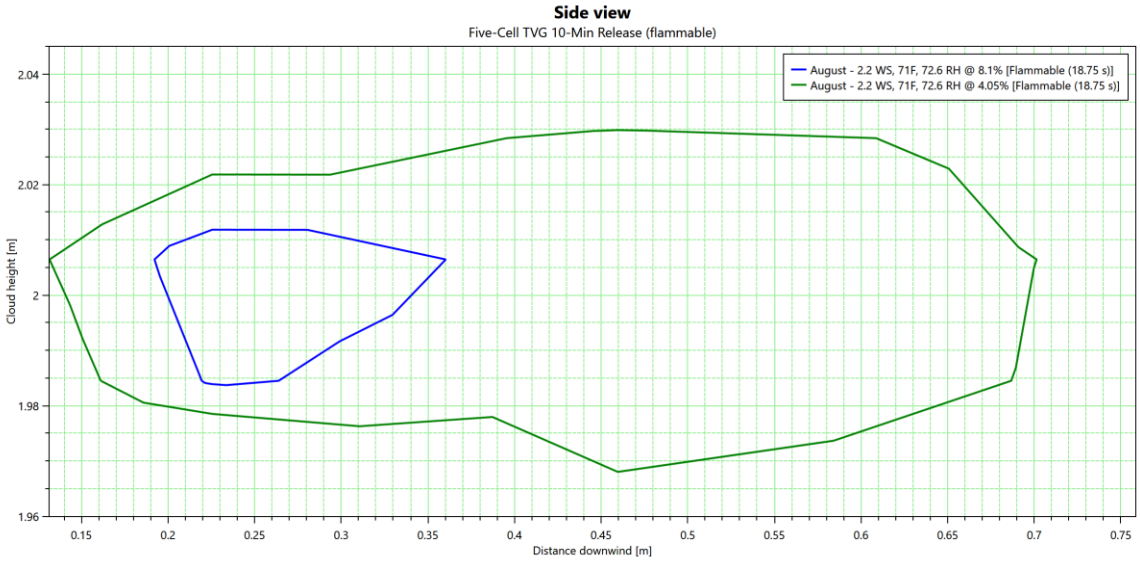


Figure 3. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

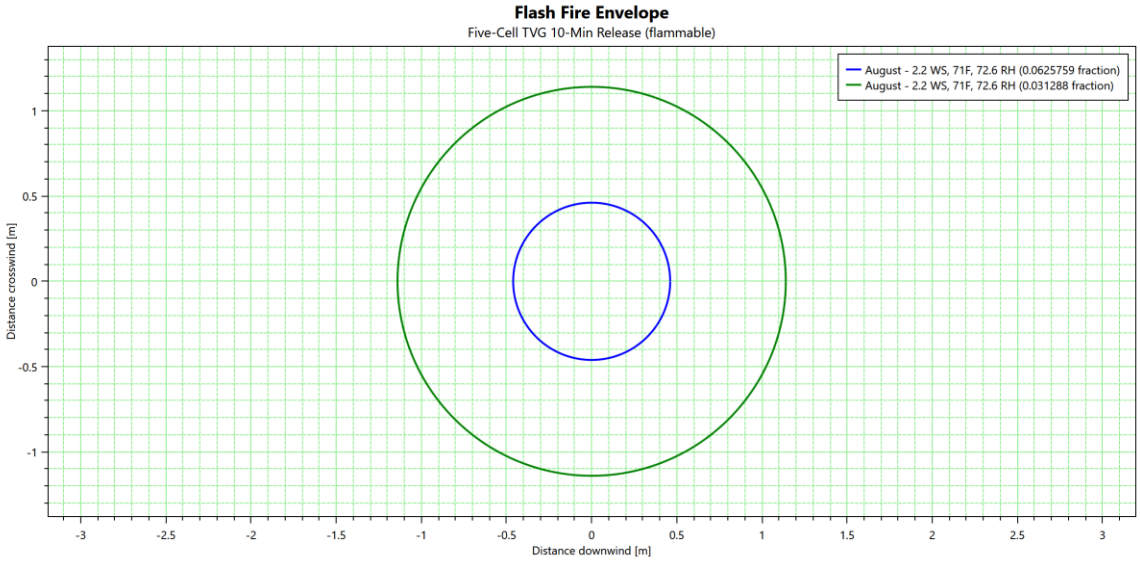


Figure 4. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 5 and Figure 6 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a five-cell release over a 10-minute duration.

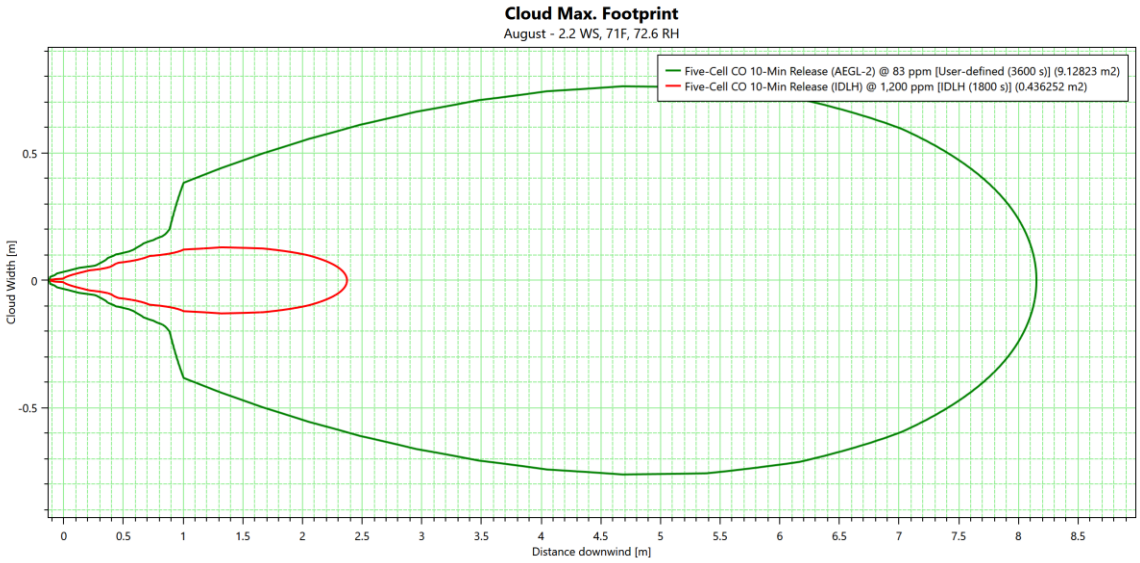


Figure 5. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

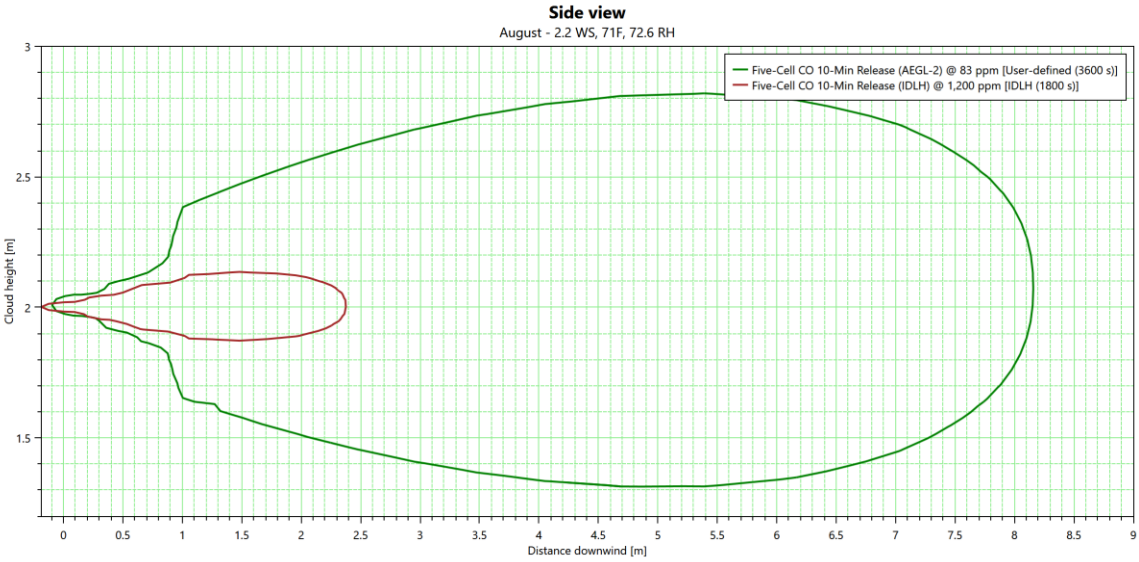


Figure 6. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

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2. Scenario 2.2 (Module, 10-minute release): Flammable & Toxic Gas Extent Results

Figure 7 shows the maximum concentration versus distance of the flammable vapor cloud for a TUBR representative of a module release over a 10-minute duration. Figure 8 and Figure 9 show the maximum horizontal and vertical extent, respectively, of the flammable vapor cloud resulting from a module release over a 10-minute duration. Figure 10 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a module release over a 10-minute duration.

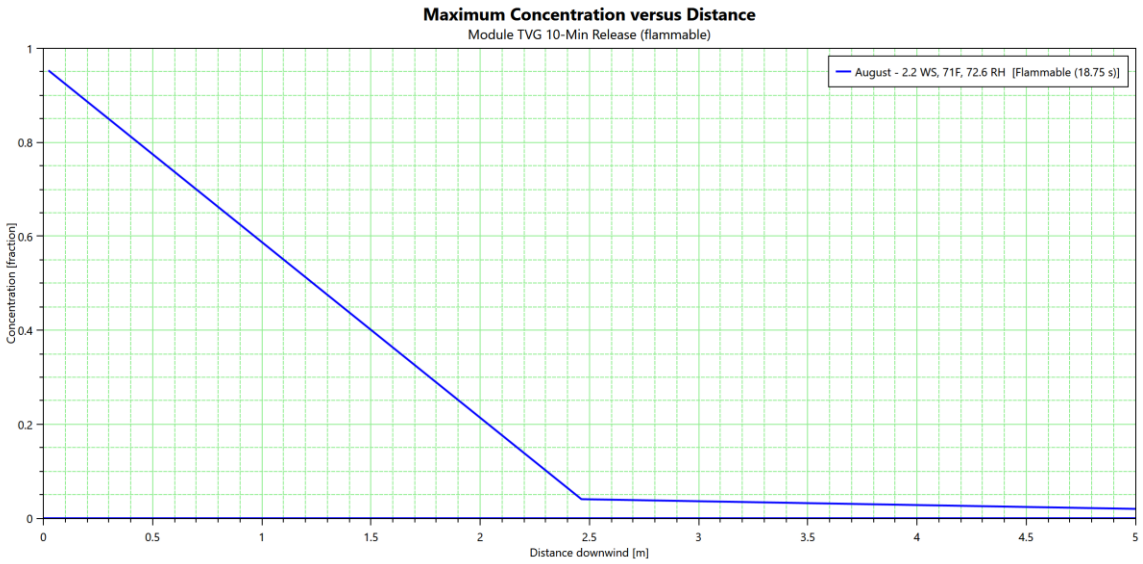


Figure 7. Maximum concentration vs distance for flammable vapor cloud

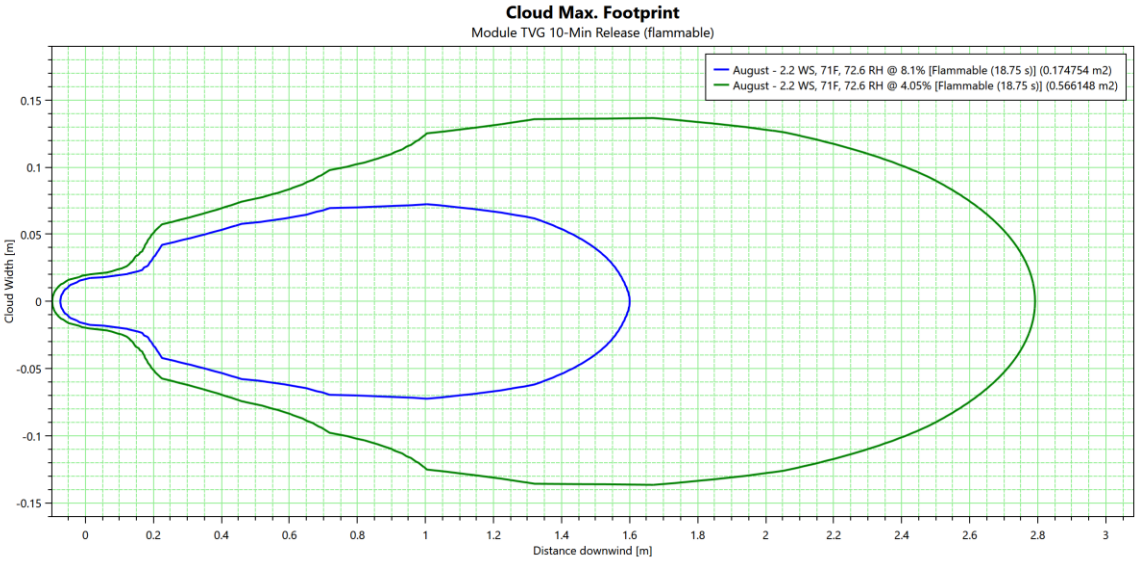


Figure 8. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

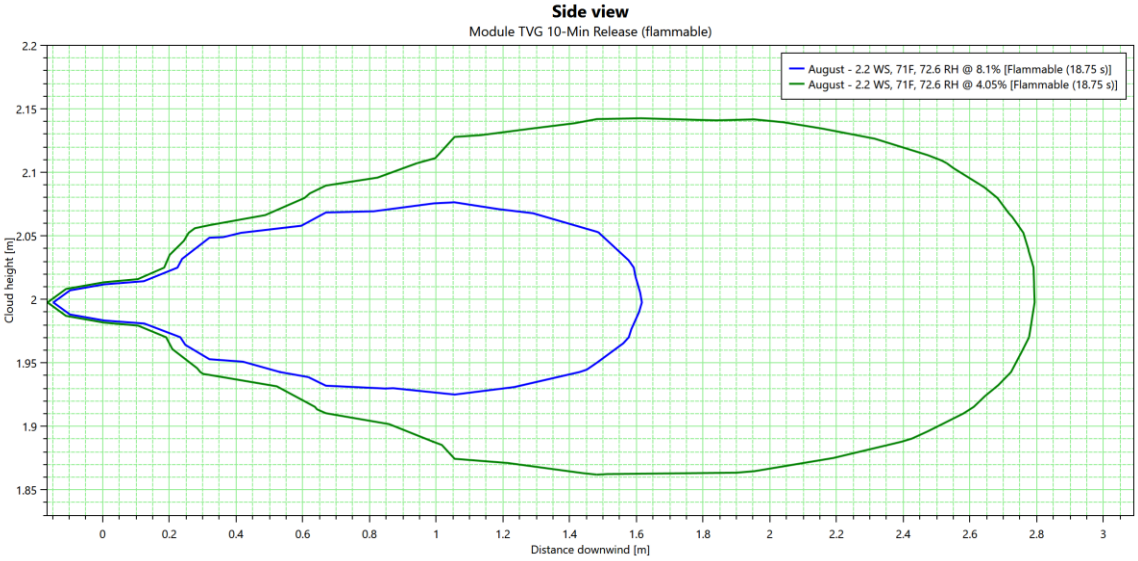


Figure 9. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

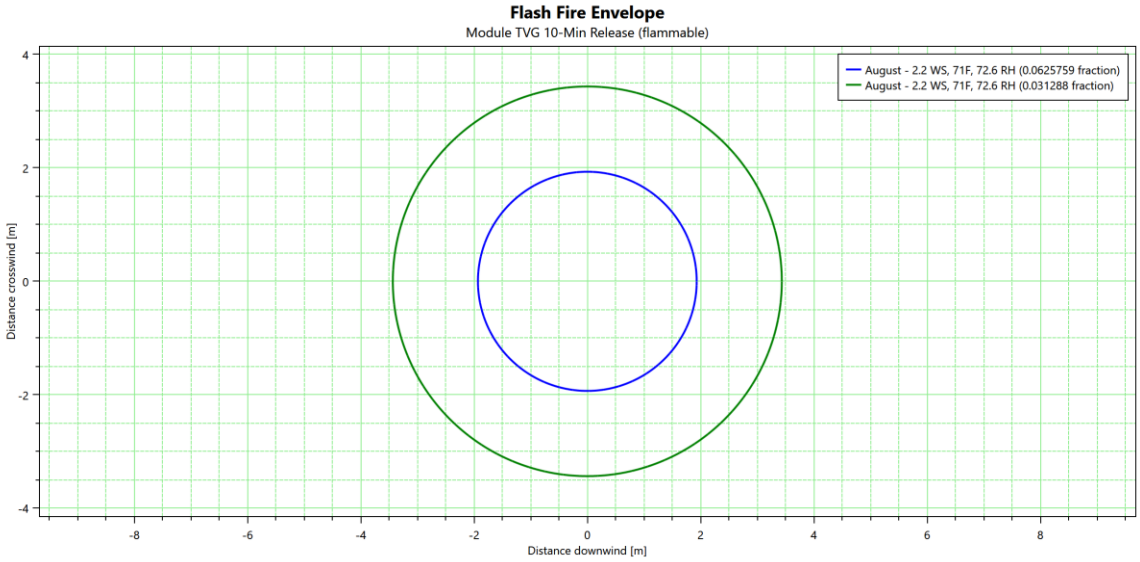


Figure 10. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 11 and Figure 12 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a module release over a 10-minute duration.

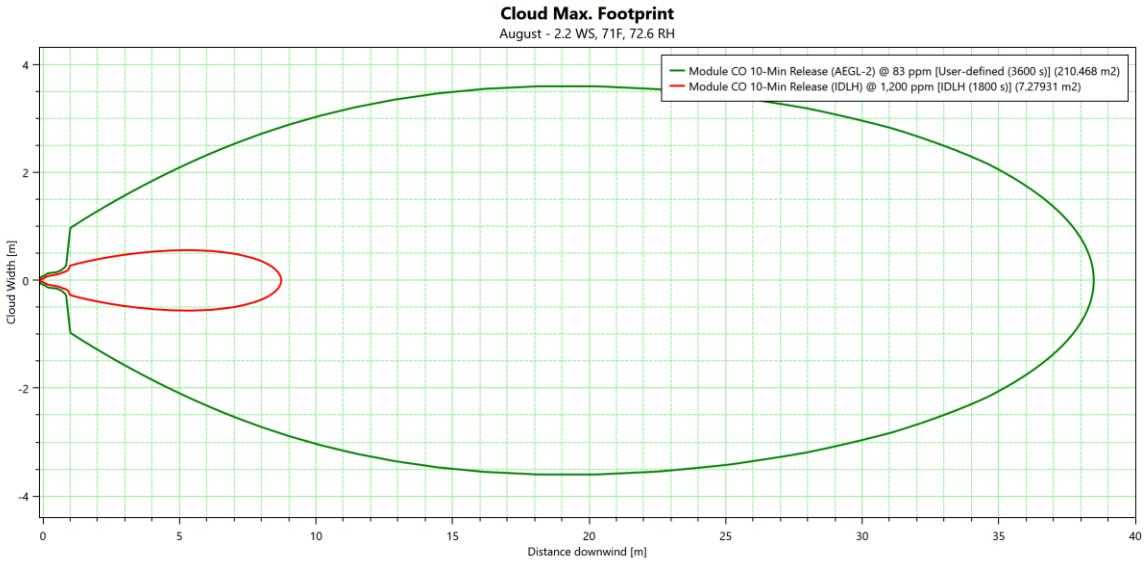


Figure 11. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

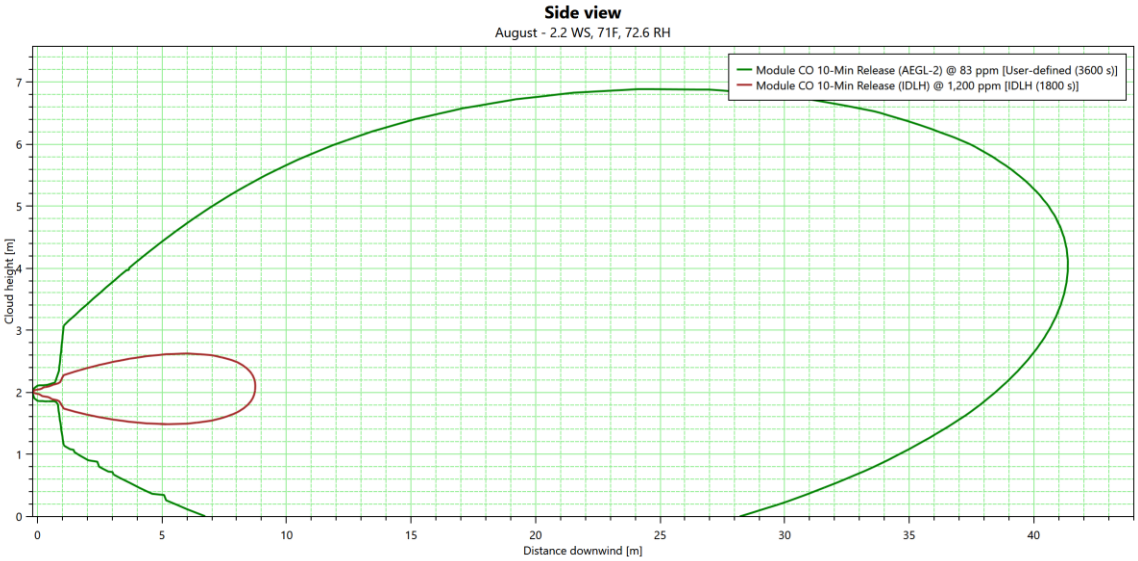


Figure 12. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

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3. Scenario 3.2 (One-unit, 10-minute release): Flammable & Toxic Gas Extent Results

Figure 13 shows the maximum concentration versus distance of the flammable vapor cloud for a TUBR representative of a unit release over a 10-minute duration. Figure 14 and Figure 15 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from the unit release over a 10-minute duration. Figure 16 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from a unit release over a 10-minute duration.

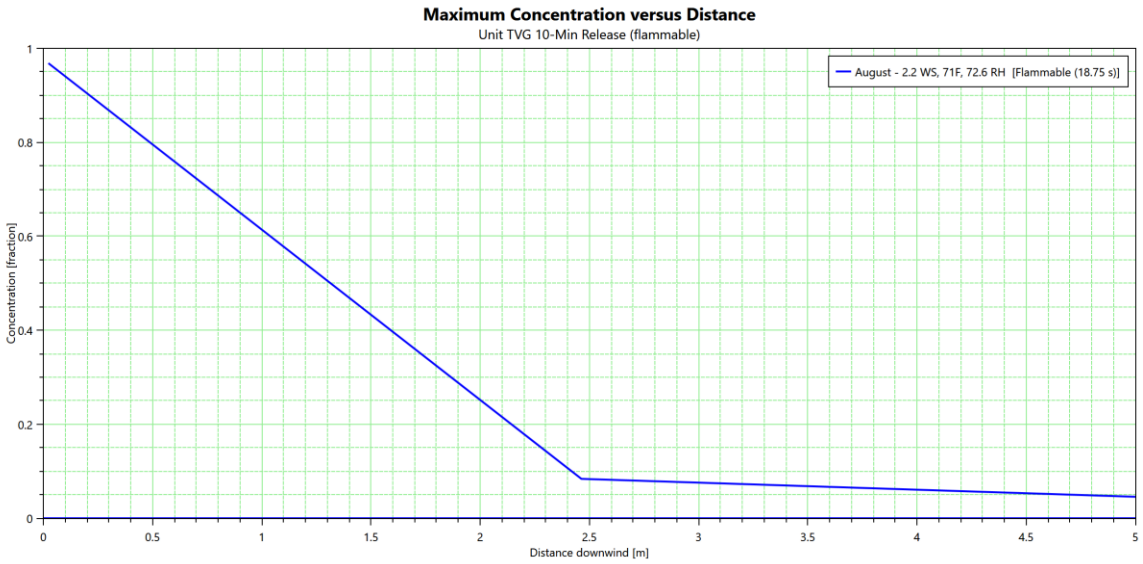


Figure 13. Maximum concentration vs distance for flammable vapor cloud

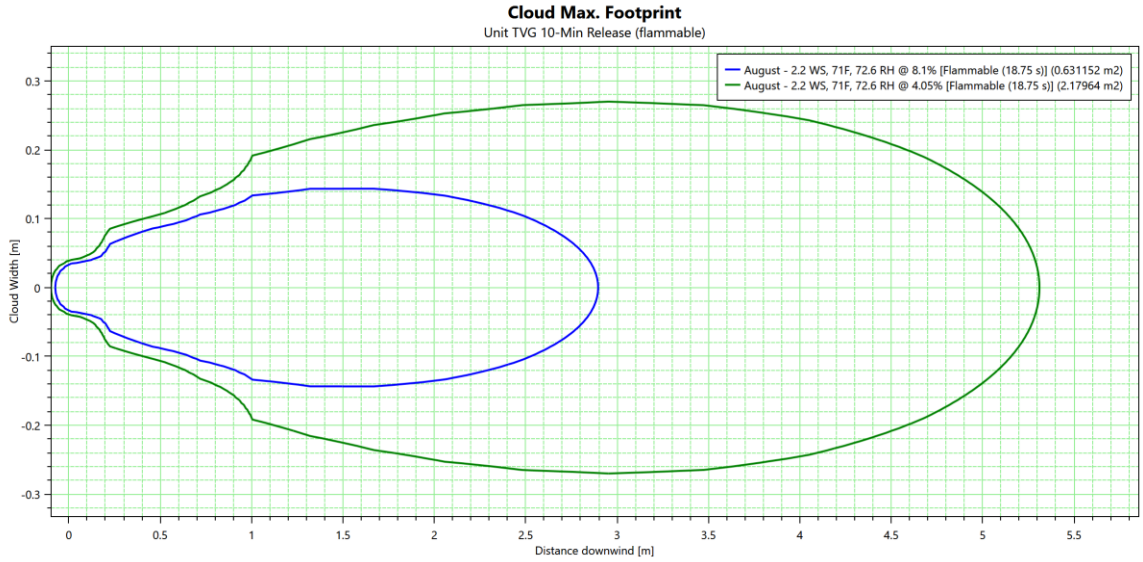


Figure 14. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

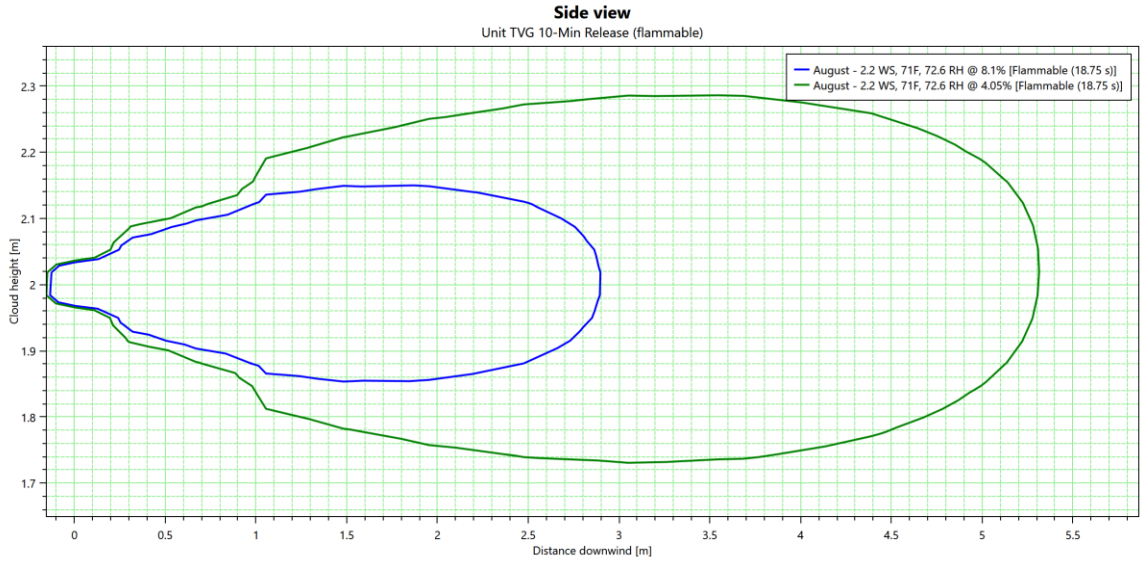


Figure 15. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

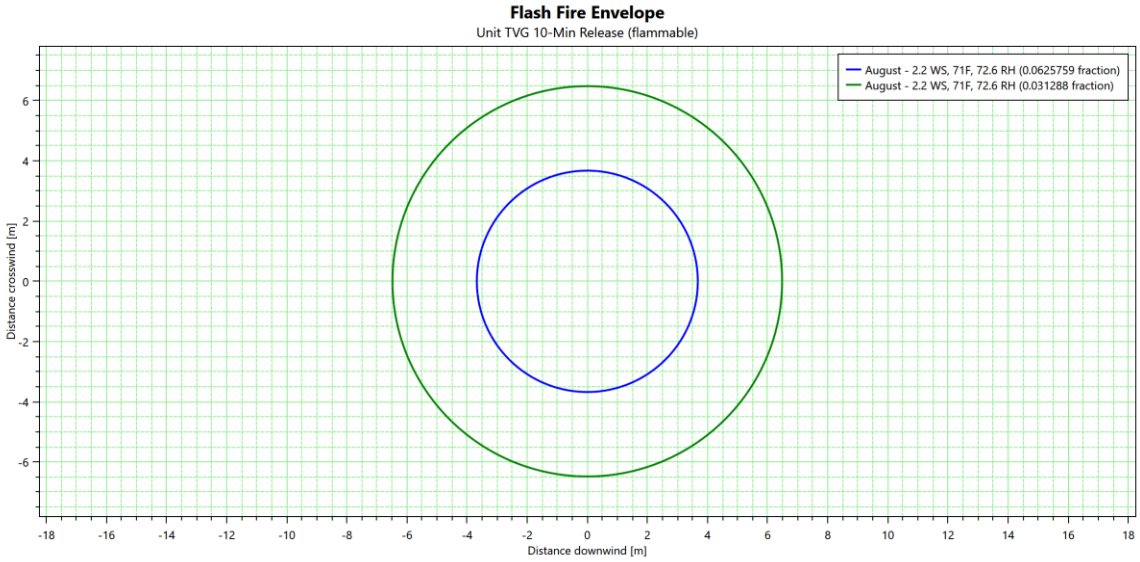


Figure 16. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 17 and Figure 18 show the maximum horizontal and vertical extent, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from a unit release over a 10-minute duration.

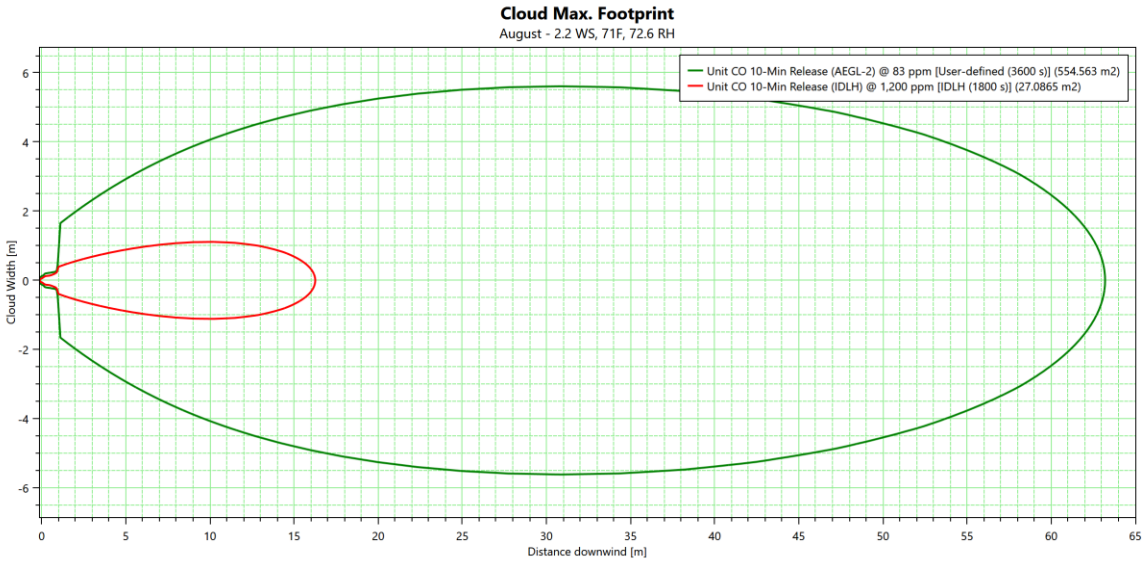


Figure 17. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

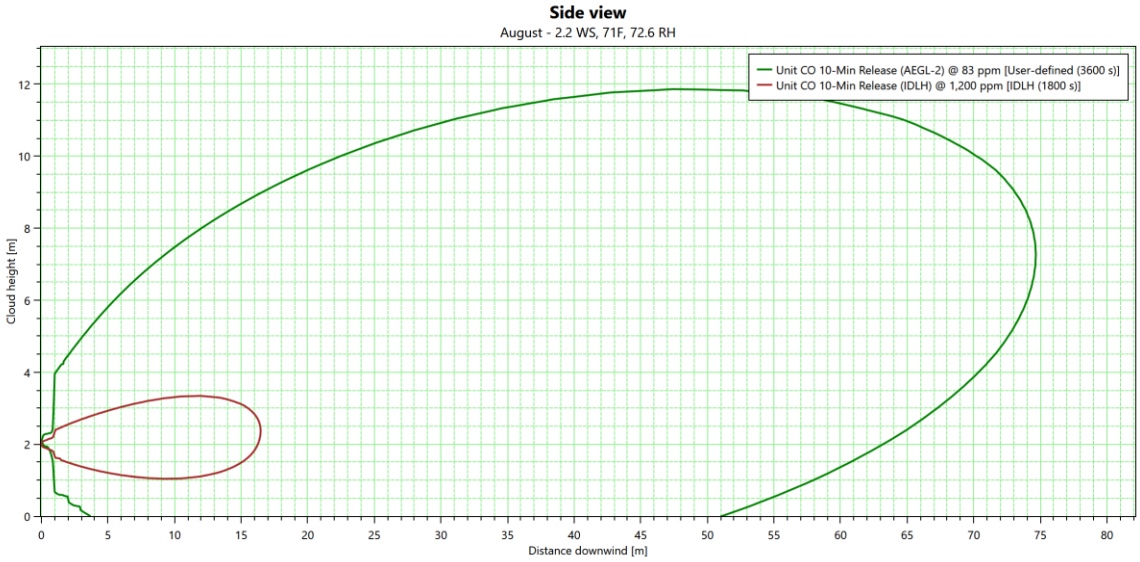


Figure 18. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

4. Scenario 4.2 (Enclosure, 10-minute release): Flammable & Toxic Gas Extent Results

Figure 19 shows the maximum concentration versus distance of the flammable vapor cloud for a TUBR representative of an enclosure release over a 10-minute duration. Figure 20 and Figure 21 show the maximum horizontal and vertical extents, respectively, of the flammable vapor cloud resulting from an enclosure release over a 10-minute duration. Figure 22 shows the flash fire envelope resulting from the ignition of the flammable vapor cloud from an enclosure release over a 10-minute duration.

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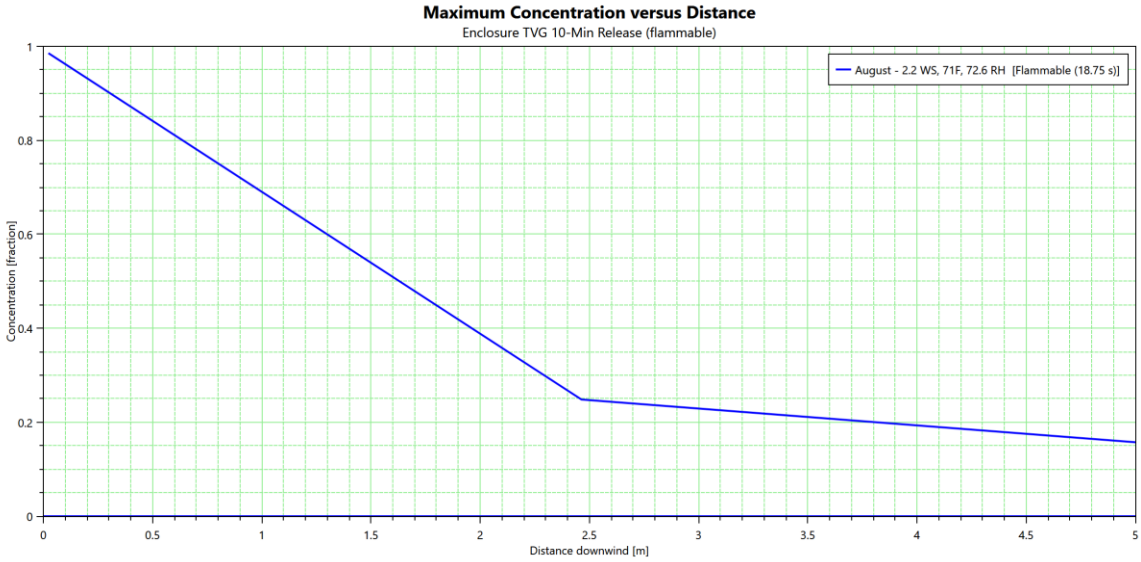


Figure 19. Maximum concentration vs distance for flammable vapor cloud

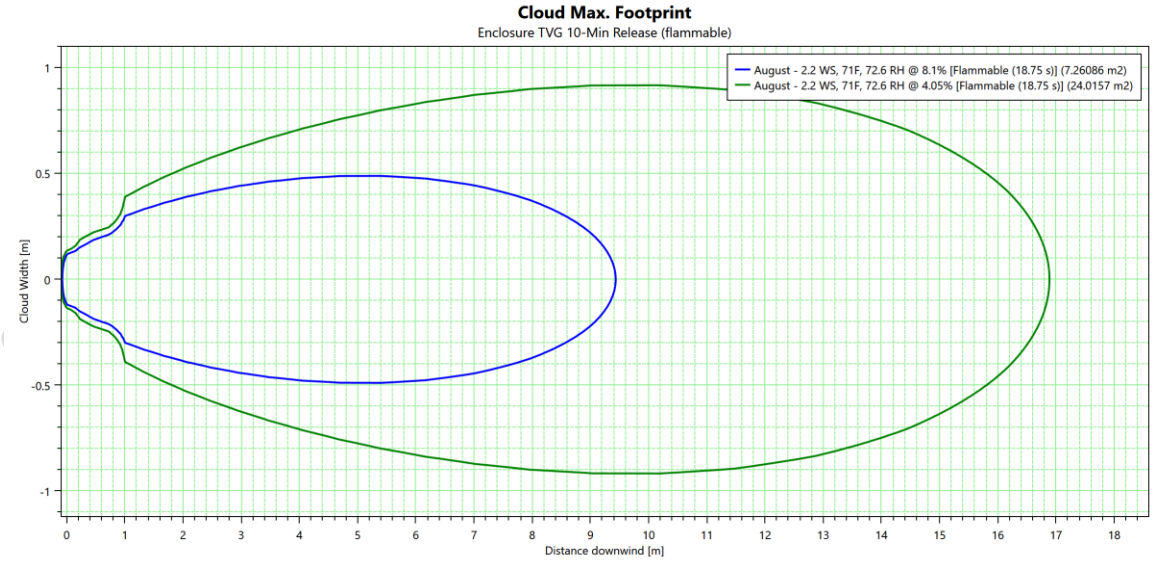


Figure 20. Maximum horizontal extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

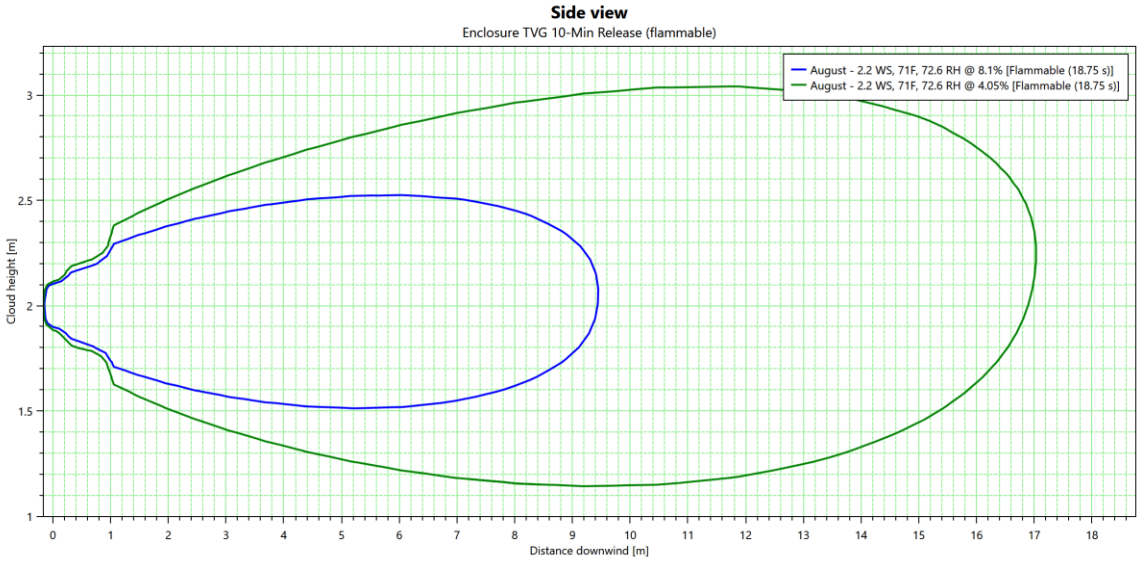


Figure 21. Maximum vertical extent of vapor cloud for LFL (8.1%) and ½ LFL (4.05%)

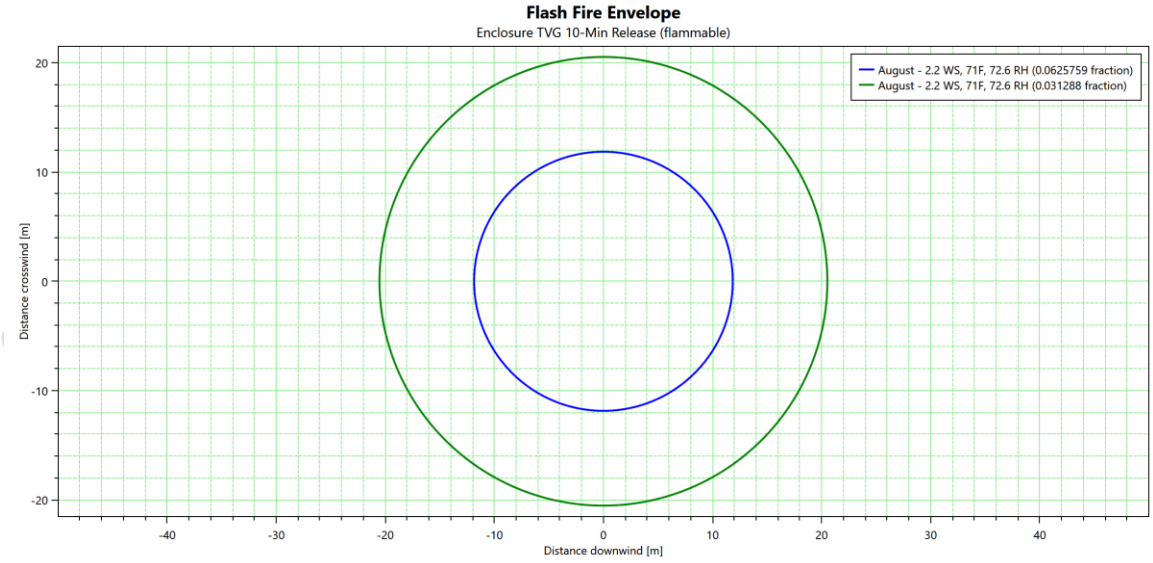


Figure 22. Flash Fire Envelope for LFL (8.1%) and ½ LFL (4.05%)

Figure 23 and Figure 24 show the maximum horizontal and vertical extents, respectively, of the CO IDLH and AEGL-2 toxic vapor clouds resulting from an enclosure release over a 10-minute duration.

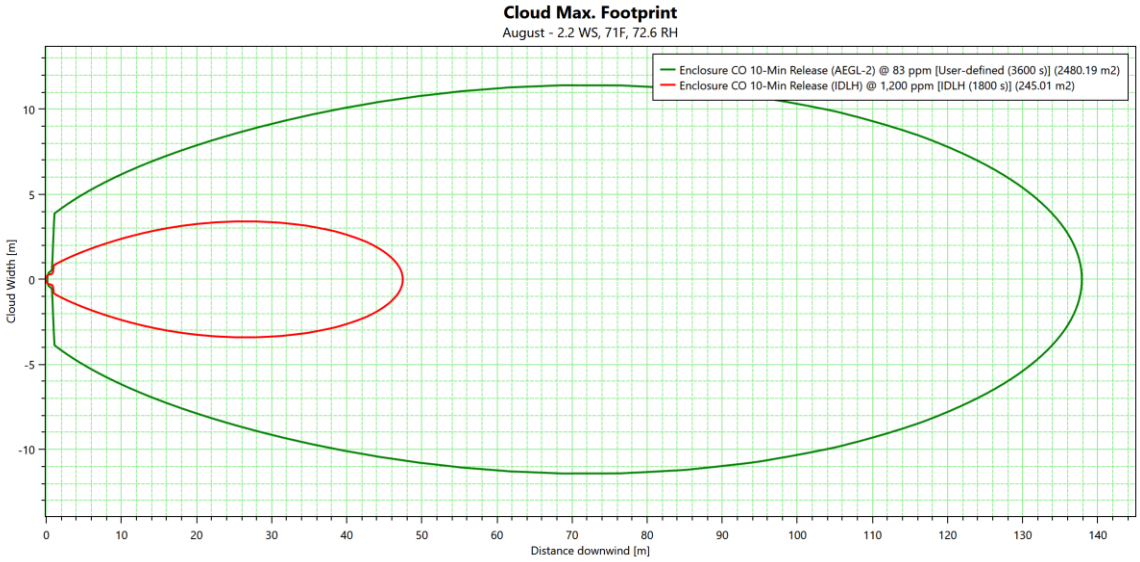


Figure 23. Maximum horizontal extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

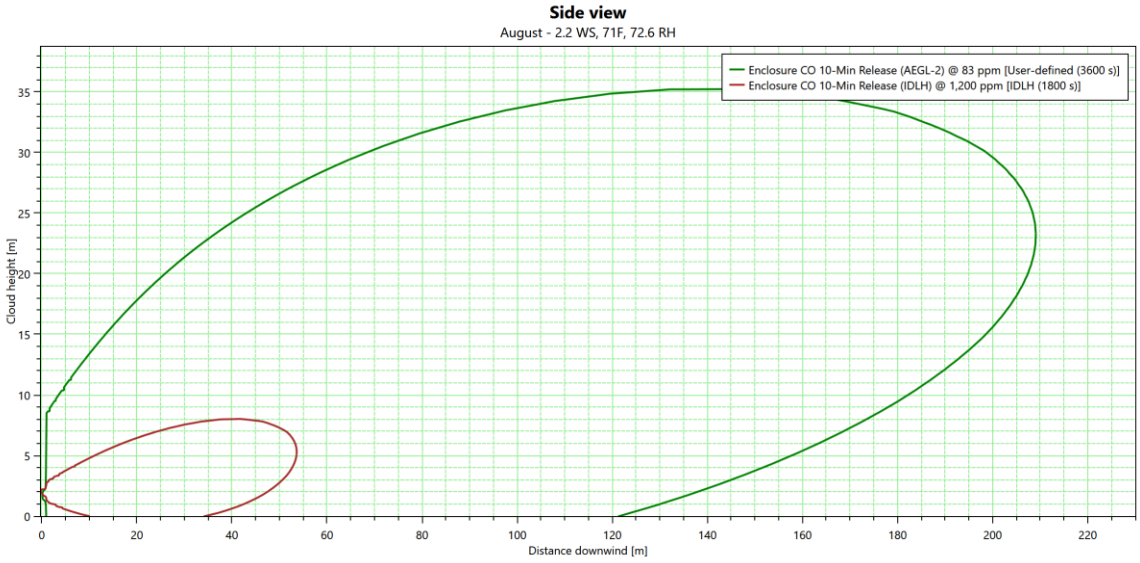


Figure 24. Maximum vertical extent of vapor cloud for AEGL-2 (83 ppm) and CO IDLH (1,200 ppm)

APPENDIX C: SENSITIVITY ANALYSIS

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APPENDIX C: SENSITIVITY ANALYSIS

1.Pre-Combustion Sensitivity Analysis

A sensitivity analysis was conducted to evaluate the impact of weather conditions on the extent of pre-combustion consequence results. Weather conditions for the calmest months of both summer and winter, August and December, respectively, were used in the sensitivity analysis.

Table 1 summarizes the weather conditions and other general release details used as inputs for the sensitivity analysis models.

Table 1. PHAST pre-combustion sensitivity analysis model inputs

Model Parameter	Summer Model Value	Winter Model Value
Average minimum wind speed (mph)	2.2	2.8
Pasquill stability class	F	F
Ambient temperature (°F)	71 (21.7°C)	33 (0.6°C)
Relative humidity (%)	72.6	83.8
Outdoor release direction	Horizontal	Horizontal
Release height (m)	2.0	2.0

Figure 1, Figure 2, and Figure 3 show the pre-combustion TVG and CO IDLH and AEGL-2 threshold extents, respectively. The summer weather conditions (2.2 mph wind, 71°F ambient temperature, 72.6% relative humidity) resulted in the farthest HF and CO extents, therefore, this wind speed will be used for the remainder of the sensitivity analysis.

DRAFT

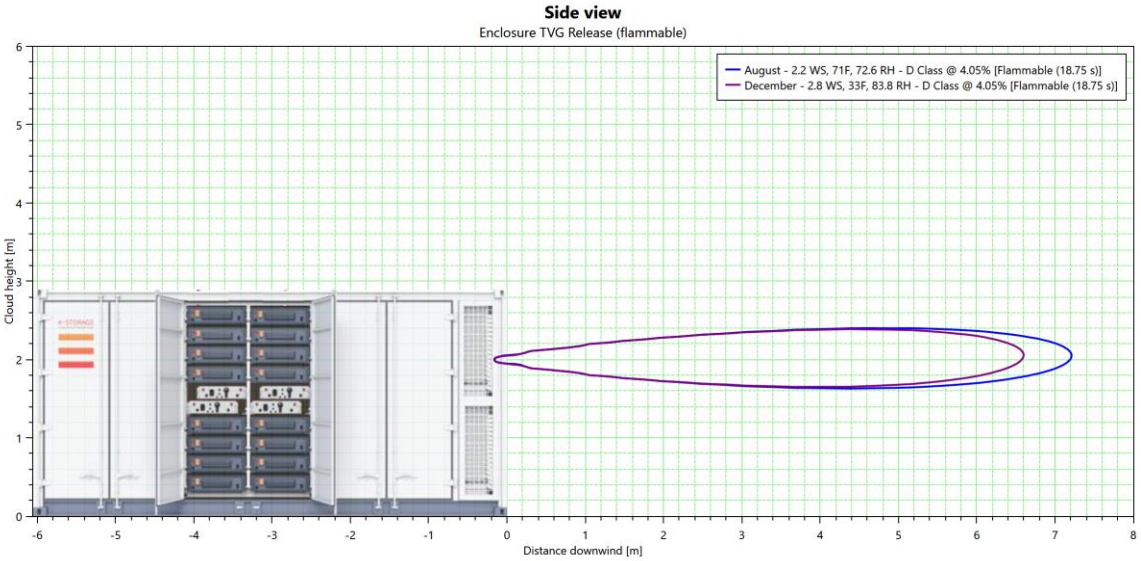


Figure 1. Weather comparison for Pre-combustion Scenario 4.1 TVG 1/2 LFL (4.05%) extent

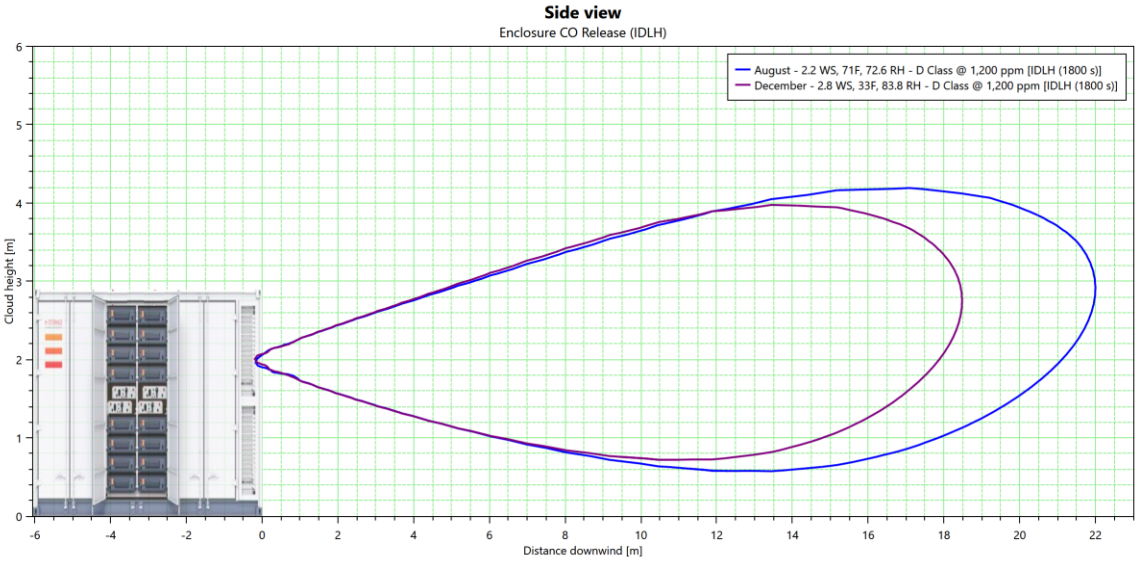


Figure 2. Weather comparison for Pre-combustion Scenario 4.1 CO IDLH (1,200 ppm) extent

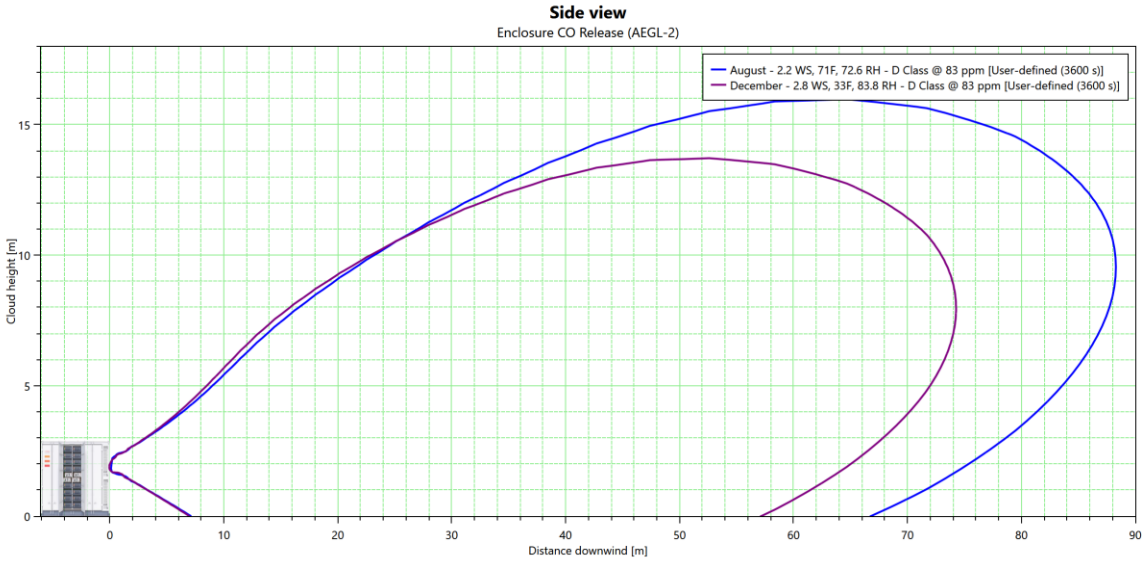


Figure 3. Weather comparison for Pre-combustion Scenario 4.1 CO AEGL-2 (83 ppm) extent

A sensitivity analysis was conducted to evaluate the impact of wind speed and pasquill stability class on the pre-combustion consequence extent results. The pre-combustion sensitivity analysis utilizes the Scenario 4 (enclosure level release) pre-combustion release scenario as described in Section 4.1.1 of the main report body. The sensitivity analysis evaluates the extents for both IDLH and AEGL-2 thresholds as described in Section 2.1.1 of the main report.

Pasquill stability class A/B, D, and F were modeled as part of the sensitivity analysis along with the average wind speeds of the calmest summer and winter months of the year, August and December, respectively. Of the two months, August has the slowest wind speed (2.2 mph) and was used in the analysis.

Figure 4 shows the pre-combustion ½ LFL extent, Figure 5 the CO IDLH extent, and Figure 6 the CO AEGL-2 threshold extent for enclosure release (Scenario 4.1), considering the weather conditions associated with the minimum wind speed in August and comparing the 3 different stability classes. With the exception of AEGL-2 SO2, the trend shows that stability Class D results in the furthest ½ LFL and CO extent.

The AEGL-2 SO_2 consequence extents provided in Figure 6 show that the furthest downwind extent is reached with stability class F. Stability class F corresponds to moderately stable atmospheric conditions associated with wind speeds of less than 6.7 mph and is physically inconsistent with wind speeds of 2.2 mph. A wind speed of this magnitude corresponds to Class A/B or D conditions, where mechanical turbulence suppresses the stable stratification required for Class F to develop. For all other cases except AEGL-2 SO_2, the results using stability class A/B and F result in lower overall extents compared to stability class D results.

There is publicly available industry guidance such as in the Code of Federal Regulations (CFD) Title 49 (Code of Federal Redulations) which requires the use of stability class F to determine worst-case consequence extents for liquid natural gas (LNG) facilities. Despite stability class D showing the farthest extent, the analysis used Class F as a baseline for all post-combustion Phast modeling scenarios to align with industry guidance.

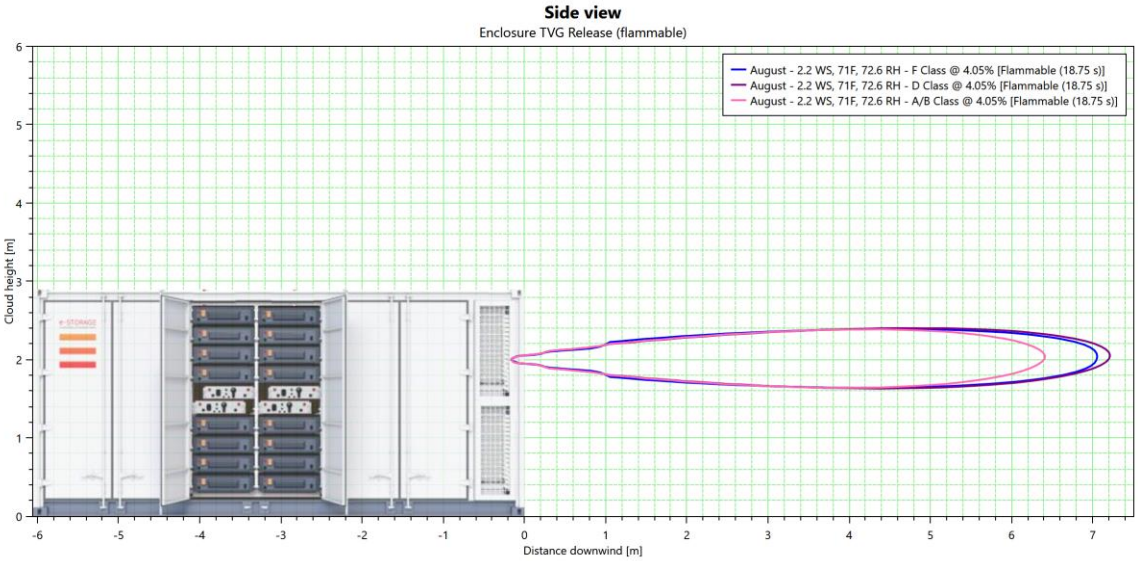


Figure 4. Pasquill stability class and wind speed comparison for pre-combustion flammable vapor cloud ½ LFL extent

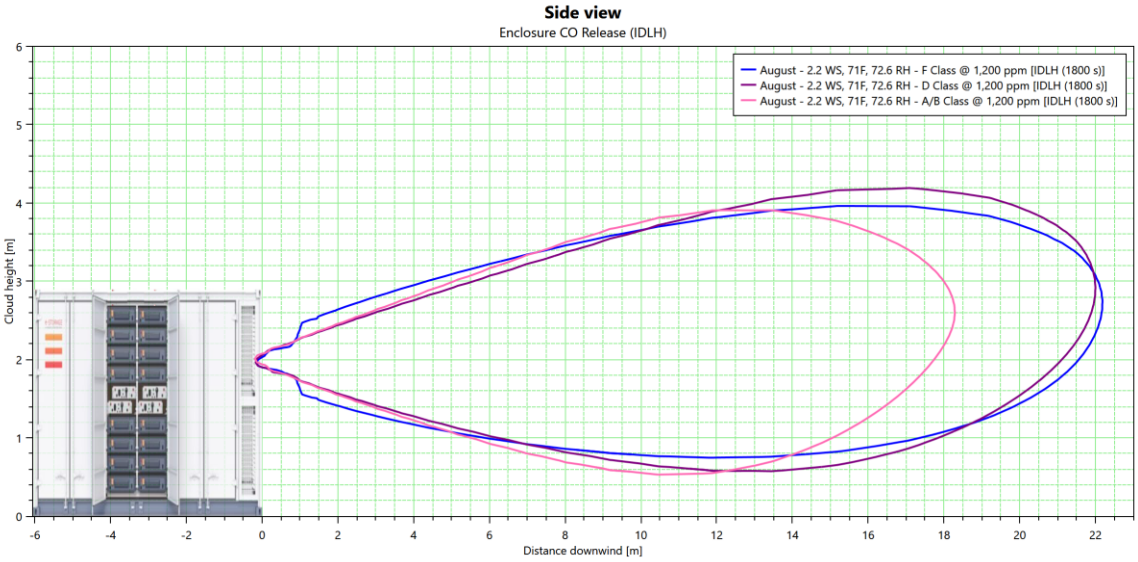


Figure 5. Pasquill stability class and wind speed comparison for pre-combustion CO IDLH extent

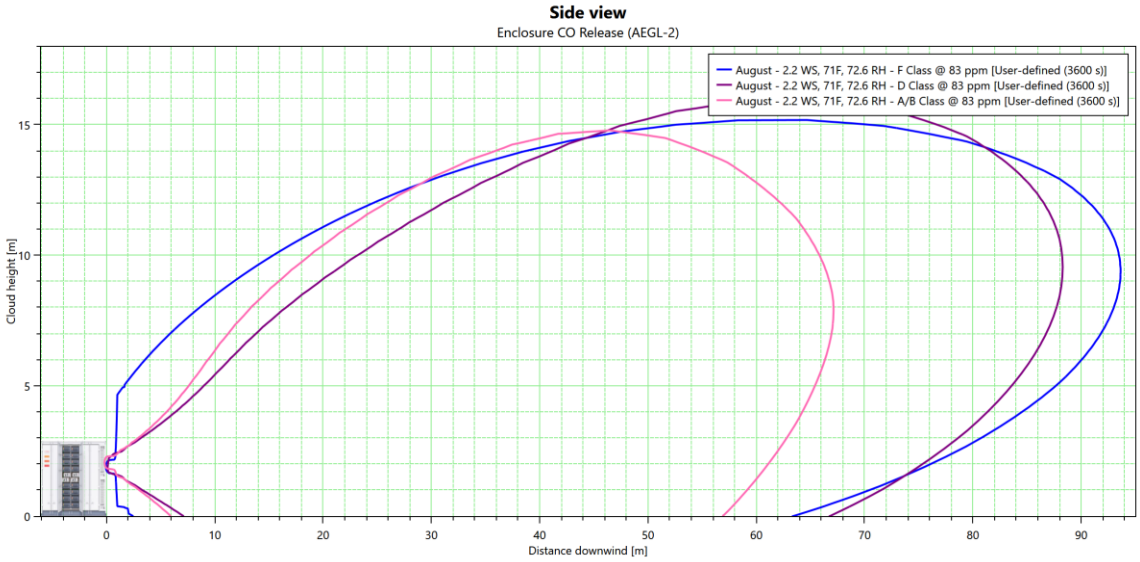


Figure 6. Pasquill stability class and wind speed comparison for pre-combustion CO AEGL-2 extent

2.Post-Combustion Sensitivity Analysis

A sensitivity analysis was conducted to evaluate the impact of Pasquill stability class and wind speed on the consequence extent results for the post-combustion plume. The sensitivity analysis uses the Scenario 2.1 Post-Combustion Release rate described in Section 4.4.2 of the main report. The sensitivity analysis evaluates the extents for both IDLH and AEGL-2 thresholds as described in Section 2.1.1 of the main report body.

Pasquill stability class A/B, D, and F were modeled as part of the sensitivity analysis along with the average wind speed for August. Figure 7 shows the post-combustion HF IDLH extent, Figure 8 the CO IDLH extent, and Figure 9 the SO_2 IDLH threshold extent for enclosure release (Scenario 2.1), considering the weather conditions associated with the minimum wind speed in August and comparing the 3 different stability classes. The trend shows that stability Class D results in the furthest IDLH HF, CO, and SO_2 extent.

Similarly, AEGL-2 extents for HF, CO, and SO_2 were modeled in the analysis with the same parameters in mind. Figure 10 shows the HF AEGL-2 extent, Figure 11 the CO AEGL-2 extent, and Figure 12 the SO_2 AEGL-2 threshold extent for enclosure release (Scenario 4.1), considering the weather conditions associated with the minimum wind speed in August and comparing the 3 different stability classes. With the exception of the AEGL-2 SO_2 (i.e., Figure 12) consequence extents, the results show similar trends and confirm that Pasquill stability class D results in the furthest consequence extent for each constituent of interest.

The AEGL-2 SO_2 consequence extents provided in Figure 12 show that the furthest downwind extent is reached with stability class F. Stability class F corresponds to moderately stable atmospheric conditions associated with wind speeds of less than 6.7 mph and is physically inconsistent with wind speeds of 2.2 mph. A wind speed of this magnitude corresponds to Class A/B or D conditions, where mechanical turbulence suppresses the

stable stratification required for Class F to develop. For all other cases except AEGL-2 SO_2, the results using stability class A/B and F result in lower overall extents compared to stability class D results.

There is publicly available industry guidance such as in the Code of Federal Regulations (CFD) Title 49 (Code of Federal Redulations) which requires the use of stability class F to determine worst-case consequence extents for liquid natural gas (LNG) facilities. Despite stability class D showing the farthest extent, the analysis used Class F as a baseline for all post-combustion Phast modeling scenarios to align with industry guidance.

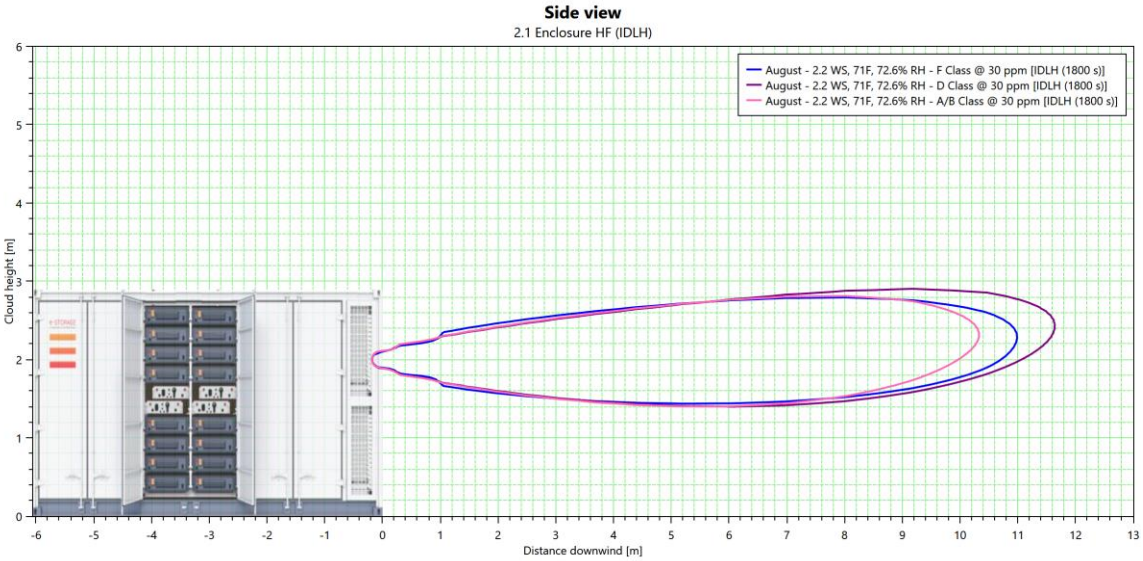


Figure 7. Pasquil stability & wind speed comparison for post-combustion HF IDLH extent

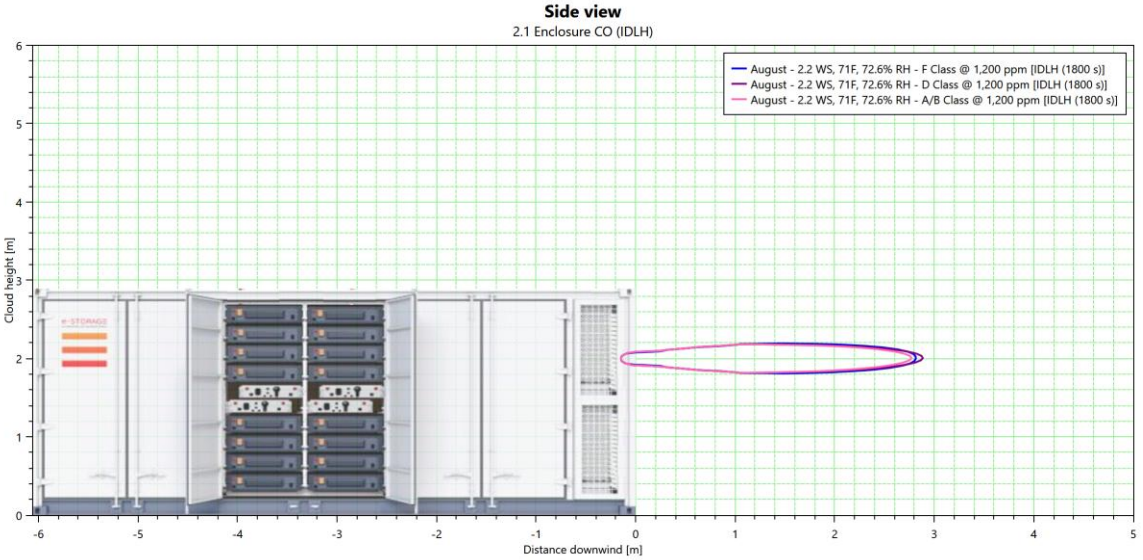


Figure 8. Pasquil stability & wind speed comparison for post-combustion CO IDLH extent

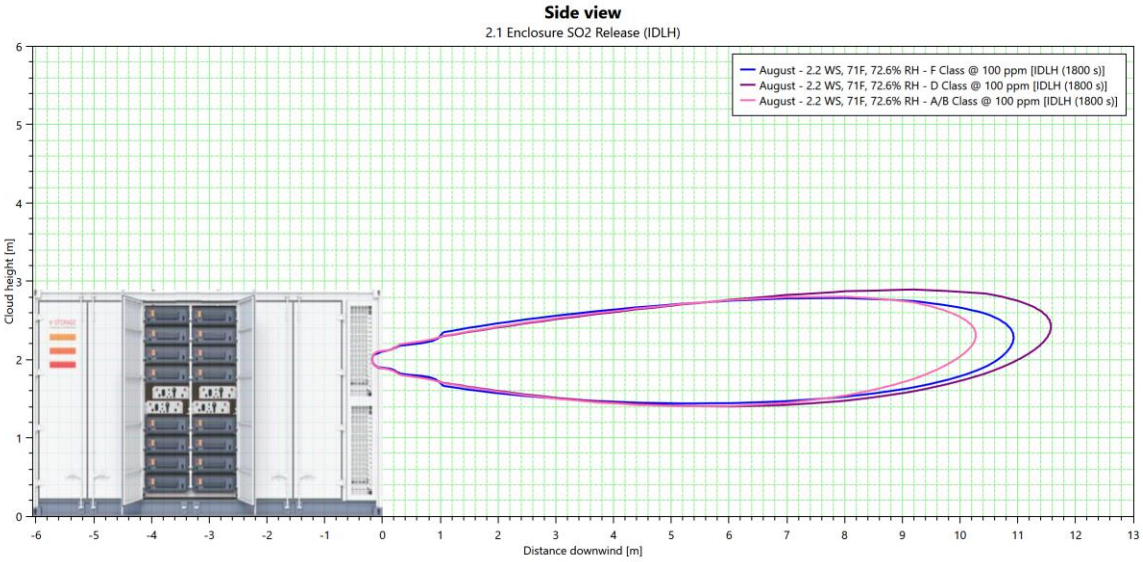


Figure 9. Pasquil stability & wind speed comparison for post-combustion SO_2 IDLH extent

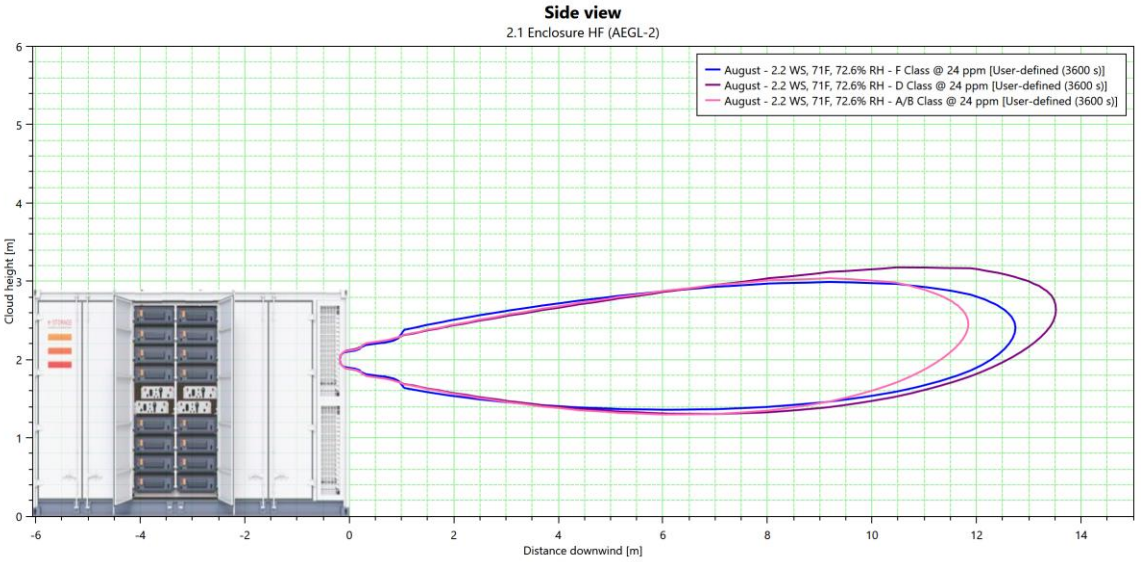


Figure 10. Pasquil stability & wind speed comparison for post-combustion HF AEGL-2 extent

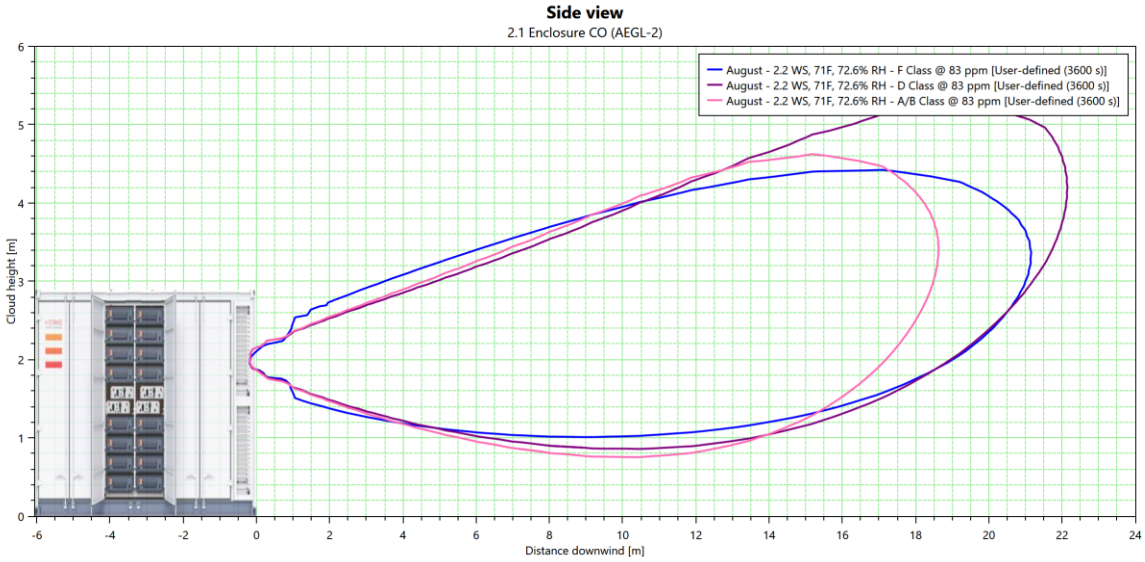


Figure 11. Pasquil stability & wind speed comparison for post-combustion CO AEGL-2 extent

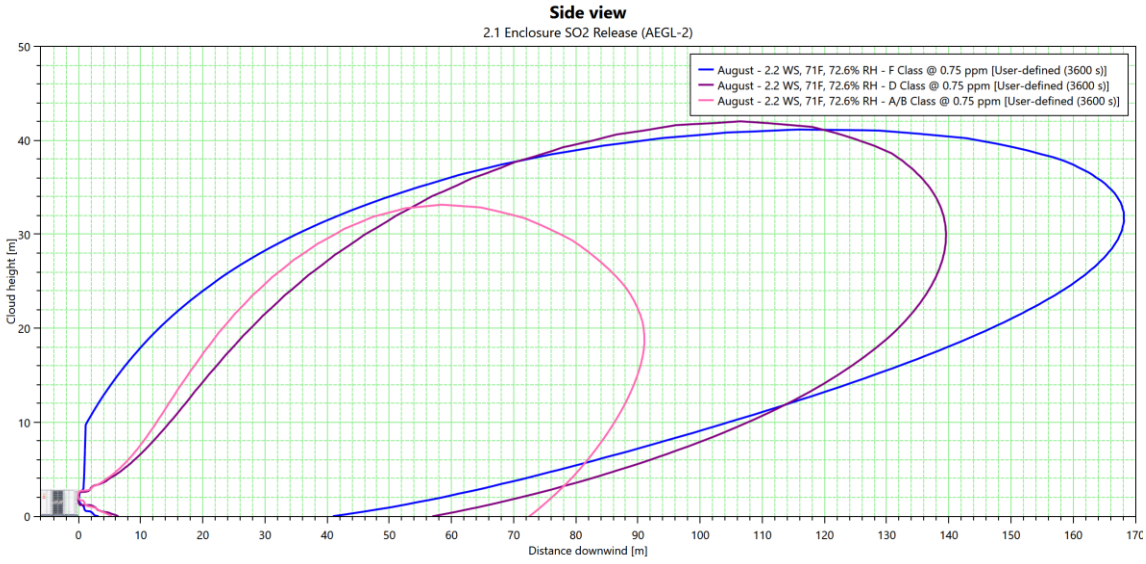


Figure 12. Pasquil stability & wind speed comparison for post-combustion SO_2 AEGL-2 extent

A sensitivity analysis was also conducted to evaluate the impact of release temperature on the post-combustion consequence extent results. Based on temperatures observed in the LSFT, release temperatures of 500 °C, 700 °C, and 1,000 °C were modeled. As shown in Figure 13, Figure 14, and Figure 15, the 500 °C release temperature produced the farthest extent for all IDLH and AEGL-2 cases for Scenario 2.1. Considering this result, 500 °C was used as the baseline for all post-combustion PHAST modeling scenarios.

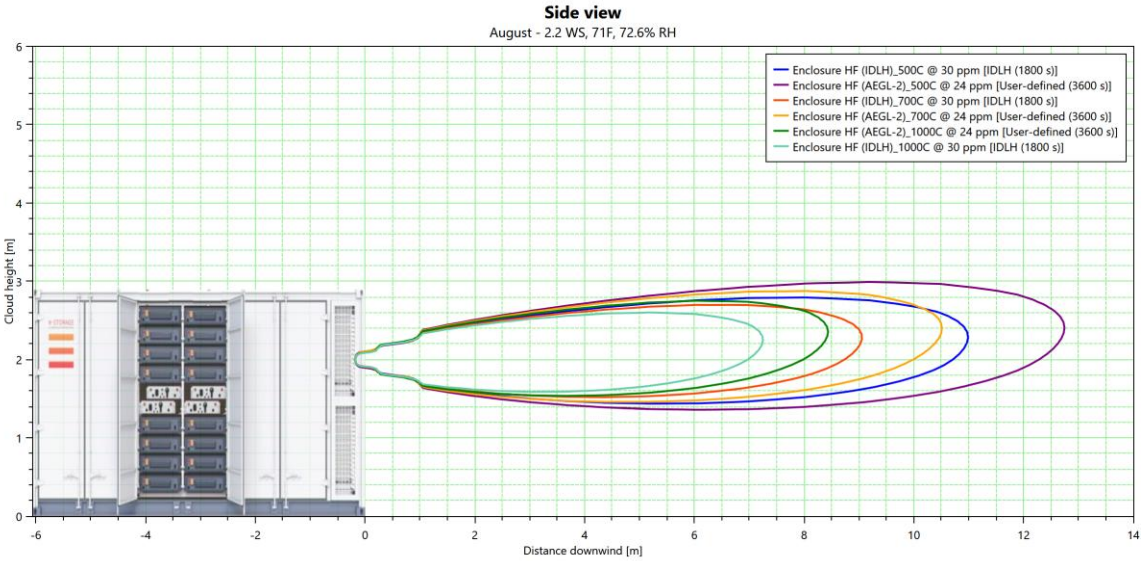


Figure 13: Release temperature comparison post-combustion HF IDLH and AEGL-2 extent

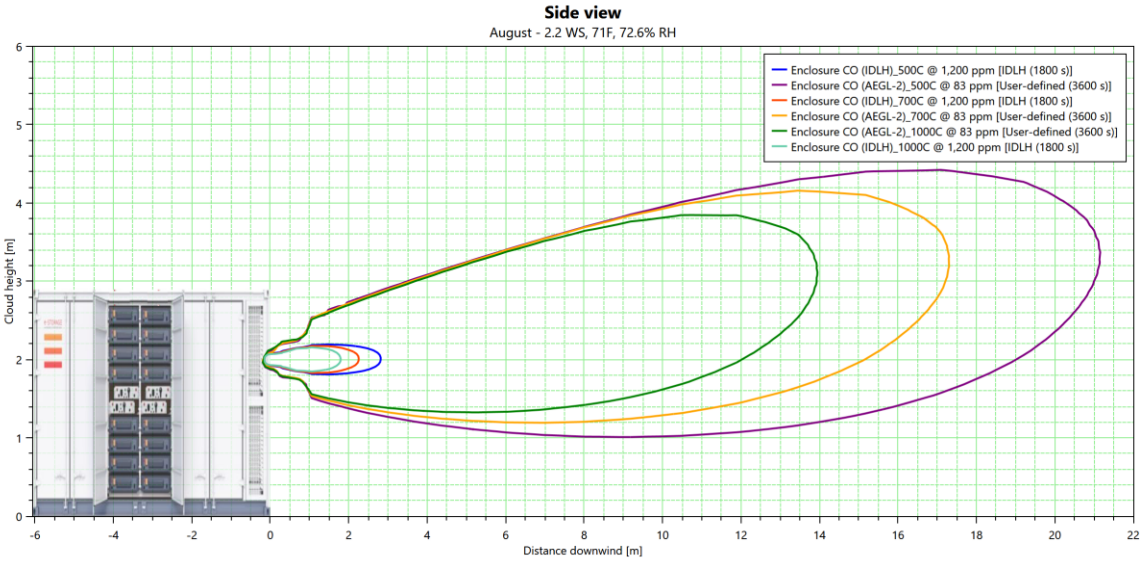


Figure 14: Release temperature comparison post-combustion CO IDLH and AEGL-2 extent

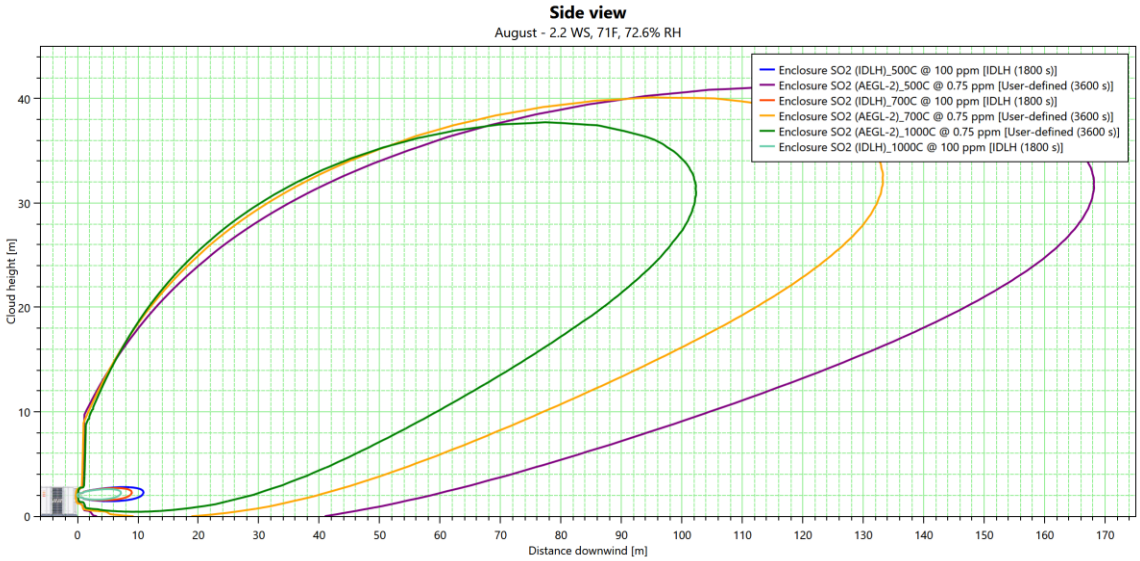


Figure 15. Release temperature comparison post-combustion SO_2 IDLH and AEGL-2 extent

DRAFT

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REAL ESTATE ADJACENT PROPERTY VALUE IMPACT REPORT:

Academic and Peer Authored Property Value Impact Studies, Research and Analysis of Existing Battery Energy Storage Systems, and Market Participant and Assessor Interviews

Prepared For:

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Andrew R. Lines, MAI, CRE
Erin C. Bowen, MAI

July 31, 2026

LETTER OF TRANSMITTAL

July 31, 2026

Paul Williamson
Director, Development
Key Capture Energy, LLC
711 Louisiana Street, Suite 2075
Houston, TX 77002

SUBJECT: Property Value Impact Report
An Analysis of Existing Battery Energy Storage Systems

To Whom it May Concern:

CohnReznick is pleased to submit the accompanying property values impact report for proposed battery energy storage uses in New York. Per the client's request, CohnReznick researched property transactions adjacent to existing battery energy storage systems and interviewed real estate professionals and Township/County Assessors active in the market where battery energy storage system uses are located, to gain an understanding of actual market transactions in the presence of battery energy storage system uses.

The purpose of this consulting assignment is to determine whether proximity to a battery energy storage system has an impact adjacent property values. The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of battery energy storage system use applications. We have not been asked to value any specific property, and we have not done so.

The clients and intended users for the assignment are Key Capture Energy, LLC and KCE NY 34, LLC. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick Advisory LLC ("CohnReznick").

This consulting assignment is intended to conform to the Uniform Standards of Professional Appraisal Practice (USPAP), the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, as well as applicable state appraisal regulations.

Based on the analysis in the accompanying report, and subject to the definitions, assumptions, and limiting conditions expressed in the report, our findings are:

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FINDINGS

I. Academic Studies *(page 19):* CohnReznick reviewed and analyzed published academic studies that specifically analyzed the impact of BESS projects on nearby property values. The study includes hedonic analysis of thousands of sales transactions of residential homes and farmland properties in rural communities, which indicates that there is no consistent and measurable impact to surrounding property values.

II. CohnReznick Studies *(pages 20-80)*: Further, CohnReznick has performed studies in three states, of both residential and agricultural properties, in which we have no evidence that the existing battery energy storage facilities have caused a consistent and measurable negative impact on property values.

For this Project, we have included five of these studies which are most similar to the subject in terms of general location and size, summarized as follows:

CohnReznick - Existing Battery Energy Storage Systems Studied

BESS #	BESS	County	State	MW AC	Acreage	Date Project Completed
1	Marengo BESS	McHenry	IL	20.00	8.2	Dec-18
2	McHenry BESS	McHenry	IL	19.80	5.9	Dec-15
3	Asheville-Rock Hill BESS	Buncombe	NC	8.80	12.4	Aug-20
4	Vista BESS	San Diego	CA	40.00	0.9	Jun-18
5	Fallbrook Battery Energy Storage System	San Diego	CA	40.00	14.1	Mar-23

It is noted that proximity to the battery energy storage systems has not deterred sales of nearby residential single-family homes.

This report also includes four "Before and After" analyses, in which sales that occurred prior to the announcement and construction of the battery energy storage system project were compared with sales that occurred after completion of the battery energy storage system project, for both adjoining and non-adjoining properties. No measurable impact on property values was demonstrated.

III. Market Participant Commentary *(page 81-82)*: Our conclusions also consider interviews with County and Township Assessors, who have at least one battery energy storage system in their jurisdiction, and in which they have reported no evidence that battery energy storage systems have negatively affected adjacent property values.

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With regards to the Project, we specifically interviewed the following Assessors with battery energy storage systems in their jurisdiction:

- Michael Milks, Lackawanna Township Assessor in Mercer County, New York, where the **20 MW NY6 BESS** is located, stated that *his office has not noticed any trends in home values nearby the facility, nor have there been any complaints or assessment reductions for homeowners in the surrounding area due to the facility.*
- Michael Cowan, a Canyon County, Idaho, Senior Commercial Appraiser, where the **82 MW Happy Valley BESS** is located, noted *they have not noticed any abnormal effects on home sale prices in the area surrounding the Happy Valley BESS.*
- Mary Mahady, the McHenry Township, Illinois, Assessor where the **19.8 MW McHenry BESS** is located, stated that *there have been no complaints regarding exterior issues from the BESS*. Additionally, property values in the area have increased and *there is no information indicating a negative impact on neighboring properties.*
- James Burke, the Marengo Township, Illinois, Assessor where the **20 MW Marengo BESS** is located, noted that since the battery energy storage system began operation in December 2018 *there have been no adjustments warranted to assessments or appeals filed for the adjacent parcels* to the Marengo BESS due to their proximity to the facility.
- Karlene McCabe, the San Diego County, California Supervising Appraiser where the **40 MW Vista BESS** is located, stated that the adjoining residential condominium complex have seen *values trend upward from before to after the completion of the battery energy storage system.* Based on this data, there have not been any adjustment warranted to property assessments for proximity to the Vista BESS.
- Gus Kramer, the Contra Costa County, California Assessor where the **200 MW Diablo Energy BESS** is located, stated that since the battery energy storage facility was completed in April 2022 *there has been no measurable difference in sale prices of homes in the adjoining residential community to the east of the BESS facility compared to home sales in the surrounding area.* Additionally, no assessment appeals have been filed by adjoining property owners due to proximity to the Diablo Energy BESS.

To give us additional insight as to how the market evaluates farmland and single-family homes with views of battery energy storage systems, we interviewed numerous real estate brokers and other market participants who were party to actual sales of property adjacent to batteries; these professionals also confirmed that battery energy storage systems did not diminish property values or marketability in the areas they assisted in sales of property.

IV. Battery Energy Storage Systems on Harmony of Use *(pages 83-85)*: In the course of our research and studies, we have recorded information regarding the compatibility of these existing battery energy storage facilities and their adjoining uses, including the continuing development of land adjoining these facilities.

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CONCLUSION

Considering all of the preceding, the data does not indicate that there is consistent and measurable evidence that battery energy storage systems have a negative impact on adjacent property values.

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Very truly yours,

CohnReznick Advisory LLC





Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

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Director - Valuation Advisory Services
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SCOPE OF WORK

CLIENT AND INTENDED USERS

The clients and intended users of this report are Key Capture Energy, LLC and KCE NY 34, LLC.

INTENDED USE

The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of battery energy storage system use applications. We have not been asked to value any specific property, and we have not done so. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick Advisory LLC ("CohnReznick").

PURPOSE

The purpose of this consulting assignment is to determine whether proximity to the proposed battery energy storage system will result in an impact on adjacent property values.

DEFINITION OF VALUE

This report utilizes Market Value as the appropriate premise of value. Market value is defined as:

"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. Buyer and seller are typically motivated;
2. Both parties are well informed or well advised, and acting in what they consider their own best interests;
3. A reasonable time is allowed for exposure in the open market.
4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
5. The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."[1]

[1] Code of Federal Regulations, Title 12, Chapter I, Part 34.42[h]

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EFFECTIVE DATE & DATE OF REPORT

July 31, 2026

PRIOR SERVICES

USPAP requires appraisers to disclose to the client any services they have provided in connection with the subject property in the prior three years, including valuation, consulting, property management, brokerage, or any other services.

This report is a compilation of the existing battery energy storage systems which we have studied over the past year and is not evaluating a specific subject site. In this instance, there is no “subject property” to disclose.

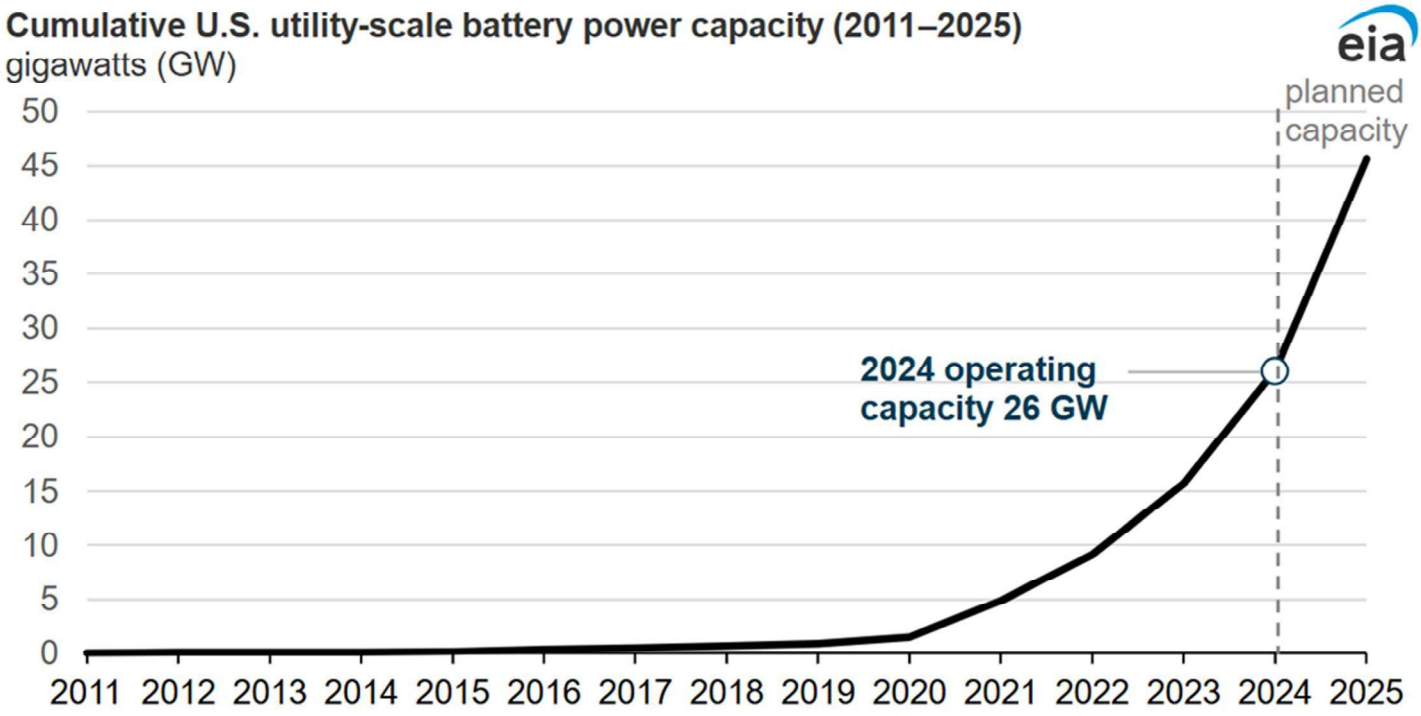
INSPECTION

Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.

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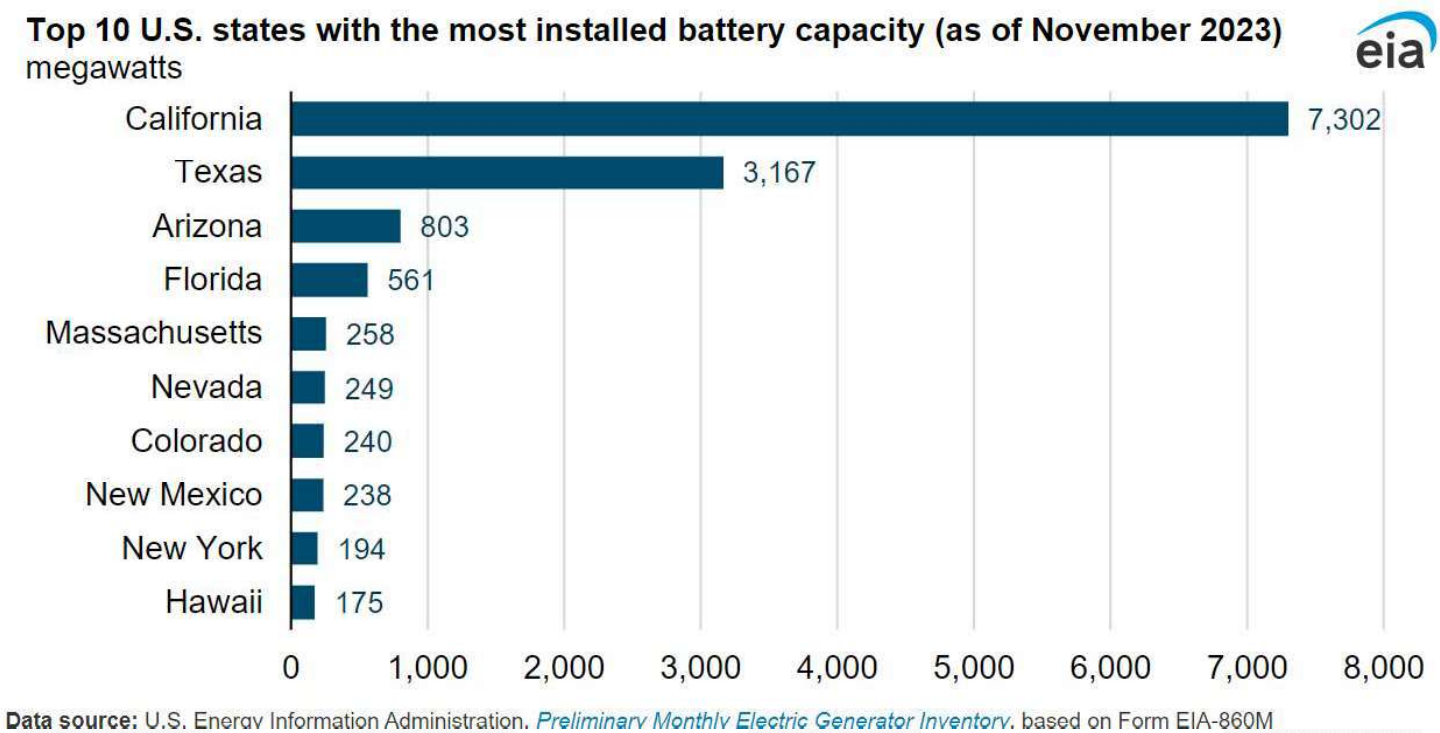
OVERVIEW OF BATTERY ENERGY STORAGE SYSTEM DEVELOPMENT IN THE UNITED STATES

Battery storage capacity increased almost exponentially since 2021 in the United States after being negligible prior to 2020. Prior to 2020, the largest U.S. battery storage facility was the 40 MW Vista Battery Energy Center, which we have studied and included our analysis in this report. As more battery capacity becomes operational, projects are expected to continue to be increasingly larger in capacity, with the largest operating facility as of March 2026 being the 500 MW Bellefield Energy Storage facility in California, which was completed in December 2025. The first large-scale battery storage facility in the U.S. began operating in 2020, the 250 MW Gateway Energy Storage System in California. Developers have scheduled an additional 41 large-scale battery projects, ranging from 200 MW to 621.4 MW that will all be operational by the end of 2026. The chart below portrays the historical increase on an annual basis of battery storage capacity in the US as a whole, courtesy of research by the U.S. Energy Information Agency (EIA).



The U.S. battery storage capacity will expand to more than 30 gigawatts (GW) by the end of 2026, an increase of nearly 88% of the existing battery storage capacity. The rapid growth of solar and wind capacity in Texas and California has been the main driver behind the growth in battery storage capacity in the United States. As of November 2023, per the U.S. Energy Information Administration, California has the most battery storage capacity of any state with 7.3 GW, followed by Texas with 3.2 GW of battery storage capacity. All other states have a combined 3.5 GW of installed battery storage capacity in comparison.

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Data source: U.S. Energy Information Administration, *Preliminary Monthly Electric Generator Inventory*, based on Form EIA-860M

Battery energy storage systems offer a wide array of economic and environmental benefits to surrounding properties. Unlike other energy sources, battery energy storage facilities do not produce emissions that may cause negative health effects or environmental damage. Battery energy storage systems do not produce localized pollution and can even reduce air pollution from conventional power plants or emergency generators by reducing the need for these resources.[2]

Battery energy storage facilities create a variety of jobs which include software coding, manufacturing, installation and maintenance. While most of the jobs created can be located off-site, policies can help encourage local job creation. It is project that by 2050 over 330,000 jobs would be created as a result of battery energy storage projects in North America.[3] Beyond creating jobs, battery energy storage system construction in rural areas has also dramatically increased the tax value of the land on which they are built, which has provided a financial boost to some counties. By converting farmland to a passive battery storage use for the duration of the system's life, the battery storage use does not burden school systems, utilities, traffic, nor infrastructure as it is a passive use that does not increase population as say, a residential subdivision would.

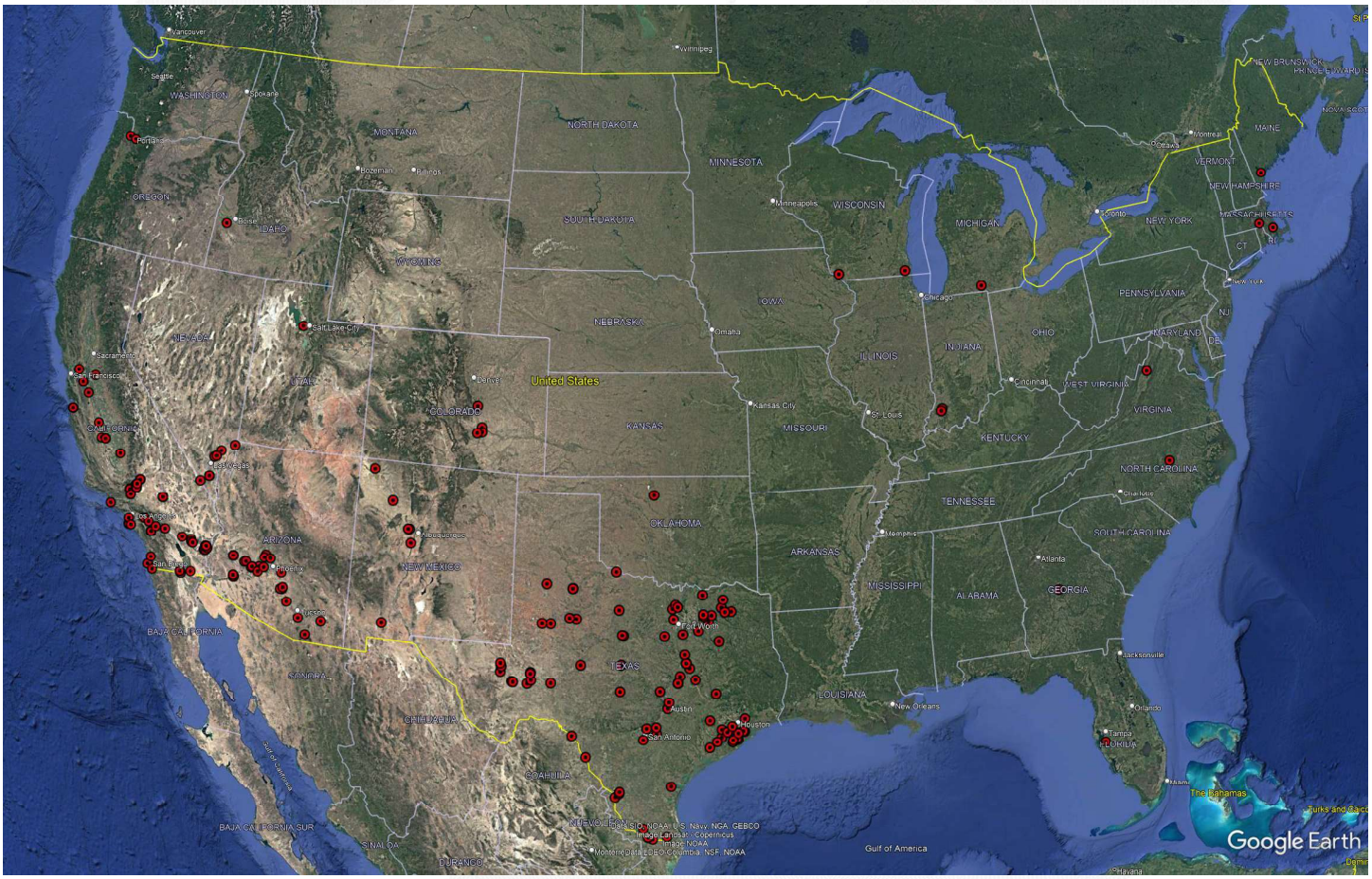
[2] https://www.ucsusa.org/sites/default/files/2021-10/energy_storage_FAQ_English.pdf
[3] https://www.ucsusa.org/sites/default/files/2021-10/energy_storage_FAQ_English.pdf

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NATIONAL UTILITY-SCALE BATTERY ENERGY STORAGE

As of May 2026, the U.S. has the capacity to store over 49,121 megawatts (MW) of power each year, according to the U.S. Energy Information Administration (EIA), in ±1,070 unique battery energy storage facilities. For utility scale battery energy storage systems, the number of facilities that have storage capacity over 5 MW of power accounts for 62.6 percent of all battery energy storage facilities, nationwide, whereas 98.2 percent of battery energy storage capacity in the country comes from utility scale facilities, overall.

A map illustrating existing battery energy storage systems with capacities greater than 100 MW is presented below (indicated by red pins), using data retrieved from the EIA.



It should be noted that there are 142 battery energy storage systems currently planned across the United States over 200 MW. These projects are located throughout the United States, the largest of which are the 1,200 MW Sunstone Project in Morrow County, Oregon and the 1,200 MW Hop Hill Generation and BESS Project in Benton County, Washington, both of which are still under the approval process.

There is currently just one published research study on the impacts of battery energy storage systems on property values, thus CohnReznick is undertaking this research based on our history of other impact study work.

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We note that CohnReznick has researched property transactions adjacent to existing solar farms, researched and analyzed articles and other published studies, and interviewed real estate professionals and Township/County Assessors active in the market where solar farms are located, to gain an understanding of actual market transactions in the presence of solar energy uses. The data has indicated that there is no trend of negative impacts on adjacent property values, based on their location near solar energy facilities.

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BATTERY ENERGY STORAGE CAPACITY IN NEW YORK

As of May 2026, per the U.S. Energy Information Administration, New York has 262.7 MW of battery energy storage capacity installed. There are currently 12 battery energy storage systems planned in New York which include the 300 MW NISA Electric Generation Project in Kings County, which has received regulatory approval and is expected to be operational by October 2028.

Per the U.S. Energy Information Administration, New York has 55 battery energy storage facilities in operation, six of which are greater than 5 MW, ranging between 5.6 MW and 24.7 MW. The largest of which, Orangeville Storage (24.7 MW), located in Wyoming County, became fully operational in October 2022. The other battery energy storage systems in operation greater than 5 MW include:

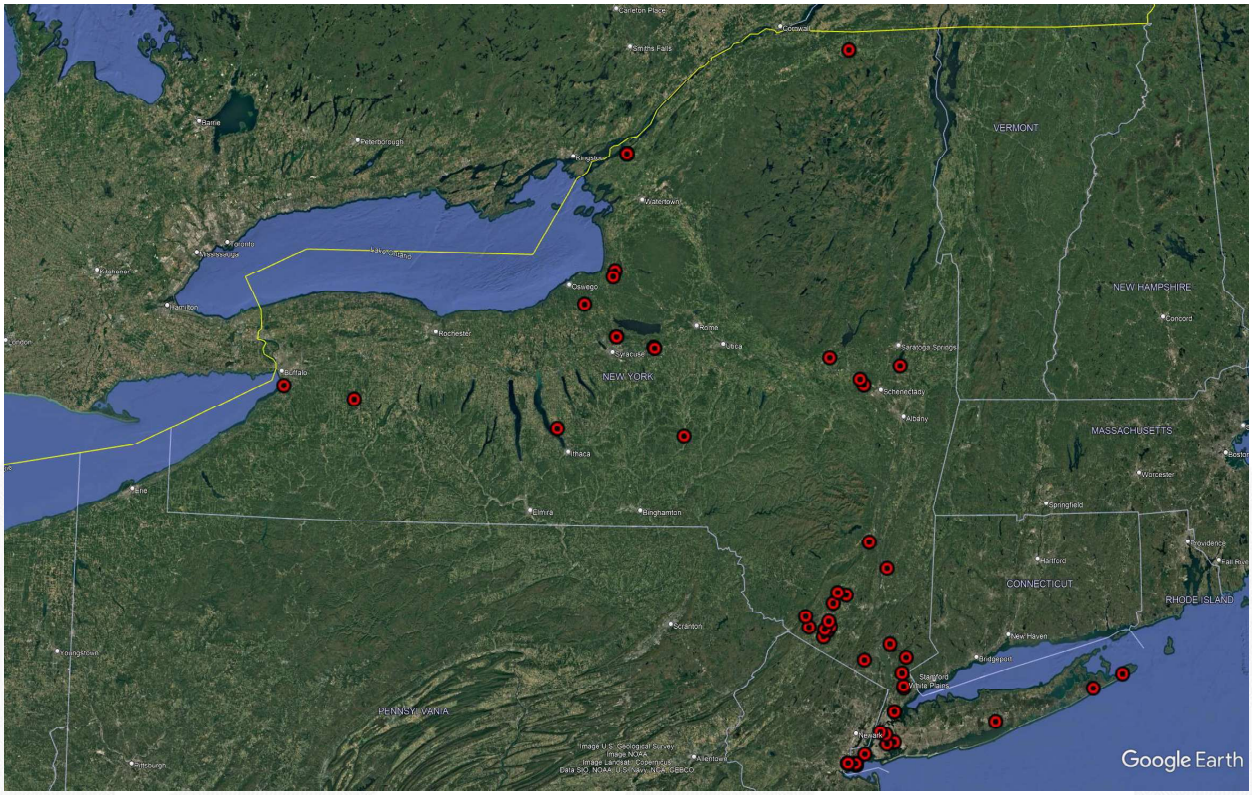
- The 20 MW Willis Battery Storage in Franklin County, completed in July 2023;
- the 20 MW NY6 Battery Project in Erie County, completed in May 2023;
- the 20 MW KCE NY 1 Project in Saratoga County, completed in March 2019;
- the 7.5 MW Fox Hills Battery Station in Richmond County, completed in September 2023; and
- the 5.6 MW Brownsville Energy Storage System in Kings County, completed in September 2025.

None of these facilities had any relevant transactions after the completion of the facility which we were able to study, primarily due to the recent date they were placed in operation.

However, we note that the Warwick BESS project in Orange County, New York, consisting of three 4-MW battery energy storage facilities, experienced one residential sale transaction immediately adjacent to the project after it became operational in May 2023. The property, located at 54 Colonial Avenue in Warwick, is a 4,065-square-foot single-family residence situated on a 1.80-acre lot and constructed in 2016. The property sold in August 2023 for $1,350,000, reflecting a price of approximately $332 per square foot of living area.

A map of the operating battery energy storage facilities in New York is presented on the following page.

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APPRAISAL THEORY – ADAJCENT PROPERTY'S IMPACT ON VALUE

According to Randall Bell, PhD, MAI, author of text *Real Estate Damages,* published by the Appraisal Institute in 2016, understanding the market's perceptions on all factors that may have an influence on a property's desirability (and therefore its value) is essential in determining if a diminution or enhancement of value has occurred.[4] According to Dr. Bell:

> *"There is often a predisposition to believe that detrimental conditions automatically have a negative impact on property values. However, it is important to keep in mind that if a property's value is to be affected by a negative condition, whether internal or external to the property, that condition must be given enough weight in the decision-making process of buyers and sellers to have a material effect on pricing relative to all the other positive and negative attributes that influence the value of that particular property."*[5]

Market data and empirical research through the application of the three traditional approaches to value should be utilized to estimate the market value to determine if there is a material effect on pricing due, to the influence of a particular characteristic of or on a property.

A credible impact analysis is one that is logical, innate, testable and repeatable, prepared in conformity with approved valuation techniques. In order to produce credible assignment results, more than one valuation technique should be utilized for support for the primary method, or a check of reasonableness, such as utilization of more than one approach to value, conducting a literature review, or having discussions (testimony) with market participants.[6] CohnReznick implemented the scientific method[7] to determine if a detrimental condition of proximity to a battery energy storage systems exists, further described in the next section.

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[4] Bell, Randall, PhD, MAI. *Real Estate Damages. Third ed.* Chicago, IL: Appraisal Institute, 2016. (Pages 1-2)
[5] Ibid, Page 314
[6] Ibid, Pages 7-8
[7] The scientific method is a process that involves observation, development of a theory, establishment of a hypothesis, and testing. The valuation process applies principles of the scientific method as a model, based upon economic principles (primarily substitution) as the hypothesis. The steps for the scientific method are outlined as follows:

1. Identify the problem.
2. Collect relevant data.
3. Propose a hypothesis.
4. Test the hypothesis.
5. Assess the validity of the hypothesis.

Bell, Randall, PhD, MAI. *Real Estate Damages. Third ed.* Chicago, IL: Appraisal Institute, 2016. (Pages 314-316)

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METHODOLOGY

The purpose of this report is to determine whether proximity to the battery energy storage facility resulted in any measurable and consistent impact on adjacent property values. To test this hypothesis, CohnReznick identified three relevant techniques to test if a detrimental condition exists.

(1) A review of published studies;
(2) Paired sale analysis of properties adjacent to existing battery energy storage facilities, which may include repeat sale analyses or "Before and After" analyses; and,
(3) Interviews with real estate professionals and local real estate assessors.

The paired sales analysis is an effective method of determining if there is a detrimental impact on surrounding properties.

> *"One of the most useful applications of the sales comparison approach is paired sale analysis. This type of analysis may compare the subject property or similarly impacted properties called* ***Test Areas*** *(at Points B, C, D, E, or F) with unimpaired properties called* ***Control Areas*** *(Point A). A comparison may also be made between the unimpaired value of the subject property before and after the discovery of a detrimental condition. If a legitimate detrimental condition exists, there will likely be a* ***measurable and consistent difference*** *between the two sets of market data; if not, there will likely be no significant difference between the two sets of data. This process involves the study of a group of sales with a detrimental condition, which are then compared to a group of otherwise similar sales without the detrimental condition."*[8]

As an approved method, paired sales analysis can be utilized to extract the effect of a single characteristic on value. By definition, paired data analysis is "a quantitative technique used to identify and measure adjustments to the sale prices or rents of comparable properties; to apply this technique, sales or rental data on nearly identical properties is analyzed to isolate a single characteristic's effect on value or rent."[9] The text further describes that this method is theoretically sound when an abundance of market data, or sale transactions, is available for analysis.

Where data is available, CohnReznick has also prepared "Before and After" analyses or a Repeat Sale Analysis,[10] to determine if a detrimental impact has occurred.

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[8] Bell, Randall, PhD, MAI. *Real Estate Damages. Third ed.* Chicago, IL: Appraisal Institute, 2016. (Page 33)
[9] *The Appraisal of Real Estate 14th Edition.* Chicago, IL: Appraisal Institute, 2013.
[10] Another type of paired sales analysis involves studying the sale and subsequent resale of the same property. This method is used to determine the influence of time on market values or to determine the impact of a detrimental condition by comparing values before and after the discovery of the condition.
Bell, Randall, PhD, MAI. *Real Estate Damages. Third ed.* Chicago, IL: Appraisal Institute, 2016. (Page 35)

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SCOPE OF WORK

The scope of work utilized to test the hypothesis stated on the prior page is as follows:

1. Review published studies, assess credibility, and validity of conclusions;
2. Prepare paired sale analyses for existing battery energy storage systems as follows:
    2.1. Identify existing battery energy storage systems comparable to the proposed project to analyze;
    2.2. Define Test Area Sales and Control Areas Sales;
    2.3. Collect market data (sale transactions) for both Test Area and Control Area Sales;
    2.4. Analyze and confirm sales, including omission of sales that are not reflective of market value;
    2.5. Prepare comparative analysis of Test Area and Control Area sales, adjusting for market conditions;
    2.6. Interpret calculations; and
3. Conduct interviews with real estate professionals and local real estate assessors who have evaluated real property adjacent to existing battery energy storage systems.

The following bullet points summarize important elements to consider in our scope of work:

- Test Area Sales consists of sales that are adjacent to an existing battery energy storage facility. Ownership and sales history for each adjoining property to an existing battery energy storage system through the effective date of this report is maintained within our workfile. Adjoining properties with no sales data or that sold prior to the announcement of the battery energy storage system were excluded from further analysis.

- Control Area Sales are generally located in the same market area, although varies based on the general location of the existing battery energy storage system under analysis. In rural areas, sales are identified first within the township, and expands radially outward through the county until a reliable set of data points is obtained.

- Control Area Sales are generally between 12 and 18 months before or after the date of the Test Area Sale(s), and are comparable in physical characteristics such as age, condition, style, and size.

- Sales of properties that sold in a non-arm's length transaction (such as a transaction between related parties, bank-owned transaction, or between adjacent owners) were excluded from analysis as these are not considered to be reflective of market value, as defined earlier in this report. The sales that remained after exclusions were considered for a paired sale analysis.

- The methodology employed in this report for paired sale analysis does not rely on multiple subjective adjustments that are typical in many appraisals and single-paired sales analyses. Rather, the methodology remains objective, and the only adjustment required is for market conditions;[11] the analysis

[11] Adjusting for market conditions is necessary as described in The Appraisal of Real Estate 14th Edition as follows: "Comparable sales that occurred under market conditions different from those applicable to the subject on the effective date of appraisal require adjustment

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relies upon market conditions trends tracked by credible agencies such as the Federal Housing Finance Agency ("FHFA"), who maintains a House Price Index ("HPI")[12] for macro and micro regions in the United States. A market conditions adjustment is a variable that affects all properties similarly and can be adjusted for in an objective manner.

- To make direct comparisons, the sale price of the Control Area Sales was adjusted for market conditions to a common date. In this analysis, the common date is the date of the Test Area Sale(s). After adjustment, any measurable difference between the sale prices would be indicative of a possible price impact by the battery energy storage facility.

- If there is more than one Test Area Sale to evaluate, the sales are grouped if they exhibit similar transactional and physical characteristics; otherwise, they are evaluated separately with their own respective Control Area Sale groups.

for any differences that affect their values. An adjustment for market conditions is made if general property values have increased or decreased since the transaction dates."

[12] The FHFA HPI is a weighted, repeat-sales index, meaning that it measures average price changes in repeat sales or re-financings on the same properties. This information is obtained by reviewing repeat mortgage transactions on single-family properties whose mortgages have been purchased or securitized by Fannie Mae or Freddie Mac since January 1975. The FHFA HPI serves as a timely, accurate indicator of house price trends at various geographic levels. Because of the breadth of the sample, it provides more information than is available in other house price indexes.

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TECHNIQUE 1: REVIEW OF PUBLISHED STUDIES

The following is a discussion of the sole study that considers the impact of battery energy storage systems on surrounding property values.

i. In May 2025 a study prepared by Yixen Gwee of **University of Pennsylvania's** Wharton Research Scholars was published, "The Impact of Utility-scale Battery Energy Storage System Project on Property Values in California, Massachusetts, and New York". The study examined 178 utility-scale battery energy storage systems ("BESS") in the states of CA, MA, and NY, that were completed between 2012 and 2023. The study utilized a hedonic difference-in-differences (DiD) model to compare home sale prices within 0.75-miles of operational BESS projects "treatment groups", to comparable home sale prices between 0.75-1.50 miles from the same operational BESS projects for "control groups". ***The study finds no statistically significant impact on property values as a result of proximity to operational BESS projects, with results robust across individual event studies.***

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TECHNIQUE 2: PAIRED SALE ANALYSIS

BESS 1: MARENGO BESS, MCHENRY COUNTY, IL

Coordinates: 42.252733, -88.63998

PINs: 11-34-100-027 & 11-34-100-017

Total Land Size: Approximately 8.21-acres

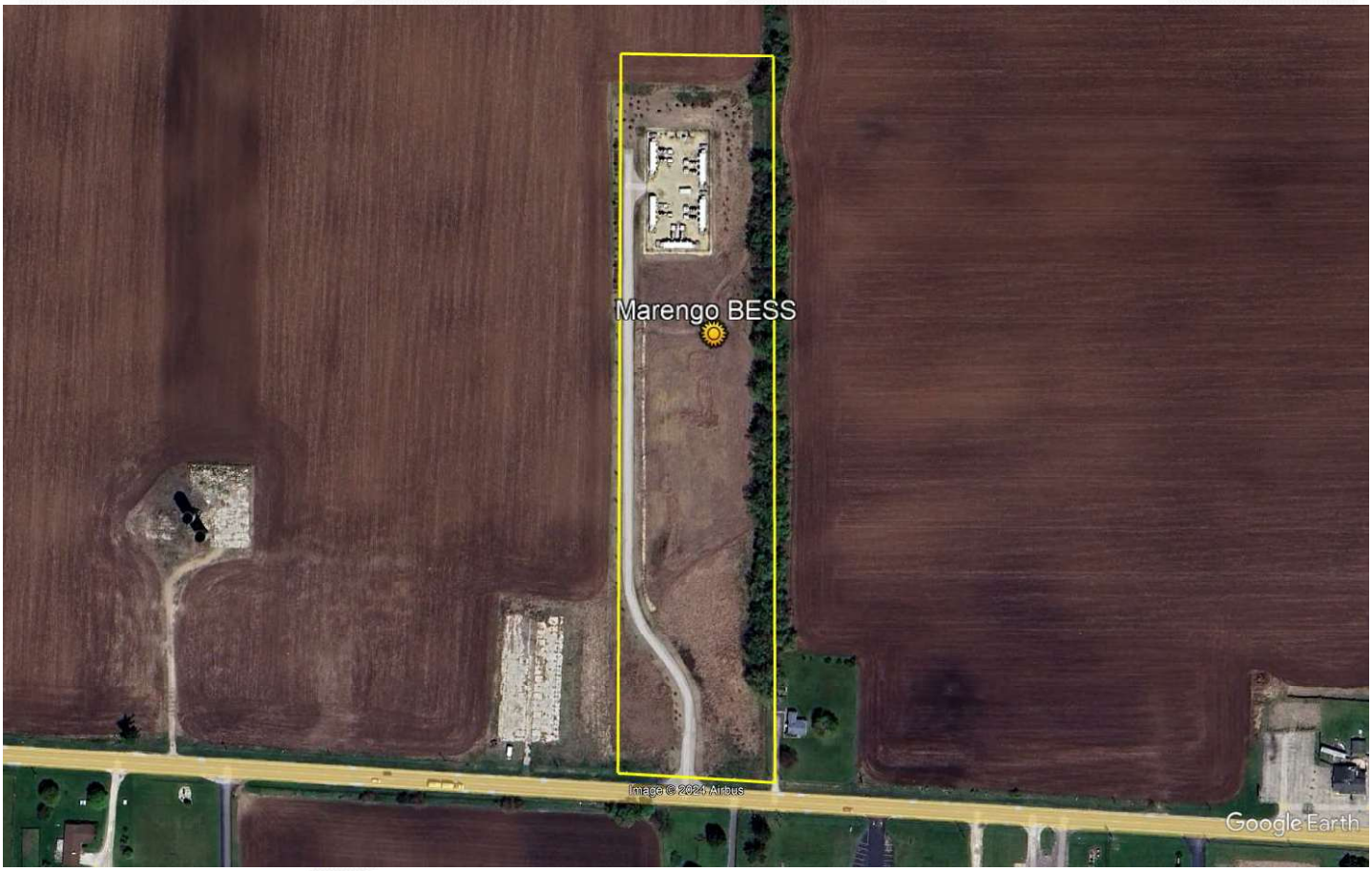
Population Density: 514 people per square mile (McHenry County)

Date Project Announced: December 2015

Date Project Completed: December 2018

Storage Capacity: 20 MW





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The Marengo Battery Energy Storage System ("Marengo BESS" or "the Project") is located in McHenry County, Illinois. The current owner of the battery storage facility is an affiliate of Swiss Green Electricity Management Holding SA and was developed in a partnership between Swiss Green Electricity Management Holding SA and GlidePath. The Marengo BESS went into operation in December 2018, approximately one year following the groundbreaking of the project. The Marengo BESS is interconnected with the local Commonwealth Edison Company (ComEd) electric grid and provides real-time frequency regulation to deliver higher quality electrical service at a lower cost to end-users.

The Surrounding Area: The Marengo BESS is located in the City of Marengo in the southwestern portion of McHenry County, Illinois. McHenry County is located in northeastern Illinois. As of May 2026, per the U.S Energy Information Administration, the Marengo BESS is one of nine battery energy storage systems in Illinois, one of two battery energy storage systems in the County and is second largest battery energy storage system in the State. The other battery energy storage system in the county, McHenry BESS, has a capacity of 19.8 MW and was completed in December 2015. The largest battery energy storage system in Illinois is the 35 MW Grand Ridge Battery Project, developed by Invenergy Services, and is located in LaSalle County.

The Immediate Area: Surrounding land uses consist of agricultural land, single-family residential homes, a church and industrial uses. The Project is located approximately 1.5-miles west of the center of the more densely developed neighborhoods of the City of Marengo. The immediate area is characterized as primarily farmland and there has been little new development over the past 15 years. As such, the Project is not located in the path of development in Marengo.

Real Estate Tax Info:

In 2015, prior to the property being assessed as a battery storage facility, the assessed value of the underlying land was $381 and ownership paid $38 in real estate taxes. After the completion of the Marengo BESS project in December 2018, the 2019 assessed value increased to $684 and ownership paid $309 in real estate taxes, an increase of 711.06 percent. We note that the underlying land parcel 11-34-100-027 was the result of a parcel split in 2016 from the parent parcel of 11-34-100-020 and we have utilized the assessed value and real estate taxes for the 2015 tax year in our analysis below.

Pin	Acres
McHenry County, IL	
11-34-100-027*	2.2
11-34-100-017	6.0
Total	8.2

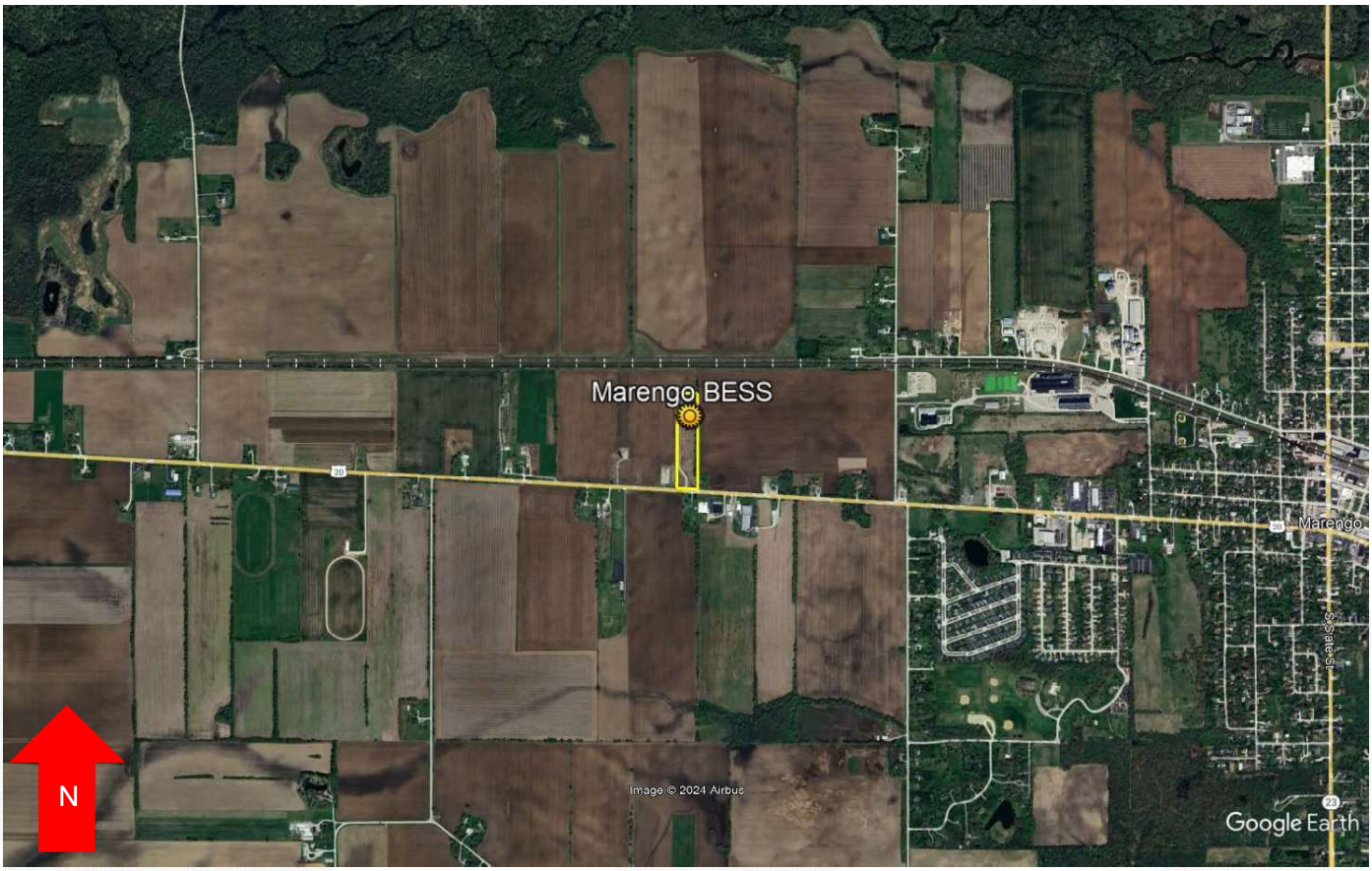
2015 Taxes Paid	2019 Taxes Paid	Tax Increase
$0	$135	-
$38	$174	355.78%
$38	$309	711.06%

2015 Assessed Value	2019 Assessed Value	Value Increase
$0	$176	-
$381	$508	33.33%
$381	$684	79.53%

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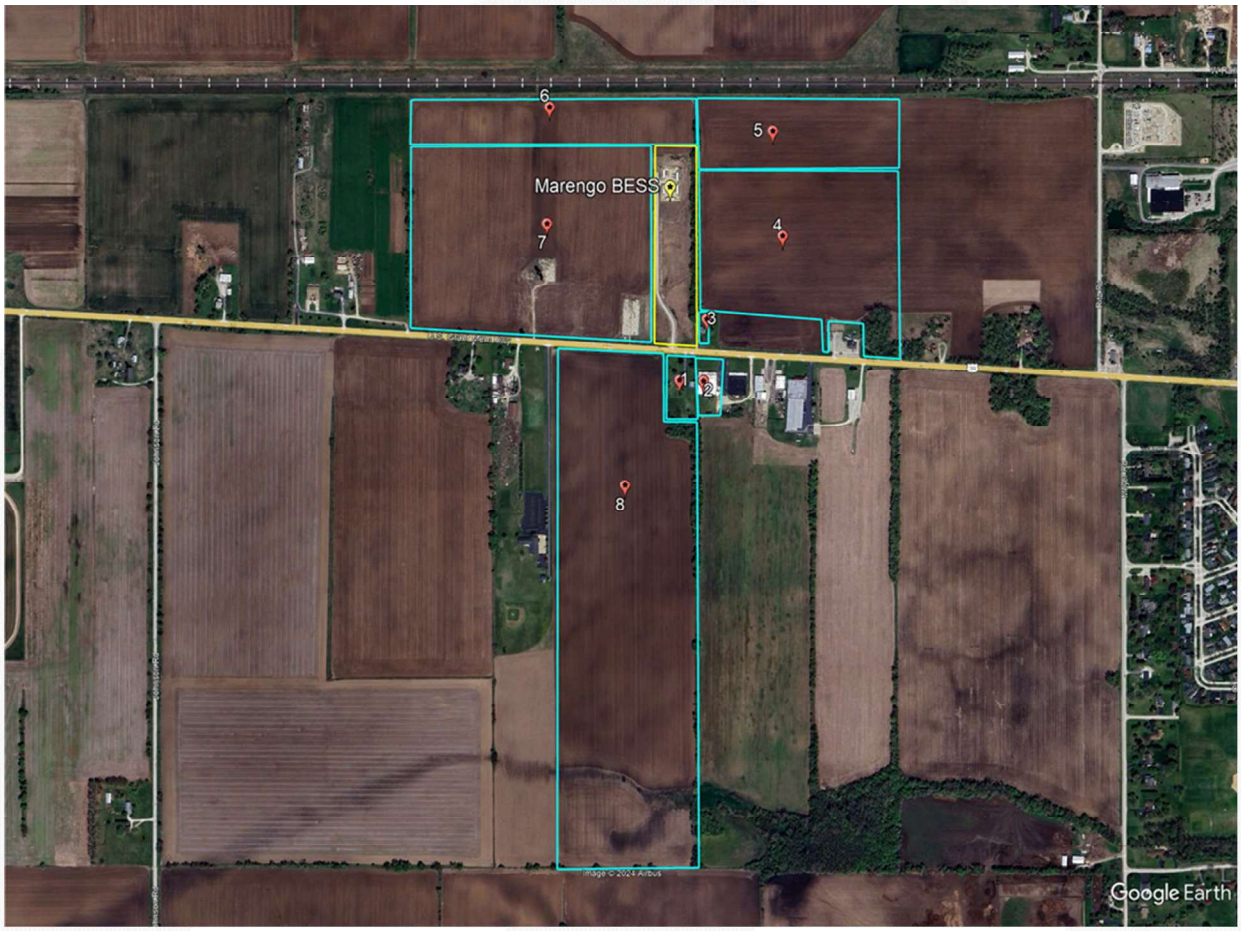
The following map displays the parcels located within the battery energy storage system (outlined in yellow).



Aerial imagery retrieved from Google Earth, dated October 2022

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The following maps display the parcel located within the BESS (outlined in yellow). Properties adjoining the battery storage energy system parcels (outlined in blue) are numbered for subsequent analysis.



Marengo BESS – Adjoining Properties

PAIRED SALES ANALYSIS

We identified one single-family Adjoining Property that sold since the Marengo BESS started operation in December 2018: One single-family residential property has sold since the Marengo BESS started operation, Adjoining Property 1 has sold twice since the Marengo BESS started operation and each sale has been analyzed seperately (Groups 1a & 1b).

We identified single-family residential Control Area Sale (Groups 1a & 1b) data through the Midwest Real Estate Data (Illinois Regional) MLS database. We have verified these sales through county records and conversations with brokers and sellers. We have excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related properties. It is important to note that these Control Area Sales are not adjoining to any battery storage facility, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the Marengo BESS use could have impacted the sales prices of these properties.

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Group 1a – Improved Single-Family Residential Properties

Adjoining Property 1 to the Marengo Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1a. Adjoining Property 1 was renovated between the 2019 sale this 2023 transaction with work including a conversion of a half bathroom to a full bathroom and small expansion of the livable square footage from 1,400 feet to 1,700 feet. The improvements on the property are located 1,140 feet to the Marengo BESS and the property line is 1,000 feet from the Marengo BESS.

SUMMARY OF TEST AREA SALE - GROUP 1a Marengo BESS										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
1	22619 W. Grant Highway	$347,000	3	2.0	1971	1,700	1-Story SFH with a 2-Car Attached Garage, Full Unfinished Basement, Pole Barn/Detached Garage and Shed/Workshop	2.00	$204.12	Oct-23

We analyzed five Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the BESS, that sold within a similar time frame from the sale date of the Test Area Sale in Group 1a. The Control Area Sales for Group 1a are single-family homes with three bedrooms and two baths, consist of between 1,640 square feet and 2,438 square feet of gross living area, a lot size between 1.11 and 2.40-acres (median lot size of 1.49-acres), and contain garage parking. Additionally, the Control Area Sales for Group 1a are all located within Marengo School District 154.



Marengo BESS – Test Area Sale Map, Group 1a

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The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Marengo BESS Project – Group 1a is presented below.

CohnReznick Paired Sale Analysis Marengo BESS - Group 1a		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$204.12
Control Area Sales (5)	No: Not adjoining BESS	$204.51
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-0.19%**

The days on market for the Test Area Sale was 48 days on market, while the median days on market for the Control Area sales was 52 days (ranging from 48 to 211 days), ***and we note no substantial marketing time differential.***

Noting no negative price differential, it does not appear that the Marengo BESS use impacted the sale price of the Test Area Sale, Adjoining Property 1.

Group 1b – Improved Single-Family Residential Properties

Adjoining Property 1 to the Marengo Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1b. The improvements on the property are located 1,140 feet to the Marengo BESS and the property line is 1,000 feet from the Marengo BESS. This represents the prior sale of Adjoining Property 1, prior to its renovation and expansion.

SUMMARY OF TEST AREA SALE - GROUP 1b Marengo BESS										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
1	22619 W. Grant Highway	$200,000	3	1.5	1971	1,400	1-Story SFH with a 2-Car Attached Garage, Full Unfinished Basement, Pole Barn/Detached Garage and Shed/Workshop	2.00	$142.86	Sep-19

We analyzed 13 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the BESS, that sold within a similar time frame from the sale date of the Test Area Sale in Group 1b. The Control Area Sales for Group 1b are single-family homes with three bedrooms and between one and a half and three baths, consist of between 1,200 square feet and 2,052 square feet of gross

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living area, a lot size between 1.00 and 2.50-acres (median lot size of 1.53-acres), and contain garage parking. Additionally, the Control Area Sales for Group 1b are all located within Marengo School District 154.

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Marengo BESS Project – Group 1b is presented below.

CohnReznick Paired Sale Analysis Marengo BESS - Group 1b		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$142.86
Control Area Sales (7)	No: Not adjoining BESS	$139.58
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**2.35%**

The days on market for the Test Area Sale was 101 days on market, while the median days on market for the Control Area sales was 70 days (ranging from 43 to 106 days), ***and we note no substantial marketing time differential.***

Noting no negative price differential, it does not appear that the Marengo BESS use impacted the sale price of the Test Area Sale, Adjoining Property 1 in Group 1b.

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Before & After Analysis – Marengo Battery Energy Storage System

We note the Test Area Sale in Group 1 of the Marengo Battery Energy Storage System (Adjoining Property 1) has sold at least twice over a five year period. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Maregno Battery Energy Storage System, we prepared a Repeat-Sales Analysis on the identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for Indiana's 601 Three Digit Zip Code, where Adjoining Property 1 is located, over the same period. The index for the zip code is measured on a quarterly basis and is presented below.

601 Three Digit Zip Code - Housing Pricce Index Change (Quarter over Quarter) Not Seasonally Adjusted			
Three-Digit ZIP Code	Year	Quarter	Index (NSA)
601	2015	1	148.7
601	2015	2	150.92
601	2015	3	151.41
601	2015	4	151.87
601	2016	1	152.58
601	2016	2	155.54
601	2016	3	157.41
601	2016	4	159.19
601	2017	1	158.97
601	2017	2	162.84
601	2017	3	164.28
601	2017	4	164.49
601	2018	1	166.12
601	2018	2	167.65
601	2018	3	168.91
601	2018	4	168.26
601	2019	1	169.45
601	2019	2	171.82
601	2019	3	173.13
601	2019	4	173.97
601	2020	1	174.39
601	2020	2	175.39
601	2020	3	177.34
601	2020	4	179.48
601	2021	1	181.7
601	2021	2	190.35
601	2021	3	197.52
601	2021	4	200.72
601	2022	1	207.1
601	2022	2	221.14
601	2022	3	221.53
601	2022	4	220.56
601	2023	1	221.81
601	2023	2	232.85
601	2023	3	239.02
600	2023	4	223.58
600	2024	1	226.12

We have presented the full repeat sales analysis on the following page.

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Repeat Sales Analysis - Test Area Sales											601 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Months Elapsed Between Sales	Monthly Appreciation Rate
1	22619 W. Grant Highway	2.00	1,700	10/20/2023	$347,000	9/13/2019	$200,000	73.50%	49	1.13%	223.58	173.13	49	0.52%
	Median - Test Area Sales									***1.13%***				***0.52%***

Repeat Sales Analysis - Control Area Sales											601 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Months Elapsed Between Sales	Monthly Appreciation Rate
G1a-C5	19016 Kishwaukee Valley Road	1.49	1,656	10/14/2022	$312,900	10/8/2020	$234,900	33.21%	24	1.19%	220.56	179.48	24	0.86%
G1b-C1	5814 Meyer Road	1.00	1,400	9/17/2020	$200,000	3/30/2015	$142,000	40.85%	66	0.52%	177.34	148.70	66	0.11%
G1b-C4	20107 W. Coral Road	1.62	2,052	6/5/2020	$227,325	9/13/2016	$187,000	21.56%	45	0.44%	175.39	157.41	45	0.24%
	Median - Control Area Sales	*1.49*	*1,656*							***0.52%***				***0.24%***

Conclusion

When compared to the FHFA home price index for the 601-zip code, the extraction rate for the resale of Adjoining Property 1, that sold twice in the previous five years, exhibited a higher rate of appreciation than the Home Price Index for the 601-zip code. Similarly, the Control Area Sales exhibited a higher rate of appreciation than the Home Price Index for the 601-zip code, as depicted by the far-right column in the table above. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Marengo Battery Energy Storage System.

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BESS 2: MCHENRY BESS, MCHENRY COUNTY, IL

Coordinates: 42.331411, -88.27435

PIN: 09-35-352-027

Total Land Size: Approximately 5.94-acres

Population Density: 514 people per square mile (McHenry County)

Date Project Announced: June 2015

Date Project Completed: December 2015

Storage Capacity: 19.8 MW





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The McHenry Battery Energy Storage System ("McHenry BESS" or "the Project") is located in McHenry County, Illinois and consists of eleven lithium ion batteries. The current owner of the battery energy storage system is EDF Renewables and was developed in a partnership between EDF Renewables and Renewable Energy Systems. The construction of the McHenry BESS commenced in June 2015 and was completed in December 2015. The McHenry BESS will participate in the regulation and capacity markets of the PJM Regional Transmission Organization (RTO).

The Surrounding Area: The McHenry BESS is located in the City of McHenry in the eastern portion of McHenry County, Illinois. McHenry County is located in northeastern Illinois. As of May 2026, per the U.S. Energy Information Administration, the McHenry BESS is one of nine battery energy storage systems in Illinois, one of two battery energy storage systems in the County and is fourth largest battery energy storage system in the State. The other battery energy storage system in the county, Marengo BESS has a capacity of 20 MW and was completed in December 2018. The largest battery energy storage system in Illinois is the 35 MW Grand Ridge Battery Project, developed by Invenergy Services, and located in LaSalle County.

The Immediate Area: Surrounding land uses consist of single-family residential homes, industrial uses and retail uses. The Project is located approximately 1.0-miles south of the center of the more densely developed commercial area of the City of McHenry. The immediate area is characterized as primarily residential and there has been little new development over the past 15 years. As such, the Project is not located in the path of development in McHenry.

The McHenry BESS is located adjacent to the west and south of the Edgebrook Heights residential subdivision. This subdivision consists of 179-single family homes that were constructed throughout the 1950's and 1960's. We have included an analysis of home sales within the Edgebrook Heights subdivision in Group 1 and Group 3, presented later in this study.

Real Estate Tax Info:

In 2015, prior to the property being assessed as a battery storage facility, the assessed value of the underlying land was $66,645 and ownership paid $8,740 in real estate taxes. After the completion of the Marengo BESS project in 2015, the 2016 assessed value increased to $342,750 and ownership paid $42,150 in real estate taxes, an increase of 382.24 percent. We note that the underlying land parcel was changed in 2015 from the parent parcel of 09-35-352-025 and we have utilized the assessed value and real estate taxes for the 2015 tax year in our analysis below.

Pin	Acres
McHenry, IL	
09-35-352-027*	2.8
Total	2.8

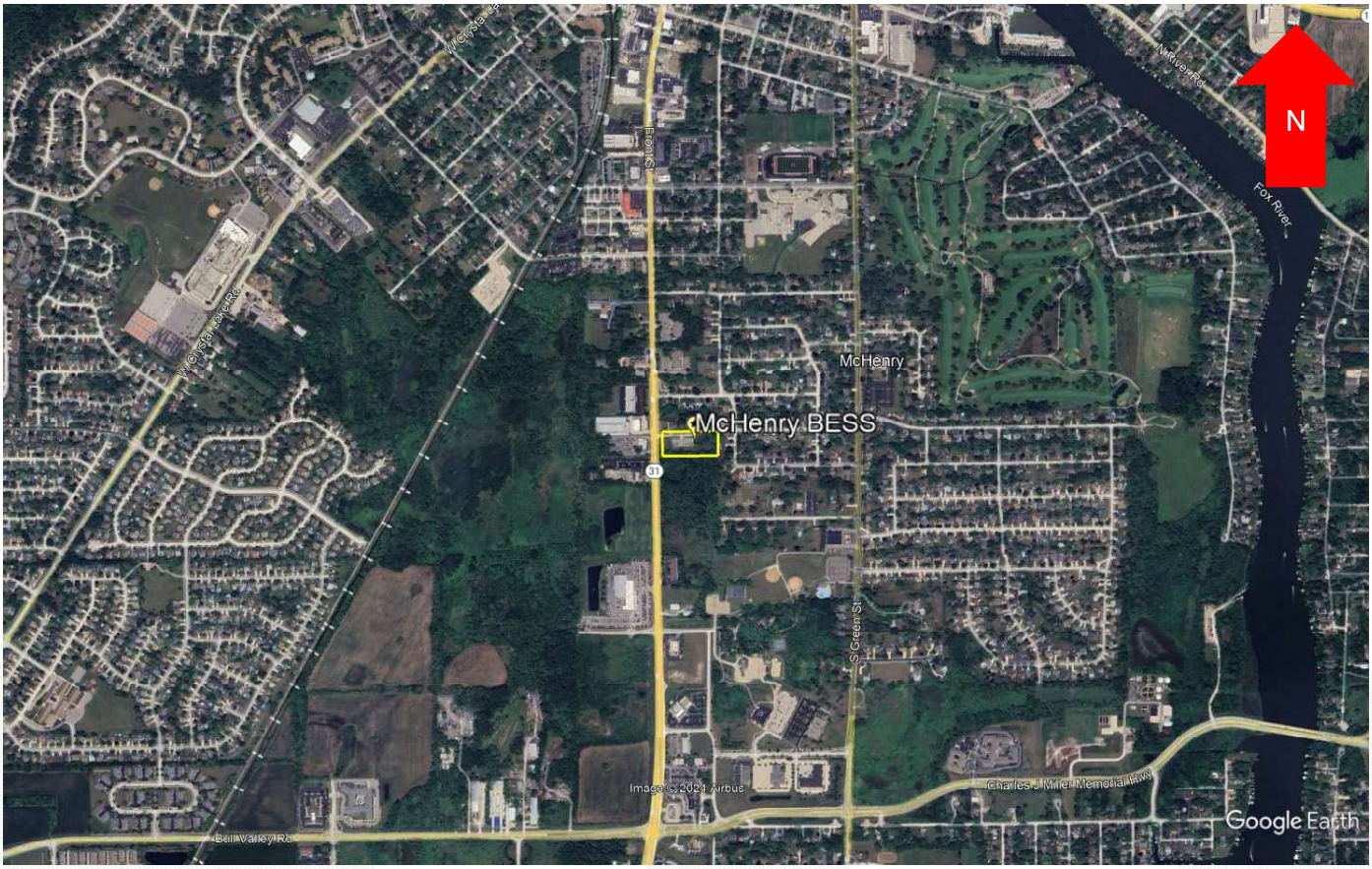
2015 Taxes Paid	2016 Taxes Paid	Tax Increase
$8,740	$42,150	382.24%
$8,740	$42,150	382.24%

2015 Assessed Value	2016 Assessed Value	Value Increase
$66,645	$342,750	414.29%
$66,645	$342,750	414.29%

The following map displays the parcels located within the battery energy storage system (outlined in yellow).

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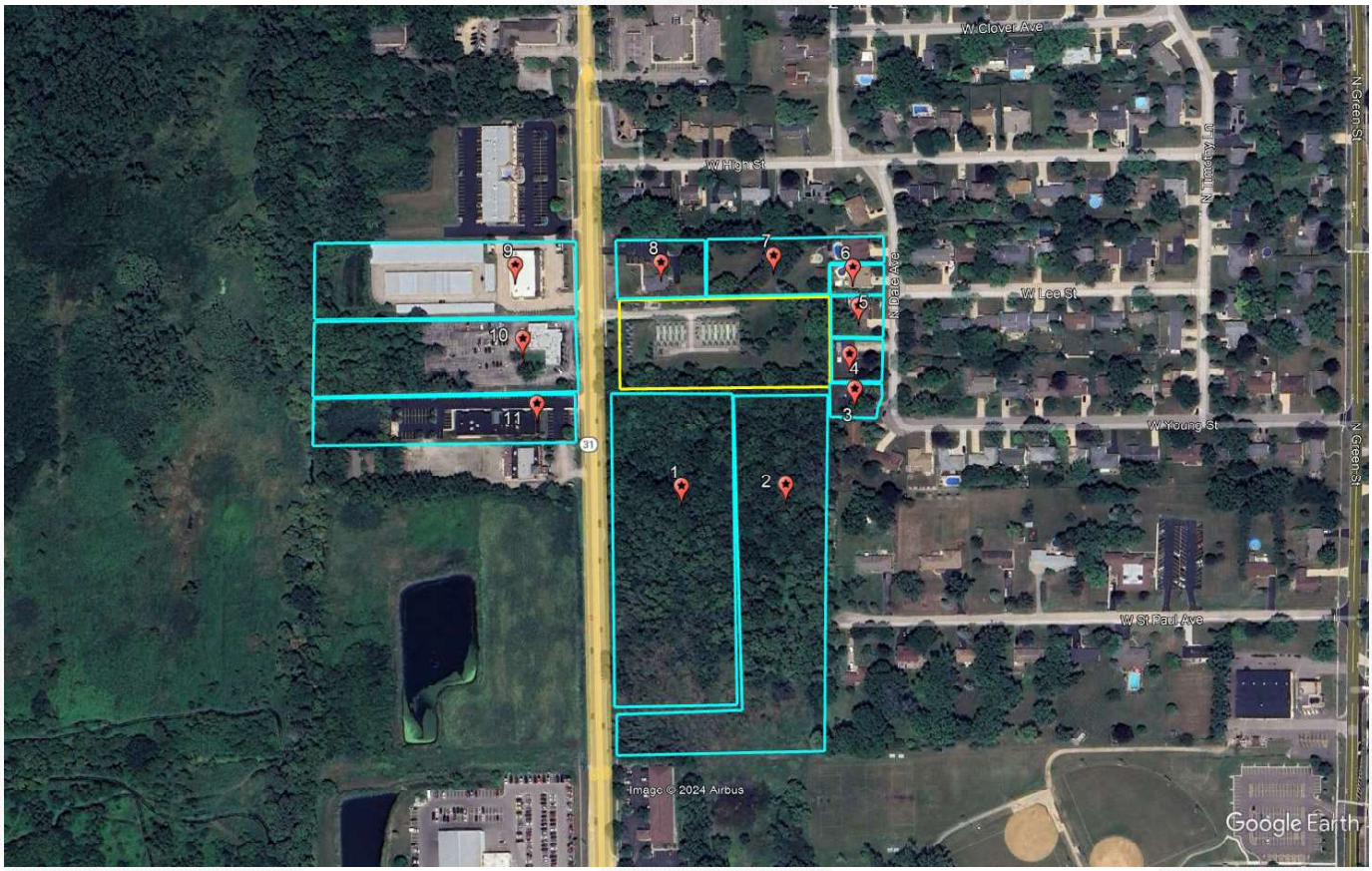
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Aerial imagery retrieved from Google Earth, dated July 2023

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The following maps display the parcel located within the BESS (outlined in yellow). Properties adjoining the battery energy storage system parcels (outlined in blue) are numbered for subsequent analysis.



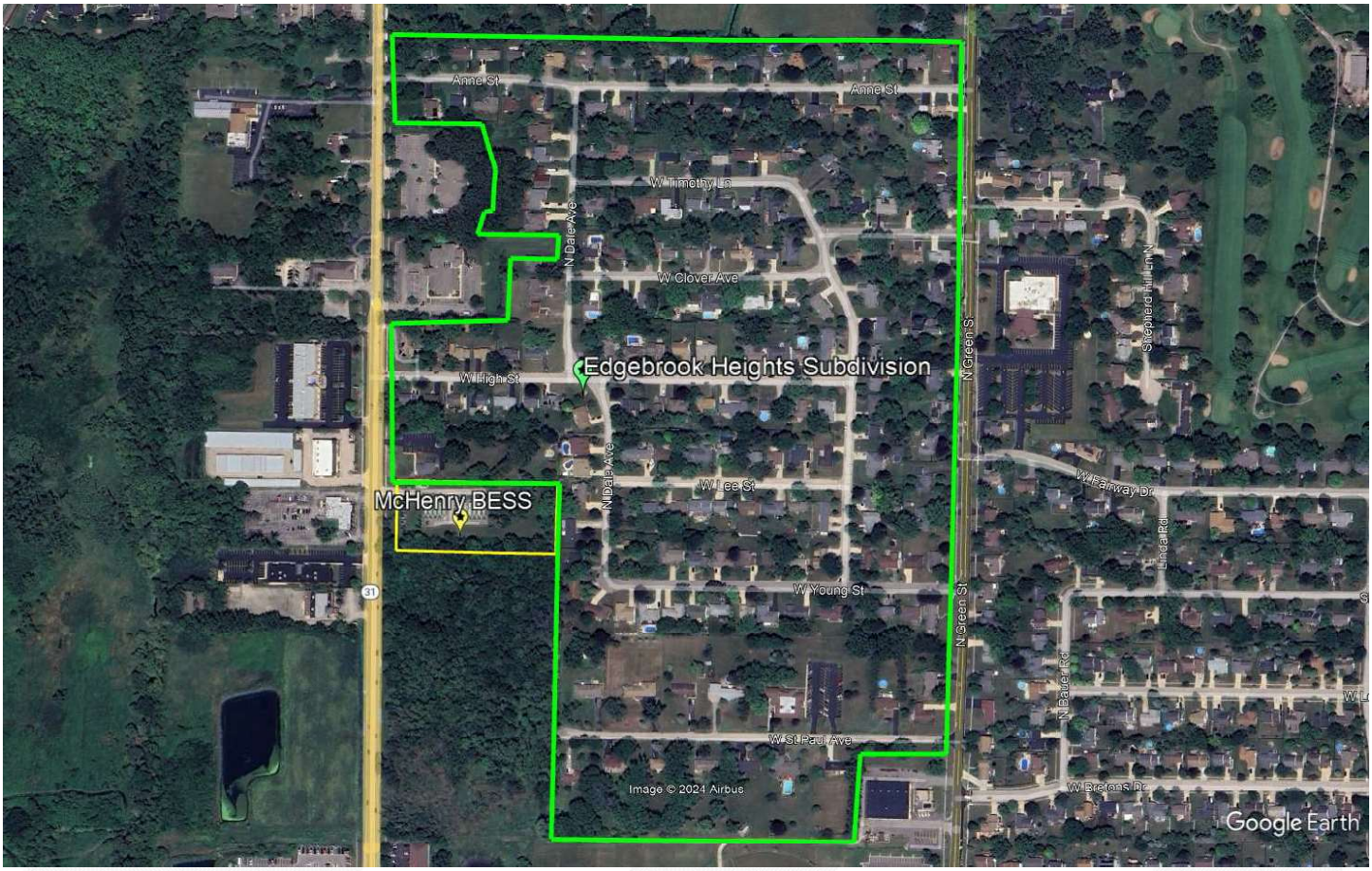
McHenry BESS – Adjoining Properties

PAIRED SALES ANALYSIS

In reviewing Adjoining Properties to study in a Paired Sale Analysis, one adjacent property sale was considered but eliminated from further consideration as discussed below.

The McHenry BESS is located adjacent to the south and west of the Edgebrook Heights subdivision, where Adjoining Properties 1 through 8 are located. The Edgebrook Heights subdivisions is made up of 179 freestanding single family that were constructed throughout the 1950's and 1960's. A map outlining the boundaries of the Edgebrook Heights subdivision (outlined in green) in relation to the McHenry BESS is presented below.

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We identified four Adjoining Properties that sold since the battery energy storage system started operation in December 2015: three single-family residential properties have sold since the battery storage facility started operation, Adjoining Properties 3, 4 and 7. We have not included the sale of Adjoining Property 11, a medical office building, in our analysis as this transaction was off-market.

We identified single-family residential Control Area Sale data through the Midwest Real Estate Data (Illinois Regional) MLS database. We have verified these sales through county records and conversations with brokers and sellers. We have excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related properties. It is important to note that these Control Area Sales are not adjoining to any battery storage facility, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the McHenry BESS use could have impacted the sales prices of these properties. Additionally, the Control Area Sales for Groups 1 and 3 are all located within the Edgebrook Heights subdivision.

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Group 1 – Improved Single-Family Residential Properties

Adjoining Property 3 to the McHenry BESS was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1. Adjoining Property 3 is a recently renovated single-family home with three bedrooms and two and a half bathrooms and an attached garage, located within the Edgebrook Heights subdvision of McHenry. The improvements on the property are located 315 feet to the nearest boundary of the McHenry BESS.

SUMMARY OF TEST AREA SALE - GROUP 1 McHenry Battery Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
3	209 N. Dale Avenue	$265,500	3	2.5	1960	1,437	1-Story SFH (Renovated 2020) with Attached Garage	0.25	$184.76	Jun-21

We analyzed four Control Area Sales of single-family homes with similar construction and use, located within the Edgebrook Heights subdivision and that were not located directly adjacent to the McHenry BESS, that sold within a similar time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are single-family homes with three bedrooms and between two and three baths, consist of between 1,090 square feet and 1,672 square feet of gross living area, a lot size between 0.25 and 0.30-acres (median lot size of 0.25-acres), and contain garage parking. Additionally, the Control Area Sales for Group 1 are all single story homes that were constructed between 1957 and 1968.



McHenry BESS – Test Area Sale Map, Group 1

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The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the McHenry – Group 1 is presented below.

CohnReznick Paired Sale Analysis McHenry BESS - Group 1		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$184.76
Control Area Sales (4)	No: Not adjoining BESS	$184.53
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**0.12%**

The days on market for the Test Area Sale was 48 days on market, while the median days on market for the Control Area sales was 46 days (ranging from 28 to 62 days), ***and we note no substantial marketing time differential.***

Noting no negative price differential, it does not appear that the McHenry BESS use impacted the sale price of the Test Area Sale, Adjoining Property 3.

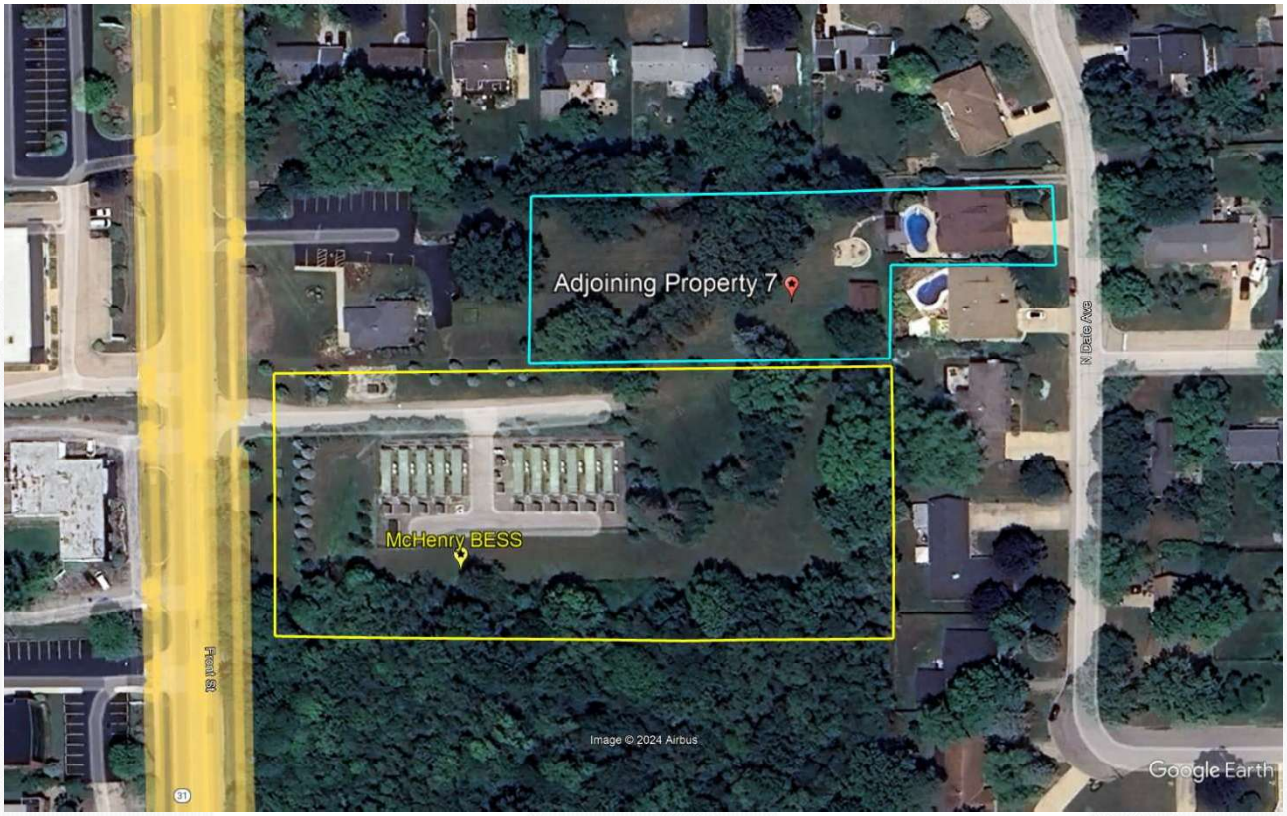
Group 2 – Improved Single-Family Residential Properties

Adjoining Property 7 to the McHenry BESS was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 2. Adjoining Property 7 is a three-story single family home with four bedrooms and three and a half bathrooms with an attached garage, swimming pool, workshop and partially finished basement located in McHenry. The improvements on the property are located 65 feet to the nearest boundary of the McHenry BESS.

SUMMARY OF TEST AREA SALE - GROUP 2 McHenry Battery Storage										
Adj. Property #	**Address**	**Sale Price**	**Beds**	**Baths**	**Year Built**	**Home Size (SF)**	**Improvements**	**Site Size (AC)**	**Sale Price / SF**	**Sale Date**
7	305 N. Dale Avenue	$400,000	4	3.5	1979	3,776	3-Story SFH with Attached 2-Car Garage, Swimming Pool, Workshop/Shed and Partially Finished Basement	1.65	$105.93	Sep-18

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We analyzed 20 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the McHenry BESS, that sold within a similar time frame from the sale date of the Test Area Sale in Group 2. The Control Area Sales for Group 2 are single-family homes consisting of between 3,052 square feet and 3,891 square feet of gross living area, a lot size between 0.53 and 2.17-acres, and contain a swimming pool. Additionally, the Control Area Sales for Group 2 are all located within McHenry County.



McHenry BESS – Test Area Sale Map, Group 2

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the McHenry BESS – Group 2 is presented on the following page.

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CohnReznick Paired Sale Analysis McHenry BESS - Group 2		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$105.93
Control Area Sales (20)	No: Not adjoining BESS	$96.57
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**9.70%**

The days on market for the Test Area Sale was 93 days on market, while the median days on market for the Control Area sales was 73 days (ranging from 28 to 303 days), ***and we note no substantial marketing time differential.***

We spoke with the listing agent of Adjoining Property 7, Shawn Strach of Dream Real Estate, who stated that the McHenry BESS had no influence on the owners decision to sell the property and ***the buyer did not have any concern about the McHenry BESS*** either.

Noting no negative price differential, it does not appear that the McHenry BESS use impacted the sale price of the Test Area Sale, Adjoining Property 7.

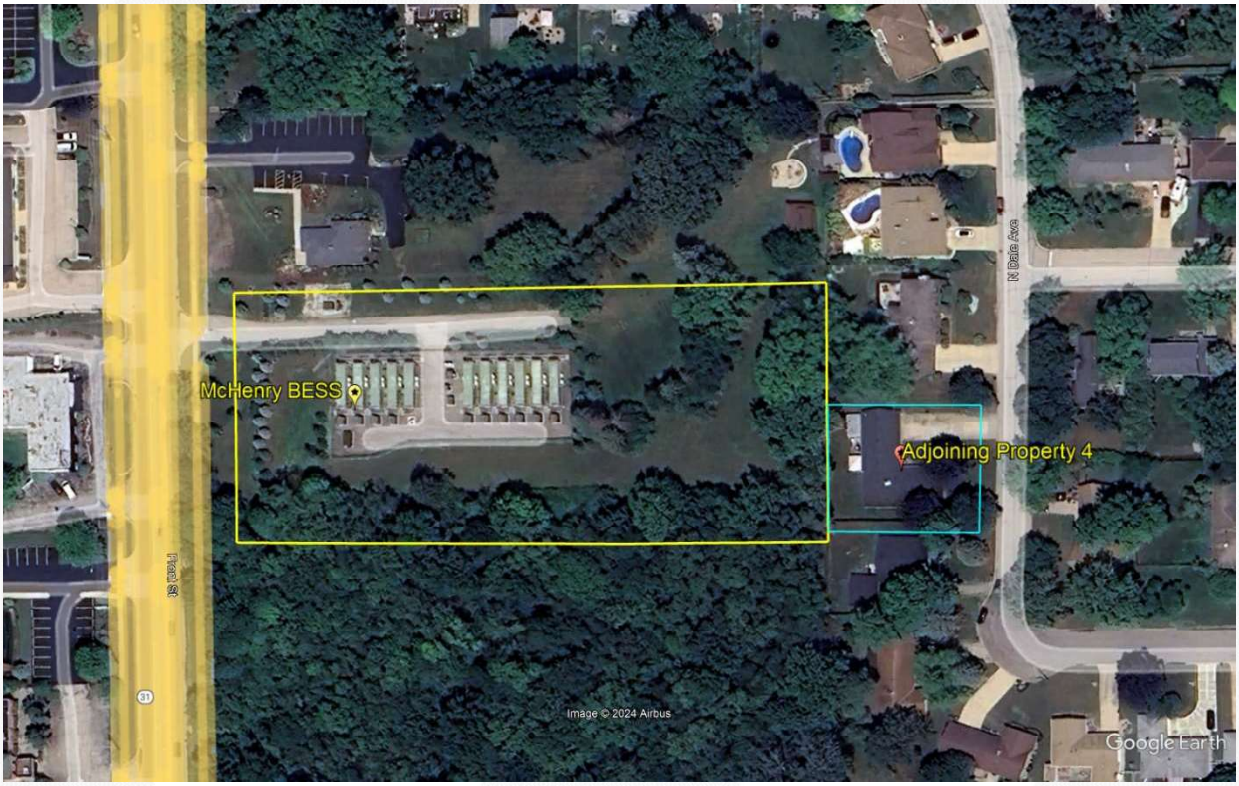
Group 3 – Improved Single-Family Residential Properties

Adjoining Property 4 to the McHenry BESS was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 3. Adjoining Property 4 is a single-family home with four bedrooms and two and a half bathrooms and an attached garage, located within the Edgebrook Heights subdvision of McHenry. The improvements on the property are located 265 feet to the nearest boundary of the McHenry BESS.

SUMMARY OF TEST AREA SALE - GROUP 3 McHenry Battery Storage										
Adj. Property #	**Address**	**Sale Price**	**Beds**	**Baths**	**Year Built**	**Home Size (SF)**	**Improvements**	**Site Size (AC)**	**Sale Price / SF**	**Sale Date**
4	211 N. Dale Avenue	$190,000	4	2.5	1962	2,331	1-Story SFH with Attached 2-Car Garage	0.35	$81.51	Jul-17

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We analyzed five Control Area Sales of single-family homes with similar construction and use, located within the Edgebrook Heights subdivision and that were not located directly adjacent to the McHenry BESS, that sold within a similar time frame from the sale date of the Test Area Sale in Group 3. The Control Area Sales for Group 3 are single-family homes with between three to four bedrooms and between two and two and a half baths, consist of between 1,700 square feet and 2,520 square feet of gross living area, a lot size between 0.25 and 0.30-acres (median lot size of 0.25-acres), and contain garage parking. Additionally, the Control Area Sales for Group 3 were constructed between 1955 and 1967.



McHenry BESS – Test Area Sale Map, Group 3

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the McHenry BESS – Group 3 is presented below.

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CohnReznick Paired Sale Analysis McHenry BESS - Group 3		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$81.51
Control Area Sales (5)	No: Not adjoining BESS	$83.36
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-2.22%**

The days on market for the Test Area Sale was 72 days on market, while the median days on market for the Control Area sales was 105 days (ranging from 69 to 160 days), ***and we note no substantial marketing time differential.***

Noting minimal negative price differential, it does not appear that the McHenry BESS use impacted the sale price of the Test Area Sale, Adjoining Property 4.

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BESS 3: ASHEVILLE-ROCK HILL BESS, BUNCOMBE COUNTY, NC

Coordinates: 35.54012, -82.51738

PINs: 9656-49-2985-0000

Total Land Size: Approximately 12 acres

Population Density: 412 people per square mile (Buncombe County)

Date Project Announced: September 2017

Date Project Completed: August 2020

Storage Capacity: 8.8 MW

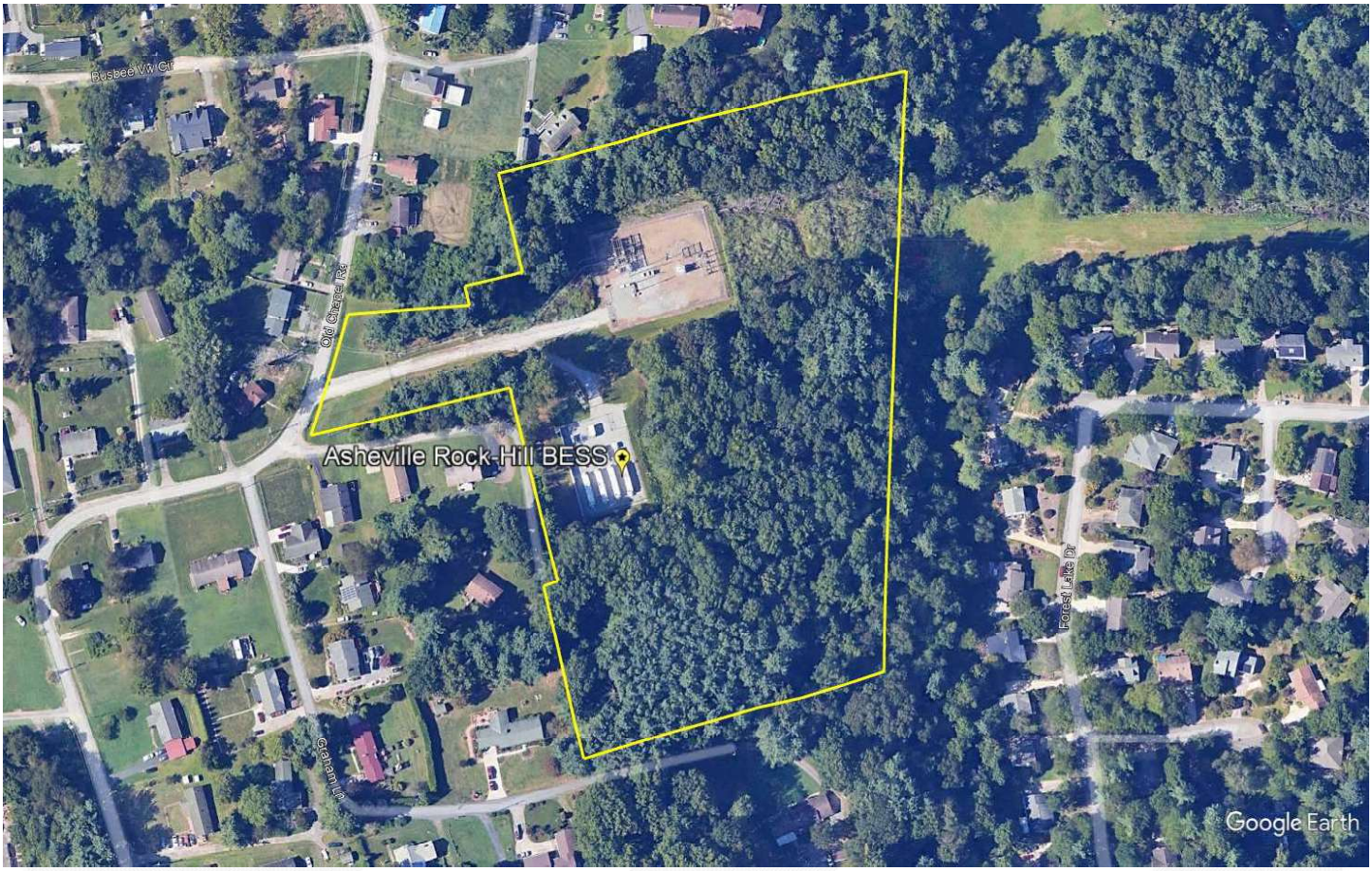




The Asheville-Rock Hill Battery Energy Storage System ("Asheville BESS" or "the Project") is located in Buncombe County, North Carolina. The current owner of the battery storage is an affiliate of Duke Energy and was developed in a partnership between Duke Energy and Samsung SDI. The battery storage facility went into operation in August 2020 and is the largest battery operational facility in North Carolina.

The Asheville BESS is part of the Western Carolinas Modernization Project which has a goal of strengthening the grid while retiring a coal plant and adding more renewable energy to the area.

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The Surrounding Area: The Asheville-Rock Hill Battery Storage System is located in the Biltmore Forest neighborhood of Asheville within Buncombe County, North Carolina. Buncombe County is located in western North Carolina, approximately 50 miles east of the Tennessee border. As of May 2026, per the U.S. Energy Information Administration, the Asheville-Rock Hill Battery Storage System is the seventh largest battery operational facility in North Carolina. As of May 2026, there are 36 battery storage facilities in North Carolina totaling 293.3 MWs. The subject facility is the only battery energy storage site in the Asheville area.

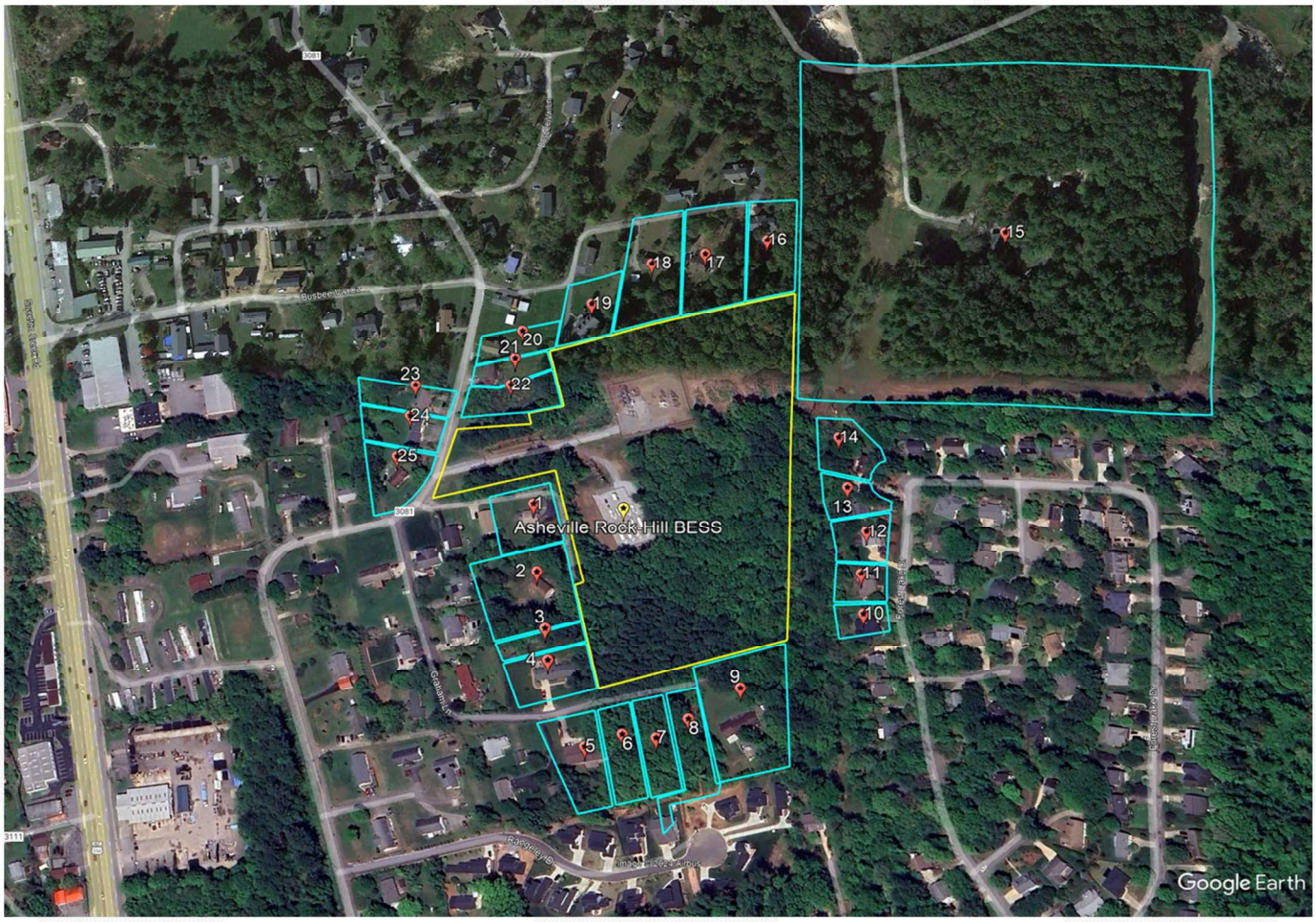
The Immediate Area: Surrounding land uses consist of primarily single-family residential homes with retail uses located along Sweeten Creek Road to the west. The project site was previously a substation for Duke Energy. The battery storage facility is surrounded by trees and shrubbery with very limited visibility from the road.

Real Estate Tax Info:

The Asheville-Rock Hill BESS is located on a single parcel that is owned by Progress Energy of the Carolinas, a subsidiary of Duke Energy. The parcel is not assessed by Buncombe County and is exempt from real estate taxes.

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The following maps display the parcel located within the BESS (outlined in yellow). Properties adjoining the battery energy storage system parcels (outlined in blue) are numbered for subsequent analysis.



Asheville-Rock Hill BESS – Adjoining Properties

PAIRED SALES ANALYSIS

We identified five Adjoining Properties that sold since the battery storage facility started operation in August 2020: five single-family residential properties have sold since the battery storage facility started operation, Adjoining Properties 9, 10, 14, 16 and 19. Our analysis of these transactions is presented next.

We identified Control Area Sale data through the RealQuest database which aggregates real estat sales from public record. We verified these sales through county records and conversations with brokers and sellers. We have excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related parties. It is important to note that these Control Area Sales are not adjoining to any battery storage energy center, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the Asheville-Rock Hill BESS use could not have impacted the sales prices of these properties.

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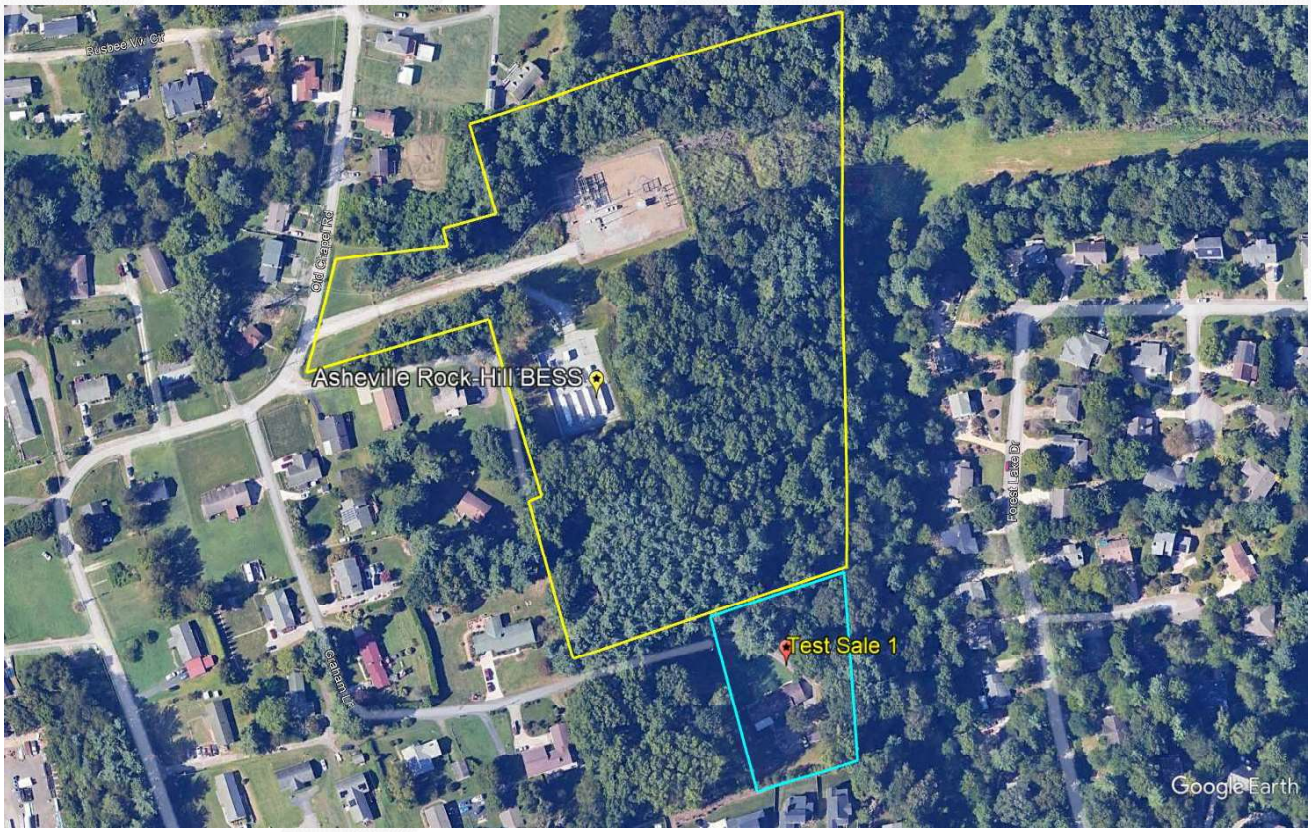
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Group 1 – Improved Single-Family Residential Properties

Adjoining Property 9 to the Asheville-Rock Hill BESS facility was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1. The improvements on the property are are located 370 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 1 Asheville-Rock Hill Battery										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
9	129 Graham Lane	$550,000	4	3.0	1970	2,716	1-Story SFH with 2-Car Attached Garage, Finished Basement and Outbuilding/Workshop	1.21	$202.50	Nov-23

We analyzed nine Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery storage facility, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are single-family homes with three to five bedrooms and two and a half to three and a half baths, consist of between 2,565 square feet and 2,973 square feet of gross living area, a lot size between 0.75 to 1.47 acres. Additionally, the Control Area Sales for Group 1 are single story homes with finished basements and are all located within a 10 mile radius.



Asheville-Rock Hill BESS facility – Test Area Sale Map, Group 1

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The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Asheville-Rock Hill BESS Project – Group 1 is presented below.

CohnReznick Paired Sale Analysis Asheville-Rock Hill BESS - Group 1		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$202.50
Control Area Sales (9)	No: Not adjoining BESS	$204.70
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-1.07%**

Noting minimal negative price differential, it does not appear that the Asheville-Rock Hill BESS facility use impacted the sale price of the Test Area Sale in Group 1, Adjoining Property 9.

The median days on market for the Control Area sales was 48 days (ranging from 21 to 191 days), while the days on market for Adjoining Property 9 was 102 days which is within the range of the Control Area sales.

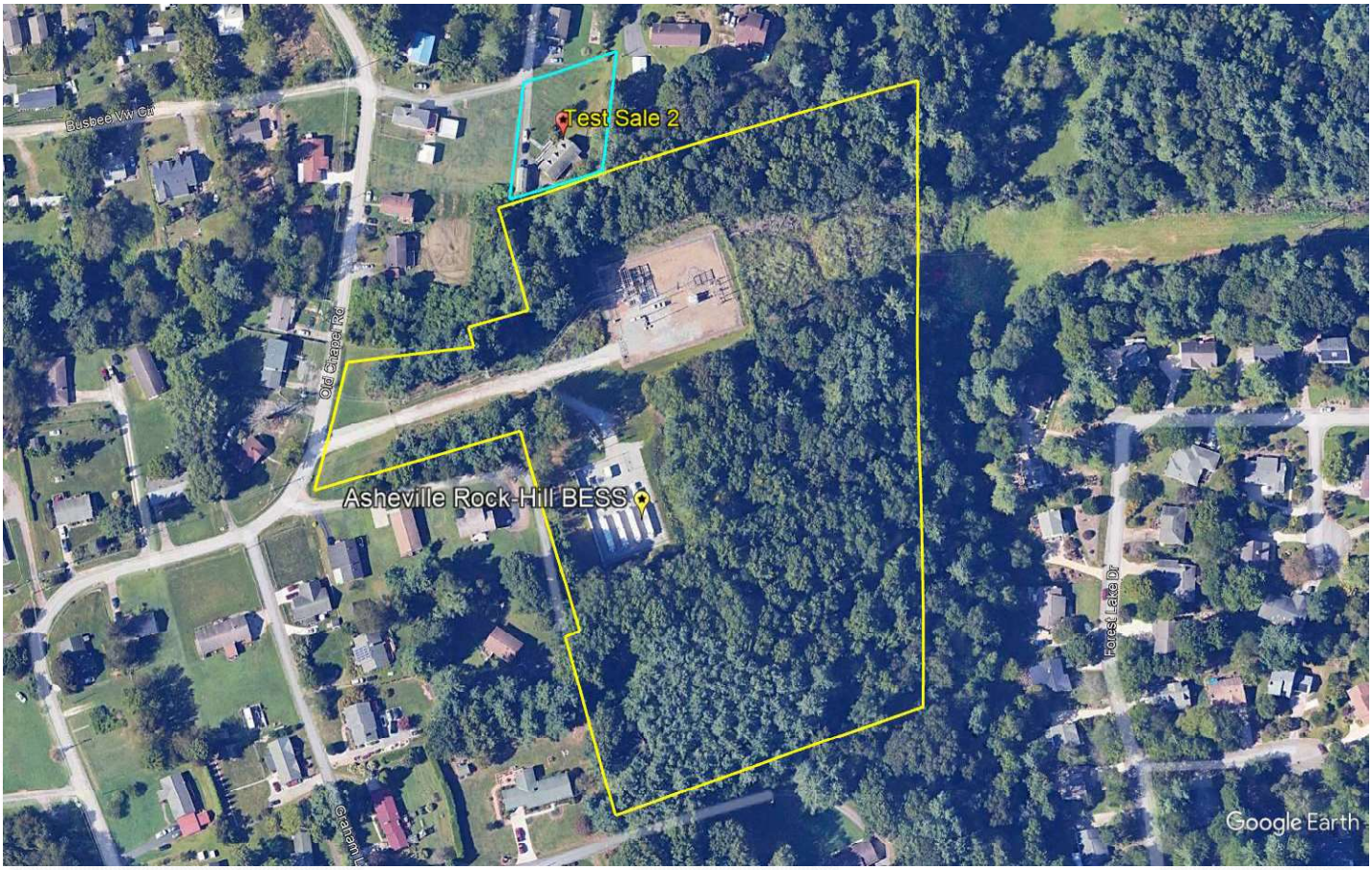
Group 2 – Improved Manufactured Single-Family Residential Properties

Adjoining Property 19 to the Asheville-Rock Hill BESS facility was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 2. The improvements on the property are are located 465 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 2 Asheville-Rock Hill Battery										
Adj. Property #	**Address**	**Sale Price**	**Beds**	**Baths**	**Year Built**	**Home Size (SF)**	**Improvements**	**Site Size (AC)**	**Sale Price / SF**	**Sale Date**
19	15 Lela Johnson Lane	$360,000	3	2.0	2004	1,568	1-Story Manufactured SFH with Detached 1-Car Garage with Unfinished Attic Storage Above	0.50	$229.59	Mar-22

We analyzed eight Control Area Sales of manufactured single family homes with similar construction and use that were not located in close proximity to the battery storage facility, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 2. The Control Area Sales for Group 2 are single-family homes with three bedrooms and two baths, built between 2001 and 2006 consist of between 1,400 square feet and 1,652 square feet of gross living area, a lot size between 0.25 to 0.63 acres. Additionally, the Control Area Sales for Group 2 are less than two stories and are all located within a 10 mile radius.

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Asheville-Rock Hill BESS facility – Test Area Sale Map, Group 2

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Asheville-Rock Hill BESS facility – Group 2 is presented below.

CohnReznick Paired Sale Analysis Asheville-Rock Hill BESS - Group 2		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$229.59
Control Area Sales (8)	No: Not adjoining BESS	$230.62
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-0.44%**

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The days on market for the Test Area Sale was 51 days on market, while the median days on market for the Control Area sales was 43 days (ranging from 22 to 62 days), ***and we note no substantial marketing time differential.***

Noting minimal negative price differential, it does not appear that the Asheville-Rock Hill BESS facility use impacted the sale price of the Test Area Sale in Group 1, Adjoining Property 19.

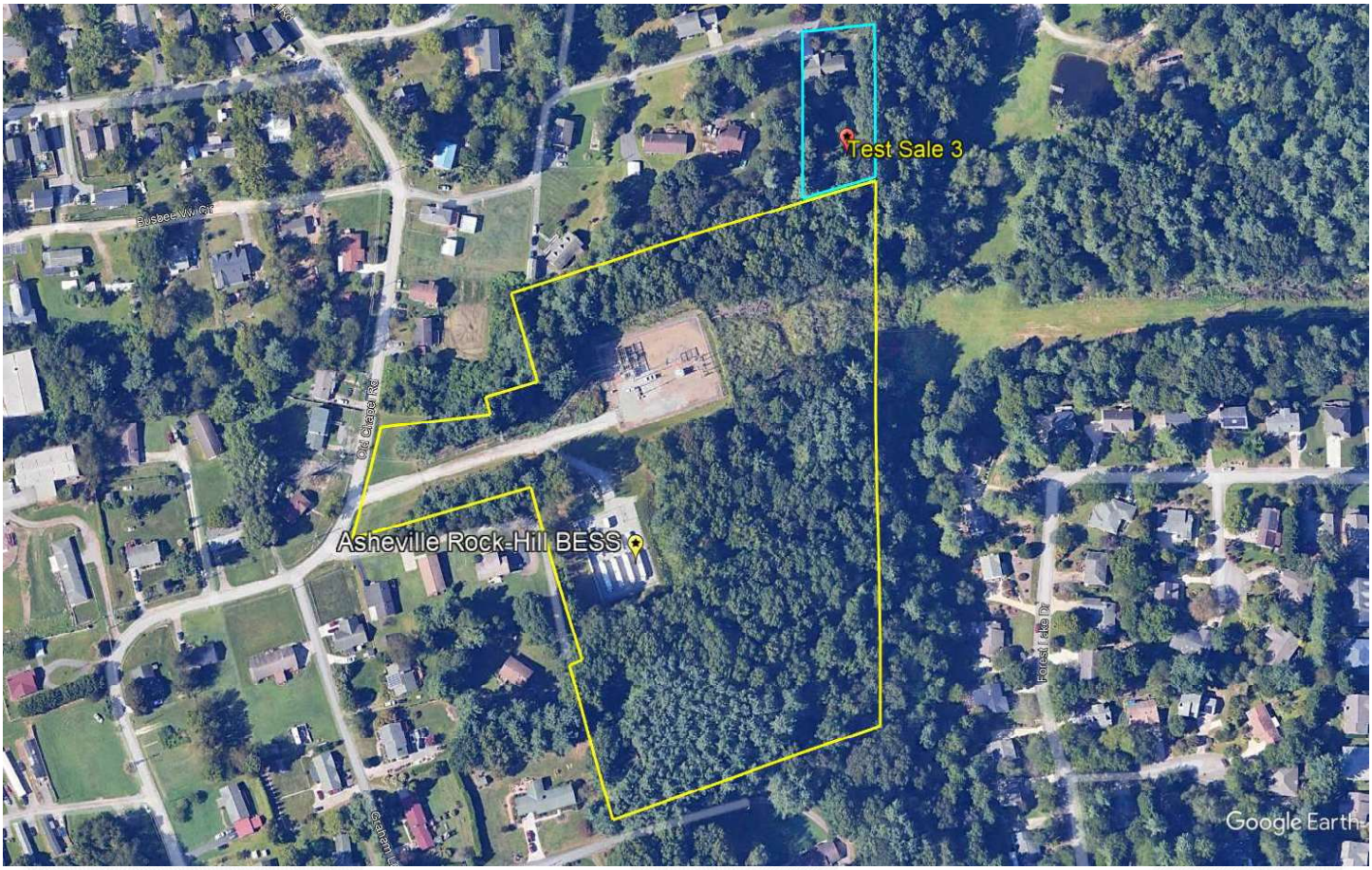
Group 3 – Improved Single-Family Residential Properties

Adjoining Property 16 to the Asheville-Rock Hill BESS facility was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 3. The improvements on the property are are located 640 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 3 Asheville-Rock Hill Battery										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
16	31 Lela Johnson Lane	$630,000	3	2.5	1999	3,291	1-Story SFH with Attached 2-Car Garage, Finished Basement, Detached 2-Car Garage/Workshop	0.75	$191.43	Sep-22

We analyzed 15 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery storage facility, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 3. The Control Area Sales for Group 3 are single-family homes with three to four bedrooms and two to three baths, consist of between 2,808 square feet and 3,566 square feet of gross living area and a lot size between 0.5 and 1.20 acres. Additionally, the Control Area Sales for Group 3 are all single-story structures and finished basements, and are all located within a 10 mile radius.

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Asheville-Rock Hill BESS facility – Test Area Sale Map, Group 3

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Asheville-Rock Hill BESS – Group 3 is presented below.

CohnReznick Paired Sale Analysis Asheville-Rock Hill BESS - Group 3		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$191.43
Control Area Sales (15)	No: Not adjoining BESS	$193.95
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-1.30%**

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The median days on market for the Control Area sales was 49 days (ranging from 15 to 416 days), while the days on market for the Test Area Sale was 114 days on market, which is within the range of the Control Area Sales. ***We note no substantial marketing time differential***.

Noting minimal negative price differential, it does not appear that the Asheville-Rock Hill BESS facility use impacted the sale price of the Test Area Sale in Group 3, Adjoining Property 16.

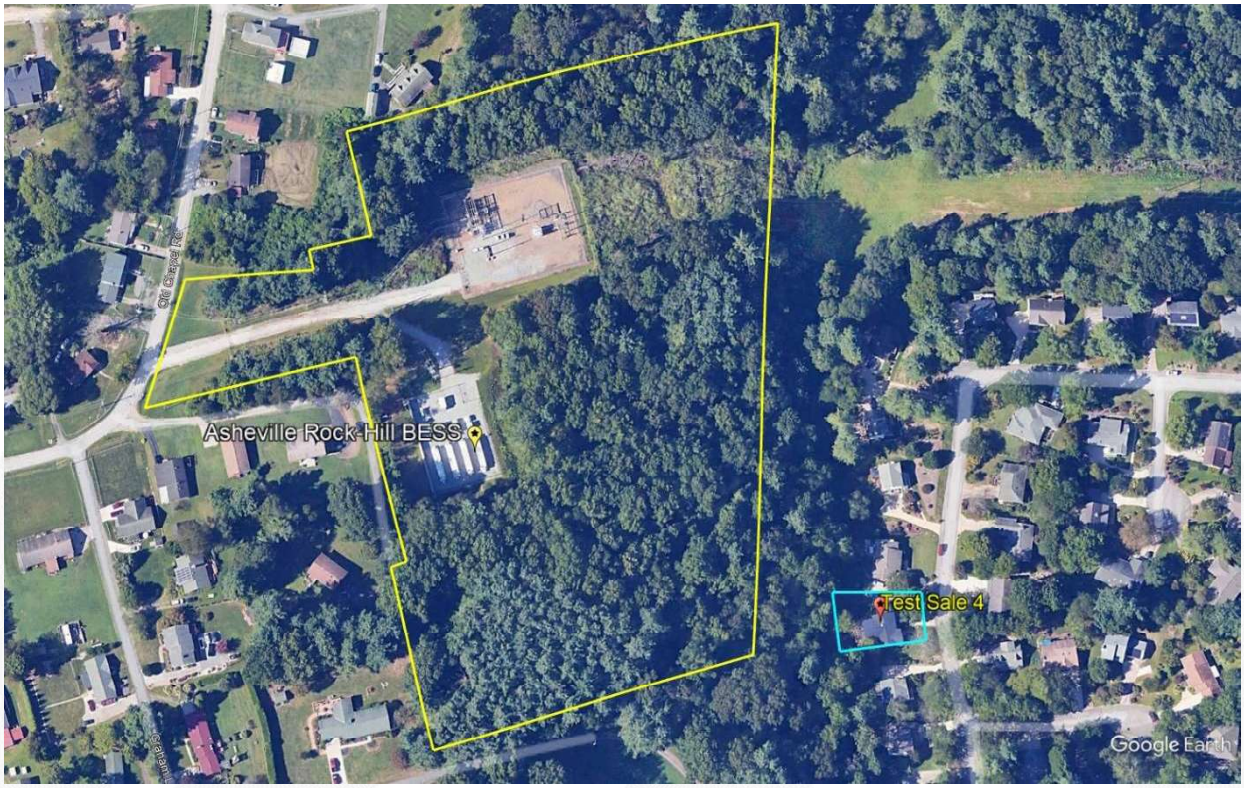
Group 4 – Improved Single-Family Residential Properties

Adjoining Property 10 to the Asheville-Rock Hill BESS facility was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 4. The improvements on the property are are located 535 feet to the nearest improvment of the battery energy storage system. Adjoining Property 10 is located within the Forest Lake subdivision of Asheville, which consists of 127 homes ranging from 1,400 square feet to 3,500 square feet that are sited on lots that are approximately 0.25-acres. The Forest Lake subdivision offers community amenities such as walking trails, a pond, picnic areas, gazebos, a small library and coordinated community events. The subdivision is located in a hilly terrain and is surrounded by greenery and wooded areas.

SUMMARY OF TEST AREA SALE - GROUP 4 Asheville-Rock Hill Battery										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
10	109 Forest Lake Drive	$465,000	4	3.0	1994	2,841	1-Story SFH with 2-Car Attached Garage, Finished Lower Level	0.21	$163.67	Mar-21

We analyzed five Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery storage facility, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 4. The Control Area Sales for Group 4 are single-family homes built between 1991 and 1998, with four bedrooms, three to four baths, consist of between 2,158 square feet and 3,510 square feet of gross living area, a finished or partially finished basement, and lot sizes between 0.22 to 0.31 acres. Additionally, the Control Area Sales for Group 4 are all located within the Forest Lake subdivision.

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Asheville-Rock Hill Battery storage facility – Test Area Sale Map, Group 4

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Asheville-Rock Hill BESS – Group 4 is presented below.

CohnReznick Paired Sale Analysis Asheville-Rock Hill BESS - Group 4		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$163.67
Control Area Sales (5)	No: Not adjoining BESS	$165.59
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-1.16%**

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The median days on market for the Control Area sales was 42 days (ranging from 21 to 220 days), while the days on market for the Test Area Sale was 96 days on market, which is within the range of the Control Area Sales. ***We note no substantial marketing time differential***.

Noting minimal negative price differential, it does not appear that the Asheville-Rock Hill BESS facility use impacted the sale price of the Test Area Sale, Adjoining Property 10.

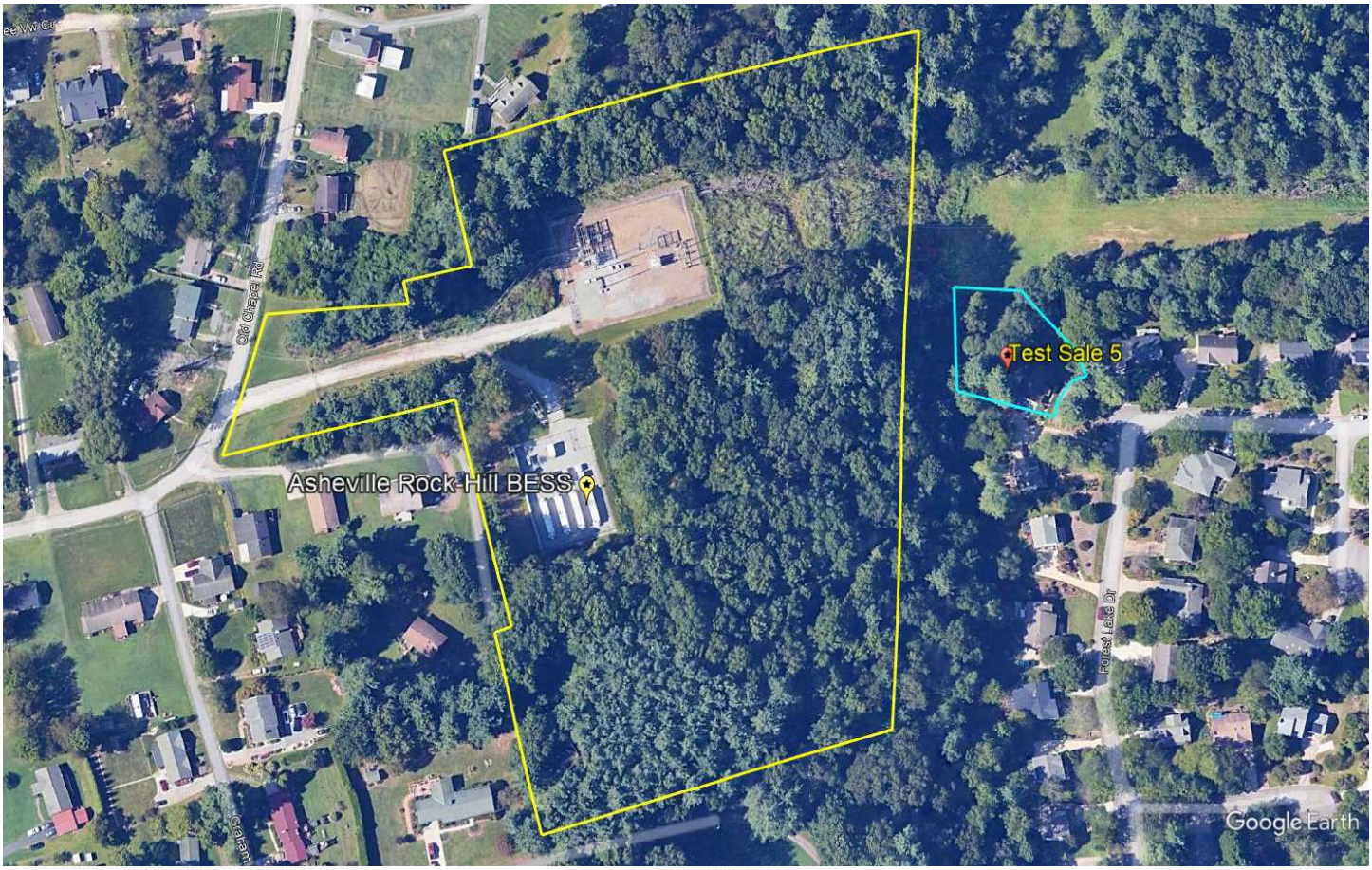
Group 5 – Improved Single-Family Residential Properties

Adjoining Property 14 to the Asheville-Rock Hill BESS facility was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 5. The improvements on the property are are located 470 feet to the nearest improvment of the battery energy storage system. Adjoining Property 14 is also located within the Forest Lake subdivision of Asheville.

SUMMARY OF TEST AREA SALE - GROUP 5 Asheville-Rock Hill Battery										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
14	95 Forest Lake Drive	$510,000	4	3.0	1995	1,873	1-Story SFH with 2-Car Attached Garage, Finished Lower Level	0.46	$272.29	Apr-22

We analyzed six Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery storage facility, that sold within a reasonable time frame from the sale date of the Test Area Sale in Group 5. The Control Area Sales for Group 5 are single-family homes built between 1991 and 1999, with three to four bedrooms, two to three baths, consist of between 1,582 square feet and 2,158 square feet of gross living area and lot sizes between 0.21 to 0.39 acres. Additionally, the Control Area Sales for Group 5 are all located within the Forest Lake subdivision.

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Asheville-Rock Hill Battery storage facility – Test Area Sale Map, Group 5

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Asheville-Rock Hill BESS – Group 5 is presented below.

CohnReznick Paired Sale Analysis Asheville-Rock Hill BESS - Group 5		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$272.29
Control Area Sales (6)	No: Not adjoining BESS	$271.61
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**0.25%**

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The days on market for the Test Area Sale was 36 days on market, while the median days on market for the Control Area sales was 24 days (ranging from 14 to 33 days), ***and we note minimal marketing time differential.***

We spoke with the listing agent of Adjoining Property 14, Michael Shoffner of Keller Williams Realty, who stated that the Asheville-Rockhill BESS did not factor into the sellers' decision to sell and that ***the facility was never brought up as a concern among potential buyers***. The property attracted multiple and Mr. Shoffner noted that ***the battery facility did not impact the sale in any way***.

Noting no negative price differential, it does not appear that the Asheville-Rock Hill BESS facility use impacted the sale price of the Test Area Sale, Adjoining Property 14.

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Before & After Analysis – Asheville-Rock Hill BESS facility

We note the Test Area Sale in Group 1 of the Asheville-Rock Hill BESS facility (Adjoining Property 9) has sold at least twice over the past 10 years. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Asheville-Rock Hill BESS facility, we prepared a Repeat-Sales Analysis on each identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for North Carolina's 288 Three Digit Zip Code, where Adjoining Property 9 is located, over the same period. The index for the zip code is measured on a quarterly basis and is presented below.

288 Three Digit Zip Code - Housing Pricce Index Change (Quarter over Quarter) Not Seasonally Adjusted			
Three-Digit ZIP Code	Year	Quarter	Index (NSA)
288	2014	1	247.29
288	2014	2	252.95
288	2014	3	261.52
288	2014	4	262.92
288	2015	1	265.43
288	2015	2	272.9
288	2015	3	283.4
288	2015	4	284.93
288	2016	1	288.13
288	2016	2	301.84
288	2016	3	307.26
288	2016	4	311.26
288	2017	1	316.25
288	2017	2	323.04
288	2017	3	327.93
288	2017	4	336.36
288	2018	1	340.31
288	2018	2	351.25
288	2018	3	352.06
288	2018	4	351.75
288	2019	1	357.35
288	2019	2	362.46
288	2019	3	364.75
288	2019	4	370.45
288	2020	1	374.69
288	2020	2	376
288	2020	3	385.52
288	2020	4	396.13
288	2021	1	405.35
288	2021	2	427.5
288	2021	3	457.67
288	2021	4	480.07
288	2022	1	494.68
288	2022	2	544.96
288	2022	3	555.67
288	2022	4	558.82
288	2023	1	564.33
288	2023	2	581.89
288	2023	3	598.32
288	2023	4	585.41
288	2024	1	565.46

We have presented the full repeat sales analysis on the following page.

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Repeat Sales Analysis											288 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
9	129 Graham Lane	1.21	2,716	11/6/2023	$550,000	8/2/2017	$284,000	93.66%	75	0.86%	585.41	327.93	78.52%	0.77%
	Median - Test Area Sales									***0.88%***				***0.77%***

Repeat Sales Analysis											288 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
G1-C5	32 Woodbury Road	0.81	2,973	10/13/2022	$565,000	10/3/2016	$411,000	37.47%	72	0.44%	558.82	311.26	79.53%	0.81%
G2-C3	205 Zachs Place	0.29	1,484	8/26/2022	$355,000	7/25/2017	$227,000	56.39%	61	0.74%	555.67	327.93	69.45%	0.87%
G2-C4	45 Founders Way	0.40	1,568	10/11/2022	$358,000	7/13/2020	$245,000	46.12%	27	1.42%	558.82	385.52	44.95%	1.39%
G2-C5	14 Enochs Way	0.46	1,458	4/19/2022	$390,000	1/10/2020	$248,000	57.26%	27	1.67%	544.96	374.69	45.44%	1.38%
G2-C7	20 Ellege Lane	0.52	1,568	10/5/2021	$333,500	8/18/2014	$207,000	61.11%	86	0.56%	457.67	261.52	75.00%	0.66%
G3-C5	11 Mountain View Lane	0.57	3,427	6/30/2022	$650,000	3/30/2017	$429,000	51.52%	63	0.66%	544.96	316.25	72.32%	0.87%
G3-C9	882 Mills Gap Road	1.00	2,851	7/1/2021	$440,000	8/15/2016	$285,000	54.39%	59	0.74%	457.67	307.26	48.95%	0.68%
G3-C10	874 Burney Mountain Road	0.83	3,200	2/8/2024	$715,000	5/4/2022	$627,500	13.94%	21	0.62%	565.46	544.96	3.76%	0.17%
G3-C12	92 Harrison Hill Road	0.75	2,978	6/23/2023	$465,000	6/28/2019	$290,000	60.34%	48	0.99%	581.89	362.46	60.54%	0.99%
G3-C14	61 N Willow Brook Drive	0.50	3,152	6/2/2023	$590,000	8/23/2021	$420,000	40.48%	21	1.61%	581.89	457.67	27.14%	1.13%
G4-C1	50 Forest Lake Drive	0.26	2,855	6/1/2020	$450,000	9/11/2015	$300,000	50.00%	57	0.72%	376.00	283.40	32.67%	0.50%
G4-C2	74 Forest Lake Drive	0.25	3,510	5/15/2020	$420,000	3/4/2019	$395,000	6.33%	14	0.43%	376.00	357.35	5.22%	0.35%
G4-C4	12 Simpson Hollow Road	0.31	2,156	9/9/2021	$515,000	11/22/2016	$335,000	53.73%	58	0.75%	457.67	311.26	47.04%	0.67%
G5-C6	136 Meadow Lake Road	0.24	1,582	1/8/2021	$325,000	6/11/2014	$217,000	49.77%	79	0.51%	405.35	252.95	60.25%	0.60%
	Median - Control Area Sales	*0.48*	*2,853*							*0.73%*				*0.75%*

Conclusion

When compared to the FHFA home price index for the 288-zip code, the extraction rate for the resale of Adjoining Property 9, that sold twice in the previous ften years, exhibited a higher rate of appreciation than the Home Price Index for the 288-zip code. However, the Control Area Sales exhibited a lower rate of appreciation than the Home Price Index for the 288-zip code, as depicted by the far-right column in the table above. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Asheville-Rock Hill Battery storage facility.

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BESS 4: VISTA BATTERY ENERGY STORAGE SYSTEM, SAN DIEGO COUNTY, CA

Coordinates: 33.203977, -117.2539

PIN: 163-47-09-00

Total Land Size: Approximately 0.88-acres

Population Density: 834 people per square mile (San Diego County)

Date Project Announced: May 2017

Date Project Completed: June 2018

Storage Capacity: 40 MW





The Vista Battery Energy Storage System ("Vista BESS" or "the Project") is located in San Diego County, California. The current owner of the battery energy storage system is an affiliate of REV Renewables and was developed in a partnership between REV Renewables and LS Power. The battery energy storage system was announced to the public in May 2017 and went into operation in June 2018. When completed, the Vista Battery Energy Storage System was the largest battery in the Country but has since been surpassed.

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The Surrounding Area: The Vista BESS is located in the City of Vista in the northwestern portion of San Diego County, California. San Diego County is located in southern California and borders Mexico to the south. As of May 2026, per the U.S. Energy Information Administration, the Vista BESS is one of 38 battery energy storage systems in San Diego County and is the eighth largest battery energy storage system in the County. The largest battery energy storage system in San Diego County is the 250 MW Gateway Energy Storage System, also developed by REV Renewables, and located east of Imperial Beach in unincorporated San Diego County, just north of the Mexican border.

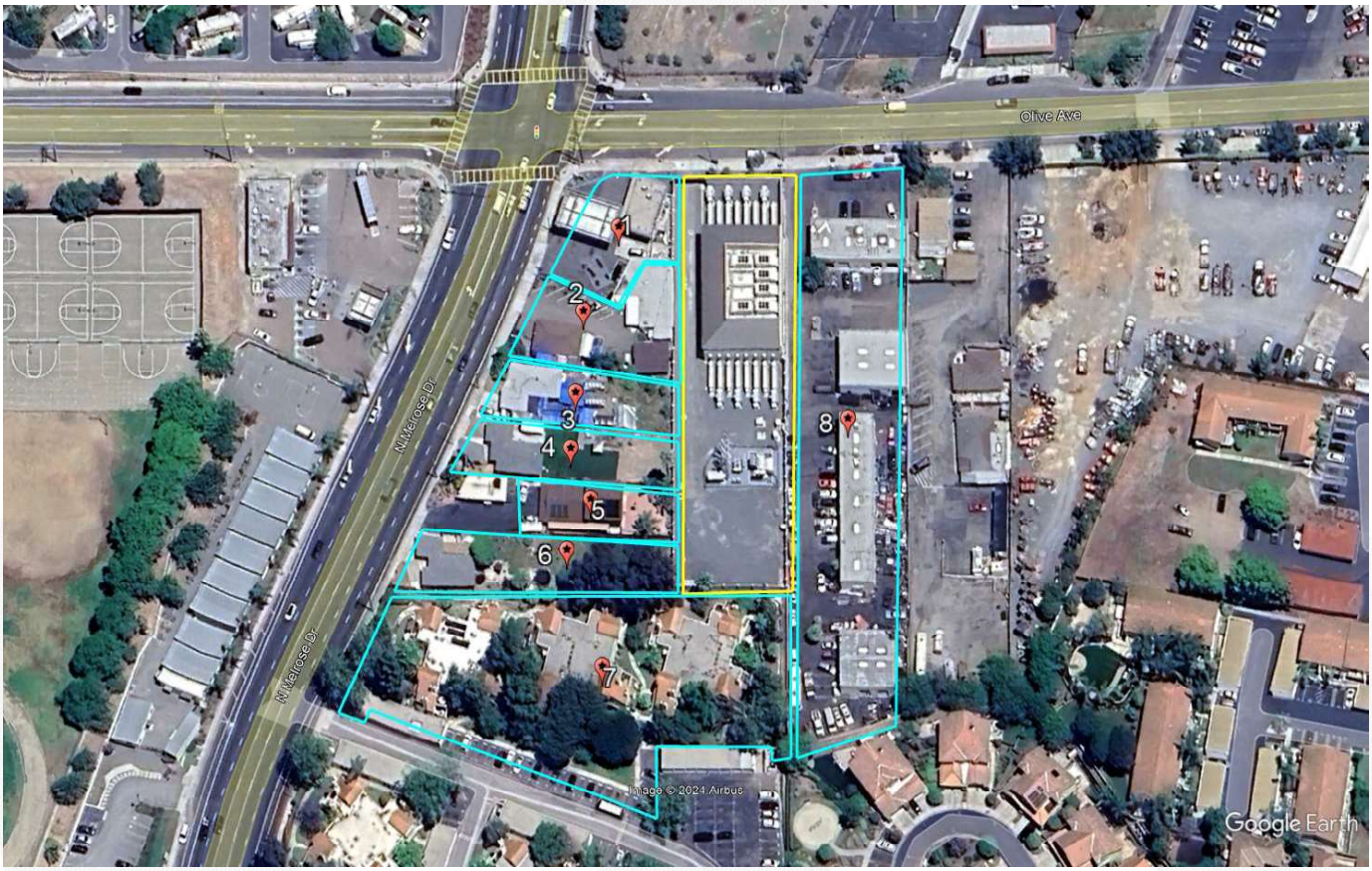
The Immediate Area: Surrounding land uses consist of single-family residential homes, multi-family residential apartments, a public school, service station and convenience stores, and industrial uses. The Project is located near the four-way intersection of North Melrose Drive and Olive Avenue. The surrounding area is entirely improved and there is little room for new development. Any new development is primarily constructed on redeveloped sites.

Real Estate Tax Info:

In California, stand alone BESS is subject to property tax as the County level and is assessed using the reproduction cost new less depreciation method with an economic life ranging from 10 to 25 years. However, historical property assessment and property tax bills for San Diego County are not available beyond the 2020-2021 tax year, after the Vista BESS went into operation. In the most recent publicly available tax year of 2022-2023, the Project paid $16,013 in property taxes.

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The following maps display the parcel located within the BESS (outlined in yellow). Properties adjoining the battery energy storage system parcels (outlined in blue) are numbered for subsequent analysis.



Vista Battery Energy Storage System – Adjoining Properties

PAIRED SALES ANALYSIS

In reviewing Adjoining Properties to study in a Paired Sale Analysis, one property and sale was considered but eliminated from further consideration as discussed below.

We identified eight Adjoining Properties that sold since the battery storage facility started operation in June 2018: One single-family residential property has sold since the battery storage facility started operation, Adjoining Property 6. There have been six residental condominium properties that have sold since the battery storage facility strated operation, Adjoining Properties 7-1 through Adjoining Property 7-6. We have grouped the sales of residential condominium properties based on the bed and bath counts, story level of each unit, and similar sale dates. We have not included the sale of Adjoining Property 2, a four-unit mixed-use, multi-family and retail property that sold in July 2021 for $495,000 or $123,750 per unit. This sale has been excluded in our analysis as it was not openly marketed for sale and was in need of repairs at the time of sale. However, this property was placed on the market in December 2021 for $1,325,000 but was subsequently taken off the market in May 2022.

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We identified Control Area Sale data through the RealQuest database which aggregates real estat sales from public record. We verified these sales through county records and conversations with brokers and sellers. We have excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related parties. It is important to note that these Control Area Sales are not adjoining to any battery storage energy center, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the Vista BESS use could not have impacted the sales prices of these properties.

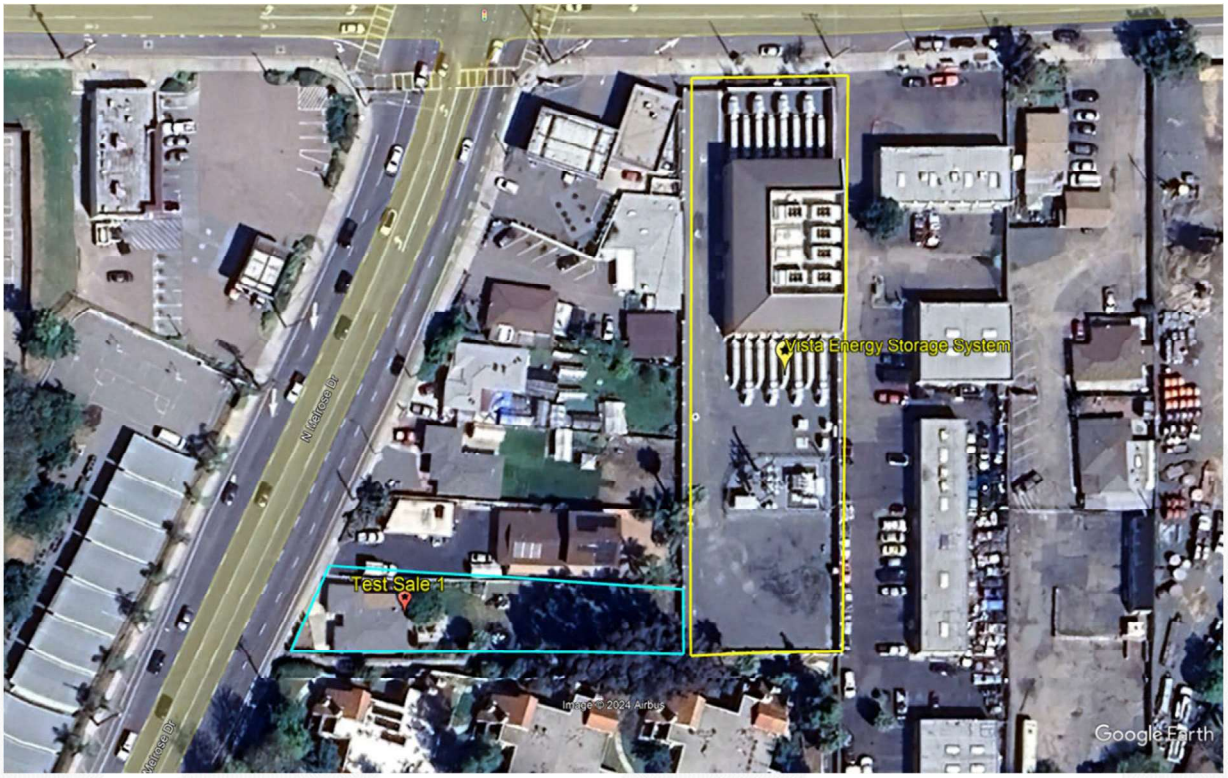
Group 1 – Improved Single-Family Residential Properties

Adjoining Property 6 to the Vista Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1. The improvements on the property are are located 140 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 1 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
6	405 N. Melrose Drive	$520,000	3	1.0	1955	975	1-Story SFH with Attached 1-Car Garage	0.28	$533.33	Feb-21

We analyzed 27 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are single-family homes with three bedrooms and one bathroom, consist of between 868 square feet and 1,274 square feet of gross living area, a lot size between 0.14 and 0.47-acres (median lot size of 0.16-acres), are single-story homes and contain garage parking. Additionally, the Control Area Sales for Group 1 were constructed between 1950 and 1962, and are all located within the Vista School District.

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Vista Battery Energy Storage System – Test Area Sale Map, Group 1

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 1 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 1		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$533.33
Control Area Sales (27)	No: Not adjoining BESS	$506.63
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**5.27%**

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The median days on market for the Control Area sales was 23 days (ranging from 5 to 76 days), while the days on market for Adjoining Property 6 was 42 days. However, Adjoining Property 6 was listed for sale at $495,000 and ultimately sold for $520,000 or a 4.81% increase from the list price.

Noting no negative price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sale, Adjoining Property 6.

Group 2 – Improved Melrose Park Residential Condominiums

Adjoining Properties 7-1 and 7-2 to the Vista Battery Energy Storage System were considered for a paired sales analysis, and we analyzed these properties as residential condominium uses in Group 2. The improvements on the property are located between 200 and 220 feet to the nearest improvment of the battery energy storage system.

Adjoining Properties 7-1 and 7-2 are a portion of the Melrose Park Condominium complex, consisting of 240-units in 22 two-story structures with detached garage parking, two swimming pools, a tennis court, spa and laundry facilties. Of the 22 structures that make up Melrose Park, only three are immediately adjacent to the Vista Battery Energy Storage System, buildings 387, 391, and 395 (green stars below). The remaining 19 structures are located across a neighorhood street (pink stars below) and have been considered for Control Area Sales. A map of the Melrose Park Condominium complex is presented below.

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SUMMARY OF TEST AREA SALE - GROUP 2 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Level	Sale Price / SF	Sale Date
7-1	395 N Melrose Drive, Unit F	$285,000	2	2.0	1984	1,152	2nd Level Residential Condominium with 1-Car Detached Garage	2nd	$247.40	Apr-19
7-2	391 N Melrose Dr, Unit D	$321,000	2	2.0	1984	1,152	2nd Level Residential Condominium with 1-Car Detached Garage	2nd	$278.65	Jun-18

We analyzed ten Control Area Sales of residential condominium homes that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sales in Group 2. The Control Area Sales for Group 2 are residential condominiums within the Melrose Park Condominium Complex with two bedrooms and two baths, consisting of between 1,152 square feet and 1,172 square feet of gross living area, and are all located in the second level.

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Aerial View, Test Area Sales Group 2

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 2 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 2		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (2)	Adjoining BESS	$263.02
Control Area Sales (10)	No: Not adjoining BESS	$269.13
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-2.27%**

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The median days on market for the Test Area Sales was 43 days, while the median days on market for the Control Area sales was 30 days (ranging from 8 to 135 days), ***and we note no substantial marketing time differential.***

Noting minimal price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sales, Adjoining Property 7-1 and Adjoining Property 7-2.

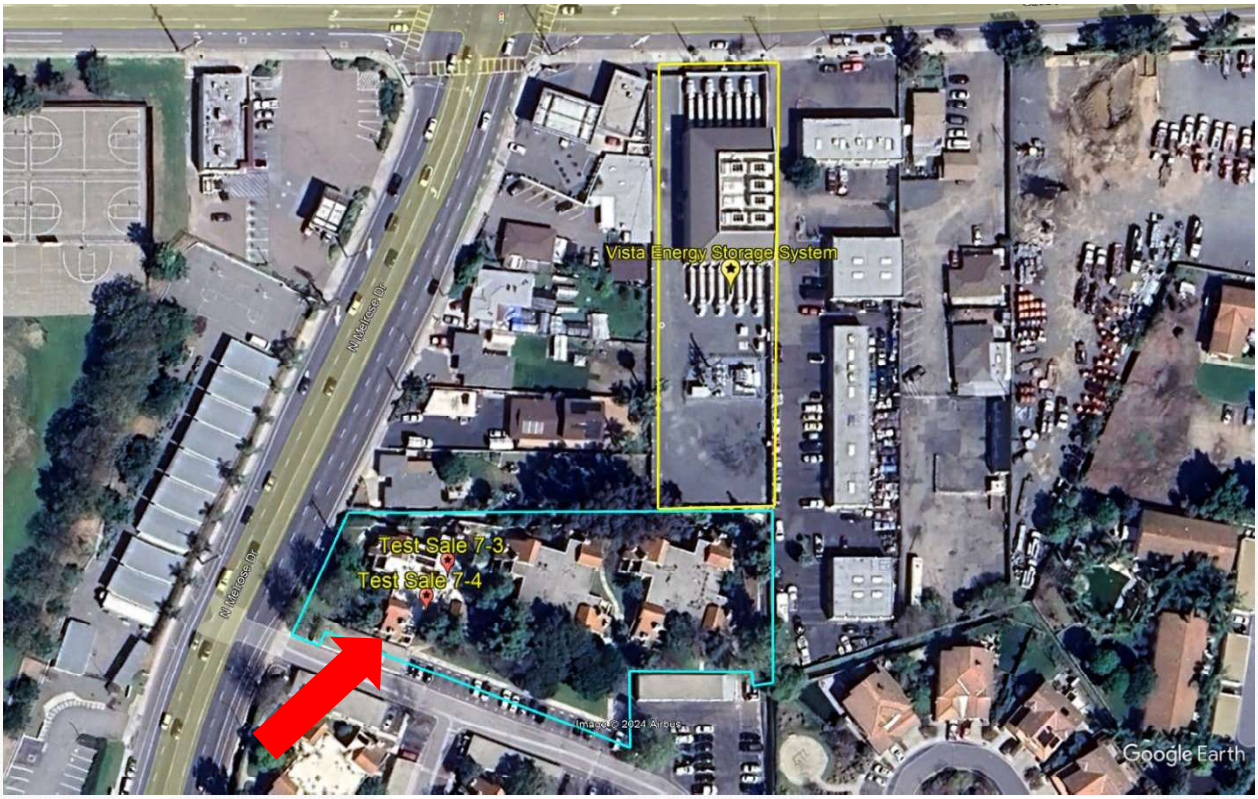
Group 3 – Improved Melrose Park Residential Condominiums

Adjoining Properties 7-3 and 7-4 to the Vista Battery Energy Storage System were considered for a paired sales analysis, and we analyzed these properties as residential condominium uses in Group 3. The improvements on the property are located 260 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 3 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Level	Sale Price / SF	Sale Date
7-3	387 N Melrose Dr, Unit A	$531,000	3	2.0	1984	1,298	1st Story Residential Condominiujm with 1-Car Detached Garage	1st	$409.09	Apr-24
7-4	387 N Melrose Dr, Unit E	$565,000	3	2.0	1984	1,298	1st Story Residential Condominiujm with 1-Car Detached Garage	1st	$435.29	Apr-24

We analyzed nine Control Area Sales of residential condominium homes that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sales in Group 3. The Control Area Sales for Group 3 are residential condominiums within the Melrose Park Condominium Complex with three bedrooms and two baths, consisting of 1,298 square feet of gross living area, and are all located in the ground level.

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Aerial View, Test Area Sales Group 3

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 3 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 3		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (2)	Adjoining BESS	$422.19
Control Area Sales (9)	No: Not adjoining BESS	$435.08
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-2.96%**

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The median days on market for the Test Area Sales was 41 days, while the median days on market for the Control Area sales was 24 days (ranging from 4 to 71 days), ***and we note no substantial marketing time differential.***

Noting minimal price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sales, Adjoining Property 7-3 and Adjoining Property 7-4.

Group 4 – Improved Melrose Park Residential Condominiums

Adjoining Property 7-5 to the Vista Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this properties as residential condominium uses in Group 4. The improvements on the property are located 220 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 4 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Level	Sale Price / SF	Sale Date
7-5	391 N Melrose Dr, Unit A	$350,000	3	2.0	1984	1,298	1st Story Residential Condominium with 1-Car Detached Garage	1st	$269.65	Feb-19

We analyzed four Control Area Sales of residential condominium homes that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sale in Group 4. The Control Area Sales for Group 4 are residential condominiums within the Melrose Park Condominium Complex with three bedrooms and two baths, consisting of 1,298 square feet of gross living area, and are all located in the ground level.

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Aerial View, Test Area Sale Group 4

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 4 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 4		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$269.65
Control Area Sales (4)	No: Not adjoining BESS	$249.39
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**8.12%**

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The days on market for the Test Area Sale was 19 days, while the median days on market for the Control Area sales was 11 days (ranging from 10 to 243 days), ***and we note no substantial marketing time differential.***

Noting minimal price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sale, Adjoining Property 7-5.

Group 5 – Improved Melrose Park Residential Condominiums

Adjoining Property 7-6 to the Vista Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this properties as residential condominium uses in Group 5. The improvements on the property are located 220 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 5 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Level	Sale Price / SF	Sale Date
7-6	391 N Melrose Dr, Unit F	$510,000	2	2.0	1984	1,152	2nd Level Residential Condominium with 1-Car Detached Garage	2nd	$442.71	Apr-23

We analyzed seven Control Area Sales of residential condominium homes that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sale in Group 5. The Control Area Sales for Group 5 are residential condominiums within the Melrose Park Condominium Complex with two bedrooms and two baths, consisting of between 1,152 square feet and 1,172 square feet of gross living area, and are all located on the second level.

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Aerial View, Test Area Sale Group 5

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 5 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 5		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$442.71
Control Area Sales (7)	No: Not adjoining BESS	$425.11
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**4.14%**

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The days on market for the Test Area Sale was 34 days, while the median days on market for the Control Area sales was 20 days (ranging from 7 to 89 days), ***and we note no substantial marketing time differential.***

Noting minimal price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sale, Adjoining Property 7-6.

Group 6 – Improved Melrose Park Residential Condominiums

Adjoining Property 7-7 to the Vista Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this properties as residential condominium uses in Group 6. The improvements on the property are located 220 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 6 Vista Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Level	Sale Price / SF	Sale Date
7-7	391 N Melrose Dr, Unit C	$400,000	3	2.0	1984	1,298	1st Story Residential Condominium with 1-Car Detached Garage	1st	$308.17	Feb-21

We analyzed nine Control Area Sales of residential condominium homes that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sale in Group 6. The Control Area Sales for Group 6 are residential condominiums within the Melrose Park Condominium Complex with two bedrooms and two baths, consisting of 1,172 square feet of gross living area and are all located on the ground level.

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Aerial View, Test Area Sale Group 6

The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Vista Battery Energy Storage System – Group 6 is presented below.

CohnReznick Paired Sale Analysis Vista BESS - Group 6		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$308.17
Control Area Sales (9)	No: Not adjoining BESS	$309.72
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**-0.50%**

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The days on market for the Test Area Sale was 40 days, while the median days on market for the Control Area sales was 21 days (ranging from 4 to 58 days), ***and we note no substantial marketing time differential.***

Noting minimal price differential, it does not appear that the Vista Battery Energy Storage System use impacted the sale price of the Test Area Sale, Adjoining Property 7-7.

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Before & After Analysis – Vista Battery Energy Storage System

We note the Test Area Sale in Group 1 of the Vista Battery Energy Storage System (Adjoining Property 6) has sold at least twice over a five year period. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Vista Battery Energy Storage System, we prepared a Repeat-Sales Analysis on the identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for California's 920 Three Digit Zip Code, where Adjoining Property 6 is located, over the same period. The index for the zip code is measured on a quarterly basis and is presented below.

920 Three Digit Zip Code - Housing Pricce Index Change (Quarter over Quarter) Not Seasonally Adjusted			
Three-Digit ZIP Code	Year	Quarter	Index (NSA)
920	2015	1	264.92
920	2015	2	269.83
920	2015	3	275.53
920	2015	4	279.64
920	2016	1	283.14
920	2016	2	286.91
920	2016	3	292.2
920	2016	4	296.35
920	2017	1	301.4
920	2017	2	306.92
920	2017	3	313.07
920	2017	4	316.28
920	2018	1	321.89
920	2018	2	326.06
920	2018	3	328.34
920	2018	4	328.88
920	2019	1	329.4
920	2019	2	332.8
920	2019	3	336.88
920	2019	4	338.63
920	2020	1	342.35
920	2020	2	346.86
920	2020	3	351.99
920	2020	4	359.68
920	2021	1	371.37
920	2021	2	395.59
920	2021	3	418.74
920	2021	4	437.33
920	2022	1	459.62
920	2022	2	494.17
920	2022	3	487.11
920	2022	4	474.41
920	2023	1	483.97
920	2023	2	500.62
920	2023	3	513.1
920	2023	4	521.99

We have presented the full repeat sales analysis on the following page.

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Repeat Sales Analysis											920 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
6	405 N. Melrose Drive	0.28	975	2/22/2021	$520,000	3/18/2016	$364,000	42.86%	59	0.60%	371.37	283.14	31.16%	0.46%
7-6	391 N. Melrose Drive, Unit F	-	1,152	4/20/2023	$510,000	6/12/2019	$333,500	52.92%	46	0.92%	500.62	332.80	50.43%	0.89%
7-7	391 N. Melrose Drive, Unit C	-	1,298	2/17/2021	$400,000	2/17/2017	$320,000	25.00%	48	0.47%	371.37	301.40	23.21%	0.44%
	Median - Test Area Sales									***0.60%***				***0.46%***

Repeat Sales Analysis											920 Three Digit Zip Code - FHFA Housing Price Index Change			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
G1-C2	2843 Emerald Drive	0.17	969	4/20/2022	$662,000	10/16/2017	$380,000	74.21%	54	1.03%	494.17	316.28	56.24%	0.83%
G1-C12	1018 N. Sante Fe Ave	0.38	950	6/28/2021	$445,000	11/28/2017	$380,000	17.11%	43	0.37%	395.59	316.28	25.08%	0.52%
G1-C16	1115 North Drive	0.14	1,140	6/25/2021	$605,000	10/20/2017	$395,000	53.16%	44	0.97%	395.59	316.28	25.08%	0.51%
G1-C17	1222 Lagan Ave	0.14	1,064	6/29/2020	$455,500	5/24/2017	$415,000	9.76%	37	0.25%	346.86	306.92	13.01%	0.33%
G1-C18	514 Toucan Drive	0.14	1,063	5/28/2021	$620,000	10/17/2019	$473,000	31.08%	19	1.41%	395.59	338.63	16.82%	0.81%
G1-C24	333 Cananea Street	0.47	1,274	8/14/2020	$470,000	11/19/2018	$420,000	11.90%	21	0.54%	351.99	328.88	7.03%	0.33%
G2-C2	367 N. Melrose Drive, Unit F	-	1,152	5/26/2020	$339,000	12/14/2017	$298,000	13.76%	29	0.44%	346.86	316.28	9.67%	0.31%
G2-C3	329 N. Melrose Drive, Unit G	-	1,172	2/27/2020	$329,000	7/7/2017	$265,000	24.15%	32	0.68%	342.35	313.07	9.35%	0.28%
G2-C8	375 N. Melrose Drive, Unit B	-	1,152	3/13/2019	$312,000	3/15/2017	$290,000	7.59%	24	0.31%	329.40	301.40	9.29%	0.37%
G2-C10	355 N. Melrose Drive, Unit F	-	1,151	1/10/2020	$325,000	9/21/2015	$234,000	38.89%	52	0.64%	342.35	275.53	24.25%	0.42%
G3-C1	355 N. Melrose Drive, Unit C	-	1,298	12/8/2022	$515,000	11/22/2017	$300,000	71.67%	61	0.90%	474.41	316.28	50.00%	0.67%
G3-C4	379 N. Melrose Drive, Unit C	-	1,298	12/15/2022	$520,000	7/2/2020	$365,000	42.47%	29	1.21%	474.41	351.99	34.78%	1.02%
G3-C8	341 N. Melrose Drive, Unit C	-	1,298	12/28/2023	$540,000	4/6/2021	$441,000	22.45%	33	0.62%	521.99	395.59	31.95%	0.85%
G3-C9	363 N. Melrose Drive, Unit G	-	1,298	3/22/2023	$517,500	7/1/2021	$435,000	18.97%	21	0.84%	483.97	418.74	15.58%	0.70%
G4-C2	367 N. Melrose Drive, Unit A	-	1,298	4/10/2019	$345,000	11/12/2018	$272,000	26.84%	5	4.98%	332.80	328.88	1.19%	0.24%
G5-C1	355 N. Melrose Drive, Unit D	-	1,152	2/24/2023	$500,000	1/11/2018	$305,000	63.93%	61	0.81%	483.97	321.89	50.35%	0.67%
G5-C2	363 N. Melrose Drive, Unit H	-	1,152	10/6/2022	$484,000	5/1/2018	$315,000	53.65%	53	0.81%	474.41	326.06	45.50%	0.71%
G5-C6	383 N. Melrose Drive, Unit F	-	1,152	11/9/2022	$495,000	10/16/2018	$317,000	56.15%	49	0.92%	474.41	328.88	44.25%	0.75%
G6-C1	359 N. Melrose Drive, Unit G	-	1,298	8/14/2022	$520,000	11/23/2021	$473,000	9.94%	9	1.10%	487.11	437.33	11.38%	1.25%
G6-C2	375 N. Melrose Drive, Unit E	-	1,298	6/7/2021	$475,000	4/4/2019	$325,000	46.15%	26	1.46%	395.59	332.80	18.87%	0.66%
G6-C3	341 N. Melrose Drive, Unit G	-	1,298	2/2/2022	$503,000	11/4/2020	$387,000	29.97%	15	1.77%	459.62	359.68	27.79%	1.65%
G6-C4	355 N. Melrose Drive, Unit E	-	1,298	3/9/2021	$419,000	5/30/2019	$338,500	23.78%	21	1.01%	371.37	332.80	11.59%	0.52%
G6-C7	371 N. Melrose Drive, Unit C	-	1,298	6/1/2021	$415,000	4/20/2020	$360,000	15.28%	13	1.07%	395.59	346.86	14.05%	0.99%
G6-C8	371 N. Melrose Drive, Unit E	-	1,298	3/30/2021	$410,000	3/19/2018	$335,000	22.39%	36	0.56%	371.37	321.89	15.37%	0.39%
G6-C9	383 N. Melrose Drive, Unit C	-	1,298	2/2/2021	$375,000	1/7/2019	$345,000	8.70%	25	0.34%	371.37	329.40	12.74%	0.48%
	Median - Control Area Sales	*0.16*	*1,274*							***0.84%***				***0.66%***

Conclusion

When compared to the FHFA home price index for the 920-zip code, the extraction rate for the resale of Adjoining Property 6, that sold twice in the previous five years, exhibited a higher rate of appreciation than the Home Price Index for the 920-zip code. Similarly, the Control Area Sales exhibited a higher rate of appreciation than the Home Price Index for the 920-zip code, as depicted by the far-right column in the table above. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Vista Battery Energy Storage System.

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BESS 5: FALLBROOK 1.0 & 2.0 ENERGY STORAGE SYSTEM, SAN DIEGO COUNTY, CA

Coordinates: 33.384244, -117.2353

PINs: 105-410-19-00, 105-410-10-00, 105-310-11-00

Total Land Size: 14.13-acres

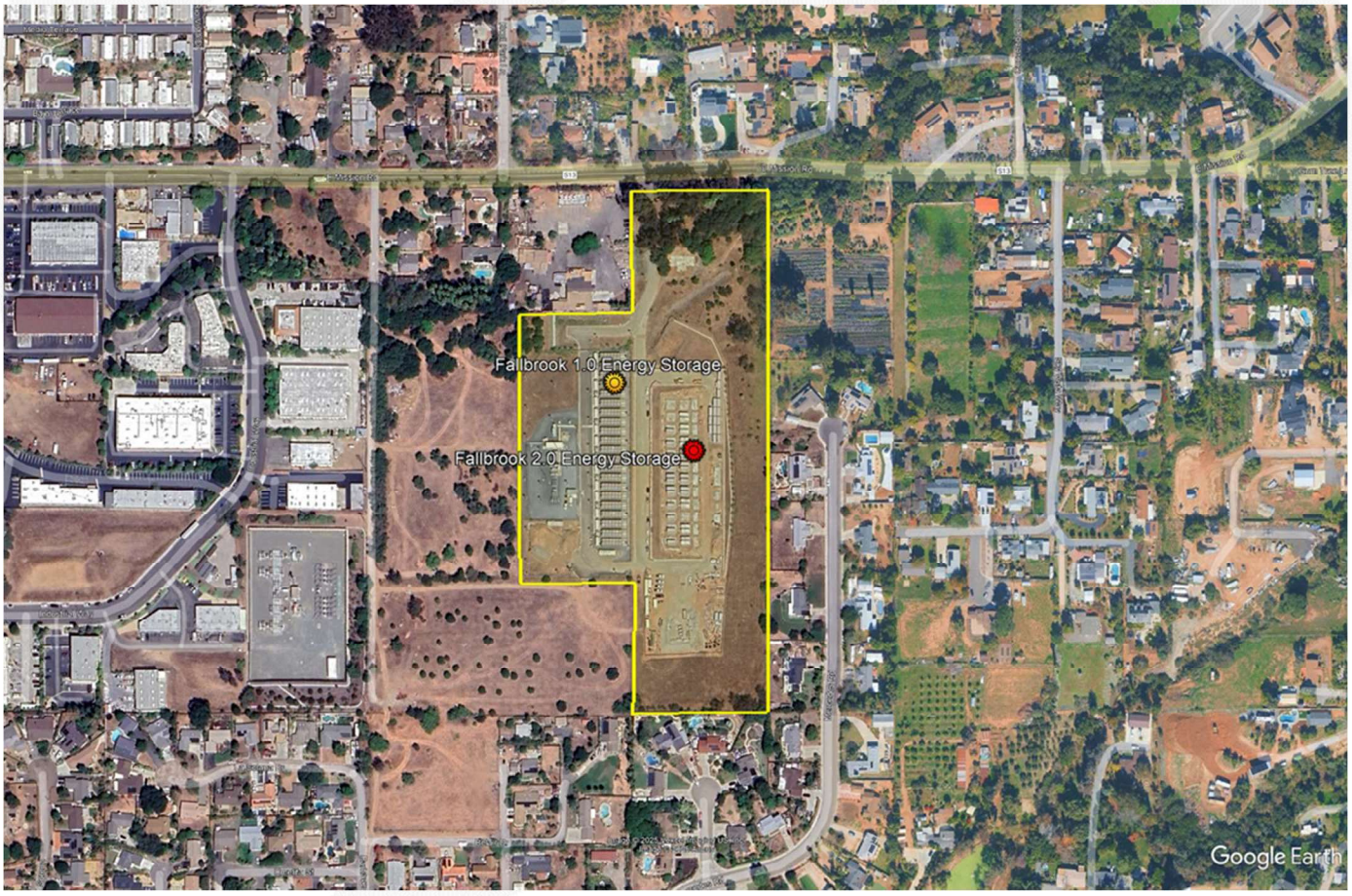
Population Density (2023): 837 people per square mile (San Diego County)

Date Project Announced: June 2020 (Phase I)

Date Project Completed: March 2023 (Phase I)

Storage Capacity: Phase I: 40 MW, Phase II: 30 MW (under construction)





The Fallbrook Battery Energy Storage System ("Fallbrook BESS" or "the Project") is located in San Diego County, California. The current owner of the Project is the San Diego Gas and Electric Company ("SDG&E") and was developed and sold by AES Energy Storage. The battery energy storage system was announced to the public

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in June 2020 and went into operation in March 2023. A second phase of the Fallbrook BESS ("Fallbrook 2.0 BESS") is currently being developed by Stella Energy Solutions, with an additional 30 MW of storage capacity being constructed directly east of the existing batteries. Fallbrook 2.0 BESS is estimated to become operational by the end of 2025.

The Surrounding Area: The Fallbrook BESS is located in the community of Fallbrook in the northwestern portion of San Diego County, California. San Diego County is located in southern California and borders Mexico to the south. As of May 2025, per the U.S. Energy Information Administration, the Fallbrook BESS is one of 38 battery energy storage systems in San Diego County and is the eighth largest battery energy storage system in the County. The largest battery energy storage system in San Diego County is the 250 MW Gateway Energy Storage System, developed by REV Renewables, and located east of Imperial Beach in unincorporated San Diego County, just north of the Mexican border.

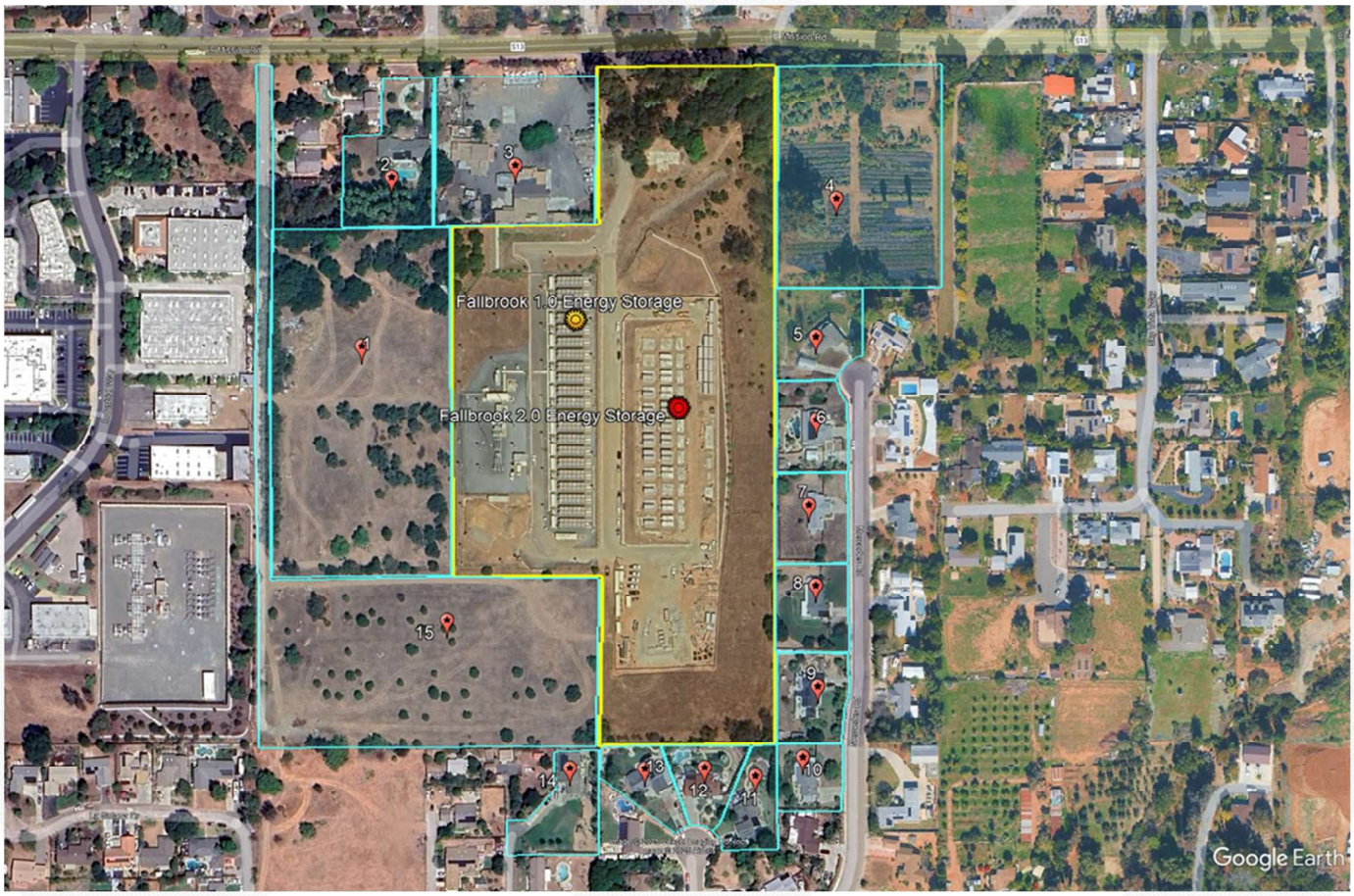
The Immediate Area: Surrounding land uses consist of single-family residential homes, large vacant residential lots, and industrial uses. The immediate area is characterized as primarily residential and there has been little new development over the past 15 years. As such, the Project is not located in the path of development in the community of Fallbrook.

Real Estate Tax Info:

In California, stand-alone BESS projects are subject to property tax at the County level and are assessed using the reproduction cost new less depreciation method with an economic life ranging from 10 to 25 years. However, historical property assessments and property tax bills for San Diego County are not available beyond the 2020-2021 tax year, after the Fallbrook BESS went into operation. In the most recent publicly available tax year of 2022-2023, the Project reportedly paid $16,013 in property taxes.

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The following maps display the parcels located within the BESS (outlined in yellow). Properties adjoining the BESS parcels (outlined in blue) are numbered for subsequent analysis.



Fallbrook Battery Energy Storage System – Adjoining Properties

PAIRED SALES ANALYSIS

We identified one single-family Adjoining Property that sold since the Fallbrook BESS started operation in march 2023: One single-family residential property, Adjoining Proprety 5, has sold since the Fallbrook BESS started operation in March 2023.

We identified single-family residential Control Area Sale data through the Zillow database. We have verified these sales through county records and conversations with brokers and sellers. We have excluded sales that were not arm's length, such as REO sales or bank-owned properties, or those between related properties. It is important to note that these Control Area Sales are not adjoining to any battery storage facility, nor do they have a view of one from the property. Therefore, the announcement nor the completion of the Fallbrook BESS use could have impacted the sales prices of these properties.

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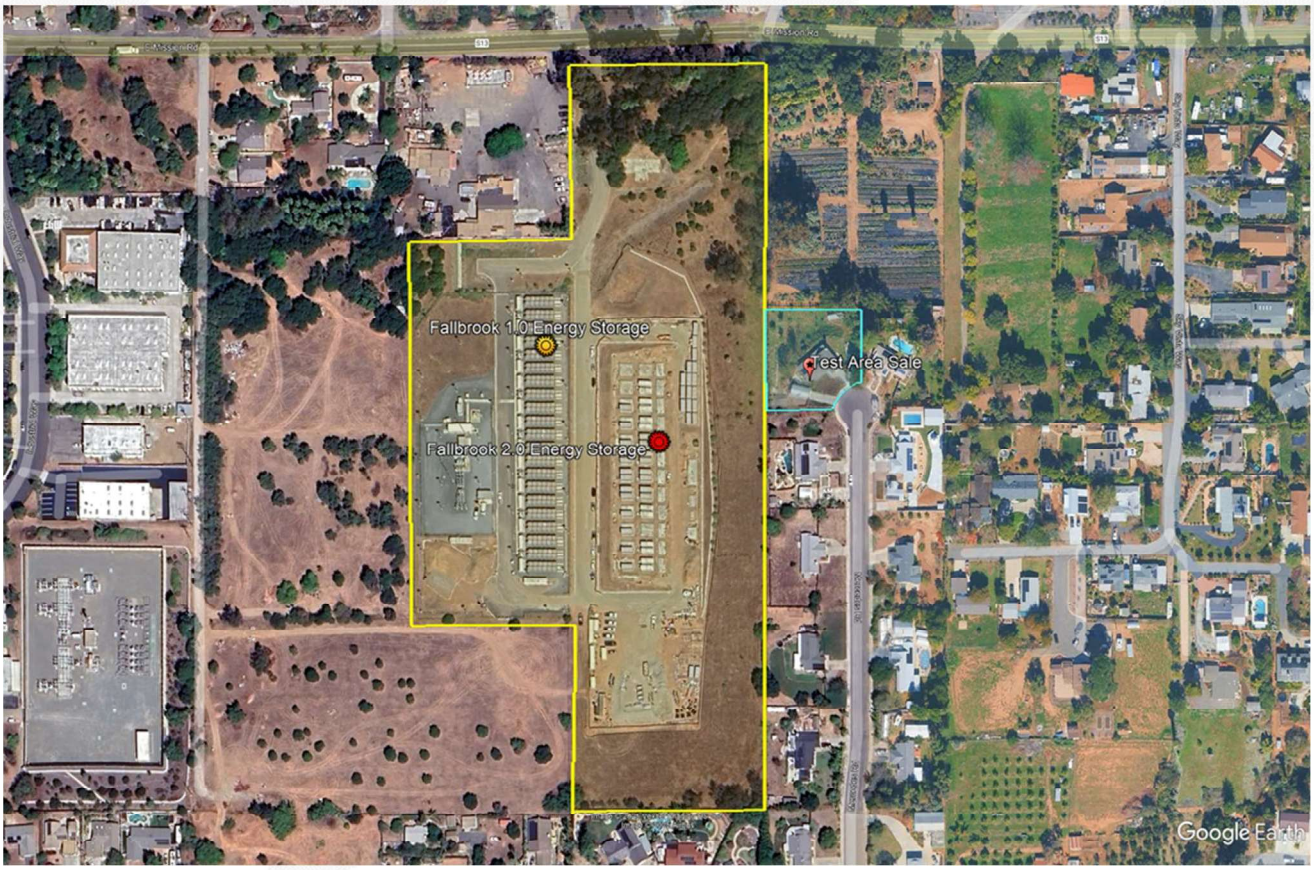
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Group 1 – Improved Single-Family Residential Properties

Adjoining Property 5 to the Fallbrook Battery Energy Storage System was considered for a paired sales analysis, and we analyzed this property as a single-family home use in Group 1. The improvements on the property are are located 425 feet to the nearest improvment of the battery energy storage system.

SUMMARY OF TEST AREA SALE - GROUP 1 Fallbrook Energy Storage										
Adj. Property #	Address	Sale Price	Beds	Baths	Year Built	Home Size (SF)	Improvements	Site Size (AC)	Sale Price / SF	Sale Date
5	397 Mercedes Road, Fallbrook, CA 92028	$810,000	3	2.0	1988	1,453	One-Story SFH with Two-Car Attached Garage, Workshop and Shed	0.63	$557.47	Apr-24

We analyzed 8 Control Area Sales of single-family homes with similar construction and use that were not located in close proximity to the battery energy storage system, that sold within a similar time frame from the sale date of the Test Area Sale in Group 1. The Control Area Sales for Group 1 are one-story, single-family homes with three bedrooms and two bathrooms, consist of between 1,240 square feet and 1,664 square feet of gross living area, a lot size between 0.33 and 1.00-acres, and contain garage parking. Additionally, the Control Area Sales for Group 1 were constructed between 1975 and 1990, and are all located within the community of Fallbrook.



Fallbrook Battery Energy Storage System – Test Area Sale Map, Group 1

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The Control Area Sales were adjusted for market conditions using the Federal Housing Finance Agency's House Price Index (HPI), a weighted, repeated-sales index measuring the average price changes in repeat sales or refinancing of the same properties. The result of our analysis for the Fallbrook Battery Energy Storage System – Group 1 is presented below.

CohnReznick Paired Sale Analysis Fallbrook BESS - Group 1		
No. of Sales	**Potentially Impacted by BESS**	**Adjusted Median Price Per SF**
Test Area Sale (1)	Adjoining BESS	$557.47
Control Area Sales (8)	No: Not adjoining BESS	$513.52
Difference between Unit Price of Test Area Sale and Adjusted Median Unit Price of Control Area Sales		**8.56%**

The median days on market for the Control Area sales was 30 days (ranging from 27 to 71 days), while the days on market for Adjoining Property 5 was 29 days, and ***we note no negative marketing time differential.***

Noting no negative price differential, it does not appear that the Fallbrook Battery Energy Storage System use impacted the sale price of the Test Area Sale, Adjoining Property 5.

Before & After Analysis – Fallbrook Battery Energy Storage System

We note the Test Area Sale in Group 1 of the Fallbrook Battery Energy Storage System (Adjoining Property 5) has sold at least twice over a ten year period. To determine if any of the rates of appreciation for these identified home sales were affected by the proximity to the Fallbrook Battery Energy Storage System, we prepared a Repeat-Sales Analysis on the identified adjoining property. First, we calculated the total appreciation between each sale of the same property, the number of months that elapsed between each sale, and determined the monthly appreciation rate. Then, we compared extracted appreciation rates reflected in the Federal Housing Finance Agency (FHFA) Home Price Index for California's 920 Three Digit Zip Code, where Adjoining Property 5 is located, over the same period. The index for the zip code is measured on a quarterly basis and is presented below.

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920 Three Digit Zip Code - Housing Price Index Change (Quarter over Quarter) Not Seasonally Adjusted			
Three-Digit ZIP Code	Year	Quarter	Index (NSA)
920	2015	1	264.92
920	2015	2	269.86
920	2015	3	275.53
920	2015	4	279.67
920	2016	1	283.15
920	2016	2	286.99
920	2016	3	292.29
920	2016	4	296.43
920	2017	1	301.53
920	2017	2	307.03
920	2017	3	313.20
920	2017	4	316.37
920	2018	1	321.99
920	2018	2	326.20
920	2018	3	328.41
920	2018	4	329.02
920	2019	1	329.52
920	2019	2	332.92
920	2019	3	337.00
920	2019	4	338.76
920	2020	1	342.49
920	2020	2	346.99
920	2020	3	352.13
920	2020	4	359.83
920	2021	1	371.63
920	2021	2	395.70
920	2021	3	418.88
920	2021	4	437.58
920	2022	1	459.42
920	2022	2	493.62
920	2022	3	485.51
920	2022	4	477.41
920	2023	1	482.48
920	2023	2	501.69
920	2023	3	512.81
920	2023	4	513.97
920	2024	1	524.03
920	2024	2	539.62
920	2024	3	538.69
920	2024	4	546.14
920	2025	1	543.52
920	2025	2	544.58

We have presented the full repeat sales analysis on the following page.

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Repeat Sales Analysis											920 Three Digit Zip Code - FHFA Housing Price Index			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
5	397 Mercedes Road, Fallbrook, CA 92028	0.63	1,453	4/24/2024	$810,000	4/6/2018	$470,000	72.34%	73	0.75%	539.62	326.20	65.43%	0.70%
	Test Area Sales									***0.75%***				***0.70%***

Repeat Sales Analysis											920 Three Digit Zip Code - FHFA Housing Price Index			
Property ID	Address	Land Area (Acres)	Total Finished Living Area (SF)	Most Recent Sale Date	Most Recent Sale Price	Prior Sale Date	Prior Sale Price	Total Appreciation	Months Elapsed Between Sales	Monthly Appreciation Rate	Index Level During Quarter of Most Recent Sale	Prior Sale Quarter Index Level	Total Appreciation	Monthly Appreciation Rate
C2	209 Shetland Way, Fallbrook, CA 92028	0.35	1,354	3/6/2025	$775,000	7/31/2019	$450,000	72.22%	67	0.81%	543.52	337.00	61.28%	0.71%
C5	1105 S Stage Coach Ln, Fallbrook, CA 9202	0.50	1,520	11/18/2024	$815,000	7/8/2021	$668,500	21.91%	40	0.49%	546.14	418.88	30.38%	0.66%
C7	1315 Via Feliz, Fallbrook, CA 92028	0.58	1,240	7/26/2024	$779,000	11/2/2021	$635,000	22.68%	33	0.63%	538.69	437.58	23.11%	0.64%
C10	2543 Buena Rosa, Fallbrook, CA 92028	0.44	1,342	4/12/2024	$660,000	5/26/2021	$545,000	21.10%	35	0.56%	539.62	395.70	36.37%	0.90%
C13	1311 E Fallbrook St, Fallbrook, CA 92028	0.43	1,664	9/21/2023	$699,950	8/8/2018	$408,000	71.56%	61	0.88%	512.81	328.41	56.15%	0.73%
C14	3027 Ridge Creek Dr, Fallbrook, CA 92028	1.00	1,256	9/11/2023	$780,000	2/7/2019	$535,000	45.79%	55	0.69%	512.81	329.52	55.62%	0.81%
C15	1069 Hillcrest View Ln, Fallbrook, CA 92028	0.54	1,590	9/6/2023	$742,000	10/28/2020	$565,000	31.33%	34	0.80%	512.81	359.83	42.51%	1.04%
	Median - Control Area Sales	*0.50*	*1,354*							***0.69%***				***0.73%***

Conclusion

When compared to the FHFA home price index for the 920-zip code, the Control Area Sales exhibited a similar rate of appreciation as the Home Price Index for the 920-zip code, as depicted by the far-right column in the table above. As such, we have concluded that there does not appear to be a consistent detrimental impact on properties adjacent to the Fallbrook Battery Energy Storage System.

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TECHNIQUE 2: MARKET COMMENTARY

Additionally, we have contacted market participants such as appraisers, brokers, and developers familiar with property values around battery energy storage systems. Commentary from our conversations with these market participants is recorded below.

Michael Milks, Lackawanna Township Assessor in Mercer County, New York, where the **20 MW NY6 BESS** is located, stated that *his office has not noticed any trends in home values nearby the facility, nor have there been any complaints or assessment reductions for homeowners in the surrounding area due to the facility.*

Michael Cowan, a Canyon County, Idaho, Senior Commercial Appraiser, where the **82 MW Happy Valley BESS** is located, noted that *they have not noticed any abnormal effects on home sale prices in the area surrounding the Happy Valley BESS.*

Mary Mahady, the McHenry Township, Illinois, Assessor where the **19.8 MW McHenry BESS** is located, stated that *there have been no complaints regarding exterior issues from the BESS*. Additionally, property values in the area have increased and *there is no information indicating a negative impact on neighboring properties.*

James Burke, the Marengo Township, Illinois, Assessor where the **20 MW Marengo BESS** is located, noted that since the battery energy storage system began operation in December 2018 *there have been no adjustments warranted to assessments or appeals filed for the adjacent parcels* to the Marengo BESS due to their proximity to the facility.

Karlene McCabe, the San Diego County, California, Supervising Appraiser where the **40 MW Vista BESS** is located, stated that the adjoining residential condominium complex have seen *values trend upward from before to after the completion of the battery energy storage system.* Based on this data, there have not been any adjustment warranted to property assessments for proximity to the Vista BESS.

Gus Kramer, the Contra Costa County, California Assessor where the **200 MW Diablo Energy BESS** is located, stated that since the battery energy storage facility was completed in April 2022 t*here has been no measurable difference in sale prices of homes in the adjoining residential community to the east of the BESS facility compared to home sales in the surrounding area.* Additionally, no assessment appeals have been filed by adjoining property owners due to proximity to the Diablo Energy BESS.

Michael Schoffner, a real estate broker with Keller Williams Realty, stated that the Asheville-Rockhill BESS [in Asheville, North Carolina] did not factor into the sellers' decision to sell an adjoining home and that *the facility was never brought up as a concern among buyers.* The property attracted multiple offers and Mr. Shoffner noted that *the battery facility did not impact the sale in any way.*

Mark Mommsen, an agricultural land real estate broker with Goodrick & Waddell Real Estate Services, noted that *there was no discussion of the adjacent Marengo Battery Storage facility [in Marengo Township, Illinois] among potential buyers during the marketing process.*

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Shawn Strach, a real estate broker with Dream Real Estate, stated that the McHenry BESS [in McHenry Township, Illinois] had no influence on the owners decision to sell the property and *the buyer did not have any concern about the McHenry BESS* either.

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BATTERY ENERGY STORAGE SYSTEM FACTORS ON HARMONY OF USE

Zoning changes and conditional use permits often require that the proposed use is compatible with surrounding uses.

The following section analyzes specific physical characteristics of battery energy storage systems and is based on research and CohnReznick's personal battery energy storage system site visits and indicate that battery energy storage systems are generally harmonious with surrounding property and compliant with most zoning standards.

Appearance: Most battery energy storage systems have a similar appearance to a shipping container and can range from 8 to 12 feet in height. As previously mentioned, developers generally surround a battery energy storage system with a fence and often leave existing perimeter foliage, which minimizes the visibility of the battery energy storage system. The physical characteristics of battery energy storage systems are compatible with adjoining agricultural and residential uses.

Sound: Battery energy storage systems in general are effectively silent and sound levels are minimal, like ambient sound. There are limited sound-emitting pieces of equipment on-site, which only produce a quiet hum (e.g., inverters, transformers, HVAC). However, these sources are not typically heard outside the battery energy storage system perimeter fence. Studies have shown that existing battery energy storage systems typically have a noise level below 60 dB at adjoining property lines, with lower levels achievable with increased screening measures such as fences, vegetation and larger setbacks.[13]

Odor: Battery energy storage systems do not produce any byproduct or odor.

Greenhouse Gas (GHG) Emissions: Much of the GHG produced in the United States is linked to the combustion of fossil fuels, such as coal, natural gas, and petroleum, for energy use. Storing energy from operating energy generation uses does not have significant GHG emissions, promoting cleaner air and reducing carbon dioxide (CO_2) emissions to fight climate change.[14]

Traffic: The battery energy storage system requires minimal daily onsite monitoring by operational employees and thus minimal operational traffic.

Hazardous Material: Modern battery energy storage systems are constructed to U.S. government standards. The majority of battery energy storage systems installed in the U.S. utilize lithium-ion batteries as they offer high energy density and are cost efficient. Lithium-ion batteries are designed to be self-contained. During normal operations a lithium-ion battery will not leak chemicals and therefore would not contaminate local watersheds.[15] Reuse or recycling of materials would be prioritized over disposal, however, it is complicated and expensive to do so. This trend is beginning to change with a push from the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy has published a National Blueprint for Lithium Batteries. As part of the National

[13] Pacific Northwest National Laboratory: Energy Storage in Local Zoning Ordinances (10/1/2023)
[14] Union of Concerned Scientists: Frequently Asked Questions about Community-Level & Large-Scale Battery Energy Storage (9/1/2021)
[15] Pacific Northwest National Laboratory: Energy Storage in Local Zoning Ordinances (10/1/2023)

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Blueprint for Lithium Batteries, the large scale reuse and recycling of batteries within the U.S. has been identified as one of five goals.[16] Recycling is an area of significant focus in the battery energy storage system industry, and programs for batteries are advancing every year. While the exact method of recycling may not be known yet as it is dependent on specific design and manufacturer protocol, the equipment is designed with recyclability of its components in mind, and it is likely that battery energy storage recycling and reuse programs will only improve in 25 years' time.

[16] Union of Concerned Scientists: Frequently Asked Questions about Community-Level & Large-Scale Battery Energy Storage (9/1/2021)

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SUMMARY OF ADJOINING USES

The table below summarizes each Existing Battery Energy Storage System's adjoining uses.

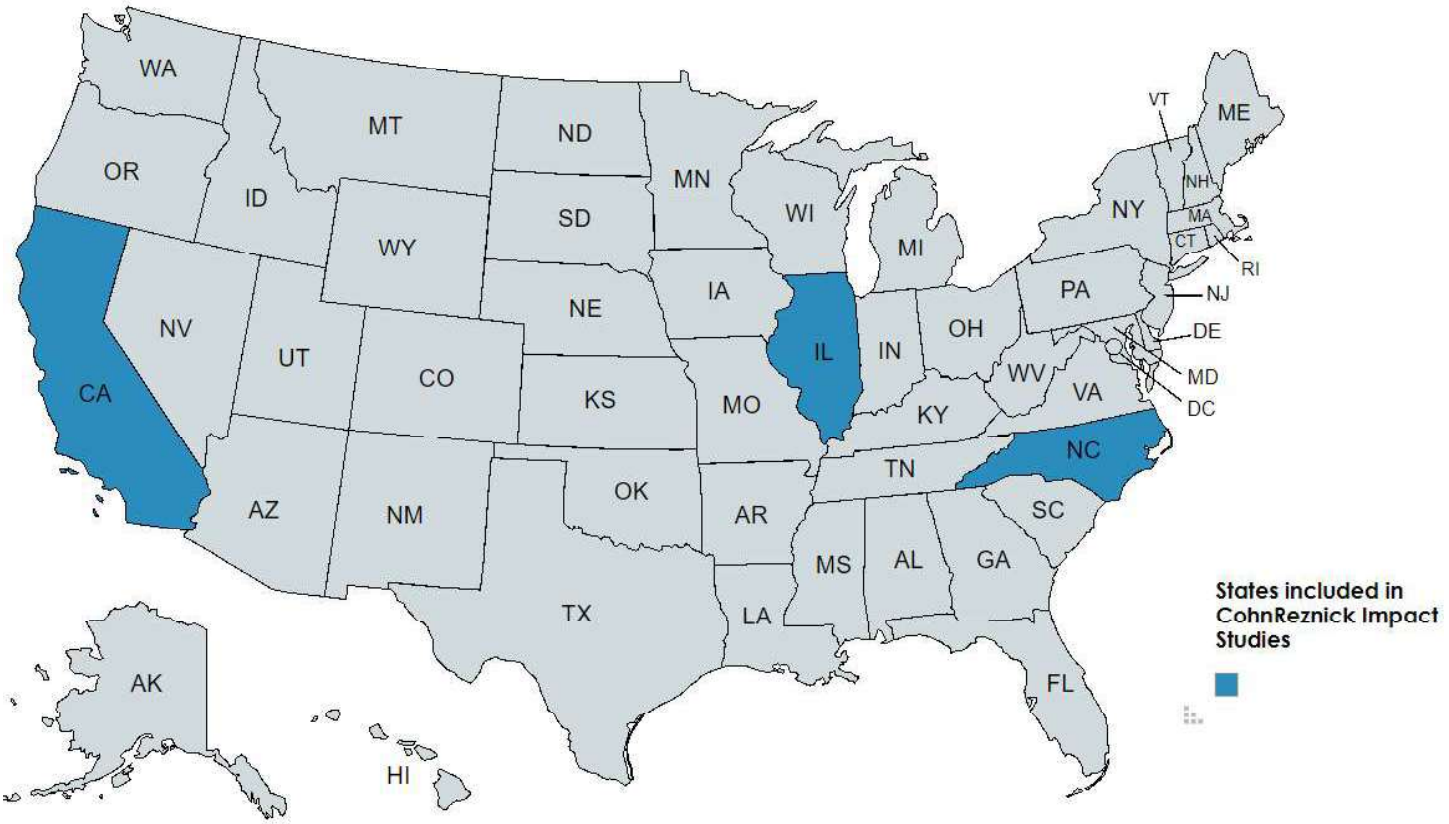
Composition of Surrounding Uses (% of Surrounding Acreage)							
BESS #	BESS	Acreage % of Surrounding Agricultural Uses	Acreage % of Surrounding Residential Uses	Acreage % of Surrounding Industrial Uses	Acreage % of Surrounding Office Uses	Acreage % of Surrounding Other Uses	Avg. Distance from Batteries to Improvements (Feet)
1	Marengo BESS	96.95%	1.35%	1.70%	0.00%	0.00%	3,100
2	McHenry BESS	51.43%	10.93%	0.00%	0.00%	37.64%	277
3	Asheville-Rock Hill BESS	0.00%	98.70%	0.00%	0.00%	1.30%	527
4	Vista BESS	0.00%	62.10%	0.00%	0.00%	37.90%	124
5	Fallbrook Battery Energy Storage System	33.00%	66.00%	0.00%	0.00%	0.00%	400

Overall, the vast majority of the surrounding acreage for each comparable battery energy storage system is made up of agricultural land, some of which have homesteads and single-family home sites that adjoin the battery energy storage systems analyzed in this report. Generally, these battery energy storage systems are sound comparables to Keystone Capture Energy's proposed battery energy storage system project in terms of adjoining uses, location, and size.

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SUMMARY AND FINAL CONCLUSIONS

The purpose of this property value impact report is to determine whether the presence of a battery energy storage system has caused a measurable and consistent impact on adjacent property values. Under the identified methodology and scope of work, CohnReznick reviewed published methodology for measuring impact on property values as well as published reports that analyzed the impact of battery energy storage systems on property values. These studies found little to no measurable and consistent difference between Test Area Sales and Control Area Sales attributed to the battery energy storage systems.



A summary of the chosen CohnReznick impact studies prepared is presented on the following page.

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CohnReznick BESS Analysis Conclusions								
BESS No.	BESS	Number of Test Area Sales	Number of Control Area Sales	Median Adjoining Property Sale Price per Unit (Test Area Sales)	Median Control Area Sales Price per Unit	Difference (%)	Avg. Feet from Battery to Lot	Avg. Feet from Battery to House
Single-Family Residential								
1	Marengo BESS Group 1a	1	5	$204.12	$204.51	-0.19%	1,000	1,140
	Marengo BESS Group 1b	1	7	$142.86	$139.58	+2.35%	1,000	1,140
2	McHenry BESS Group 1	1	4	$184.76	$184.53	+0.12%	265	315
	McHenry BESS Group 2	1	20	$105.93	$96.57	+9.70%	65	320
	McHenry BESS Group 3	1	5	$81.51	$83.36	-2.22%	235	265
3	Asheville-Rock Hill Group 1	1	9	$202.50	$204.70	-1.07%	370	505
	Asheville-Rock Hill Group 2	1	8	$229.59	$230.62	-0.44%	465	480
	Asheville-Rock Hill Group 3	1	15	$191.43	$193.95	-1.30%	640	800
	Asheville-Rock Hill Group 4	1	5	$163.67	$165.59	-1.16%	535	565
	Asheville-Rock Hill Group 5	1	6	$272.29	$271.61	+0.25%	470	535
4	Vista BESS Group 1	1	27	$533.33	$506.63	+5.27%	140	265
	Vista BESS Group 2	2	10	$263.02	$269.13	-2.27%	190	210
	Vista BESS Group 3	2	9	$422.19	$435.08	-2.96%	240	260
	Vista BESS Group 4	1	4	$269.65	$249.39	+8.12%	200	220
	Vista BESS Group 5	1	7	$442.71	$425.11	+4.14%	200	220
	Vista BESS Group 6	1	9	$308.17	$309.72	-0.50%	200	220
5	Fallbrook Energy Storage System Group 1	1	8	$557.47	$513.52	+8.56%	400	425
Median Variance in Sale Prices for Test Area Sales to Control Area Sales						**-0.19%**		
19 Adjoining Test Area Sales studied and compared to 158 Control Area Sales								

Land (Agricultural/Single Family Lots)								
1	Marengo BESS Group 2	1	10	$7,357	$7,516	+0.29%	118	-
Median Variance in Sale Prices for Test to Control Areas						**+0.29%**		
1 Adjoining Test Area Sale studied and compared to 10 Control Area Sales								

As summarized above, we evaluated 20 property sales adjoining existing battery energy storage system facilities (Test Area Sales) and 168 Control Area Sales. In addition, we studied a total of 6 Test Area Sales and 50 Control Area Sales in four Before and After analyses. In total, we have studied 244 sale transactions.

The battery energy storage systems analyzed reflected sales of property adjoining an existing battery energy storage system (Test Area Sales) in which the unit sale prices were effectively the same or higher than the comparable Control Area Sales that were not near a battery energy storage system. The conclusions support that there is no negative impact for improved residential homes adjacent to batteries, nor agricultural acreage. This was confirmed with market participants interviews, which provided additional insight as to how the market evaluates farmland and single-family homes with views of the battery energy storage system.

It can be concluded that since the Adjoining Property Sales (Test Area Sales) were not adversely affected by their proximity to the battery energy storage system, that properties surrounding other proposed battery energy storage systems operating in compliance with all regulatory standards will similarly not be adversely affected, in either the short or long term periods.

Based upon the examination, research, and analyses of the existing battery energy storage system uses, the surrounding areas, and an extensive market database, we have concluded that ***no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent battery energy storage system***, with regard to unit sale prices or other influential market indicators. This conclusion

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has been confirmed by numerous county assessors who have also investigated this use's potential impact on property values.

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick Advisory LLC





Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

New York License No. 46000051059
Expires 6/16/2028
Pennsylvania License No. GA004632
Expires 6/30/2027
Illinois License No. 553.001841
Expires 9/30/2027

Erin C. Bowen, MAI
Director - Valuation Advisory Services
Certified General Real Estate Appraiser

Nevada License No. 0208032
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Expires 06/30/2028

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CERTIFICATION

We certify that, to the best of our knowledge and belief:

1. The statements of fact and data reported are true and correct.
2. The reported analyses, findings, and conclusions in this consulting report are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, findings, and conclusions.
3. We have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
4. We have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
5. We have no bias with respect to the property that is the subject of this report or the parties involved with this assignment.
6. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
7. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value finding, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.
8. Our analyses, findings, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, which includes the Uniform Standards of Professional Appraisal Practice (USPAP).
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
10. Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.
11. We have not relied on unsupported conclusions relating to characteristics such as race, color, religion, national origin, gender, marital status, familial status, age, and receipt of public assistance income, handicap, or an unsupported conclusion that homogeneity of such characteristics is necessary to maximize value.
12. Joseph Ficenec provided significant appraisal consulting assistance to the persons signing this certification, including data verification, research, and administrative work all under the appropriate supervision.
13. We have experience in reviewing properties similar to the subject and are in compliance with the Competency Rule of USPAP.
14. As of the date of this report, Andrew R. Lines, MAI, CRE, and Erin C. Bowen, MAI have completed the continuing education program for Designated Members of the Appraisal Institute.

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If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick Advisory LLC





Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

New York License No. 46000051059
Expires 6/16/2028
Pennsylvania License No. GA004632
Expires 6/30/2027
Illinois License No. 553.001841
Expires 9/30/2027

Erin C. Bowen, MAI
Director - Valuation Advisory Services
Certified General Real Estate Appraiser

Nevada License No. 0208032
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ASSUMPTIONS AND LIMITING CONDITIONS

The fact witness services will be subject to the following assumptions and limiting conditions:

1. No responsibility is assumed for the legal description provided or for matter pertaining to legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated. The legal description used in this report is assumed to be correct.
2. The property is evaluated free and clear of any or all liens or encumbrances unless otherwise stated.
3. Responsible ownership and competent management are assumed.
4. Information furnished by others is believed to be true, correct and reliable, but no warranty is given for its accuracy.
5. All engineering studies are assumed to be correct. The plot plans and illustrative material in this report are included only to help the reader visualize the property.
6. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for obtaining the engineering studies that may be required to discover them.
7. It is assumed that the property is in full compliance with all applicable federal, state, and local and environmental regulations and laws unless the lack of compliance is stated, described, and considered in the evaluation report.
8. It is assumed that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in the evaluation report.
9. It is assumed that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
10. It is assumed that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
11. The date of value to which the findings are expressed in this report apply is set forth in the letter of transmittal. The appraisers assume no responsibility for economic or physical factors occurring at some later date which may affect the opinions herein stated.
12. Unless otherwise stated in this report, the existence of hazardous materials, which may or may not be present on the property, was not observed by the appraisers. The appraisers have no knowledge of the existence of such substances on or in the property. The appraisers, however, are not qualified to detect such substances. The presence of substances such as asbestos, urea-formaldehyde foam insulation, radon gas, lead or lead-based products, toxic waste contaminants, and other potentially hazardous materials may affect the value of the property. The value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value. No

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responsibility is assumed for such conditions or for any expertise or engineering knowledge required to discover them. The client is urged to retain an expert in this field, if desired.

13. The forecasts, projections, or operating estimates included in this report were utilized to assist in the evaluation process and are based on reasonable estimates of market conditions, anticipated supply and demand, and the state of the economy. Therefore, the projections are subject to changes in future conditions that cannot be accurately predicted by the appraisers, and which could affect the future income or value projections.

14. Fundamental to the appraisal analysis is the assumption that no change in zoning is either proposed or imminent, unless otherwise stipulated. Should a change in zoning status occur from the property's present classification, the appraisers reserve the right to alter or amend the value accordingly.

15. It is assumed that the property does not contain within its confined any unmarked burial grounds which would prevent or hamper the development process.

16. The Americans with Disabilities Act (ADA) became effective on January 26, 1992. We have not made a specific compliance survey and analysis of the property to determine if it is in conformance with the various detailed requirements of the ADA. It is possible that a compliance survey of the property, together with a detailed analysis of the requirements of the ADA, could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect on the value of the property. Unless otherwise noted in this report, we have not been provided with a compliance survey of the property. Any information regarding compliance surveys or estimates of costs to conform to the requirements of the ADA are provided for information purposes. No responsibility is assumed for the accuracy or completeness of the compliance survey cited in this report, or for the eventual cost to comply with the requirements of the ADA.

17. Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in this report.

18. Any proposed improvements are assumed to have been completed unless otherwise stipulated; any construction is assumed to conform with the building plans referenced in this report.

19. Unless otherwise noted in the body of this report, this evaluation assumes that the subject does not fall within the areas where mandatory flood insurance is effective.

20. Unless otherwise noted in the body of this report, we have not completed nor are we contracted to have completed an investigation to identify and/or quantify the presence of non-tidal wetland conditions on the subject property.

21. This report should not be used as a basis to determine the structural adequacy/inadequacy of the property described herein, but for evaluation purposes only.

22. It is assumed that the subject structure meets the applicable building codes for its respective jurisdiction. We assume no responsibility/liability for the inclusion/exclusion of any structural component item which may have an impact on value. It is further assumed that the subject property will meet code requirements as they relate to proper soil compaction, grading, and drainage.

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23. The appraisers are not engineers, and any references to physical property characteristics in terms of quality, condition, cost, suitability, soil conditions, flood risk, obsolescence, etc., are strictly related to their economic impact on the property. No liability is assumed for any engineering-related issues.

The evaluation services will be subject to the following limiting conditions:

1. The findings reported herein are only applicable to the properties studied in conjunction with the Purpose of the Evaluation and the Function of the Evaluation as herein set forth; the evaluation is not to be used for any other purposes or functions.
2. Any allocation of the total value estimated in this report between the land and the improvements applies only to the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are not valid if so used.
3. No opinion is expressed as to the value of subsurface oil, gas or mineral rights, if any, and we have assumed that the property is not subject to surface entry for the exploration or removal of such materials, unless otherwise noted in the evaluation.
4. This report has been prepared by CohnReznick under the terms and conditions outlined by the enclosed engagement letter. Therefore, the contents of this report and the use of this report are governed by the client confidentiality rules of the Appraisal Institute. Specifically, this report is not for use by a third party and CohnReznick is not responsible or liable, legally or otherwise, to other parties using this report unless agreed to in writing, in advance, by both CohnReznick and/or the client or third party.
5. Disclosure of the contents of this evaluation report is governed by the by-laws and Regulations of the Appraisal Institute has been prepared to conform with the reporting standards of any concerned government agencies.
6. The forecasts, projections, and/or operating estimates contained herein are based on current market conditions, anticipated short-term supply and demand factors, and a continued stable economy. These forecasts are, therefore, subject to changes with future conditions. This evaluation is based on the condition of local and national economies, purchasing power of money, and financing rates prevailing at the effective date of value.
7. This evaluation shall be considered only in its entirety, and no part of this evaluation shall be utilized separately or out of context. Any separation of the signature pages from the balance of the evaluation report invalidates the conclusions established herein.
8. **Possession of this report, or a copy thereof, does not carry with it the right of publication, nor may it be used for any purposes by anyone other than the client without the prior written consent of the appraisers, and in any event, only with property qualification.**
9. The appraisers, by reason of this study, are not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.
10. Neither all nor any part of the contents of this report shall be conveyed to any person or entity, other than the appraiser's client, through advertising, solicitation materials, public relations, news, sales or

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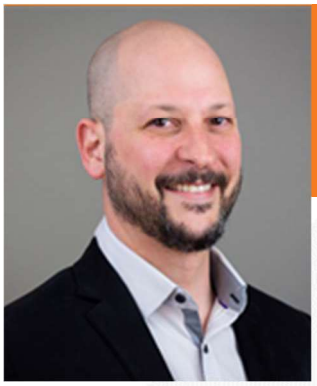
other media, without the written consent and approval of the authors, particularly as to evaluation conclusions, the identity of the appraisers or CohnReznick, LLC, or any reference to the Appraisal Institute, or the MAI designation. Further, the appraisers and CohnReznick, LLC assume no obligation, liability, or accountability to any third party. If this report is placed in the hands of anyone but the client, client shall make such party aware of all the assumptions and limiting conditions of the assignment.

11. This evaluation is not intended to be used, and may not be used, on behalf of or in connection with a real estate syndicate or syndicates. A real estate syndicate means a general or limited partnership, joint venture, unincorporated association or similar organization formed for the purpose of, and engaged in, an investment or gain from an interest in real property, including, but not limited to a sale or exchange, trade or development of such real property, on behalf of others, or which is required to be registered with the United States Securities and Exchange commissions or any state regulatory agency which regulates investments made as a public offering. It is agreed that any user of this evaluation who uses it contrary to the prohibitions in this section indemnifies the appraisers and the appraisers' firm and holds them harmless from all claims, including attorney fees, arising from said use.

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ADDENDUM A:
APPRAISER QUALIFICATIONS

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Andrew R. Lines, MAI, CRE

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Andrew R. Lines, MAI, CRE is a Partner for CohnReznick Advisory's Valuation Advisory Services practice who has been a CohnReznick employee for fourteen years. Andrew has been involved in the real estate business for 25 years and has performed valuations on all real estate classes (industrial, commercial, residential, development land). Special-use valuations include affordable housing (as well as market studies), student housing, senior housing, cannabis facilities (indoor/outdoor, processing and dispensaries), landfills, waste transfer stations, golf courses, marinas, hospitals, universities, telecommunications facilities, data centers, self-storage facilities, racetracks, and corridors. Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities, wind powered facilities, landfills, big box retail, waste transfer stations, private mental health clinics, cannabis dispensaries, concert/stadium venues and day care centers. He is also experienced in the valuation of leasehold, leased fee, and partial interests, as well as purchase price allocations (GAAP, IFRS and IRC 1060) for financial reporting.

Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, tax appeal, estate gifts, asset management, workouts, and restructuring, as well as valuation for financial reporting including purchase price allocations (ASC 805), impairment studies, and appraisals for investment company guidelines and REIS standards. Andrew has qualified as an expert witness, providing testimony for cases in the states of IL, DC, VA, NY and MD, and for zoning hearings in IL, IN, MI, NY, HI, OH, KY, CO, PA, WI and MO. Andrew has also performed appraisal review assignments for accounting purposes (audit support), asset management, litigation and as an evaluator for a large Midwest regional bank.

Andrew has earned the professional designation of Member of the Appraisal Institute (MAI) and is also a Counselor of Real Estate (CRE). He has also qualified for certified general commercial real estate appraiser licenses in AZ, CA, IL, IN, WI, MD, OH, NY, NJ, FL, GA, KY and DC. Temporary licenses have been granted in CT, CO, PA, ID, MS, KS, MT and SC.

Education

- Syracuse University: Bachelor of Fine Arts
- MAI Designation (Member of the Appraisal Institute)

Professional Affiliations

- Counselors of Real Estate (CRE)
- Chicago Chapter of the Appraisal Institute
- International Real Estate Management (IREM)
- National Council of Housing and Market Analysts (NCHMA)

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Erin C. Bowen, MAI

Director, Valuation Advisory Services

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Erin Bowen, MAI is a Director with CohnReznick in Valuation Advisory Services, where she leads a team of appraisers across the country performing valuation and consulting services on a wide variety of real estate.

Ms. Bowen specializes in renewable energy, lodging, cannabis, seniors housing, large scale retail and multifamily conversion properties. Lodging work includes all hotel property types and brand segments including limited, full service and resort properties; additionally, Ms. Bowen has appraised numerous hotel to multifamily conversion properties including market rate and affordable housing. Cannabis work includes dispensaries, cultivation facilities including specialized indoor facilities and greenhouse properties, processing and manufacturing facilities. Senior's housing assignments include assisted living, skilled nursing facilities and rehabilitation centers. Retail work spans power centers, lifestyle centers, outlet centers and malls. She has appraised numerous additional properties including multifamily, office, medical office, industrial, churches, and vacant land.

Ms. Bowen has expertise in appraising properties at all stages of development, including existing as is, proposed, under construction, renovations and conversion to alternate use. Valuations have been completed nationwide for a variety of assignments including litigation, eminent domain, tax appeal, mortgage financing, estate gifts, asset management, as well as valuation for financial reporting including purchase price allocations (ASC 805). Ms. Bowen has worked on numerous appraisal assignments for eminent domain use for both condemner and land owner.

Additionally, Ms. Bowen has specialized in Property Value Impact Analysis, measuring the possible detrimental impact of economic and environmental influences on property values for a variety of property types, including cell towers, stadiums, behavioral health centers with an emphasis on renewable energy facilities including solar and wind. She has qualified as an expert witness and testified in front of power siting boards, zoning boards and planning commissions in New Mexico, Ohio, Michigan, Kentucky, Indiana and Illinois.

Education

- University of California, San Diego: Bachelor of Arts in Psychology and Theater; College Honors

Professional Affiliations

- Designated Member of the Appraisal Institute

Licenses

- Active licenses in AZ, CA, NV, IA, NM, TX and OR

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Joe Ficenec

Senior Consultant, Valuation Advisory Services

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Joe Ficenec is a senior consultant in CohnReznick Advisory LLC's Valuation Advisory Services practice and is based in the Sacramento office. Joe specializes in Impact Study Reports, which have been conducted for zoning hearings related to the development of solar facilities and wind powered facilities. Joe has experience in attending public information meetings to address concerns regarding the impact of solar and wind powered facilities on local real estate values. He also has experience in assisting with the appraisal multifamily, office, industrial, retail, lodging and mixed-use properties for financing and purchase price allocation purposes.

Joe graduated with honors from the University of California, Davis in May 2017 with a major in managerial economics. Prior to joining CohnReznick, Joe worked as a Real Estate Assessor for a county government and as a consultant for a nationwide real estate firm in San Francisco.

Education

- University of California, Davis – B.S. Managerial Economics

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REAL ESTATE ADJACENT PROPERTY VALUE IMPACT REPORT:

Site Specific Analysis Addendum Report: For the Proposed 100 MW KCE NY 34 Battery Energy Storage System To Be Located in Ulster County, New York

Prepared For:

Paul Williamson
Director, Development
Key Capture Energy, LLC
711 Louisiana Street, Suite 2075
Houston, TX 77002

Submitted By:

CohnReznick Advisory LLC
Valuation Advisory Services
1 S. Wacker Drive, Suite 3500
Chicago, Illinois 60606
(312) 508-5900

Andrew R. Lines, MAI, CRE
Erin C. Bowen, MAI

July 31, 2026

LETTER OF TRANSMITTAL

July 31, 2026

Paul Williamson
Director, Development
Key Capture Energy, LLC
711 Louisiana Street, Suite 2075
Houston, TX 77002

SUBJECT: Addendum - Property Value Impact Report
Proposed 100 MW KCE NY 34 Battery Energy Storage System
Ulster County, New York

To whom it may concern:

This letter and associated report are considered an Addendum to the previously prepared property value impact report with an effective date of July 31, 2026 ("Primary Report"). All facts and circumstances surrounding the property value impact report that analyzes existing battery energy storage systems and any effect on adjacent property values are contained within the cited Primary Report. This Addendum cannot be properly understood without the cited Primary Report and should be reviewed in unison.

Per the client's request, we have researched the proposed battery energy storage system on land located in Ulster County, New York. The proposed battery energy storage use called the KCE NY 34 Battery Energy Storage System ("BESS") Project will have a capacity of up to 100 MW AC (megawatts alternating current).

The purpose of this consulting assignment is to determine whether proximity to a battery energy storage system has an impact on adjacent property values. The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of battery energy storage system use applications. We have not been asked to value any specific property, and we have not done so.

The client and intended users for the assignment are KCE NY 34, LLC and Key Capture Energy, LLC, and the client's legal, public affairs, and site development professionals. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick Advisory LLC ("CohnReznick").

The assignment is intended to conform to the Uniform Standards of Professional Appraisal Practice (USPAP), the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, as well as applicable state appraisal regulations.

Based on the analysis in the accompanying report, and subject to the definitions, assumptions, and limiting conditions expressed in the report, our findings are as follows.

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FINDINGS

I. CohnReznick Studies: Further, CohnReznick has performed studies in three states, of residential properties, in which we have no evidence that the existing battery energy storage systems have caused a consistent and measurable negative impact on property values.

For this Project, we have included five of these studies which are most similar to the subject in terms of general location and size, summarized as follows:

CohnReznick - Existing Battery Energy Storage Systems Studied						
BESS #	BESS	County	State	MW AC	Acreage	Date Project Completed
1	Marengo BESS	McHenry	IL	20.00	8.2	Dec-18
2	McHenry BESS	McHenry	IL	19.80	5.9	Dec-15
3	Asheville-Rock Hill BESS	Buncombe	NC	8.80	12.4	Aug-20
4	Vista BESS	San Diego	CA	40.00	0.9	Jun-18
5	Fallbrook Battery Energy Storage System	San Diego	CA	40.00	14.1	Mar-23

It is noted that proximity to the battery energy storage systems has not deterred sales of nearby residential single-family homes.

This report also includes three "Before and After" analyses, in which sales that occurred prior to the announcement and construction of the battery energy storage system project were compared with sales that occurred after completion of the battery energy storage system project, for both adjoining and non-adjoining properties. No measurable impact on property values was demonstrated.

II. Market Participant Interviews: Our conclusions also consider interviews with County and Township Assessors, who have at least one battery energy storage system in their jurisdiction, and in which they have reported no evidence that battery energy storage systems have negatively affected adjacent property values.

With regards to the Project, we specifically interviewed the following Assessors with battery energy storage systems in their jurisdiction:

- Michael Milks, Lackawanna Township Assessor in Mercer County, New York, where the **20 MW NY6 BESS** is located, stated that *his office has not noticed any trends in home values nearby the facility, nor have there been any complaints or assessment reductions for homeowners in the surrounding area due to the facility.*
- Michael Cowan, a Canyon County, Idaho, Senior Commercial Appraiser, where the **82 MW Happy Valley BESS** is located, noted *they have not noticed any abnormal effects on home sale prices in the area surrounding the Happy Valley BESS.*

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- Mary Mahady, the McHenry Township, Illinois, Assessor where the **19.8 MW McHenry BESS** is located, stated that *there have been no complaints regarding exterior issues from the BESS*. Additionally, property values in the area have increased and *there is no information indicating a negative impact on neighboring properties.*
- James Burke, the Marengo Township, Illinois, Assessor where the **20 MW Marengo BESS** is located, noted that since the battery energy storage system began operation in December 2018 *there have been no adjustments warranted to assessments or appeals filed for the adjacent parcels* to the Marengo BESS due to their proximity to the facility.
- Karlene McCabe, the San Diego County, California Supervising Appraiser where the **40 MW Vista BESS** is located, stated that the adjoining residential condominium complex have seen *values trend upward from before to after the completion of the battery energy storage system.* Based on this data, there have not been any adjustment warranted to property assessments for proximity to the Vista BESS.
- Gus Kramer, the Contra Costa County, California Assessor where the **200 MW Diablo Energy BESS** is located, stated that since the battery energy storage facility was completed in April 2022 *there has been no measurable difference in sale prices of homes in the adjoining residential community to the east of the BESS facility compared to home sales in the surrounding area.* Additionally, no assessment appeals have been filed by adjoining property owners due to proximity to the Diablo Energy BESS.

To give us additional insight as to how the market evaluates farmland and single-family homes with views of battery energy storage systems, we interviewed numerous real estate brokers and other market participants who were party to actual sales of property adjacent to batteries; these professionals also confirmed that battery energy storage systems did not diminish property values or marketability in the areas they assisted on sales of property.

III. Battery Energy Storage Systems on Harmony of Use: In the course of our research and studies, we have recorded information regarding the compatibility of these existing battery energy storage facilities and their adjoining uses, including the continuing development of land adjoining these facilities.

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CONCLUSION

Considering all of the preceding, including our research and analysis of the local area and proposed project plan, the data does not indicate that there is consistent and measurable evidence to presume a new battery energy storage system project proposed for the Subject Site will have a negative impact on surrounding property values.

If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Very truly yours,

CohnReznick Advisory LLC





Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

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Expires 6/16/2028
Pennsylvania License No. GA004632
Expires 6/30/2027
Illinois License No. 553.001841
Expires 9/30/2027

Erin C. Bowen, MAI
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CohnReznick

SCOPE OF WORK

CLIENT

The clients for this assignment are KCE NY 34, LLC and Key Capture Energy, LLC.

INTENDED USERS

KCE NY 34, LLC and Key Capture Energy, LLC; and the client's legal, public affairs, and site development professionals.

INTENDED USE

The intended use of our opinions and conclusions is to assist the client in addressing local concerns and to provide information that local bodies are required to consider in their evaluation of battery energy storage system project use applications. We have not been asked to value any specific property, and we have not done so. The report may be used only for the aforementioned purpose and may not be distributed without the written consent of CohnReznick Advisory LLC ("CohnReznick").

PURPOSE

The purpose of this consulting assignment is to determine whether proximity to the proposed battery energy storage system facility will result in an impact on adjacent property values.

DEFINITION OF VALUE

This report utilizes Market Value as the appropriate premise of value. Market value is defined as:

"The most probable price which a property should bring in a competitive and open market under all conditions, requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. Buyer and seller are typically motivated;
2. Both parties are well informed or well advised, and acting in what they consider their own best interests;
3. A reasonable time is allowed for exposure in the open market.
4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

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5. The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale."[1]

EFFECTIVE DATE & DATE OF REPORT

July 31, 2026 (Paired sale analyses contained within each study in the Primary Report are periodically updated).

PRIOR SERVICES

USPAP requires appraisers to disclose to the client any services they have provided in connection with the subject property in the prior three years, including valuation, consulting, property management, brokerage, or any other services.

We have not previously evaluated the Project site.

INSPECTION

Andrew R. Lines, MAI, CRE and Erin C. Bowen, MAI have viewed the exterior of all comparable data referenced in this report in person, via photographs, or aerial imagery.

[1] Code of Federal Regulations, Title 12, Chapter I, Part 34.42[h]

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IDENTIFICATION AND DESCRIPTION OF THE PROPOSED PROJECT

The KCE NY 34 BESS Project ("KCE NY 34 BESS" or "the Project") is to be located on land in between Peoples Road to the north, State Route 212 and Ulster Avenue to the south, Interstate-87 to the west and North Street and Market Street to the east in the Town of Saugerties in Ulster County, New York.

Based on development plans for a typical battery energy storage system, the proposed Project, KCE NY 34, will have a storage capacity of up to 100-megawatts and would generally consist of battery containers, a system substation, and other auxiliary infrastructure. The Project will occupy an approximate eight-acre footprint, with the right to develop approximately 11-acres, within a larger 59.8-acre leased parcel.

The site design will incorporate existing vegetation to mitigate visibility and sound to surrounding properties and the Project will be completely enclosed by 12-foot tall chain link fencing. Setbacks for the Project will be at least 100 feet to adjoining property lines to the north and south, at least 300 feet to adjoining property lines to the east, at least 500 feet to adjoining property lines to the west, and at least 900 feet to the nearest residential structure. The Project is expected to have a construction duration of approximately twelve to sixteen months, with an anticipated completion date in October 2030.

The Project parcel is bordered predominantly by industrial uses, agricultural uses as well as a Central Hudson Gas & Electric (CHGE) substation. The underlying leased parcel is illustrated by the polygon outlined in yellow and the KCE NY 34 BESS Project area is outlined in red on the following page.

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Proposed KCE NY 34 BESS Project underlying parcel boundary, outlined in yellow, and KCE NY 34 BESS Project area, outlined in red, as provided by Key Capture Energy, LLC

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Proposed KCE NY 34 BESS preliminary site plan as provided by Key Capture Energy, LLC

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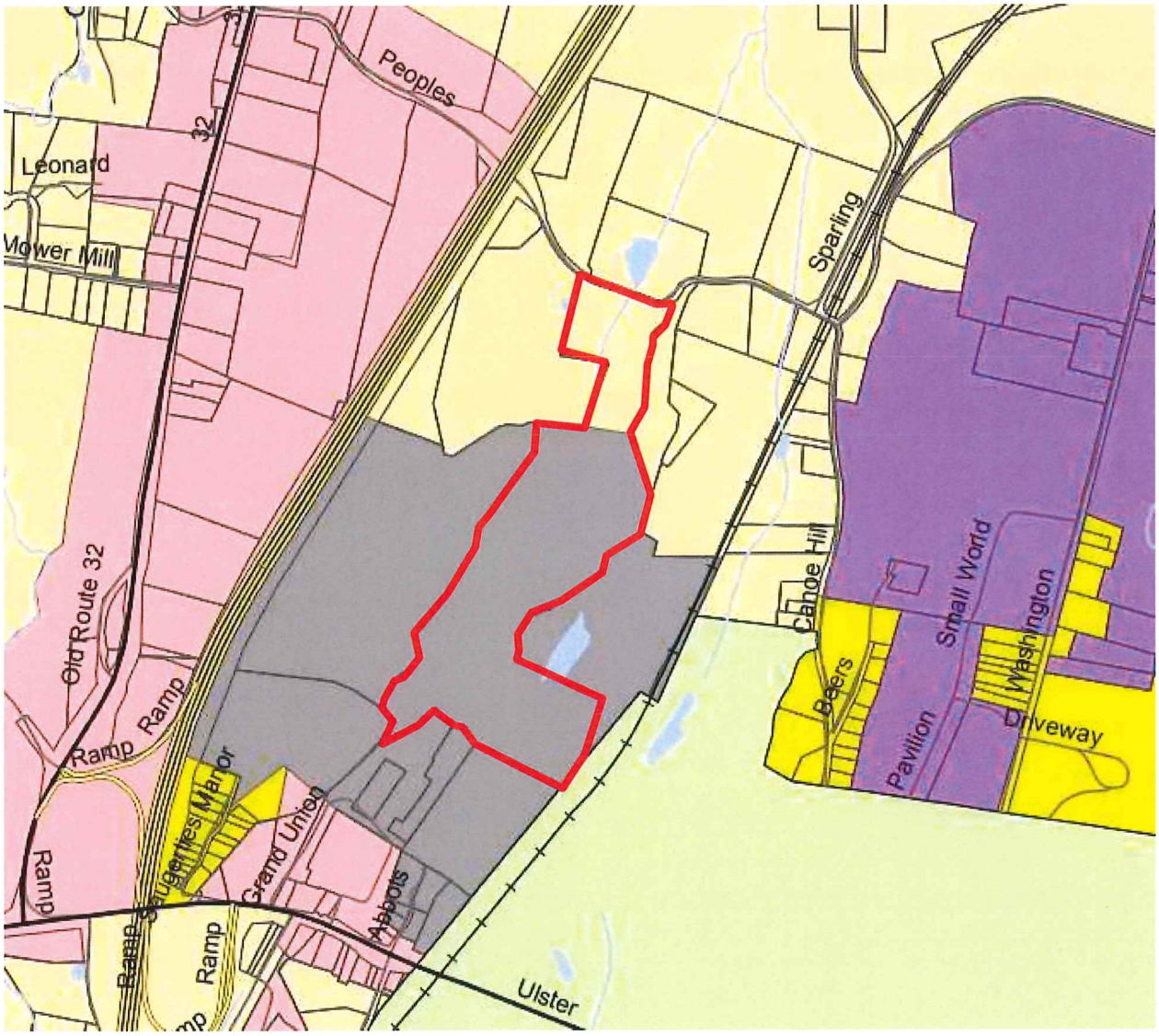
ZONING REGULATIONS

The underlying parcel on which the Project will be constructed is located in the Town of Saugerties in Ulster County, New York and is zoned within the Industrial (I) and Moderate-Density Residential (MDR) Districts of the Town of Saugerties. However, we note that the entirety of the Project area will be located within the portion of the underlying parcel that is zoned within the Industrial Zoning District. Per the Town of Saugerties Zoning Ordinance, the purpose of the I-District is to accommodate certain heavy industrial and other non-residential uses not permitted in other districts.

The Town of Saugerties does not have an ordinance in place regulating utility-scale battery energy storage systems ("BESS"), however, the Town of Saugerties has determined the Project is a Public Utility and should be permitted under special permit conditions. Pursuant to the zoning compliance notice from the Town of Saugerties CEO and Zoning Administrator, filed on March 30, 2025, the installation of a battery energy storage facility is permitted within the I-District with Town Planning Board review and issuance of a Special Use Permit (SUP). The facility is classified as "electric, gas and sanitary services" as noted in the Town of Saugerties Schedule of District Use Regulation §245-10.

An excerpt from the Town of Saugerties Zoning Map is presented on the following page, with the proposed Project parcel boundaries outlined in red.

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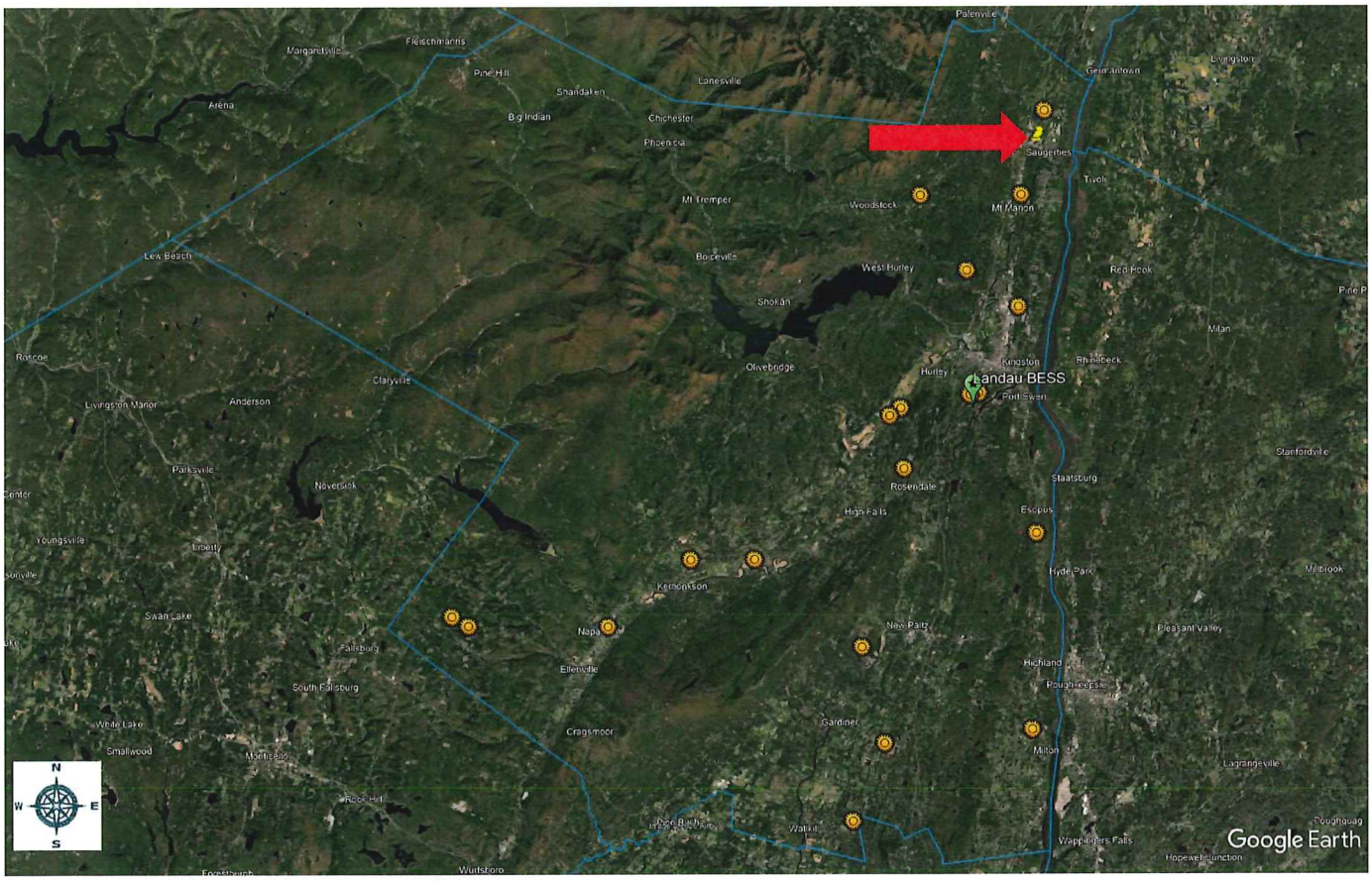
Legend

General Business	Parcel Boundary
High Density Residential	Railroad
Highway Business	Water
Industrial	
Low Density Residential	
Moderate Density Residential	
Office/Light Industrial	
Recreational Business	
Residential Hamlet	

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OVERVIEW OF THE SURROUNDING AREA OF THE PROJECT

The Project consists of a utility-scale, battery energy storage system in Ulster County, New York, known as the 100 MW KCE NY 34 BESS Project. As of May 2026, per the U.S. Energy Information Agency, there is one existing battery energy storage system facility located within Ulster County. The existing battery energy storage system in the county, the 4.0 MW Landau BESS was completed in December 2021 and is co-located with the 2.0 MW Landau I Solar and 4.0 MW Landau II Solar Projects, which were also completed in December 2021. Additionally, there have been 20 community-scale solar projects completed in Ulster County since 2018, one of which, the 3.5 MW Lightstar Renewables Project 1004 Solar Facility completed in November 2022, is located approximately one-mile north of the proposed KCE NY 34 Project site. A surrounding area map indicating the location of the Project (red arrow), existing solar projects (yellow suns) and existing BESS project (green pin) within Ulster County (blue lines) is presented below.



Aerial imagery of site area provided by Google Earth, dated May 2026

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TRAFFIC PATTERNS AND CONNECTIVITY

The KCE NY 34 BESS Project ("KCE NY 34 BESS" or "the Project") is to be located on land in between Peoples Road to the north, State Route 212 and Ulster Avenue to the south, Interstate-87 to the west and North Street and Market Street to the east in the Town of Saugerties in Ulster County, New York.

Local north-south roads include North Street and Market Street, which run approximately one-quarter mile east of the Project site, and State Route 32, which runs approximately one-quarter mile west of the Project site. Local east-west roads include Peoples Road, which runs along the northern boundary of the Project area and State Route 212/Ulster Avenue, which runs one-quarter mile south of the Project site. State Route 212/Ulster Avenue connects with Interstate-87 approximately one-quarter mile southwest of the Project site and provides north-south access throughout eastern New York, connecting the surrounding area towards the City of Albany to the north and New York City to the south.

The nearest major cities to the Project are Albany, approximately 40 miles to the northeast, Hartford, Connecticut, approximately 70 miles to the southeast, and Springfield, Massachusetts, approximately 70 miles to the east.

DEMOGRAPHIC FACTORS

Demographic data is presented below, as compiled by ESRI, which indicates slightly increasing future population and household trends for the five-year period ending in 2031 in the surrounding area. The data also indicates that the area is predominantly owner-occupied. Median household income is lower in the local area than in the county and state levels overall. These features indicate a stable economic base.

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DEMOGRAPHIC PROFILE			
	3 Mile Radius	Ulster County	New York
Population			
2031 Projection	11,736	181,391	20,107,898
2026 Estimate	11,653	181,803	20,114,131
2010 Census	11,657	182,493	19,378,097
Growth 2026 - 2031	0.71%	-0.23%	-0.03%
Growth 2010 - 2026	-0.03%	-0.38%	3.80%
Total Land Area	28 sq. mi.	1,124 sq. mi.	47,126 sq. mi.
Population Density	415/sq. mi	162/sq. mi	427/sq. mi
Households			
2031 Projection	5,437	77,360	7,957,988
2026 Estimate	5,279	75,908	7,855,095
2010 Census	4,897	71,049	7,317,754
Growth 2026 - 2031	2.99%	1.91%	1.31%
Growth 2010 - 2026	7.80%	6.84%	7.34%
2026 Owner Occupied (%)	55.77%	57.31%	46.21%
2026 Renter Occupied (%)	44.23%	42.69%	53.79%
2026 Med. Household Income	$74,401	$91,461	$89,937
2026 Avg. Household Income	$102,269	$128,095	$135,188

CONCLUSION

Land uses in the area surrounding the Project can be categorized as predominantly agricultural, residential and utility uses. Population growth in the Project Area has been stable over the past 16 years and is projected to increase slightly over the next five years. The factors presented previously indicate that the proposed Project would not be incompatible with surrounding uses and would not negatively impact surrounding properties due to low density and slowing growth trends.

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NEW YORK SOIL PRODUCTIVITY AND VALUE TRENDS

NCCPI PRODUCTIVITY INDEX

Crop yields have been the basis for establishing a soil productivity index, and are used by county assessors, farmers, and market participants in assessing agricultural land. While crop yields are an integral part in assessing soil qualities, it is not an appropriate metric to rely on because "yields fluctuate from year to year, and absolute yields mean little when comparing different crops. Productivity indices provide a single scale on which soils may be rated according to their suitability for several major crops under specified levels of management, such as an optimum level."[2] The productivity index, therefore, not crop yields, is best suited for applications in land appraisal and land-use planning.

The United States Department of Agriculture's (USDA) National Resources Conservation Services (NRCS) developed and utilizes the National Commodity Crop Productivity Index (NCCPI) as a national soil interpreter and is used in the National Soil Information System (NASIS), but it is not intended to replace other crop production models developed by individual states.[3] The focus of the model is on identifying the best soils for the growth of commodity crops, as the best soils for the growth of these crops are generally the best soils for the growth of other crops.[4] The NCCPI model describes relative productivity ranking over a period of years and not for a single year where external influences such as extreme weather or change in management practices may have affected production. At the moment the index only describes non-irrigated crops, and will later be expanded to include irrigated crops, rangeland, and forestland productivity.[5]

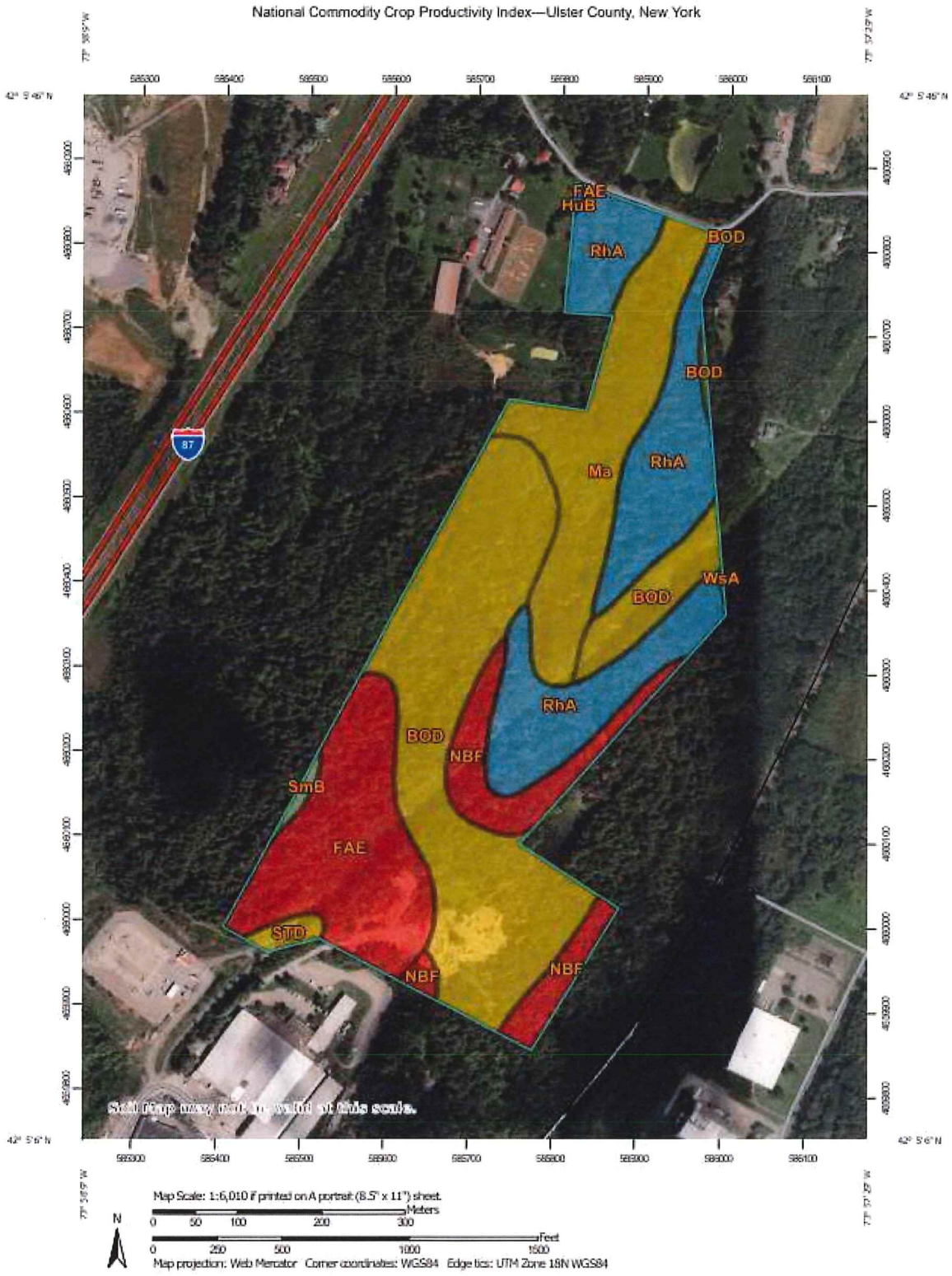
Yields are influenced by a variety of different factors including environmental traits and management inputs. Tracked climate and soil qualities have been proven by researchers to directly explain fluctuations in crop yields, especially those qualities that relate to moisture-holding capacity. Except for these factors, "inherent soil quality or inherent soil productivity varies little over time or from place to place for a specific soil (map unit component) identified by the National Cooperative Soil Survey (NCSS)."[6] The NRCS Web Soil Survey website has additional information on how the ratings are determined.

The proposed battery energy storage system will be located in Ulster County, in the southeastern portion of the state. An excerpt of a soil productivity map is presented below as retrieved from the USDA Web Soil Survey, which provides an illustration of the variation in soil productivity across the local area that is based on the NCCPI. The approximate site area for the Project is within boundary delineated below. Note, numerical labels correspond to soil type, not productivity index.

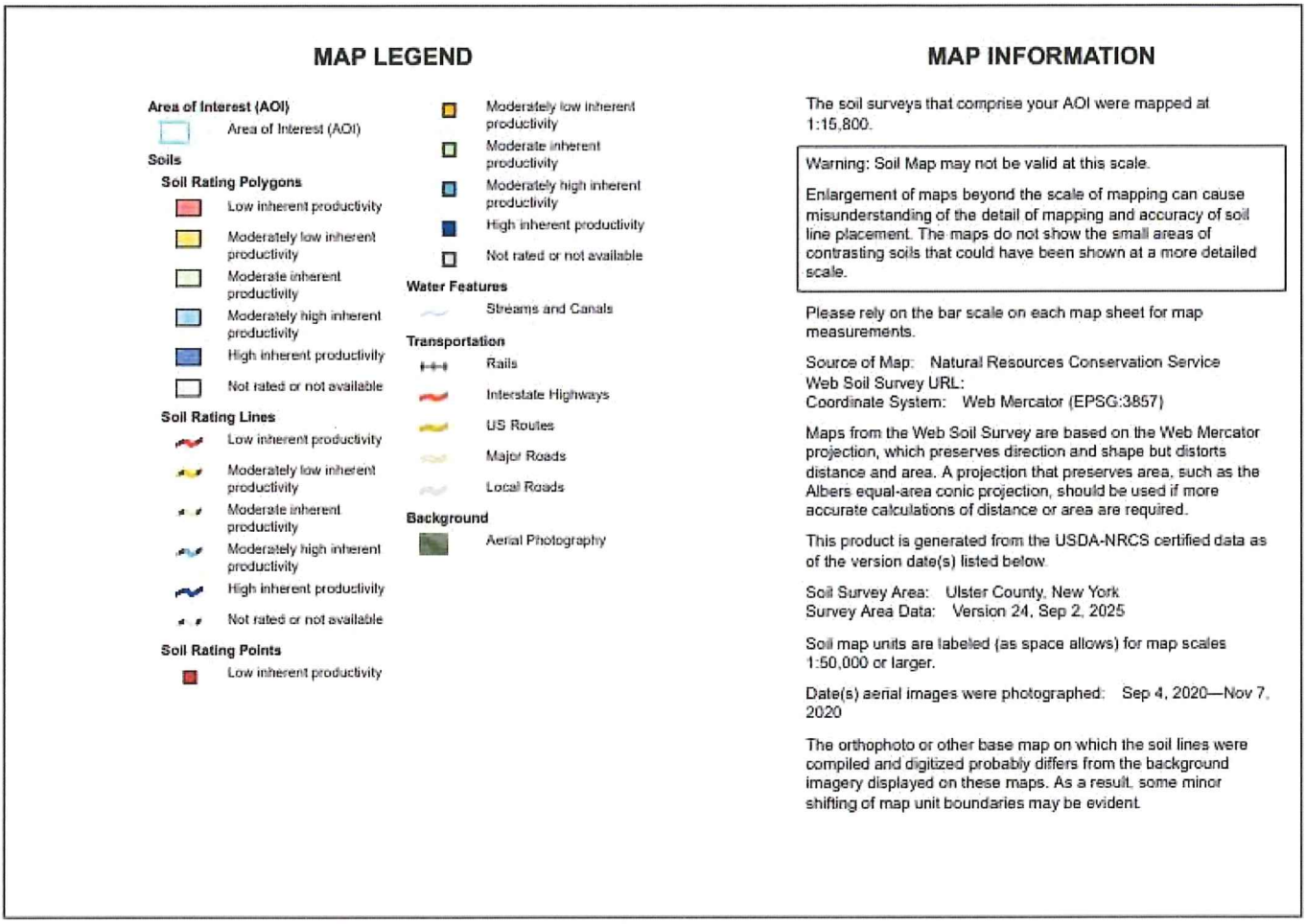
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[2] Bulletin 811: Optimum Crop Productivity of Illinois Soils. University of Illinois, College of Agricultural, Consumer and Environmental Sciences, Office of Research. August 200.
[3] Agricultural land rental payments are typically tied to crop production of the leased agricultural land and is one of the primary reasons the NCCPI was developed, especially since the model needed to be consistent across political boundaries.
[4] Per the User Guide for the National Commodity Crop Productivity Index, the NCCPI uses natural relationships of soil, landscape and climate factors to model the response of commodity crops in soil map units. The present use of the land is not considered in the ratings.
[5] AgriData Inc. Docs: http://support.agridatainc.com/NationalCommodityCropProductivityIndex(NCCPI).ashx
[6] USDA NRCS's User Guide National Commodity Crop Productivity Index (NCCPI)

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Per the NCCPI, soil productivity is measured on both a numerical scale from 0 to 100, with 0 being the worst and 100 being the best,[7] and by qualitative ratings. The qualitative rating classifications below are determined by the USDA NRCS and provide general comments on the productivity of the soil.

> **High inherent productivity** indicates that the soil, site, and climate have features that are very favorable for crop production. High yields and low risk of crop failure can be expected if a high level of management is employed.
>
> **Moderately high inherent productivity** indicates that the soil has features that are generally quite favorable for crop production. Good yields and moderately low risk of crop failure can be expected.
>
> **Moderate inherent productivity** indicates that the soil has features that are generally favorable for crop production. Good yields and moderate risk of crop failure can be expected.
>
> **Moderately low inherent productivity** indicates that the soil has features that are generally not favorable for crop production. Low yields and moderately high risk of crop failure can be expected.
>
> **Low inherent productivity** indicates that the soil has one or more features that are unfavorable for crop production. Low yields and high risk of crop failure can be expected.

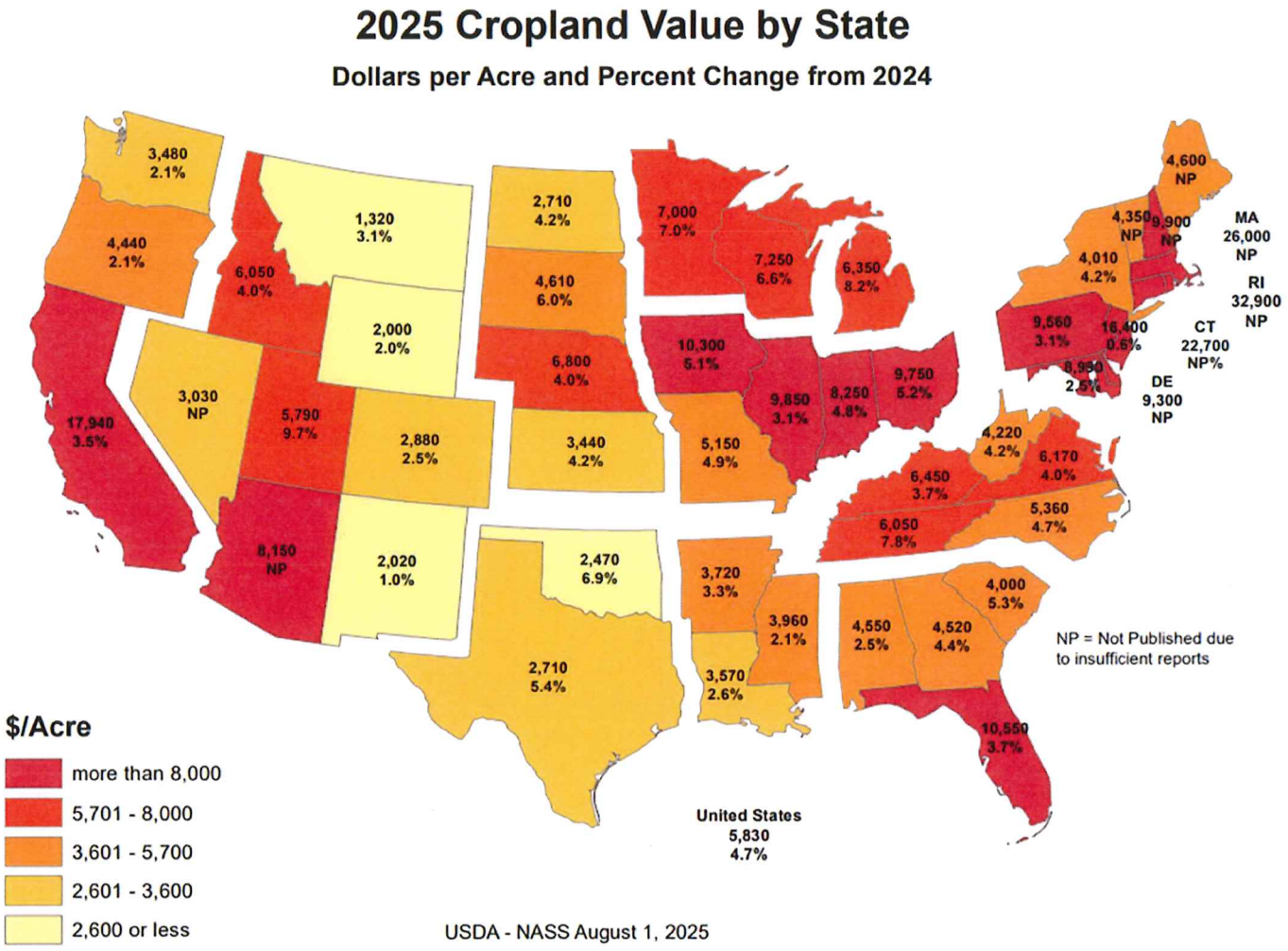
The weighted average soil productivity for the general area was determined to be approximately 35.30. A numerical scale that corresponds to the indicated qualitative ratings above was not available for the NCCPI; however, the soil productivity for this area is on the lower side of the range, aligning with the "low inherent productivity" category. According to the qualitative scale above, land with low inherent productivity classification is unfavorable for crop production.

[7] Quantitative ratings are also show in ranges of 0.00 to 1.00. AgriData Inc. presents the NCCPI index rating multiplied by 100 in a range of 0.00 to 100.00 to show up to four significant figures.

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AREA VALUE TRENDS - CROPLAND

Agricultural land values are heavily influenced by relative crop production yields. The following exhibit compiled by the USDA National Agricultural Statistics Service (NASS) provides an illustration of how regional conditions such as weather conditions, geographies, and soil conditions can affect crop land real estate values.



Per the NASS report, the average value of cropland in New York for 2025 is $4,010 per acre, which is an increase of 4.2 percent from 2024. In addition, the report indicated that the average annual growth rate for farmland values in New York from 2021 to 2025 was 6.9 percent.[8]

[8] https://downloads.usda.library.cornell.edu/usda-esmis/files/pn89d6567/2n49w148w/m039n441h/land0825.pdf

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AREA VALUE TRENDS – RESIDENTIAL HOMES

The proposed Project is to be located in the town of Saugerties, in Ulster County in the southeastern portion of New York. There are a mix of single-family types in this area, manufactured homes, and homes with one- and two- stories. Based on our research, homes in the area that have recently sold were constructed as early as the mid-19th century and as recently as 2025.

We searched for but did not identify any relevant transactions immediately adjacent to the proposed project boundaries, however, there has been steady sale activity in the broader study area surrounding the Project area throughout last year. From mid-July 2025 through mid-July 2026, we identified 20 market transactions of single-family homes that surround the Project area. The sale price per square foot ranges from $84 per square foot of living area to $464 per square foot of living area. The homes were listed on the market for between 47 days and 298 days, with a median marketing period of 140 days. The sales are summarized in the table below.

Home Sales Surrounding Proposed Project Area
(Mid-July 2025 through Mid-July 2026)

Single Family Homes	Median Lot Size (Acres)	Median Living Area (SF)	Median Year Built	Min. Sale Price	Max. Sale Price	Median Sale Price	Median Sale Price PSF
Surrounding Project Area	0.27	1,708	1948	$120,000	$1,200,000	$354,500	$215.94

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The following table illustrates residential home value trends for the proposed Project's Ulster County location. The source is the Federal Housing Finance Agency's (FHFA) House Price Index (HPI), which is a weighted, repeat-sales index measuring changes in single-family house prices.

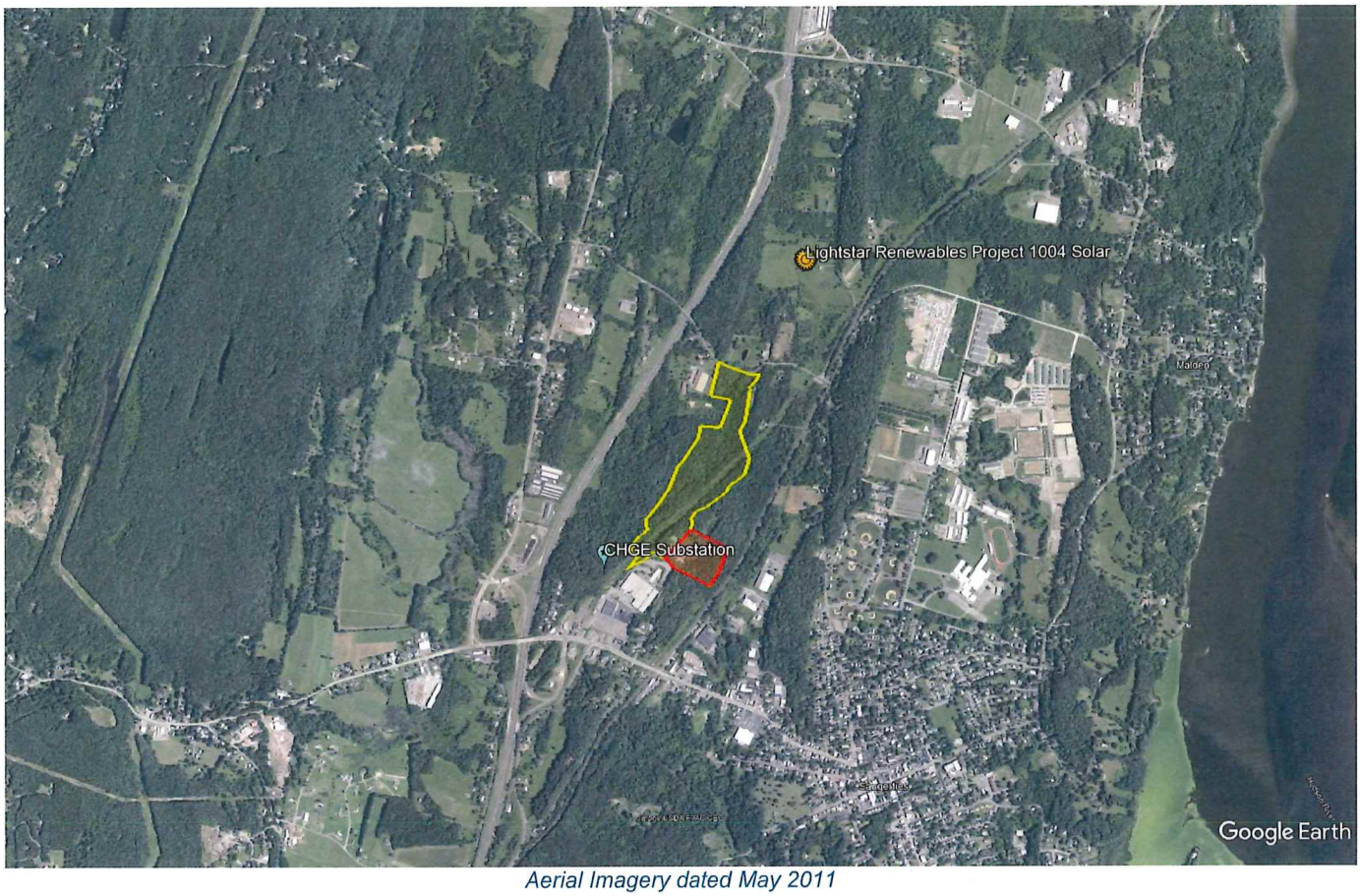
FHFA House Price Index Ulster County, New York		
Year	**Annual Change (%)**	**HPI**
2005	-	636.13
2006	6.92	680.15
2007	-0.40	677.46
2008	-3.27	655.30
2009	-5.74	617.69
2010	-3.85	593.93
2011	-3.67	572.11
2012	-5.00	543.53
2013	-1.70	534.31
2014	0.40	536.48
2015	1.55	544.81
2016	0.59	548.02
2017	5.45	577.91
2018	6.95	618.06
2019	6.42	657.76
2020	6.00	697.24
2021	18.24	824.39
2022	14.45	943.51
2023	8.01	1,019.07
2024	10.28	1,123.88
2025	3.25	1,160.35
Annual Average Compounded % Change	**3.05%**	

Based on the data shown above, the trend in residential home values in Ulster County has steadily increased at an average annual rate of 3.05 percent, over the past twenty years. The housing values in the county grew at a very strong rate between 2021 and 2024; however, recent macroeconomic conditions have resulted in a market correction based on increases in federal lending rates and general inflation, with a slowing of housing values approaching historical trends.

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LOCAL LAND DEVELOPMENT TRENDS

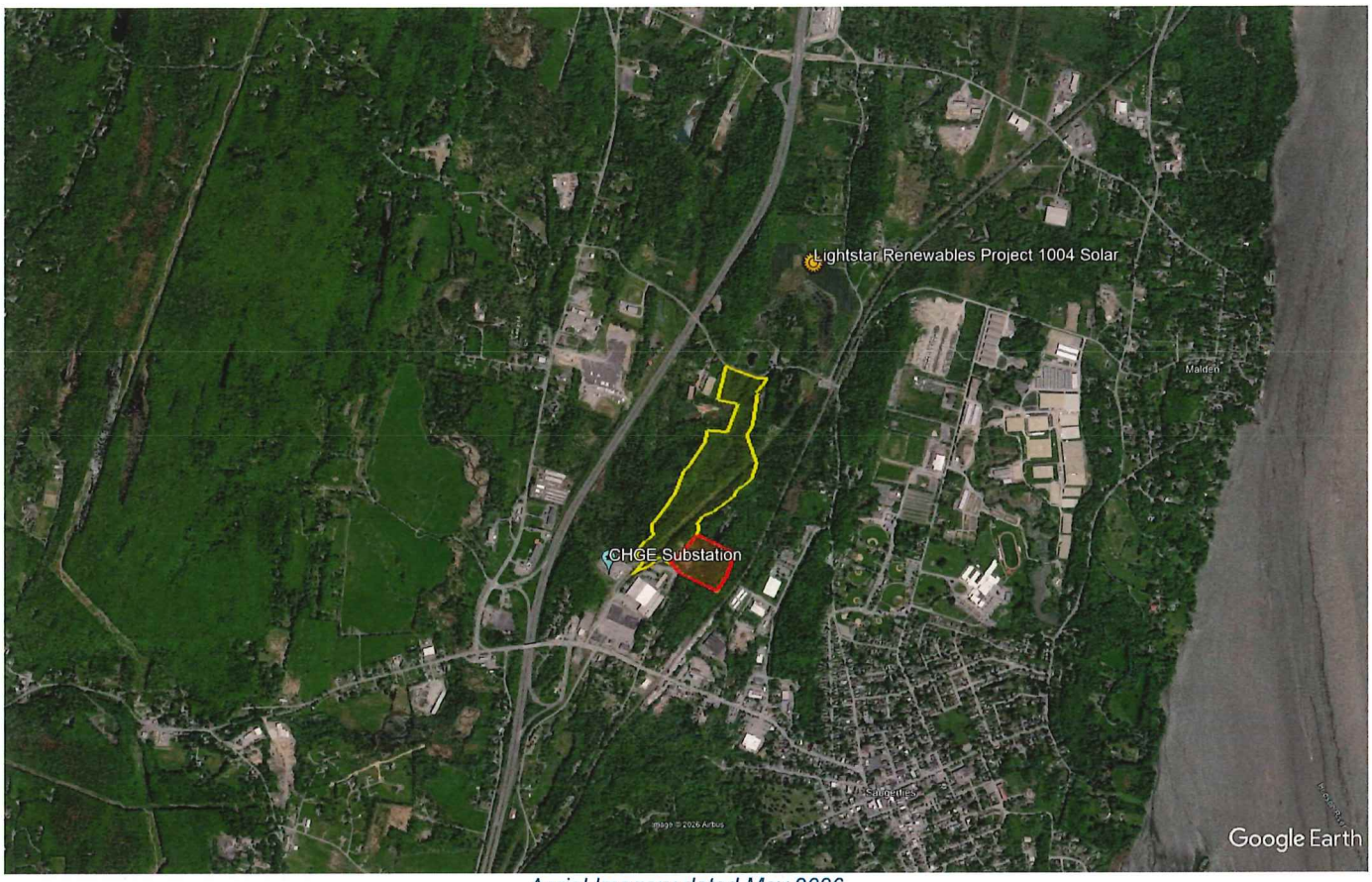
Land values can be driven by a site's proximity to the path of development. The closer a property is to the path of development, and without natural barriers to development, the more value a property may have in the future. Over the past 15 years, the primary development in the surrounding area has been the Central Hudson Gas & Electric ("CHGE") substation, located adjacent to the southwest of the proposed Project site, the 3.5 MW Lightstar Renewables Project 1004 Solar Facility which was completed in November 2022 to the north of the proposed Project site, and a small amount of commercial and industrial developments along Interstate-87 to the west of the proposed Project site. The existing substation (indicated by the blue pin) and existing solar project (indicated by the yellow sun) have started to establish a utility corridor in between I-87 to the west and the Village of Saugerties to the east. The Project area has been undeveloped timber and agricultural land for over 15 years.



Aerial Imagery dated May 2011

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CohnReznick



Aerial Imagery dated May 2026

According to the images above, the primary development in the local area over the past 15 years has been the CHGE substation, located southwest of the proposed Project site, as well as the 3.5 MW Lightstar Renewables Project 1004 Solar Facility to the north of the proposed Project site. Generally, any undeveloped timber or agricultural land is considered to be an interim use as the intensity of uses grows in step with macroeconomic factors.

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SUMMARY AND FINAL CONCLUSIONS

The Project is located in a stable area that is predominantly industrial in nature with scattered residential homesteads, agricultural uses and public utility uses. The population density (persons per square mile) for the surrounding area is 415 per square mile. Local development has consisted primarily of the CHGE substation and the 3.5 MW Lightstar Renewables Project 1004 Solar Facility over the past fifteen years and the surrounding land parcels are not expected to change from current uses. Local residential development has been steady over the past fifteen years. Overall, the proposed Project is considered a locally compatible use.

The purpose of the Primary Report and this addendum is to determine whether the presence of a battery energy storage system has caused a measurable and consistent impact on adjacent property values. Under the identified methodology and scope of work, CohnReznick reviewed published methodology for measuring impact on property values. These studies found little to no measurable and consistent difference between Test Area Sales and Control Area Sales attributed to the battery energy storage systems.

The chosen existing battery energy storage systems analyzed in the Primary Report reflected sales of property adjoining an existing battery energy storage system (Test Area Sales) in which the unit sale prices were effectively the same or higher than the comparable Control Area Sales that were not near a battery energy storage system. The conclusions support that there is no negative impact for improved residential homes adjacent to battery energy storage systems. This was confirmed with market participants interviews, which provided additional insight as to how the market evaluates single-family homes with views of a battery storage energy system.

It can be concluded that since the Adjoining Property Sales (Test Area Sales) were not adversely affected by their proximity to the battery energy storage system, that properties surrounding other proposed battery energy storage systems operating in compliance with all regulatory standards will similarly not be adversely affected, in either the short or long term periods.

Based upon the examination, research, and analyses of the existing battery energy storage system uses, the surrounding areas, and an extensive market database, we have concluded that ***no consistent negative impact has occurred to adjacent property values that could be attributed to proximity to the adjacent battery energy storage system***, with regard to unit sale prices or other influential market indicators. This conclusion has been confirmed by numerous county assessors who have also investigated this use's potential impact on property values.

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If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick Advisory LLC





Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

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Expires 6/16/2028
Pennsylvania License No. GA004632
Expires 6/30/2027
Illinois License No. 553.001841
Expires 9/30/2027

Erin C. Bowen, MAI
Director - Valuation Advisory Services
Certified General Real Estate Appraiser

Nevada License No. 0208032
Expires 10/31/2027
Oregon License No. C001551
Expires 06/30/2028

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CERTIFICATION

We certify that, to the best of our knowledge and belief:

1. The statements of fact and data reported are true and correct.
2. The reported analyses, findings, and conclusions in this consulting report are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, findings, and conclusions.
3. We have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.
4. We have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
5. We have no bias with respect to the property that is the subject of this report or the parties involved with this assignment.
6. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
7. Our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value finding, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.
8. Our analyses, findings, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute, which includes the Uniform Standards of Professional Appraisal Practice (USPAP).
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
10. Andrew R. Lines, MAI, CRE and Erin C. Bowen, MAI have viewed the exterior of the Project and of all comparable data referenced in this report in person, via photographs, or aerial imagery.
11. We have not relied on unsupported conclusions relating to characteristics such as race, color, religion, national origin, gender, marital status, familial status, age, and receipt of public assistance income, handicap, or an unsupported conclusion that homogeneity of such characteristics is necessary to maximize value.
12. Joe Ficenec provided consulting assistance to the persons signing this certification.
13. We have experience in reviewing properties similar to the subject and are in compliance with the Competency Rule of USPAP.
14. As of the date of this report, Andrew R. Lines, MAI, CRE, and Erin Bowen, MAI have completed the continuing education program for Designated Members of the Appraisal Institute.

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If you have any questions or comments, please contact the undersigned. Thank you for the opportunity to be of service.

Respectfully submitted,

CohnReznick Advisory LLC

Andrew R. Lines, MAI, CRE
Partner - Valuation Advisory Services
Certified General Real Estate Appraiser

New York License No. 46000051059
Expires 6/16/2028
Pennsylvania License No. GA004632
Expires 6/30/2027
Illinois License No. 553.001841
Expires 9/30/2027

Erin C. Bowen, MAI
Director - Valuation Advisory Services
Certified General Real Estate Appraiser

Nevada License No. 0208032
Expires 10/31/2027
Oregon License No. C001551
Expires 06/30/2028

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ASSUMPTIONS AND LIMITING CONDITIONS

The fact witness services will be subject to the following assumptions and limiting conditions:

1. No responsibility is assumed for the legal description provided or for matter pertaining to legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated. The legal description used in this report is assumed to be correct.
2. The property is evaluated free and clear of any or all liens or encumbrances unless otherwise stated.
3. Responsible ownership and competent management are assumed.
4. Information furnished by others is believed to be true, correct and reliable, but no warranty is given for its accuracy.
5. All engineering studies are assumed to be correct. The plot plans and illustrative material in this report are included only to help the reader visualize the property.
6. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for obtaining the engineering studies that may be required to discover them.
7. It is assumed that the property is in full compliance with all applicable federal, state, and local and environmental regulations and laws unless the lack of compliance is stated, described, and considered in the evaluation report.
8. It is assumed that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in the evaluation report.
9. It is assumed that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
10. It is assumed that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
11. The date of value to which the findings are expressed in this report apply is set forth in the letter of transmittal. The appraisers assume no responsibility for economic or physical factors occurring at some later date which may affect the opinions herein stated.
12. Unless otherwise stated in this report, the existence of hazardous materials, which may or may not be present on the property, was not observed by the appraisers. The appraisers have no knowledge of the existence of such substances on or in the property. The appraisers, however, are not qualified to detect such substances. The presence of substances such as asbestos, urea-formaldehyde foam insulation, radon gas, lead or lead-based products, toxic waste contaminants, and other potentially hazardous materials may affect the value of the property. The value estimate is predicated on the

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assumption that there is no such material on or in the property that would cause a loss in value. No responsibility is assumed for such conditions or for any expertise or engineering knowledge required to discover them. The client is urged to retain an expert in this field, if desired.

13. The forecasts, projections, or operating estimates included in this report were utilized to assist in the evaluation process and are based on reasonable estimates of market conditions, anticipated supply and demand, and the state of the economy. Therefore, the projections are subject to changes in future conditions that cannot be accurately predicted by the appraisers, and which could affect the future income or value projections.

14. Fundamental to the appraisal analysis is the assumption that no change in zoning is either proposed or imminent, unless otherwise stipulated. Should a change in zoning status occur from the property's present classification, the appraisers reserve the right to alter or amend the value accordingly.

15. It is assumed that the property does not contain within its confined any unmarked burial grounds which would prevent or hamper the development process.

16. The Americans with Disabilities Act (ADA) became effective on January 26, 1992. We have not made a specific compliance survey and analysis of the property to determine if it is in conformance with the various detailed requirements of the ADA. It is possible that a compliance survey of the property, together with a detailed analysis of the requirements of the ADA, could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect on the value of the property. Unless otherwise noted in this report, we have not been provided with a compliance survey of the property. Any information regarding compliance surveys or estimates of costs to conform to the requirements of the ADA are provided for information purposes. No responsibility is assumed for the accuracy or completeness of the compliance survey cited in this report, or for the eventual cost to comply with the requirements of the ADA.

17. Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in this report.

18. Any proposed improvements are assumed to have been completed unless otherwise stipulated; any construction is assumed to conform with the building plans referenced in this report.

19. Unless otherwise noted in the body of this report, this evaluation assumes that the subject does not fall within the areas where mandatory flood insurance is effective.

20. Unless otherwise noted in the body of this report, we have not completed nor are we contracted to have completed an investigation to identify and/or quantify the presence of non-tidal wetland conditions on the subject property.

21. This report should not be used as a basis to determine the structural adequacy/inadequacy of the property described herein, but for evaluation purposes only.

22. It is assumed that the subject structure meets the applicable building codes for its respective jurisdiction. We assume no responsibility/liability for the inclusion/exclusion of any structural

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component item which may have an impact on value. It is further assumed that the subject property will meet code requirements as they relate to proper soil compaction, grading, and drainage.

23. The appraisers are not engineers, and any references to physical property characteristics in terms of quality, condition, cost, suitability, soil conditions, flood risk, obsolescence, etc., are strictly related to their economic impact on the property. No liability is assumed for any engineering-related issues.

The evaluation services will be subject to the following limiting conditions:

1. The findings reported herein are only applicable to the properties studied in conjunction with the Purpose of the Evaluation and the Function of the Evaluation as herein set forth; the evaluation is not to be used for any other purposes or functions.
2. Any allocation of the total value estimated in this report between the land and the improvements applies only to the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are not valid if so used.
3. No opinion is expressed as to the value of subsurface oil, gas or mineral rights, if any, and we have assumed that the property is not subject to surface entry for the exploration or removal of such materials, unless otherwise noted in the evaluation.
4. This report has been prepared by CohnReznick under the terms and conditions outlined by the enclosed engagement letter. Therefore, the contents of this report and the use of this report are governed by the client confidentiality rules of the Appraisal Institute. Specifically, this report is not for use by a third party and CohnReznick is not responsible or liable, legally or otherwise, to other parties using this report unless agreed to in writing, in advance, by both CohnReznick and/or the client or third party.
5. Disclosure of the contents of this evaluation report is governed by the by-laws and Regulations of the Appraisal Institute has been prepared to conform with the reporting standards of any concerned government agencies.
6. The forecasts, projections, and/or operating estimates contained herein are based on current market conditions, anticipated short-term supply and demand factors, and a continued stable economy. These forecasts are, therefore, subject to changes with future conditions. This evaluation is based on the condition of local and national economies, purchasing power of money, and financing rates prevailing at the effective date of value.
7. This evaluation shall be considered only in its entirety, and no part of this evaluation shall be utilized separately or out of context. Any separation of the signature pages from the balance of the evaluation report invalidates the conclusions established herein.
8. **Possession of this report, or a copy thereof, does not carry with it the right of publication, nor may it be used for any purposes by anyone other than the client without the prior written consent of the appraisers, and in any event, only with property qualification.**

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9. The appraisers, by reason of this study, are not required to give further consultation or testimony or to be in attendance in court with reference to the property in question unless arrangements have been previously made.

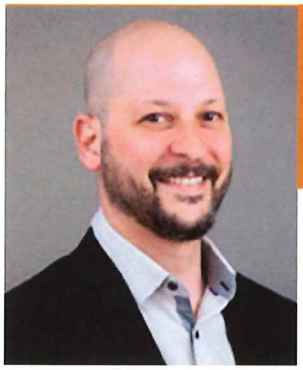
10. Neither all nor any part of the contents of this report shall be conveyed to any person or entity, other than the appraiser's client, through advertising, solicitation materials, public relations, news, sales or other media, without the written consent and approval of the authors, particularly as to evaluation conclusions, the identity of the appraisers or CohnReznick, LLC, or any reference to the Appraisal Institute, or the MAI designation. Further, the appraisers and CohnReznick, LLC assume no obligation, liability, or accountability to any third party. If this report is placed in the hands of anyone but the client, client shall make such party aware of all the assumptions and limiting conditions of the assignment.

11. This evaluation is not intended to be used, and may not be used, on behalf of or in connection with a real estate syndicate or syndicates. A real estate syndicate means a general or limited partnership, joint venture, unincorporated association or similar organization formed for the purpose of, and engaged in, an investment or gain from an interest in real property, including, but not limited to a sale or exchange, trade or development of such real property, on behalf of others, or which is required to be registered with the United States Securities and Exchange commissions or any state regulatory agency which regulates investments made as a public offering. It is agreed that any user of this evaluation who uses it contrary to the prohibitions in this section indemnifies the appraisers and the appraisers' firm and holds them harmless from all claims, including attorney fees, arising from said use.

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ADDENDUM A:
APPRAISER QUALIFICATIONS

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Andrew R. Lines, MAI, CRE

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Andrew R. Lines, MAI, CRE is a Partner for CohnReznick Advisory's Valuation Advisory Services practice who has been a CohnReznick employee for fourteen years. Andrew has been involved in the real estate business for 25 years and has performed valuations on all real estate classes (industrial, commercial, residential, development land). Special-use valuations include affordable housing (as well as market studies), student housing, senior housing, cannabis facilities (indoor/outdoor, processing and dispensaries), landfills, waste transfer stations, golf courses, marinas, hospitals, universities, telecommunications facilities, data centers, self-storage facilities, racetracks, and corridors. Impact Study Reports have also been generated for zoning hearings related to the development of solar facilities, wind powered facilities, landfills, big box retail, waste transfer stations, private mental health clinics, cannabis dispensaries, concert/stadium venues and day care centers. He is also experienced in the valuation of leasehold, leased fee, and partial interests, as well as purchase price allocations (GAAP, IFRS and IRC 1060) for financial reporting.

Valuations have been completed nationwide for a variety of assignments including mortgage financing, litigation, tax appeal, estate gifts, asset management, workouts, and restructuring, as well as valuation for financial reporting including purchase price allocations (ASC 805), impairment studies, and appraisals for investment company guidelines and REIS standards. Andrew has qualified as an expert witness, providing testimony for cases in the states of IL, DC, VA, NY and MD, and for zoning hearings in IL, IN, MI, NY, HI, OH, KY, CO, PA, WI and MO. Andrew has also performed appraisal review assignments for accounting purposes (audit support), asset management, litigation and as an evaluator for a large Midwest regional bank.

Andrew has earned the professional designation of Member of the Appraisal Institute (MAI) and is also a Counselor of Real Estate (CRE). He has also qualified for certified general commercial real estate appraiser licenses in AZ, CA, IL, IN, WI, MD, OH, NY, NJ, FL, GA, KY and DC. Temporary licenses have been granted in CT, CO, PA, ID, MS, KS, MT and SC.

Education

- Syracuse University: Bachelor of Fine Arts
- MAI Designation (Member of the Appraisal Institute)

Professional Affiliations

- Counselors of Real Estate (CRE)
- Chicago Chapter of the Appraisal Institute
- International Real Estate Management (IREM)
- National Council of Housing and Market Analysts (NCHMA)

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Erin C. Bowen, MAI

Director – Real Estate Valuation
Valuation Advisory Services

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Erin Bowen, MAI is a Director with CohnReznick in Valuation Advisory Services, where she leads a team of appraisers across the country performing valuation and consulting services on a wide variety of real estate.

Ms. Bowen specializes in renewable energy, lodging, cannabis, seniors housing, large scale retail and multifamily conversion properties. Lodging work includes all hotel property types and brand segments including limited, full service and resort properties; additionally, Ms. Bowen has appraised numerous hotel to multifamily conversion properties including market rate and affordable housing. Cannabis work includes dispensaries, cultivation facilities including specialized indoor facilities and greenhouse properties, processing and manufacturing facilities. Senior's housing assignments include assisted living, skilled nursing facilities and rehabilitation centers. Retail work spans power centers, lifestyle centers, outlet centers and malls. She has appraised numerous additional properties including multifamily, office, medical office, industrial, churches, and vacant land.

Ms. Bowen has expertise in appraising properties at all stages of development, including existing as is, proposed, under construction, renovations and conversion to alternate use. Valuations have been completed nationwide for a variety of assignments including litigation, eminent domain, tax appeal, mortgage financing, estate gifts, asset management, as well as valuation for financial reporting including purchase price allocations (ASC 805). Ms. Bowen has worked on numerous appraisal assignments for eminent domain use for both condemner and land owner.

Additionally, Ms. Bowen has specialized in Property Value Impact Analysis, measuring the possible detrimental impact of economic and environmental influences on property values for a variety of property types, including cell towers, stadiums, behavioral health centers with an emphasis on renewable energy facilities including solar and wind. She has qualified as an expert witness and testified in front of power siting boards, zoning boards and planning commissions in New Mexico, Ohio, Michigan, Kentucky, Indiana and Illinois.

Education

- University of California, San Diego: Bachelor of Arts in Psychology and Theater; College Honors

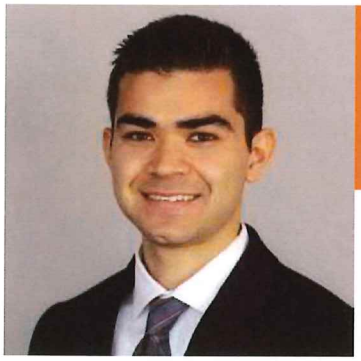
Professional Affiliations

- Designated Member of the Appraisal Institute

Licenses

- Active licenses in AZ, CA, NV, IA, NM, TX and OR

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Joe Ficenec

Senior Consultant, Valuation Advisory Services

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Joe Ficenec is a senior consultant in CohnReznick Advisory LLC's Valuation Advisory Services practice and is based in the Sacramento office. Joe specializes in Impact Study Reports, which have been conducted for zoning hearings related to the development of solar facilities and wind powered facilities. Joe has experience in attending public information meetings to address concerns regarding the impact of solar and wind powered facilities on local real estate values. He also has experience in assisting with the appraisal multifamily, office, industrial, retail, lodging and mixed-use properties for financing and purchase price allocation purposes.

Joe graduated with honors from the University of California, Davis in May 2017 with a major in managerial economics. Prior to joining CohnReznick, Joe worked as a Real Estate Assessor for a county government and as a consultant for a nationwide real estate firm in San Francisco.

Education

- University of California, Davis – B.S. Managerial Economics

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ATLANTIC TESTING LABORATORIES

Canton
6431 U.S. Highway 11
Canton, NY 13617
315-386-4578 (T)
315-386-1012 (F)

July 30, 2026

Environmental Design & Research
217 Montgomery Street
Syracuse, New York 13202

Attn: Amanda Stark
Project Manager, Environmental

Re: Subsurface Investigation and Geotechnical Evaluation Services
Proposed Battery Energy Storage Facility
Saugerties, Ulster County, New York
ATL Report No. CD11074E-01-12-25 Rev. 1

Ladies and Gentlemen:

Enclosed is one digital copy of the referenced report. ATL appreciates the opportunity to provide geotechnical services for your project.

Please note that upon completion of the subsurface investigation, the boreholes were backfilled with on-site soil. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of Environmental Design & Research and/or their Client. ATL assumes no liability for loss or damage resulting from borehole settlement.

The soil samples obtained during this investigation will be retained for a period of six months and subsequently discarded, unless otherwise instructed.

Please contact our office should you have any questions or comments on this information, or if we may be of further service. We look forward to our continued association to obtain a successful completion of this project.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited



Adam J. Schneider, PE
Senior Engineer

AJS/BTB/npm

Enclosures

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED BATTERY ENERGY STORAGE FACILITY
KCE NY 34
SAUGERTIES, ULSTER COUNTY, NEW YORK

ENVIRONMENTAL DESIGN & RESEARCH

PREPARED FOR: **Environmental Design & Research**
217 Montgomery Street
Syracuse, New York 13202

PREPARED BY: **Atlantic Testing Laboratories, Limited**
6431 U.S. Highway 11
Canton, New York 13617

ATL Report No. CD11074E-01-12-25 Rev. 1

July 30, 2026

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B. Boring Location Plan
C. Subsurface Investigation Logs
D. Laboratory Test Results

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED BATTERY ENERGY STORAGE FACILITY
KCE NY 34
SAUGERTIES, ULSTER COUNTY, NEW YORK

ENVIRONMENTAL DESIGN & RESEARCH

1.0 INTRODUCTION

At the request of Amanda Stank, representing Environmental Design & Research (EDR), and in accordance with our proposal (ATL File No. CD998-947X-04-25, dated April 16, 2025) Atlantic Testing Laboratories, Limited (ATL) performed a subsurface investigation and geotechnical evaluation for the referenced project.

The purpose of the investigation was to ascertain the general subsurface soil, bedrock and groundwater conditions at the project site, to evaluate the engineering significance of these findings, and to provide recommendations for the design and construction of foundations for the proposed battery energy storage facility.

The project site is located at an old Central Hudson Gas and Electric training yard along Tomsons Road in Saugerties, Ulster County, New York. The approximate project coordinates are N 42°5'14" latitude and W 73°57'52" longitude. A **Site Location Plan** is included in **Appendix A**. All dimensions and elevations referenced in this report are in units of feet, unless otherwise noted.

2.0 PROJECT DESCRIPTION

Primary access to the facility is from the south portion of the site, from Tomsons Road along a proposed gravel access road tying into an existing access road located along the west side of the existing warehouse at 1 Tomsons Road. Based on information provided by EDR, the proposed battery energy storage facility is planned to include a series of battery storage containers and transformers, a new electrical equipment substation, and gravel access roads and storage areas. The site plan provided by EDR also indicates that additional battery storage containers and transformers are planned for future expansion near the northeast corner of the site. The project will also include a new transmission line to tie the proposed facility to an existing, adjacent substation/transmission line.

EDR indicated the containers and medium voltage transformers are typically supported using drilled helical pile type foundations, however, alternative foundation support options such as soil supported mat / slab foundations, conventional spread footings with wall or column pedestals, or drilled shaft foundations may be considered depending on the soil/bedrock conditions present at the site. It is our understanding that the proposed access road need to meet an HS-20 loading.

3.0 SITE DESCRIPTION & GEOLOGY

The project site is located at an existing tract of land that was previously used as a Central Hudson Energy Group training yard. The site is located north of an existing warehouse located at 1 Tompsons Road, in Saugerties New York. The site is accessed from access roads that run along the west side of the existing warehouse. The site is an open gravel parking area and laydown yard surrounded by heavily wooded land to the north, east and west. The site plan provided by EDR indicates that ground elevations near the proposed battery energy storage facility range from approximately 210 to 220 feet, and generally slope downward from the northwest to the southeast.

The project area is located in the Hudson-Mohawk Lowlands Physiographic Region of New York State. Based on the Surficial Geologic Map of New York, Hudson-Mohawk Sheet, 1988, the site is mantled with lacustrine silt and clay deposits with some outcrops of bedrock noted toward the west. Based on the Geologic Map of New York, Hudson-Mohawk Sheet, the project area is underlain by Onondaga Formation Limestone.

4.0 SUBSURFACE INVESTIGATION & SAMPLING METHODOLOGY

Fourteen (14) boring locations were selected by EDR and staked in the field by representatives of ATL. Borings B-1 and B-2 were performed for proposed HDD bore pits and borings B-3 through B-10 were performed for the proposed battery storage facility and adjacent substation. Borings I-1 through I-4 were formed in conjunction with infiltration testing at these locations. A **Boring Location Plan,** prepared by EDR, is included in **Appendix B**.

Soil borings were performed with a Geoprobe Model 7822DT drill rig, advancing HW (4-inch) flush joint casing, a 3-7/8-inch roller bit, and water as a drilling fluid. Soil sampling and standard penetration testing was performed utilizing a 2-inch outside diameter split spoon sampler and automatic sampling hammer in accordance with ASTM D 1586. Soil sampling was performed continuously to a depth of 12 feet, to limestone bedrock, or to practical refusal on possible bedrock or cobbles/boulders in borings B-1 through B-10. Soil sampling was performed continuously to boring termination at a depth of 10 feet in borings I-1 through I-4. The following table summarizes the boring termination depths

Boring Number	Termination Depth (feet)	Termination Criteria
B-1	9.3	Cored Bedrock at 4.3 feet
B-2	14.0	Cored Bedrock at 9 feet
B-3	1.2	Practical Refusal
B-4	11.1	Practical Refusal
B-5	18	Cored Bedrock at 13 feet
B-6	10.6	Practical Refusal
B-7	22.0	Cored Bedrock at 17 feet
B-8	19.7	Practical Refusal
B-9	6.0	Cored Bedrock at 1 foot
B-10	4.0	Practical Refusal
I-1	10.0	Planned Boring Termination
I-2	0.5	Practical Refusal (4 attempts)
I-3	10.0	Planned Boring Termination
I-4	10.0	Planned Boring Termination

Bedrock was cored at borings B-1, B-2, B-5, B-7, and B-9 with an NX-size, double-tube core barrel for five feet upon encountering practical refusal. Rock coring was not performed at the remaining borings to verify the refusal material.

At infiltration testing locations IT-1, IT-3, and IT-4, PVC riser pipes (4-inch diameter) were installed to depths of 2.5, 3.5 and 4.5, respectively, to facilitate infiltration testing. A bentonite plug was installed around the base of the riser pipes and the remaining annular space was backfilled with on-site soils. Infiltration tests were performed in conjunction with borings I-1, I-3, and I-4. Infiltration testing was not performed at test location I-2, due to shallow bedrock encountered at a depth of approximately 6 inches below the surface at that location.

In March of 2026, nine (9) additional soil borings were advanced in support of the final stormwater management plan. The borings were advanced to a maximum depth of 10 feet and soils sampling was performed continuously in each boring to the surface of the bedrock or to boring termination.

In addition to the additional soil borings, twenty-three (23) additional infiltration test pipes were installed to depths ranging from 2 to 5 feet. Infiltration testing was performed in the pipes in accordance with NYSDEC guidelines.

The soil samples were visually classified in the laboratory by an engineering technician in general accordance with the Burmister Soil Classification System. The split spoon sampler does not recover material larger than 1⅜-inch in nominal dimension; therefore, the soil classifications may not be representative of the entire soil matrix. The visual classifications and the standard penetration test results are presented on the **Subsurface Investigation Logs** included in **Appendix C**.

The boreholes were backfilled with on-site soil. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of EDR and/or their client. ATL assumes no liability for loss or damage resulting from borehole settlement.

5.0 SITE SUBSURFACE CONDITIONS

The following general description of subsurface conditions is based on the subsurface soil, bedrock and groundwater conditions encountered during this subsurface investigation performed between the dates of September 3 and 9, 2025. The following is a general summary of the subsurface conditions encountered at the specific soil boring locations. Actual subsurface conditions will vary across the site in both the horizontal and vertical dimensions. Detailed subsurface descriptions are provided on the Subsurface Investigation Logs.

Based on the subsurface conditions encountered in the soil borings, the generalized subsurface soil profile at the site generally consists of alternating layers of granular sand/gravel soils and plastic silt/clay soils overlying limestone bedrock at varying depths below the surface.

Trace amounts of organic material consisting of root hairs and/or wood fragments were encountered to depths ranging from 2 to 4 feet in borings B-1, B-2, B-6, B-7, B-10, I-3, and I-4.

5.1 Soil Borings

5.1.1 HDD Bore Pit Borings (Borings B-1 and B-2)

Boring B-1 encountered sand with varying proportions of silt, clay and gravel that extended to a depth of 4.3 feet below the surface. The sand was very loose (SPT N-values less than 4) to a depth of 2 feet, and medium compact (SPT N-values 10 to 30) thereafter.

Split spoon refusal was encountered at 4.3 feet and the sand soils recovered sample contained possible weathered rock fragments. Rock coring was performed for five feet following split spoon refusal.

Boring B-2 generally encountered alternating layers of granular sand and gravel soils with trace amounts of silt/clay and plastic, sandy silt and clay soils that extended to bedrock at a depth of 8.9 feet below the surface. The granular sand and gravel soils were very compact (SPT N-values greater than 50) from the ground surface to a depth of 2 feet and loose between depths of 6 to 8 feet. The sandy silt and clay soils were medium stiff (SPT N-values 4 to 8) to very stiff (SPT N-values 15 to 30). Rock coring was performed for five feet beginning at a depth of 9 feet below the surface.

The following table summarizes the recovered rock cores in borings B-1 and B-2.

Recovered Rock Core Descriptions

Boring No./ Location	Rock Type	Run No.	Depth (ft.)	Recovery (%)	RQD (%)
B-1	Limestone	1	4.3 – 9.3	100	6.7
B-2	Limestone	1	9 - 14	93	37

Based on the rock core recovery and RQD values, the bedrock is considered very poor to poor quality limestone.

5.1.2 Battery Energy Storage Facility (Borings B-3 through B-10)

Borings B-3 through B-10 generally encountered alternating layers of granular sand and gravel soils with varying proportions of silt and clay, and plastic silt and clay soils with varying proportions of sand and gravel that extended to practical refusal or bedrock at depths ranging from 1.2 to 19.7 feet below the surface. The sand and gravel portions of the overburden soils were typically medium compact to very compact except for a layer of very loose (SPT N-values less than 4) sand encountered in boring B-8 at a depth of 4 to 6 feet below the surface. The plastic silt and clay soil portion of the overburden sols were typically medium stiff to very stiff except for a soft silt and clay layer encountered in boring B-8 at a depth of 6 to 8 feet below the surface. Bedrock was cored in borings B-5, B-7 and B-9 for five feet. The following table summarizes the recovered rock cores.

Recovered Rock Core Descriptions

Boring No./ Location	Rock Type	Run No.	Depth (ft.)	Recovery (%)	RQD (%)
B-5	Limestone	1	13 - 18	87	55
B-7	Limestone	1	17 - 22	92	50
B-9	Limestone	1	1 - 6	82	22

Based on the rock core recovery and RQD values, the bedrock is considered very poor to fair quality limestone.

5.1.3 Infiltration Test Borings (Borings I-1 through I-4)

Borings I-1, I-3, and I-4 generally encountered alternating layers of granular sand and gravel soils, and plastic silt and clay soils that extended to boring termination at a depth of 10 feet. SPT N-values ranged from 10 to 50 blows per foot to a depth of 4 feet indicating that the granular portion was medium compact to compact and the plastic silt and clay portion was stiff to hard. Below a depth of 4 feet, the SPT N-values ranged from 6 to 18 blows per foot indicating loose to medium compact granular soils and medium stiff to very stiff plastic silt and clay soils were encountered.

Boring I-2 encountered a thin layer of topsoil and organic material underlain by apparent bedrock at a depth of approximately 6 inches below the surface. Practical refusal was encountered in 4 boring offset locations (approximately 5 to 10 feet) at between 4 and 7 inches below the surface. Coring was not performed to confirm the refusal material at this location.

5.1.4 Additional Infiltration Test Borings (Borings B-11 through B-19)

Borings B-11 through B-19 generally encountered alternating layers of granular sand and gravel soils, and plastic silt and clay soils that extended to refusal or boring termination. Boring B-11 was terminated at a depth of 10 feet and the remaining borings encountered refusal at depths ranging from 2 to 7.8 feet below the surface. The bedrock was cored in borings B-13 from 2.5 to 7.5 feet below the surface with a recovery of 92 percent and an RQD of 48 percent.

5.2 Subsurface Water

Groundwater measurements were performed during the subsurface investigation through the cased and open boreholes. The soil samples were also visually classified for coloration and relative moisture conditions.

Freestanding water was observed in the drill casing and upon removal of the casing from the boreholes at depths ranging from 4.4 to 8.7 feet at the time of borehole advancement; however, since water was utilized as a drilling fluid, the groundwater readings recorded during borehole advancement are not considered a reliable indicator of the true groundwater depths. The borings were backfilled upon completion of advancement and removal of the drill casing; therefore, the water levels did not have sufficient time to stabilize in the open boreholes.

Fluctuations in water levels may occur due to seasonal and climatic variations, changes in surface runoff patterns, construction activity and subsequent development of the site along with other interrelated factors.

5.3 Infiltration Test Results

Infiltration testing was performed in October 2025 and March 2026, within the PVC riser pipes installed at infiltration test locations. Infiltration testing was not performed at location IT-2 due to the presence of bedrock encountered at approximately 6 inches below the surface. The testing was performed in general accordance with NYSDEC Best Management Practices (BMP) Appendix D guidelines. The infiltration test results are summarized in the following table:

Infiltration Test Results

Infiltration Test No.	Approximate Depth of Infiltration Pipe (ft.) [bgs][(1)]	Infiltration Rate (in/hr)
IT-1	3	7
IT-3	4	3
IT-4	5	12
IT-5	5	6
IT-6	1.5	2
IT-7	5	4
IT-8	2	3.5
IT-9	3	2
IT-10	2	2
IT-11	5	2
IT-12	3	2
IT-13	5	4
IT-14	5	1
IT-15	3	2
IT-16	2.5	5
IT-17	3	4
IT-18	5	1
IT-19	5	1.5
IT-20	5	2
IT-21	3	3
IT-22	4	3.5
IT-23	2	1.5
IT-24	2.5	3
IT-25	4	2
IT-26	5	1
IT-27	5	1
IT-28	5	1.5

[(1)]bgs = below ground surface

6.0 LABORATORY ANALYSES

Select soil samples were submitted to ATL's geotechnical laboratory for the following physical analyses:

- Twenty-Five (25) Water Content Determinations of Soil (ASTM D 2216)
- Five (5) Particle Size Analyses without Hydrometer (ASTM D 422)
- One (1) Thermal Resistivity (Dry-out Curve) (IEEE 442)

The test results are presented on the subsurface investigation logs included in Appendix C and in **Appendix D, Laboratory Test Reports**.

7.0 GEOTECHNICAL ENGINEERING DISCUSSION & RECOMMENDATIONS

The Geotechnical Engineering Discussion is based on information provided by EDR, and the subsurface conditions outlined in this report.

The following recommendations are presented as the minimum requirements for the design, planning, and construction of the foundation systems for the proposed battery energy storage facility. The concepts and geotechnical engineering considerations presented should be considered in project design and construction.

7.1 Proposed Battery Energy Storage Facility

The primary concern with respect to the design and construction of foundations for the proposed facility is the variability in the bedrock depth encountered in the soil borings. Bedrock or practical refusal due to possible bedrock was encountered at depths ranging from 1.2 to 19.2 feet below the surface within the footprint of the proposed facility. Bedrock was encountered at depths shallower than 5 feet below the ground surface in borings B-1, B-3, B-9, and B-10.

It is our understanding that foundations for the proposed battery energy storage facility are typically supported by helical piles. Based on the shallow depth at which bedrock was encountered during the investigation, helical piles may not achieve the required penetration depth for lateral and uplift resistance at some areas of the project site. Based on the subsurface conditions encountered in the borings, we believe that conventional spread footings, mat slab foundations and/or drilled pier foundations would be the most effective. Bedrock elevations in the soil borings were highly variable and bedrock should be anticipated to vary in elevation across the site.

7.1.1 Site Work

Site work will require removal of any existing structures including their foundations, existing topsoil, pavement and any deleterious fill material within the proposed structure footprints. A proposed site grading plan was not provided at the time of report preparation; however minor cuts and fills are anticipated to establish site grades.

After performing site stripping and prior to placing new fill, the exposed subgrade soil should be proof-compacted with a minimum of a 10-ton roller and proof rolled, where possible, under the direction of a Geotechnical Engineer. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment should not be used for proof rolling.

The proof rolling should be conducted under the observation of a Geotechnical Engineer. Subgrades noted to weave or deflect, or that contain deleterious fill or organic materials, should be over excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with compacted Structural Fill.

Fill required to raise site grades within the footprint of the proposed structures should consist of Structural Fill that is placed and compacted in accordance with report Section 7.4.

Due to the relatively high fines content of recovered soil samples, the in-situ subgrade soils are considered moisture sensitive and will have a tendency to rut and pump under the weight of repetitive construction traffic, especially in the presence of excessive moisture. Site work should be scheduled during the drier portions of the year, and exposed subgrade soils should be protected from disturbance to avoid possible delays and additional costs associated with

construction during the wet seasons. Haul roads designed to accommodate construction traffic should be utilized during construction to limit disturbance to the subgrade soils.

Site surface grading should be designed to convey surface water away from the site structures and open excavations during construction.

Construction equipment and foot traffic should be limited on exposed subgrades, especially during wetter periods of the year. The soils encountered in the soil borings will be susceptible to sidewall sloughing in open excavations, especially if groundwater seepage is encountered in the excavation sidewalls. Benching, sloping, shoring or other acceptable excavation stabilizing methods may be required to provide stable excavations.

7.1.2 Shallow Spread Footing Foundations

Based on the subsurface soil and groundwater conditions encountered during ATL's subsurface investigation, it is our opinion that the use of shallow, spread footing foundations is acceptable to support the proposed structures. The bedrock surface elevation is expected to vary in elevation within the proposed project area and possibly within the footprints of the individual structures. Based on the subsurface conditions encountered during the investigation, bedrock will likely be encountered in some areas prior to achieving the desired footing subgrade elevation. To limit the potential for differential settlement, spread footings should be founded on a uniform bearing subgrade consisting of either entirely native soils or limestone bedrock. Over-excavation and/or rock removal will be necessary to provide a uniform bearing surface and will be dependent on the final foundation subgrade elevation.

All foundation excavations should be continuously monitored by a Geotechnical Engineer to verify the stability and uniformity of the subgrade soil or bedrock, to identify the presence of deleterious fill, unsuitable soils, and to ensure that adequate soil bearing capacity is obtained.

Exposed subgrade soil should be proof-compacted with four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent. The proof-compaction should be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be over excavated to stable material and replaced, at the direction of the Geotechnical Engineer.

Subgrades that become saturated and unstable during construction due to surface or groundwater infiltration should be over excavated 6 inches and a 6-inch layer of NYSDOT Number 2, crushed stone should be placed and compacted on the exposed subgrade. The Number 2, crushed stone should be compacted with four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent, under the direction of a Geotechnical Engineer. The Number 2 crushed stone will provide a stable working surface and dewatering media if ground or surface water enters the foundation excavations.

The soils encountered in the soil borings will be susceptible to sidewall sloughing in open excavations, especially if groundwater seepage is encountered in the excavation sidewalls.

Shallow foundations supported on proof compacted native soils, compacted NYSDOT Number 2, crushed stone, and/or compacted Structural Fill that overlies stable, native soils may be designed using an allowable soil bearing pressure of 3000 psf, provided the recommendations presented in this report are followed.

Bearing surface irregularities or depressions resulting from rock removal or elevation differences should be replaced with lean concrete.

Bedrock encountered prior to achieving the proposed bottom of footing elevation should be removed using rock removal techniques to provide a relatively uniform, level bearing surface. Based on the RQD values of the recovered rock cores, rock removal techniques such as impact hammers, hydraulic splitters, rock saws, blasting and/or expansive compounds may be necessary for excavations that extend into competent bedrock. The contractor should be responsible for the means and methods of advancing the excavations to the design depths. If blasting is utilized for rock removal, the contractor should submit a blasting plan to the engineer and owner for review.

Shallow spread footings supported entirely on competent limestone bedrock and/or lean concrete placed over competent bedrock may be designed using an allowable rock bearing pressure of 20,000 psf, provided the recommendations presented in this report are followed.

Continuous strip footings should be a minimum 18 inches wide and individual spread footings a minimum 36 inches wide.

Total and differential post construction foundation settlements less than 1-inch and ½-inch, respectively, are estimated provided the recommendations presented in this report are followed.

7.1.3 Shallow Mat Foundations

Shallow mat foundation excavations should be advanced with methods that limit disturbance to the subgrade soils. To limit the potential for differential settlement, mat foundations should be founded on a 12-inch layer of subbase that overlies uniform bearing subgrades consisting of either competent bedrock or native on-site soils.

The bedrock surface elevation is expected to vary in elevation within the footprint of proposed facility and possibly within the footprint of individual structure footprints.

Bedrock encountered prior to achieving the proposed bottom of mat elevation should be removed using rock removal techniques to provide a relatively uniform, level bearing surface. Based on the RQD values of the recovered rock cores, rock removal techniques such as impact hammers, hydraulic splitters, rock saws, blasting and/or expansive compounds may be necessary for excavations that extend into competent bedrock. The contractor should be responsible for the means and methods of advancing the excavations to the design depths. If blasting is utilized for rock removal, the contractor should submit a blasting plan to the engineer and owner for review.

Native soils subgrades should be proof-compacted, in conditions of low moisture, with a minimum of four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent, under the direction of a Geotechnical Engineer. Wet subgrades should not be proof-compacted. Unstable subgrades should be over excavated to stable material and replaced, under the direction of the Geotechnical Engineer.

Mat foundations supported on 12 inches of compacted subbase that overlies stable native soil or bedrock placed over competent bedrock may be designed using an allowable bearing pressure of 3,000 psf, provided the recommendations presented in this report are followed.

7.1.4 Drilled Piers

Drilled pier foundations should be advanced to a sufficient depth to provide adequate axial, lateral, and uplift capacity, as determined by the design engineer. Drilled pier foundation installation should be continuously monitored by a Geotechnical Engineer.

The contractor should be responsible for the means and methods of advancing the excavations to the design depths. The contractor should submit a "Drilled Pier Installation Plan", describing the proposed means and methods for installation of the drilled piers.

Granular soils, plastic soils, and bedrock were encountered during the investigation and should be anticipated during drilled pier foundation excavations. Bedrock elevations are highly variable and will vary in elevation across the site. Bedrock was encountered during the investigation at depths ranging from 1.2 to 19.7 feet below the surface.

Drilled pier excavations should be advanced with temporary casing to prevent caving of the in-situ soils into the excavations. The granular soils encountered during the investigation are susceptible to caving.

It is recommended that soil skin friction be neglected when determining the total axial capacity of the drilled piers. Skin friction may be considered for uplift, if the structure weight is not sufficient.

Unless otherwise specified or approved, all excavations should be dewatered prior to placing concrete. A drilled pier excavation is considered dry if less than 3 inches of groundwater is present in the bottom of the excavation at the start of concrete placement and the groundwater infiltration rate is less than 0.25 inches rise per minute.

If dewatering drilled pier excavations is not practical, the concrete must be placed utilizing tremie methods. The tremie pipe must be maintained below the water level and at least five feet below the top of the concrete during concrete placement. The fresh concrete must be above the bottom of the casing at all times. Care should be taken in withdrawing the casing to prevent the concrete from mixing with drilling mud, cave-in of the borehole and/or formation of voids. Drilled pier concrete should be designed to minimize the risk of voids forming during concrete placement and casing removal.

Unless otherwise indicated, excavations for the drilled piers should be plumb to within a tolerance equal to 2% of the shaft length. Do not place the top of a drilled pier out of the indicated position by more than 1/24th of the shaft diameter or three inches, whichever is less.

Drilled piers designed to be founded on competent limestone bedrock may be designed for an allowable rock bearing pressure of 20,000 psf, provided the recommendations provided in this report are followed.

7.1.5 Slabs-on-Grade

Subgrades to receive concrete slabs should be prepared in accordance with Section 7.1.1 of this report. Slabs-on-grade should be supported on a minimum of 8 inches of Subbase placed and compacted in accordance with Section 7.4 of this report. Slabs-on-grade may be designed using a modulus of subgrade reaction of 150 pci.

7.1.6 Gravel Access Roads

Site work for the access roads designed to handle HS-20 loading will require removal of any surficial organic material within the proposed roadway structures. The roadway subgrade soils should be proof-compacted with a minimum 10-ton vibratory roller, under the direction of the Geotechnical Engineer. Areas to receive pavement structures should be proof rolled. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment shall not be used for proof

rolling. The proof rolling must be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with Structural Fill.

Site work should be scheduled during drier portions of the year to avoid possible delays and additional costs associated with construction during the wet seasons. Construction equipment and foot traffic should be limited on exposed subgrades, especially during wetter periods of the year. Site surface grading should be designed to convey surface water away from structures.

Gravel Roadway structures should consist of the following:

Thickness (in)	Course	NYSDOT Specifications
16	Granular Subbase(1)	Section 733-04, Type 2
--	Woven Geotextile	Mirafi HP 570 or equivalent

(1) The product of crushed ledge rock.

The Granular Subbase should be placed and compacted in accordance with section 7.4 of this report.

Proper subsurface drainage and control of surface water will be important to the longevity of the pavement structures. Failure to provide adequate drainage could result in premature pavement maintenance.

7.2 Frost Protection

Shallow foundations requiring frost protection should be founded a minimum of 4 feet below final exterior grade.

The soils encountered in the borings have a relatively high fines content and are frost susceptible. Shallow mat foundations that require frost protection should be founded on competent limestone bedrock or non-frost susceptible fill that extends a minimum of 4 feet below final, exterior grade and at least 2 feet beyond the perimeter of the mat. All new fill should be placed and compacted in accordance with Section 7.4 of this report.

Non-frost susceptible fill should consist of a screened, crushed gravel or crushed ledge rock conforming to the gradation of NYSDOT Item 703-04, Type 2 or 4 Subbase specifications and should have less than 7% passing the #200 sieve, or a 50/50 blend of NYSDOT Number 1 and 2, crushed stone. Crushed stone thickness greater than 6-inches should be wrapped in a nonwoven geotextile (Mirafi 160N, or equivalent)

7.3 Seismic

Based on the field standard penetration test results, a seismic site classification of B has been determined for foundations that will bear directly on limestone bedrock. A seismic site classification of C has been determined for foundations that will be founded in the overlying subgrade soils.

7.4 Backfill and Compaction Requirements

The on-site soils, excluding deleterious organics and oversize material (particles larger than 4 inches in diameter), may be used as general site (berms, landscapes, green areas) fill. Structural Fill should be utilized as fill within structure footprints and as foundation backfill.

All controlled fill and backfill should be placed and compacted in lifts not exceeding eight inches in loose thickness, at a moisture content of ± 2% of the Optimum Moisture Content, and to densities in excess of 95%, as determined by ASTM D1557, or as directed by the Geotechnical Engineer.

Compaction should be performed with vibratory rollers unless there is concern for damage to adjacent structures or underground utilities.

Structural Fill should consist of a clean, screened, crushed, or bank-run gravel conforming to the following gradation:

Sieve Size	Percent Passing
4”	100
¼”	35-65
#200	0-10

Granular Subbase should consist of crushed ledge rock conforming to NYSDOT Item 733-04, Type 2 Subbase.

The soil parameters presented in the following table may be used for the following backfill materials.

Table of Soil Properties

Soil Property	Structural Fill	Granular Subbase
Angle of Internal Friction (°)	32	34
Active Earth Coefficient (K_a)*	0.31	0.28
At Rest Earth Coefficient (K_o)*	0.47	0.44
Passive Earth Coefficient (K_p)*	3.25	3.54
Ultimate Coefficient of Sliding Friction	0.41	0.44
Wet Unit Weight (pcf)	130-140	135-145

*The Rankine earth pressure coefficients (ultimate values) are for level backfill placed in a fully drained condition.

7.5 Dewatering

Perched groundwater may be encountered in shallow foundation and utility excavations, especially during wetter periods of the year. It is anticipated that the perched groundwater encountered in shallow foundation excavations may be controlled by pumping from sumps installed around the perimeter of the excavations.

It will be the contractor’s responsibility to maintain adequate water control at all times. Project specifications should clearly indicate that standing water, and/or saturated, unstable soil

conditions will not be tolerated in areas to receive foundations or utilities. The project specifications should state that the contractor will not be reimbursed for extras related to the control of water.

All dewatering activities should comply with the New York State Department of Environmental Conservation (NYSDEC) storm water discharge requirements and/or applicable federal and local regulations for construction.

7.6 Testing and Inspection

The final site grading, foundation plans and project specifications should be reviewed by ATL, as the Geotechnical Engineer of Record, to verify that there has not been a misinterpretation of this report and/or ATL's understanding of the project.

We recommend that ATL, as the Geotechnical Engineer of Record, be retained to perform Special Inspections in accordance with the Building Code of New York State during site earthwork and foundation installations. An ATL geotechnical representative familiar with the findings and recommendations of this report will be able to assess the subsurface conditions encountered during construction, provide necessary remedial recommendations, and verify that adequate bearing pressures and proper foundation installation requirements are achieved.

All foundation construction and backfilling should be monitored and tested by an Independent Testing Agency, conforming to ASTM E-329, "Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection." ATL conforms to ASTM E-329 and can be retained to perform required construction phase monitoring and testing services, including applicable Special Inspections and Structural Tests in accordance with the Building Code of New York State.

8.0 LIMITATIONS

The subsurface investigation logs and this report in its entirety should be provided to the contractors for information and interpretation. The subsurface investigation logs may not be representative of the entire site subsurface condition, but only what was encountered at the individual test locations at the time of the investigation. The subsurface soil, bedrock and groundwater conditions may be different from those described on the subsurface investigation logs.

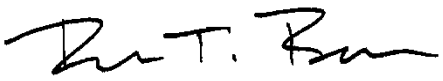
This report was prepared to present the findings of our subsurface investigation and engineering evaluation, and to outline concepts to be utilized in foundation design and construction. These concepts may require alterations to meet the specific design and economic considerations for this project.

Prepared by:



Nate Morehouse
Project Manager
NPM/BTB/npm

Reviewed by:



Brian T. Barnes, PE
Senior Engineer

APPENDIX A

SITE LOCATION PLAN



Site Location Map	Drawn by: NM	Scale: Not to scale	Project No.: CD11074	Date: October 2025

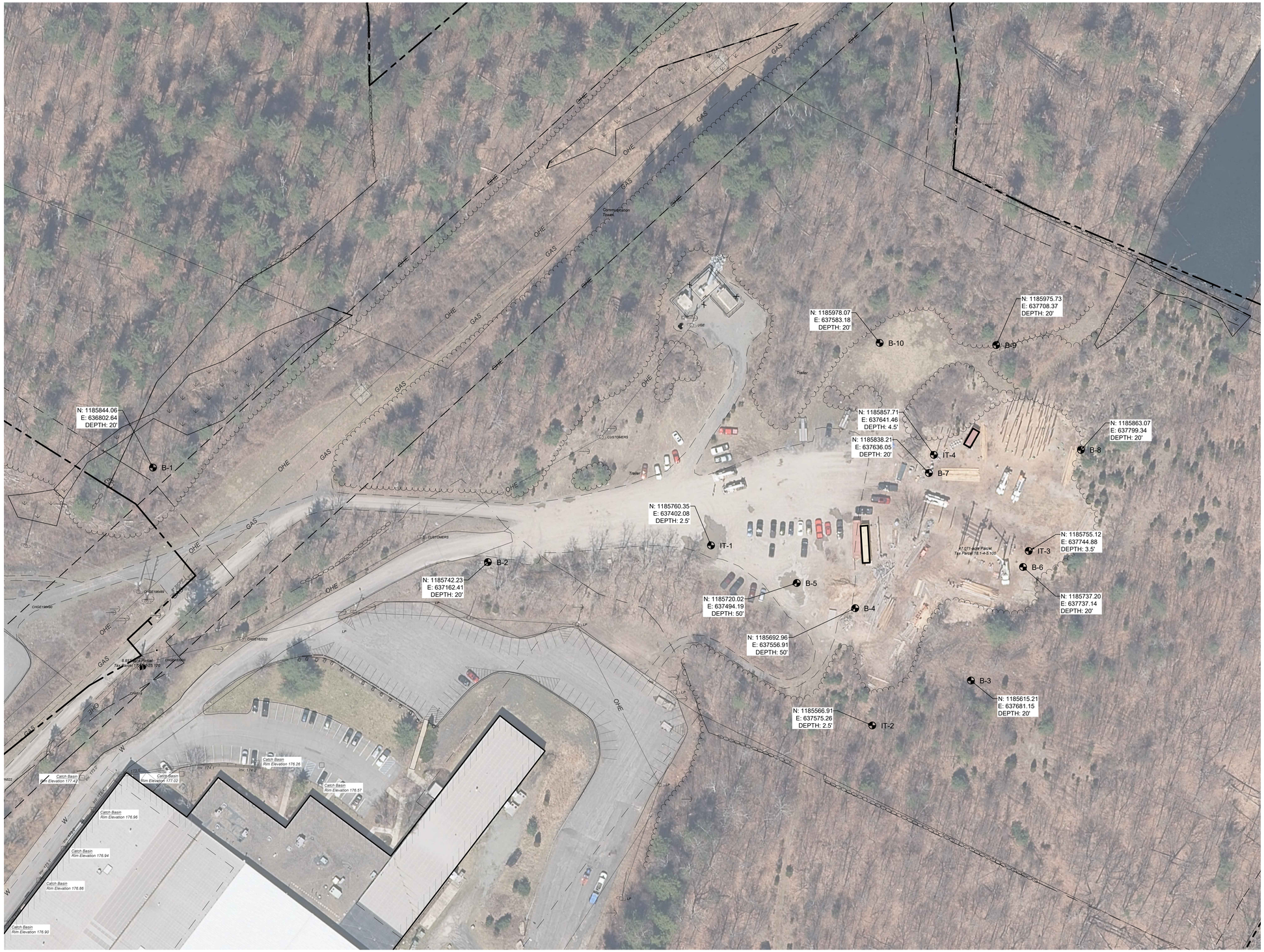
Proposed KCE NY 34 Battery Energy Storage Facility
Tompson Road, Saugerties, New York

***ATLANTIC TESTING LABORATORIES*, Limited**

Albany, NY	Binghamton, NY	Buffalo, NY	Canton, NY
Elmira, NY	Plattsburgh, NY	Poughkeepsie, NY	Syracuse, NY
Rochester, NY	Utica, NY	Watertown, NY	

APPENDIX B

BORING LOCATION PLAN



GEOTECH TESTING LEGEND	
SYMBOL	ITEM
B-1	BORING LOCATION
IT-1	INFILTRATION TEST LOCATION

PRELIMINARY

8/8/2025

NOT FOR CONSTRUCTION

N

50 0 25 50 100

GRAPHIC SCALE (IN FEET)

Date Printed: 8/8/2025 2:56:43 PM

P:\Jobs\dwg\22055 KCE NY 34 Saugerties\Cad\Working Drawings\K-Refs\22055_C-WATERSHED.dwg

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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The following is paraphrased from the New York Education Law, Article 145, Section 7209, and Chapter II, Section 79-1.4, and applies to this drawing; "It is a violation of this law for any person unless he is acting under the direction of a licensed professional engineer, licensed landscape architect or licensed land surveyor to alter an item in any way. If an item bearing the seal of an engineer, landscape architect or land surveyor is altered, the altering engineer, landscape architect or land surveyor shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration and a specific description of the alteration".

CLIENT: KEY CAPTURE ENERGY

EDR a better environment

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **GEOTECHNICAL BORING AND PRELIMINARY INFILTRTATION TESTING LOCATIONS**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1					
2					
3					
4					
5					
6					

EDR JOB#: **22055**

DATE: **AUGUST 8, 2025**

SCALE: **1" : 50'**

DRAWN BY: **ZR**

CHECKED BY:

DRAWING NUMBER:

C-001

Date Printed: 2/25/2026 12:07:31 PM



SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX
B-1	TEST BORING LOCATION
IT-1	FEASIBILITY INFILTRATION TEST LOCATION
B-11	DESIGN TEST BORING LOCATION
IT-5	DESIGN INFILTRATION TEST LOCATION

NOTES:
1. ALL DESIGN TEST BORINGS SHALL BE COMPLETED TO AN ELEVATION OF 205.5 OR DEEPER.
2. ALL DESIGN INFILTRATION TESTS SHALL HAVE THE BOTTOM OF THE CASING SET AT ELEVATION 207.5

T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\X-Refs\22055_C-GRADE.dwg

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB/SS		
3					
4					
5					
6					

EDR JOB#: **22055**
DATE: **FEBRUARY 25, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER:
C-201

APPENDIX C

SUBSURFACE INVESTIGATION LOGS

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/9/2025** Finish Date: **9/9/2025**

Boring No.: **B-1** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/9/2025		**DRY**	**4.0'**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	1 1 1 6		Brown cmf SAND; little Silt & Clay; little cf Gravel; trace Organic Material (roots); trace Debris (plastic fragments) (moist, low plasticity)	5
2							2.0		
3		2	2.0	4.0	SS	8 16 14 12		Brown cmf SAND; little f Gravel; trace Clayey Silt; trace Organic Material (roots, grass) (moist, slight plasticity)	4
4							4.3		
5	NX CORE (WET)	3	4.0 4.3	4.3 9.3	SS NX	50/4" RUN 1		Brown cmf SAND; and cf Gravel; trace Silt & Clay (wet, low plasticity) Possible WEATHERED ROCK Fragments	3 60
6								Greyish-Black LIMESTONE 60" or 100% Recovery 11 Pieces (30") - 50% Chips and Fragments 1 Pieces longer than 4" (4") - RQD = 6.7%	
7									
8									
9							9.3		
10								Boring terminated at 9.3 feet.	
11									
12								Notes: 1. Borehole backfilled with on-site soils.	
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/5/2025** Finish Date: **9/5/2025**

Boring No.: **B-10** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	2 10 11 9		Brown SILT & CLAY; some cf Gravel; trace cmf Sand (moist, low plasticity)	10
2									
3		2	2.0	3.8	SS	8 12 14 50/4"		Brown SILT & CLAY; and cmf Sand; little f Gravel; trace Organic Material (wood fragments) (moist, low plasticity)	5
4							4.0		
		3	4.0	4.0	SS	50/0"		NO RECOVERY	0
5									
6									
7								Boring terminated at 4.0 feet due to refusal on possible bedrock or boulders.	
8									
9								Notes:	
10								1. Borehole backfilled with on-site soils.	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/5/2025**

Boring No.: **B-2** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		**6.8'**	**8.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By: **HW (4") Casing/NX Core**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	10 26 30 30		Brownish-Grey cf GRAVEL; and cmf Sand; trace Silt & Clay; trace Organic Material (root hairs) (moist, low plasticity)	10
2		2	2.0	4.0	SS	17 16 10 14		Brown SILT & CLAY; some cmf Sand; some f Gravel; trace Organic Material (root hairs) (moist, low plasticity)	16
4		3	4.0	6.0	SS	5 3 3 4	4.0	Grey CLAY & SILT; some cmf Sand; trace f Gravel (wet, medium plasticity)	10
7		4	6.0	8.0	SS	3 3 4 5		Brownish-Grey cmf SAND; and Silt & Clay; little f Gravel (wet, low plasticity)	12
8		5	8.0	8.9	SS	38 50/5"	8.0	Brown cf GRAVEL; little cmf Sand; trace Clayey Silt (wet, slight plasticity) Possible WEATHERED ROCK Fragments	4
9	NX CORE (WET)		9.0	14.0	NX	RUN 1	9.0	Advanced casing to 9.0 feet and began coring.	56
10								Greyish-Black LIMESTONE 56" or 93% Recovery 10 Pieces (34") - 39% Chips and Fragments 4 Pieces longer than 4" (22") - RQD = 37%	
14							14.0	Boring terminated at 14.0 feet.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/8/2025** Finish Date: **9/8/2025**

Boring No.: **B-3** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
2" Split Spoon

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	SPLIT SPOON	1	0.0	1.2	SS	3 7 50/2"	1.2	Brown cmf SAND; little cf Gravel; little Clayey Silt; trace Organic Material (topsoil) (moist, slight plasticity)	6
2									
3								Boring terminated at 1.2 feet due to refusal on possible bedrock or boulders.	
4									
5								Notes:	
6								1. Borehole backfilled with on-site soils.	
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine, m - medium, c - coarse
and - 35-50%, some - 20-35%, little - 10-20%, trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-4** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		**7.6'**	**10.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	5 25 20 20		Brown cf GRAVEL; some cmf Sand; trace Silt (moist, non-plastic)	11
2		2	2.0	4.0	SS	30 15 10 12		Brownish-Grey cf GRAVEL; little cmf Sand; little Silt & Clay (moist, low plasticity)	10
4		3	4.0	6.0	SS	9 11 8 7		Brown cf GRAVEL; some cmf Sand; trace Silt & Clay (wet, low plasticity)	6
6		4	6.0	8.0	SS	5 8 12 11		Brown cf GRAVEL; some cmf Sand; little Silt & Clay (moist, low plasticity)	8
8		5	8.0	10.0	SS	3 3 9 15	8.0	Brown Silty CLAY; little f Gravel; little cmf Sand (wet, high plasticity)	6
10		6	10.0	11.1	SS	15 20 50/1"	9.5	Brown cmf SAND; some cf Gravel; trace Silt & Clay (wet, low plasticity)	5
							11.1	Boring terminated at 11.1 feet due to refusal on possible bedrock or boulders.	

Notes:
1. Borehole backfilled with on-site soils.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-5** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		**4.4'**	**10.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	1.9	SS	20 20 28 50/5"	1.9	Brown cf GRAVEL; some Silt & Clay; little cmf Sand (moist, low plasticity)	10
2	CASING	2	2.0	2.5	SS	50/5" 5		NO RECOVERY	0
4		3	4.0	6.0	SS	11 5 5 10		Brown CLAY & SILT; some f Gravel; little cmf Sand (moist, medium plasticity)	7
6		4	6.0	8.0	SS	12 5 6 6		Brown CLAY & SILT; little cf Gravel; trace cmf Sand (moist, medium plasticity)	8
8		5	8.0	10.0	SS	3 1 3 2		Brown CLAY & SILT; some cmf Sand; trace f Gravel (wet, medium plasticity)	8
10		6	10.0	11.8	SS	5 4 7 50/4"		Brown SILT & CLAY; some cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, low plasticity)	10
11							11.5		
12							13.0	Encountered possible BEDROCK at 11.5 feet. Advanced 3 7/8" tri-cone roller bit to 13.0 feet and began coring.	
13	NX CORE (WET)		13.0	18.0	NX	RUN 1		Greyish-Black LIMESTONE 52" or 87% Recovery 9 Pieces (40") - 23% Chips and Fragments 5 Pieces longer than 4" (33") - RQD = 55%	52
18							18.0		
20								Boring terminated at 18.0 feet.	
21								Notes: 1. Borehole backfilled with on-site soils.	
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-6** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		**5.1'**	**10.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	4 12 7 9		Brown cmf SAND; some cf Gravel; trace Clayey Silt (moist, slight plasticity)	12
2		2	2.0	4.0	SS	12 12 9 9		Brown cmf SAND; and cf Gravel; trace Clayey Silt (moist, slight plasticity)	13
3									
4							4.0		
4		3	4.0	6.0	SS	1 1 2 1		Brown SILT & CLAY; trace f Gravel; trace cmf Sand; trace Organic Material (peat) (wet, low plasticity)	10
6		4	6.0	8.0	SS	1 3 4 5		Brown SILT & CLAY; trace mf Sand (wet, low plasticity)	12
8		5	8.0	10.0	SS	2 6 11 39	9.0	Brown SILT & CLAY; trace f Gravel; trace cmf Sand (wet, low plasticity)	8
10		6	10.0	10.6	SS	32 50/1"	10.6	Brown cmf SAND; some Silt & Clay; little cf Gravel (wet, low plasticity)	5
								Boring terminated at 10.6 feet due to refusal on possible bedrock or boulders.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **B-7** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		**8.7'**	**17.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	3 7 7 8	2.0	Brown SILT & CLAY; little f Gravel; little cmf Sand; trace Organic Material (roots) (moist, low plasticity)	12
2		2	2.0	4.0	SS	10 15 18 26	4.0	Brown cmf SAND; some cf Gravel; trace Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	7
4		3	4.0	6.0	SS	7 5 5 6		Brown CLAY & SILT; little cf Gravel; trace cmf Sand (moist, medium plasticity)	10
7		4	6.0	8.0	SS	7 7 6 9	8.0	Grey CLAY & SILT; little f Gravel; trace cmf Sand (moist, medium plasticity)	10
9		5	8.0	10.0	SS	4 6 7 7	10.0	Brownish-Grey cf GRAVEL; and cmf Sand; some Silt & Clay (wet, low plasticity)	7
10		6	10.0	12.0	SS	24 25 12 13	13.0	Dark Brown cmf SAND; trace Clayey Silt; trace Organic Material (peat) (wet, slight plasticity)	6
14		7	14.0	16.0	SS	4 6 8 11	17.0	Brownish-Grey SILT & CLAY; trace mf Sand (wet, low plasticity) Advanced casing to 17.0 feet and began coring.	13
17	NX CORE (WET)		17.0	22.0	NX	RUN 1	22.0	Greyish-Black LIMESTONE 55" or 92% Recovery 5 Pieces (33") - 40% Chips and Fragments 3 Pieces longer than 4" (30") - RQD = 50%	55
22								Boring terminated at 22.0 feet. Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/5/2025** Finish Date: **9/5/2025**

Boring No.: **B-8** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/5/2025		**6.8'**	**19.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	4 6 6 10		Brown cmf SAND; and Silt & Clay; little f Gravel (moist, low plasticity)	10
2		2	2.0	4.0	SS	16 10 12 10		Brown cmf SAND; some Silt & Clay; little f Gravel (moist, low plasticity)	8
4		3	4.0	6.0	SS	1 1 1/12"	4.0	Greyish-Brown cf GRAVEL; and cmf Sand; little Silt & Clay (wet, low plasticity)	6
6		4	6.0	8.0	SS	1 1 2 3	6.0	Brownish-Grey SILT & CLAY; trace mf Sand (wet, low plasticity)	11
8		5	8.0	10.0	SS	3 3 2 9		Brown SILT & CLAY; trace f Sand (moist, low plasticity)	12
10		6	10.0	12.0	SS	9 11 14 14	9.5	Brownish-Grey SILT & CLAY; trace f Sand (moist, low plasticity)	15
14		7	14.0	16.0	SS	12 12 16 18		Similar Soil (moist, low plasticity)	13
19		8	19.0	19.7	SS	30 50/2"	19.7	Grey SILT & CLAY; some cf Gravel; little cmf Sand (moist, low plasticity)	7
								Boring terminated at 19.7 feet due to refusal on possible bedrock or boulders.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **B-9** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
							1.0	Attempted the boring at 4 locations around the proposed location. Encountered refusal at 3 to 4 inches. Advanced tricone roller bit to 1 foot and started coring.	
1	NX CORE (WET)		1.0	6.0	NX	RUN 1		Greyish-Black LIMESTONE	49
2								49" or 82% Recovery	
3								5 Pieces (22") - 55% Chips and Fragments	
4								2 Pieces longer than 4" (13") - RQD = 22%	
5									
6							6.0		
7								Boring terminated at 6.0 feet.	
8									
9								Notes:	
10								1. Borehole backfilled with on-site soils.	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/11/2026** Finish Date: **3/11/2026**

Boring No.: **B-11** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/11/2026	**AM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
2" Split Spoon

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	SPLIT SPOON	1	0.0	2.0	SS	8 10 22 50		Grey cf GRAVEL; and cmf Sand; trace Silt; trace Organic Material (roots) (moist, non-plastic)	7
2		2	2.0	4.0	SS	15 12 15 12		Brown cf GRAVEL; and cmf Sand; little Clayey Silt (moist, slight plasticity)	2
4		3	4.0	6.0	SS	15 18 27 43		Brown cf GRAVEL; and cmf Sand; little Silt & Clay (wet, low plasticity)	6
6		4	6.0	8.0	SS	19 12 11 8		Grey cf GRAVEL; some cmf Sand; trace Silt (wet, non-plastic) COBBLE Fragment in split spoon shoe	1
8		5	8.0	10.0	SS	9 8 7 7	8.0	Greyish-Brown cmf SAND; some Silt & Clay; little cf Gravel (moist, low plasticity)	6
10							10.0	Boring terminated at 10.0 feet.	
11								Notes: 1. Borehole backfilled with on-site soils.	
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/11/2026** Finish Date: **3/11/2026**

Boring No.: **B-12** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/11/2026	**PM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
4 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	0.8	SS	8 50/3"		Brown SILT; and cmf Sand; little cf Gravel (moist, non-plastic) Weathered ROCK Fragments	4
2							2.0		
3								Boring terminated at 2.0 feet due to auger refusal on possible bedrock or boulders.	
4								Notes: 1. Borehole backfilled with on-site soils.	
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-13** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**AM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
4 1/4" Auger/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	1.4	SS	8 21 50/5"		Brown SILT; some cmf Sand; little f Gravel (moist, non-plastic)	10
2								Advanced augers to 2.5 feet and began coring.	
							2.5		
3	NX CORE (WET)		2.5	7.5	NX	RUN 1		Blackish-Grey LIMESTONE 55" or 92% Recovery 9 Pieces (38") - 31% Chips and Fragments 4 Pieces longer than 4" (29") - RQD = 48%	55
4									
5									
6									
7							7.5		
8								Boring terminated at 7.5 feet.	
9								Notes: 1. Borehole backfilled with on-site soils.	
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-14** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**PM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	2.0	SS	5 6 6 8		Brown cf GRAVEL; some cmf Sand; little Clayey Silt (moist, slight plasticity)	8
2		2	2.0	4.0	SS	8 10 10 10		Brown cf GRAVEL; some cmf Sand; little Clayey Silt; trace Organic Material (root hairs) (moist, slight plasticity)	10
3							4.0		
4		3	4.0	4.8	SS	14 50/4"		Brown SILT; some cmf Sand; little cf Gravel (moist, non-plastic)	6
5							4.8		
6								Boring terminated at 4.8 feet due to auger refusal on possible bedrock or boulders.	
7								Notes: 1. Borehole backfilled with on-site soils.	
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/9/2026** Finish Date: **3/9/2026**

Boring No.: **B-15** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/9/2026	**PM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	3 4 4 3	2.0	Brown cmf SAND; some cf Gravel; some Silt & Clay; trace Organic Material (grass) (wet, low plasticity)	5
2		2	2.0	4.0	SS	3 4 5 5		Brown CLAY & SILT; some cmf Sand; little f Gravel (moist, medium plasticity)	8
3									
4		3	4.0	6.0	SS	5 7 14 8		Brown CLAY & SILT; some cmf Sand; little cf Gravel; trace Organic Material (roots) (wet, medium plasticity)	10
5							6.0		
6		4	6.0	7.8	SS	12 12 15 50/3"		Brown cf GRAVEL; and cmf Sand; little Clayey Silt (wet, slight plasticity)	6
7							7.8		
8								Boring terminated at 7.8 feet due to auger refusal on possible bedrock or boulders.	
9									
10								Notes: 1. Borehole backfilled with on-site soils.	
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-16** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**AM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	6 8 8 9		Brown cmf SAND; some cf Gravel; little Silt (moist, non-plastic)	10
2							2.0		
3		2	2.0	3.9	SS	12 8 10 50/5"		Brown cmf SAND; some cf Gravel; some Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	5
4								Advanced augers to refusal at 4.3 feet.	
							4.3		
5								Boring terminated at 4.3 feet due to auger refusal on possible bedrock or boulders.	
6								Notes: 1. Borehole backfilled with on-site soils.	
7									
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-17** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**AM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	1.3	SS	14 18 50/3"	1.0	Grey cf GRAVEL; and cmf Sand; little Silt (moist, non-plastic)	6
2		2	2.0	2.3	SS	50/3"	3.4	Brown cmf SAND; some cf Gravel; some Silt (moist, non-plastic)	2
3									
4								Boring terminated at 3.4 feet due to auger refusal on possible bedrock or boulders.	
5									
6								Notes: 1. Borehole backfilled with on-site soils.	
7									
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-18** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**PM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
4 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	2.0	SS	13 20 25 30		Grey cf GRAVEL; and cmf Sand; trace Silt (moist, non-plastic)	12
2		2	2.0	4.0	SS	33 16 22 26		Grey cf GRAVEL; and cmf Sand; little Clayey Silt (moist, slight plasticity)	10
3							4.0		
4		3	4.0	5.8	SS	13 10 10 50/3"		Grey SILT & CLAY; some cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, low plasticity)	5
5									
6		4	6.0	6.1	SS	50/1"	6.1	NO RECOVERY	0
7								Boring terminated at 6.1 feet due to auger refusal on possible bedrock or boulders.	
8								Notes:	
9								1. Borehole backfilled with on-site soils.	
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-19** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	**PM**	**DRY**	**OUT**

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	5 8 13 16		Grey cf GRAVEL; and cmf Sand; trace Silt (moist, non-plastic)	8
2		2	2.0	4.0	SS	13 18 20 8		Grey cf GRAVEL; some cmf Sand; little Clayey Silt (wet, slight plasticity)	12
3							4.0		
4		3	4.0	5.8	SS	6 8 15 50/3"		Grey cmf SAND; little f Gravel; trace Clayey Silt; trace Organic Material (roots) (wet, slight plasticity)	10
5									
6							6.3		
7								Boring terminated at 6.3 feet due to auger refusal on possible bedrock or boulders.	
8									
9								Notes: 1. Borehole backfilled with on-site soils.	
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/8/2025** Finish Date: **9/8/2025**

Boring No.: **I-1** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/8/2025		**DRY**	**8.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	10 8 24 32	2.0	Brown cmf SAND; and cf Gravel; trace Silt (moist, non-plastic)	8
2		2	2.0	4.0	SS	31 26 24 20	4.0	Brown SILT & CLAY; little cmf Sand; trace f Gravel (moist, low plasticity)	6
4		3	4.0	6.0	SS	15 14 4 3		Brown cf GRAVEL; some cmf Sand; trace Silt & Clay (moist, low plasticity)	7
6		4	6.0	8.0	SS	3 5 5 4	8.0	Brown cmf SAND; and Silt & Clay; little cf Gravel (moist, low plasticity)	7
8		5	8.0	10.0	SS	6 7 6 7	10.0	Brown SILT & CLAY; trace mf Sand (moist, low plasticity)	10
10								Boring terminated at 10.0 feet.	
12								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **I-2** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
	C A S I N G	1	0.0	0.6	SS	50/5"	0.6	TOPSOIL & ORGANIC MATERIAL	0
1									
2									
3								Boring terminated at 0.6 feet.	
4									
5								Notes:	
6								1. Attempted boring at 4 locations within 5 to 10 feet of original boring location.	
7								2. Borehole backfilled with on-site soils.	
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **I-3** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		**DRY**	**8.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	5 11 8 10	2.0	Brown CLAY & SILT; trace cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, medium plasticity)	6
2		2	2.0	4.0	SS	10 9 12 14	4.0	Brown cmf SAND; and f Gravel; trace Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	6
4		3	4.0	6.0	SS	2 2 4 3		Brown SILT & CLAY; trace cmf Sand (wet, low plasticity)	6
6		4	6.0	8.0	SS	3 4 2 4	8.0	Similar Soil (wet, low plasticity)	10
8		5	8.0	10.0	SS	6 10 9 30	10.0	Brown SILT & CLAY; little cmf Sand (wet, low plasticity)	6
10								Boring terminated at 10.0 feet.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **I-4** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		**DRY**	**8.0'**

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	4 6 4 7	2.0	Brown CLAY & SILT; trace cmf Sand; trace Organic Material (roots) (moist, medium plasticity)	5
2	CASING	2	2.0	4.0	SS	12 14 19 22	4.0	Brown cmf SAND; some f Gravel; little Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	3
4		3	4.0	6.0	SS	4 4 6 5		Brown CLAY & SILT; trace cmf Sand; trace f Gravel (moist, medium plasticity)	12
6		4	6.0	8.0	SS	5 6 7 7	8.0	Brown CLAY & SILT; trace f Gravel; trace cmf Sand (moist, medium plasticity)	6
8		5	8.0	10.0	SS	6 5 7 5	10.0	Brown cmf SAND; little f Gravel; little Silt & Clay (wet, low plasticity)	5
10								Boring terminated at 10.0 feet.	
								Notes: 1. Borehole backfilled with on-site soils.	

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

APPENDIX D

LABORATORY TEST RESULTS

ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

PROJECT INFORMATION

Client: EDR
Project: Old CHGE Training Yard
ATL Report No.: CD11074CSL-01-10-25
Report Date: October 31, 2025

TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
B-4	S - 2	2.0 - 4.0	5
	S - 3	4.0 - 6.0	8
	S - 4	6.0 - 8.0	10
	S - 5	8.0 - 10.0	17
	S - 6	10.0 - 11.1	13
B-5	S - 3	4.0 - 6.0	21
	S - 4	6.0 - 8.0	24
	S - 5	8.0 - 10.0	28
	S - 6	10.0 - 11.8	21
B-6	S - 2	2.0 - 4.0	8
	S - 3	4.0 - 6.0	33
	S - 4	6.0 - 8.0	19
	S - 5	8.0 - 10.0	22
	S - 6	10.0 - 10.6	14
B-7	S - 2	2.0 - 4.0	4
	S - 3	4.0 - 6.0	20
	S - 4	6.0 - 8.0	16
	S - 5	8.0 - 10.0	14
	S - 6	10.0 - 12.0	22
B-8	S - 2	2.0 - 4.0	13
	S - 3	4.0 - 6.0	20
	S - 4	6.0 - 8.0	30
	S - 5	8.0 - 10.0	22
	S - 6	10.0 - 12.0	25
B-10	S - 2	2.0 - 3.8	13

Reviewed By: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

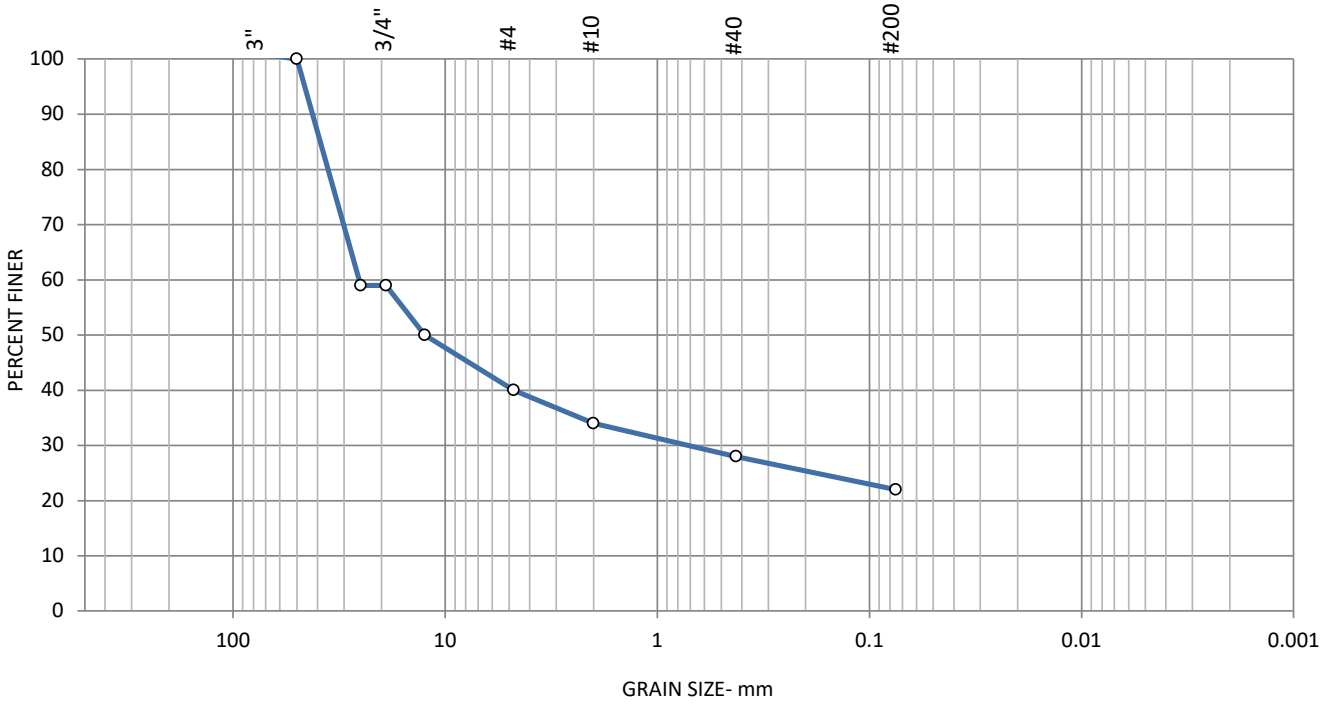
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-4, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-4.0'



% Cobbles	% Gravel		% Sand			% Fines	
						22	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	41	19	6	6	6		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	SPEC. (X)
4"			
3"			
2"	100		
1"	59		
3/4"	59		
1/2"	50		
#4	40		
#10	34		
#40	28		
#200	22		

Soil Description

Brownish-Grey cf GRAVEL; some Silt & Clay; little cmf Sand

Moisture Content = 5%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 25.43 D_{30}= 0.688 D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

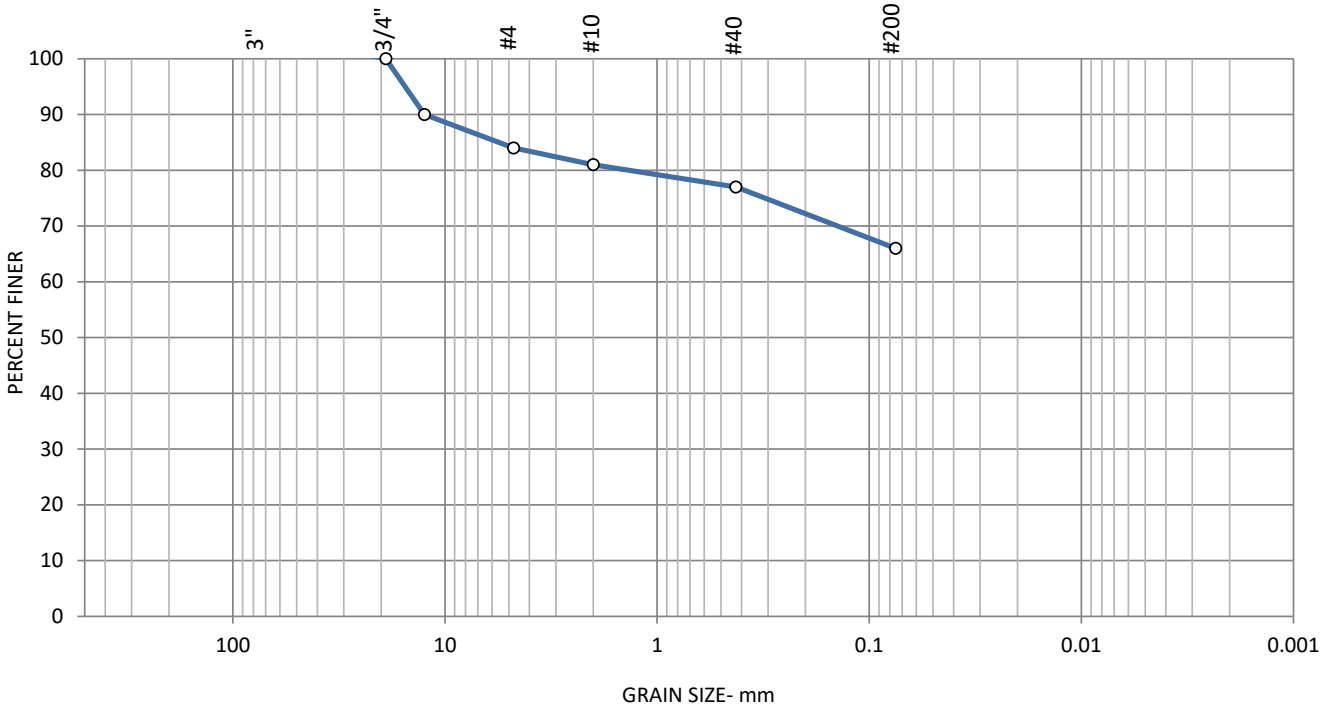
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-5, S-3 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 4.0-6.0'



% Cobbles	% Gravel		% Sand			% Fines	
						66	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		16	3	4	11		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"			
3/4"	100		
1/2"	90		
#4	84		
#10	81		
#40	77		
#200	66		

Soil Description

Brown CLAY & SILT; little cmf Sand; little f Gravel

Moisture Content = 21%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

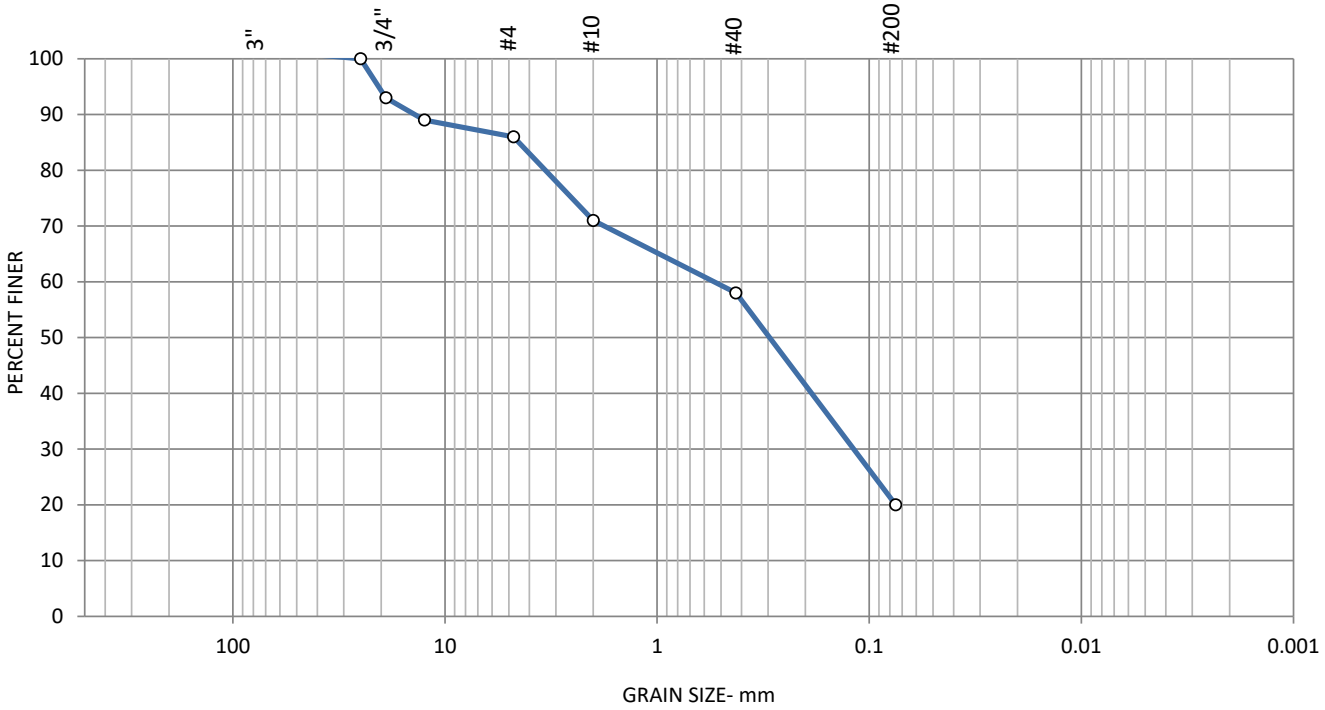
Particle Size Distribution Report
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-7, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-4.0'



% Cobbles	% Gravel		% Sand			% Fines	
						20	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	7	7	15	13	38		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"	100		
3/4"	93		
1/2"	89		
#4	86		
#10	71		
#40	58		
#200	20		

Soil Description

Brown cmf SAND; little Clayey Silt; little cf Gravel

Moisture Content = 4%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 0.633 D_{30}= 0.096 D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

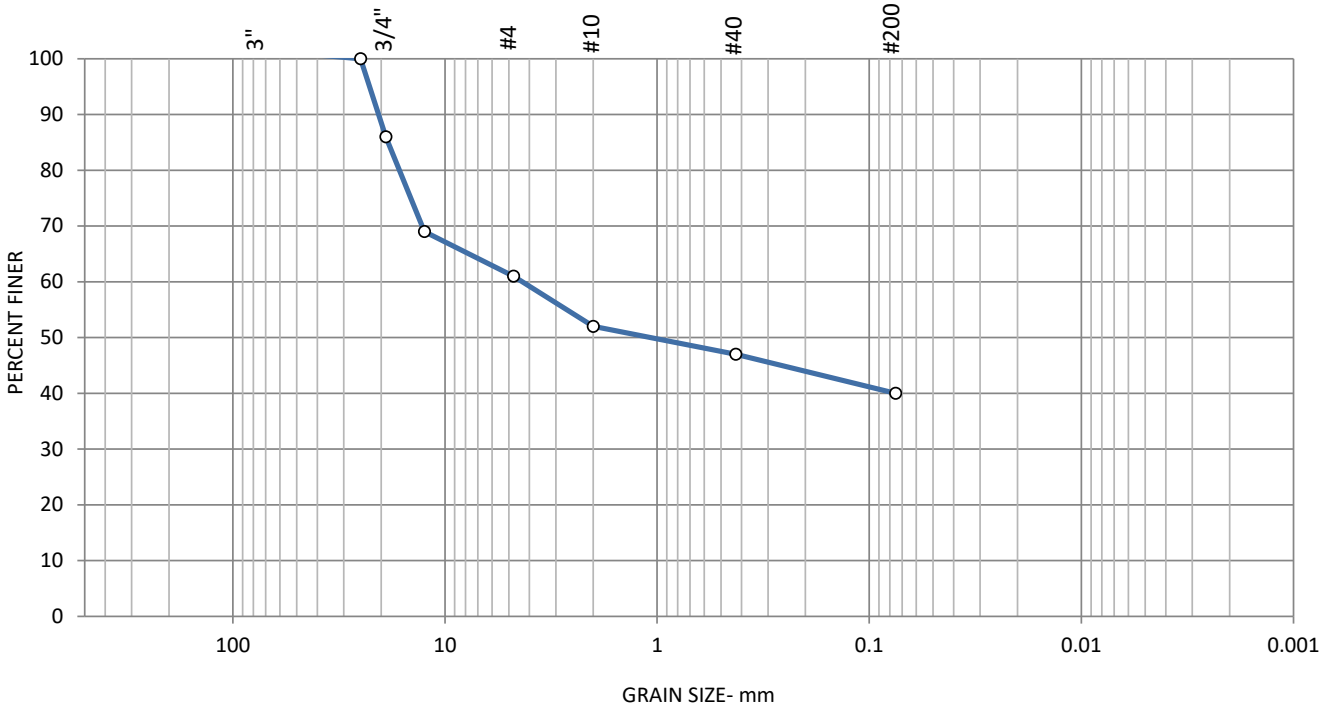
Particle Size Distribution Report
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-8, S-3 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 4.0-6.0'



% Cobbles	% Gravel		% Sand			% Fines	
						40	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	14	25	9	5	7		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"	100		
3/4"	86		
1/2"	69		
#4	61		
#10	52		
#40	47		
#200	40		

Soil Description

Greyish-Brown SILT & CLAY; and cf GRAVEL; some cmf SAND

Moisture Content = 21%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 4.327 D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

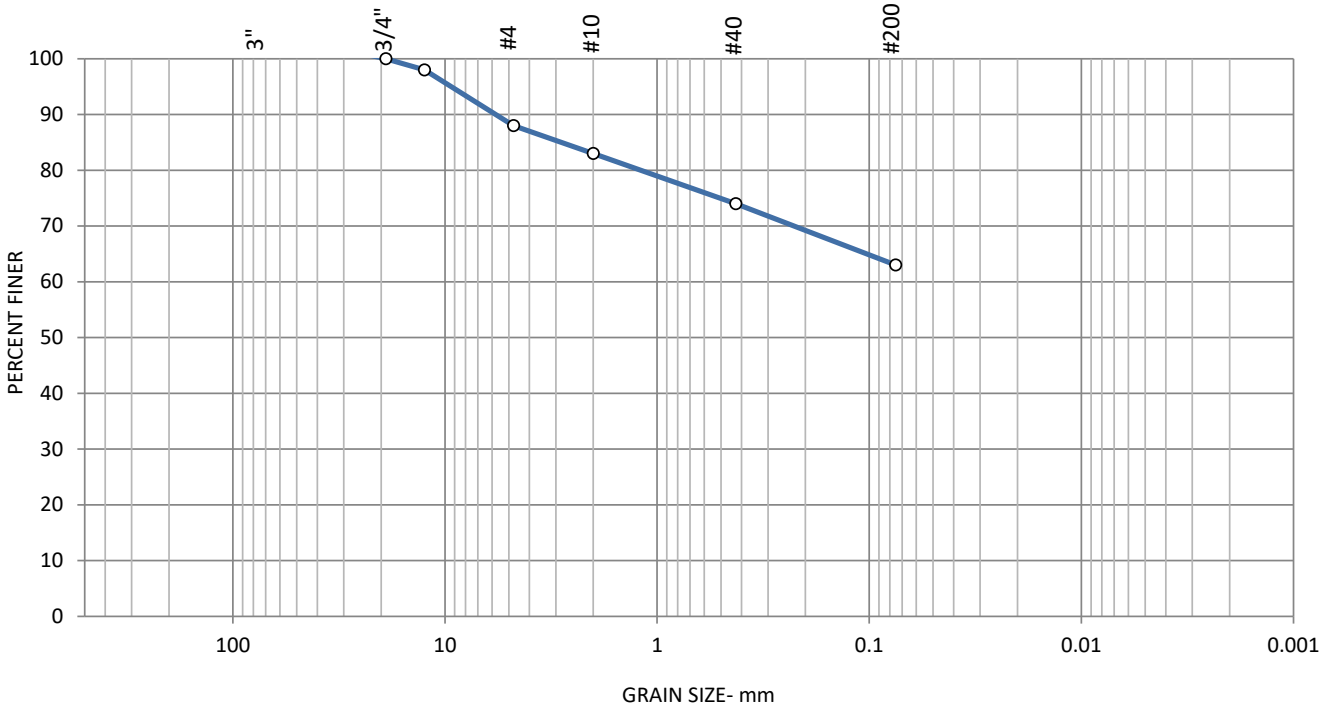
Particle Size Distribution Report
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-10, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-3.8'



% Cobbles	% Gravel		% Sand			% Fines	
						63	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		12	5	9	11		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"			
3/4"	100		
1/2"	98		
#4	88		
#10	83		
#40	74		
#200	63		

Soil Description

Brown SILT & CLAY; some cmf Sand; little f Gravel

Moisture Content = 13%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Rochester
3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE
IEEE 442

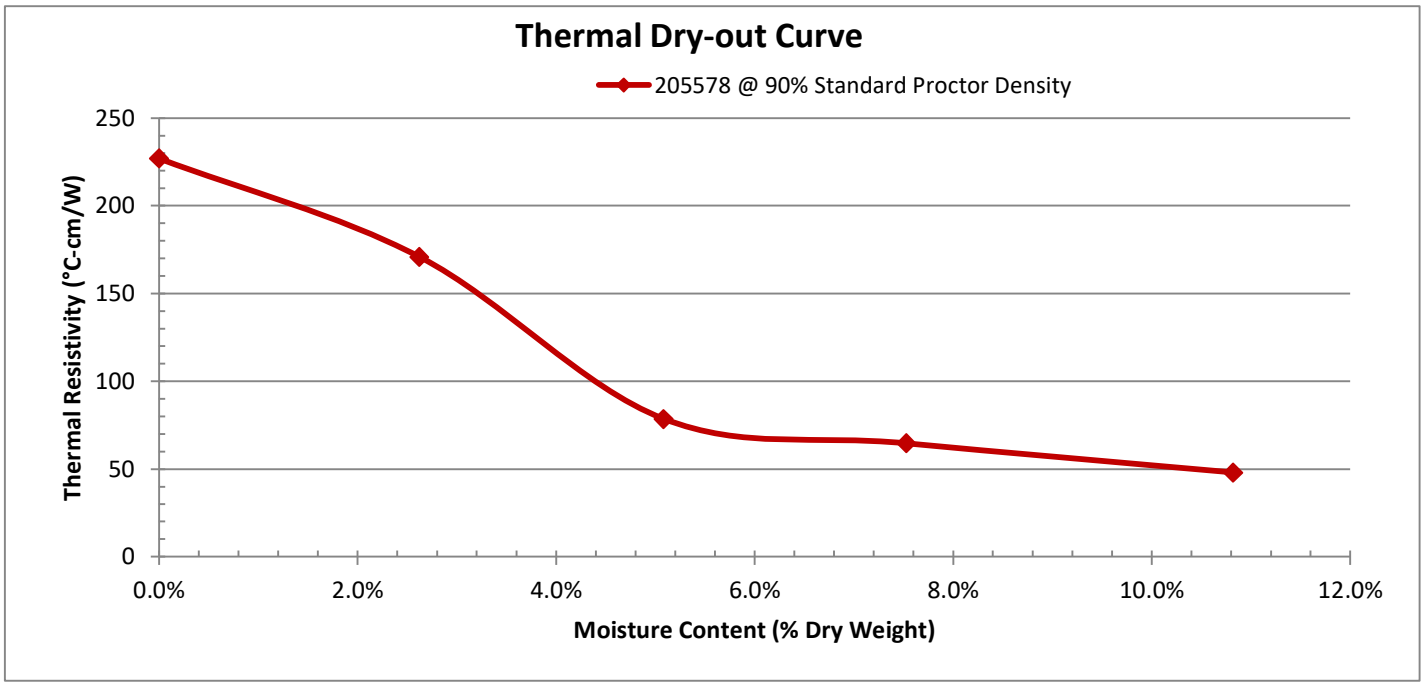
PROJECT INFORMATION

Client:	Environmental Design & Research	**ATL Report No.:**	CD11074TH-205578-08-26
Project:	Old CHGE Training Yard	**Report Date:**	August 3, 2026
		Date Received:	July 17, 2026
		Page:	1 of 1

SAMPLE INFORMATION

Source:	Saugerties, NY		
Boring Information:	Bulk Sample B-11	**Standard Proctor Values:**	129.6 lb/ft³ @ 8.6% M.C.
Sample Condition:	Bulk; Re-molded	**Remolded Dry Density:**	116.6 lb/ft³ (90%)
ATL Sample No.:	205578	**Received Moisture:**	14.1%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.0%	22.80	227
2.6%	23.10	171
5.1%	23.30	79
7.5%	23.30	65
10.8%	23.50	48



Reviewed By: _____ Date: 8/3/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000001

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:
Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

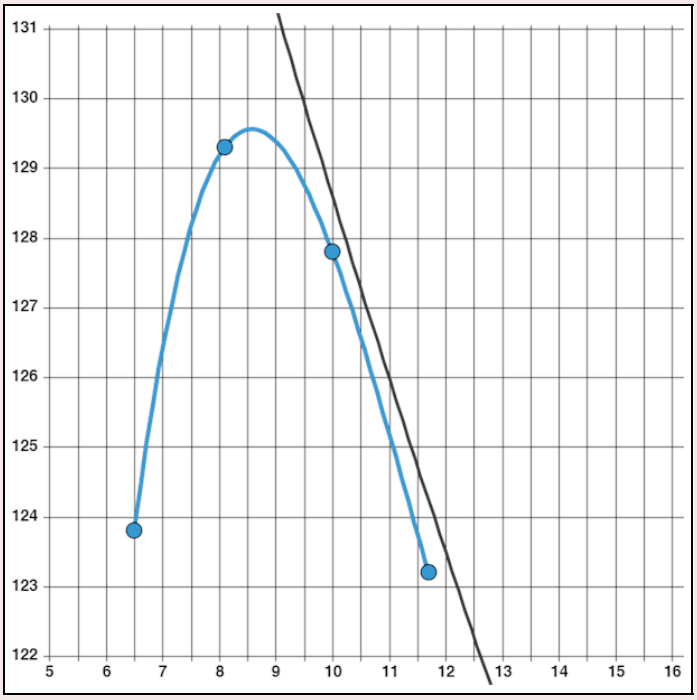
Project:
CD11074
Old CHGE Training Yard
123
Saugerties, NY

Sampling Information

Sample Number:	205578	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	07/27/2026
Sample From:	Not Given	**Color/Material Description:**	Gray Gravel and clayey silt
Location Details:	B-11		

Test Results

Test Completed By:	Reed, Michael
Test Completed Date:	07/30/2026



Material Description:	Gray Gravel and clayey silt
Preparation Method:	Moist
Rammer Type:	Manual
Percent Retained on 3/4 in.:	28
Specific Gravity Determination:	Estimated
Specific Gravity of Sample:	2.60
Oversize Specific Gravity:	2.58
Corrected Max Dry Density (lb/ft³):	129.6
Corrected Optimum Moisture (%):	8.6

Test Specification: ASTM D698 Method C, ASTM D4718

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000001

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:

Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

Project:

CD11074
Old CHGE Training Yard
123
Saugerties, NY

Craig Innis, Director of Quality 08/03/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES

Rochester
3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE
IEEE 442

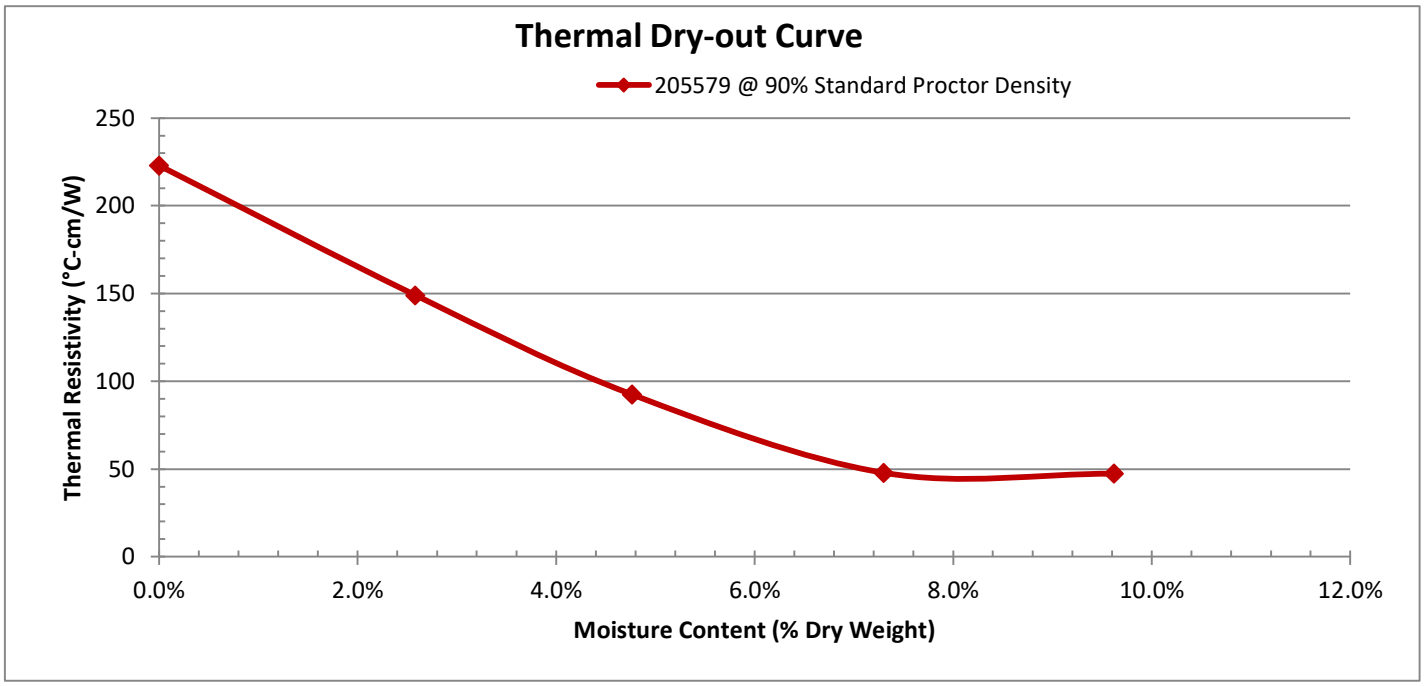
PROJECT INFORMATION

Client:	Environmental Design & Research	**ATL Report No.:**	CD11074TH-205579-08-26
Project:	Old CHGE Training Yard	**Report Date:**	August 3, 2026
		Date Received:	July 17, 2026
		Page:	1 of 1

SAMPLE INFORMATION

Source:	Saugerties, NY		
Boring Information:	Bulk Sample B-12	**Standard Proctor Values:**	132.1 lb/ft³ @ 7.8% M.C.
Sample Condition:	Bulk; Re-molded	**Remolded Dry Density:**	118.9 lb/ft³ (90%)
ATL Sample No.:	205579	**Received Moisture:**	8.4%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.0%	22.80	223
2.6%	23.40	149
4.8%	23.50	93
7.3%	24.00	48
9.6%	24.00	47



Reviewed By: _____ Date: 8/3/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000002

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:

Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

Project:

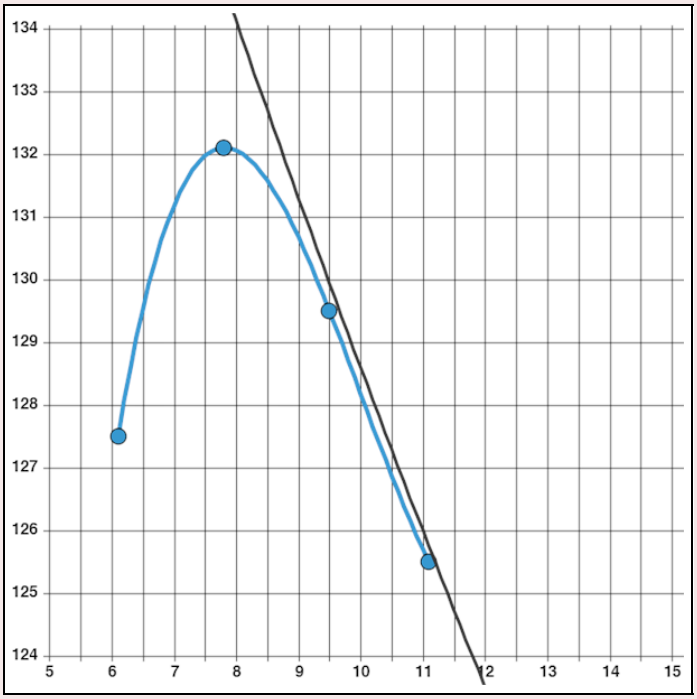
CD11074
Old CHGE Training Yard
123
Saugerties, NY

Sampling Information

Sample Number:	205579	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	07/27/2026
Sample From:	Not Given	**Color/Material Description:**	Gray Gravel and clayey silt
Location Details:	B-12		

Test Results

Test Completed By:	Reed, Michael
Test Completed Date:	07/30/2026



Material Description:	Gray Gravel and clayey silt
Preparation Method:	Moist
Rammer Type:	Manual
Percent Retained on 3/4 in.:	30
Specific Gravity Determination:	Estimated
Specific Gravity of Sample:	2.60
Oversize Specific Gravity:	2.58
Corrected Max Dry Density (lb/ft³):	132.1
Corrected Optimum Moisture (%):	7.8

Test Specification: ASTM D698 Method C, ASTM D4718

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000002

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:

Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

Project:

CD11074
Old CHGE Training Yard
123
Saugerties, NY

Craig Innis, Director of Quality 08/03/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

Date Printed: 8/13/2026 4:38:34 PM

KCE NY 34

TOWN OF SAUGERTIES, ULSTER COUNTY, NEW YORK

AUGUST 4, 2026

EDR JOB #: 22055

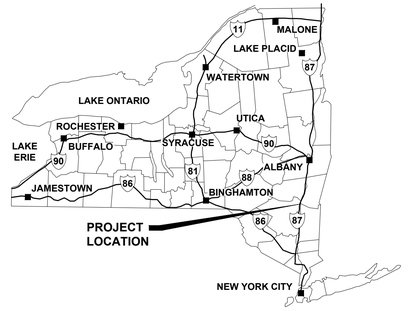
SKETCH PLAN REVIEW

FOR MUNICIPAL REVIEW

8/12/2026

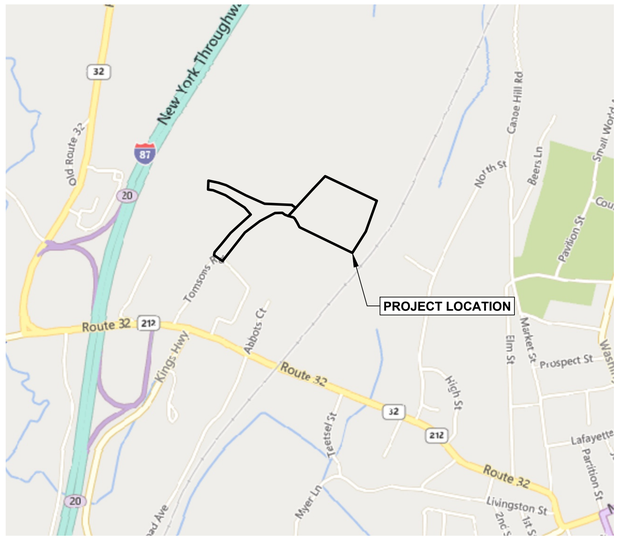
NOT FOR CONSTRUCTION

NEW YORK PROJECT LOCATION MAP



SCALE: NTS

PROJECT IMAGE / MAP:



SCALE: 1" = 800'

DRAWING INDEX:

G-001 COVER SHEET
G-002 GENERAL NOTES AND ABBREVIATIONS
C-000 OVERALL SITE PLAN AND DRAWING INDEX
C-001 EXISTING CONDITIONS AND DEMOLITION PLAN
C-002 EXISTING CONDITIONS AND DEMOLITION PLAN
C-003 TREE INVENTORY PLAN EAST
C-004 TREE INVENTORY PLAN WEST
C-005 TREE IDENTIFICATION TABLE
C-101 SITE LAYOUT PLAN
C-102 SITE LAYOUT PLAN
C-103 SITE SIGNAGE PLAN
C-104 PHOTOMETRIC PLAN
C-201 SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN
C-202 SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN
C-203 SECTION 'A' PLAN VIEW AND SECTION VIEW
C-301 EROSION & SEDIMENT CONTROL PLAN
C-302 EROSION & SEDIMENT CONTROL PLAN
C-303 PHASING PLAN
C-501 VEHICLE TURNING ANALYSIS PLAN
C-502 VEHICLE TURNING ANALYSIS PLAN
C-601 DETAILS
C-602 DETAILS
C-603 DETAILS

KEY CAPTURE ENERGY

EDR
a better environment

Environmental Design & Research,

Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
T:\22055 KCE NY 34 Saugerties\Civil\Working Drawings\G-000 (8)365.dwg

GENERAL NOTES:

1. THE CONTRACTOR SHALL USE THE WRITTEN DIMENSIONS PROVIDED WITHIN THE CONTRACT DRAWINGS. SCALED DIMENSIONS SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
2. THE CONTRACTOR SHALL CONTACT OWNER'S REPRESENTATIVE IMMEDIATELY IF CLARIFICATION OR INTERPRETATION OF THE CONTRACT DOCUMENTS, OR ANY OTHER ASPECTS OF THE PROJECT, IS REQUIRED.
3. LEGEND REPRESENTS STANDARD LINE TYPES AND HATCHING UNLESS INDICATED ON SPECIFIC DRAWINGS.
4. THE ABBREVIATIONS AND SYMBOLS HEREIN ARE STANDARD OF THIS OFFICE AND APPLY TO A VARIETY OF PROJECTS. ONLY A PORTION OF THEM WILL NECESSARILY APPLY TO ANY GIVEN PROJECT. SEE THE LISTINGS IN OTHER SECTIONS OF THIS PROJECT FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
5. EDR IS NOT RESPONSIBLE FOR SITE SECURITY AND SAFETY, OR CONSTRUCTION MEANS AND METHODS.
6. EDR IS NOT RESPONSIBLE FOR THE SEQUENCING OF CONSTRUCTION UNLESS A SEQUENCE OF CONSTRUCTION IS PROVIDED IN THE CONTRACT DOCUMENTS.

SITE CIVIL NOTES:

1. THE CONTRACTOR SHALL APPLY FOR ALL REQUIRED PERMITS, PAY ALL FEES REQUIRED BY GOVERNING AGENCIES HAVING JURISDICTION OVER THE FACILITIES AND NATURAL FEATURES FOUND ON SITE, AND FURNISH COPIES TO THE OWNER PRIOR TO COMMENCING WORK.
2. THE CONTRACTOR'S WORK AREA SHALL BE CONFINED TO THE LIMITS OF THE RIGHT-OF-WAYS AND EASEMENTS. THE CONTRACTOR SHALL OBTAIN ANY ADDITIONAL EASEMENTS OR WORK RELEASES SHOULD THE CONTRACTOR REQUIRE ADDITIONAL AREA TO ACCOMMODATE THEIR OPERATIONS.
3. SITE ACCESS IS RESTRICTED TO THE LOCATIONS DESIGNATED ON PLAN.
4. THE CONTRACTOR SHALL ADHERE TO ALL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), STATE AND LOCAL SAFETY REGULATIONS.
5. CONTRACTOR SHALL PROMPTLY REPORT TO THE OWNER'S REPRESENTATIVE ANY DISCREPANCIES FOUND ON THE SITE OR IN THE CONTRACT DOCUMENTS FOR REVIEW AND RESOLUTION BEFORE PROCEEDING WITH THE WORK IN THE AREA IN QUESTION. PROVIDE FIELD INFORMATION SPECIFIC TO THE DISCREPANCY TO EXPEDITE RESOLUTION.
6. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT AND SERVICES TO PERFORM ALL SURVEYING AND STAKING OPERATIONS ESSENTIAL FOR THE PROJECT AND IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.
7. THE CONTRACTOR SHALL RETAIN A QUALIFIED SURVEYOR KNOWLEDGEABLE IN PROPER AND UP TO DATE SURVEY TECHNIQUES. THE SURVEY CREWS SHALL BE UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED PROFESSIONAL LAND SURVEYOR.
8. THE BOUNDARY AND TOPOGRAPHIC SURVEY INFORMATION SHOWN ON THIS PLAN WAS PREPARED BY THEW ASSOCIATES AND DATED 05/11/2022.
9. SUBSURFACE SOIL INFORMATION WAS OBTAINED ON THIS SITE AND PREPARED BY ATLANTIC TESTING LABORATORIES AND DRAFT BORING LOGS ARE DATED 10/22/2025. THE CONDITIONS DESCRIBED ARE NOT INTENDED AS REPRESENTATIONS OR WARRANTIES OF ACCURACY OR CONTINUITY BETWEEN TEST LOCATIONS.
10. THE START OF ANY ON-SITE CONSTRUCTION INCLUDING STRIPPING TOPSOIL, REMOVING CUT OR PLACING FILL MATERIAL ESTABLISHES THAT THE CONTRACTOR ACCEPTS THE CONTRACT DOCUMENTS AS ACCURATELY REPRESENTING THE EXISTING SITE CONDITIONS.
11. ALL FACILITIES TO BE CONSTRUCTED OR INSTALLED SHALL COMPLY WITH ALL SECTIONS AND LATEST REVISIONS OF THE REQUIREMENTS OF ALL AGENCIES OF GOVERNMENT HAVING JURISDICTION.
12. LONG LEAD AND SCARCE MATERIALS SHALL BE ORDERED IN A TIMELY MANNER TO PREVENT AVOIDABLE CONSTRUCTION DELAYS.
13. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE CAUSED BY CONSTRUCTION TO EXISTING UTILITIES AND FACILITIES WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. THE CONTRACTOR SHALL REPAIR, RESTORE AND/OR REPLACE ALL DAMAGE TO THE SATISFACTION OF OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
14. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION EQUAL TO THAT WHICH EXISTED PRIOR TO CONSTRUCTION IN ACCORDANCE WITH SPECIFICATIONS.
15. THE CONTRACTOR SHALL RESTORE ALL DISTURBED SURFACES TO ORIGINAL OR BETTER CONDITION INCLUDING 6 INCHES OF TOPSOIL, SEED, FERTILIZER, AND MULCH. OTHER SURFACES SHALL BE RESTORED AS SHOWN ON THE DETAILS.
16. CONTRACTOR SHALL PROVIDE POSITIVE SITE DRAINAGE DURING CONSTRUCTION OPERATIONS. ALL FINAL LINES AND GRADES SHALL BE CONSTRUCTED TO MAINTAIN POSITIVE SITE DRAINAGE TO EXISTING DRAINAGE STRUCTURES.
17. ALL PAVEMENT SHALL BE SAW CUT PRIOR TO DEMOLITION AND/OR RESTORATION.
18. CONTRACTOR SHALL COORDINATE STAGING AREAS WITH OWNER.
19. WHILE EVERY EFFORT HAS BEEN MADE TO IDENTIFY THE ITEMS TO BE DEMOLISHED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SCOPE OF WORK IN THE FIELD, REVIEW THESE CONTRACT DRAWINGS, ALL PREVIOUS CONSTRUCTION DRAWINGS & DOCUMENTS AND THE DEVELOPMENT SPECIFICATIONS, THE EXISTING FACILITY PLANS, AND DEMOLISH ALL ITEMS NECESSARY TO ACCOMMODATE THE PROPOSED WORK. THE CONTRACTOR SHALL ALSO REPAIR ALL SURFACES AND PLUG ABANDONED PENETRATIONS UPON REMOVAL OF THE DEMOLISHED ITEMS PER THE SPECIFICATIONS.
20. CONTRACTOR SHALL VISIT AND EXAMINE THE SITE TO FULLY UNDERSTAND ALL THE CONDITIONS PERTAINING TO THE SCOPE OF WORK, UNDERSTAND DIFFICULTIES TO BE ENCOUNTERED AND MATERIALS REQUIRED FOR THE COMPLETE INSTALLATION OF THE WORK SHOWN ON THE DRAWINGS AND OR SPECIFIED AT NO ADDITIONAL COST TO THE OWNER. THE EXACT LOCATION OF THE EXISTING PIPING, EQUIPMENT, SERVICES, CONDITIONS, ETC. SHALL BE FIELD VERIFIED. THE EXISTING SIZE OF PIPING, EQUIPMENT, ETC. SHALL BE FIELD VERIFIED. ALL PIPING, AND EQUIPMENT ELEVATIONS SHOWN OR SPECIFIED SHALL BE FIELD VERIFIED. CONTRACTOR SHALL MODIFY LAYOUT WITH THE APPROVAL OF THE ENGINEER WHERE REQUIRED TO CLEAR OBSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER.
21. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND MAKE ALL NECESSARY PROVISIONS FOR PROTECTION OF THE PUBLIC, THE WORKERS AND THE WORK, AND FOR MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC AS REQUIRED BY THE AGENCIES OF GOVERNMENT HAVING JURISDICTION.
22. PROMPTLY REPORT TO THE OWNER'S REPRESENTATIVE ANY DISCREPANCIES FOUND ON THE SITE OR IN THE CONTRACT DOCUMENTS FOR REVIEW AND RESOLUTION BEFORE PROCEEDING WITH THE WORK IN THE AREA IN QUESTION. PROVIDE FIELD INFORMATION SPECIFIC TO THE DISCREPANCY TO EXPEDITE RESOLUTION.
23. LOCATE, PROTECT, AND MAINTAIN BENCHMARKS, MONUMENTS, CONTROL POINTS AND PROJECT ENGINEERING REFERENCE POINTS.
24. COMPLY WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS REGARDING MATERIALS, METHODS OF WORK AND DISPOSAL OF EXCESS AND WASTE MATERIALS.
25. BURNING OF MATERIALS OF ANY DESCRIPTION ON THE SITE IS PROHIBITED.
26. PRIOR TO PERFORMING ANY EXCAVATION WITHIN THE CONSTRUCTION AREA, CONFIRM WITH DIG SAFELY NEW YORK AT 1-800-962-7962 THAT ALL EXISTING UNDERGROUND UTILITY LOCATIONS ARE CURRENTLY VERIFIED, OR ARRANGE FOR VERIFICATION.
27. MATERIALS SUITABLE FOR BACKFILL SHALL INCLUDE ONLY MATERIALS THAT ARE FREE OF DEBRIS, ROOTS, STUMPS, ORGANIC MATTER, FROZEN MATTER, COAL, ASH, SLAG, AND OTHER DELETERIOUS MATERIALS IN AS RECOMMENDED BY THE GEOTECHNICAL REPORT.
28. BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698, UNLESS A GREATER LEVEL OF COMPACTION IS REQUIRED BY THE GEOTECHNICAL REPORT.
29. SOUND BARRIERS WILL BE POSITIONED ON THE NORTHEAST AND SOUTHWEST FENCELINES AS DEPICTED ON THE SITE PLAN WITH THE FOLLOWING SPECIFICATIONS
    - 29.1. SURFACE DENSITY OF AT LEAST 2LB./SF
    - 29.2. MATERIAL WILL BE MOSTLY REFLECTIVE WITH AN AVERAGE ABSORPTION COEFFICIENT OF 0.21
    - 29.3. APPROXIMATE DIMENSIONS OF THE BARRIERS ARE AS FOLLOWS (LxH)
    - 29.4. NORTHEAST FENCELINE - 138' X 12' AND 38' X 10'
    - 29.5. SOUTHWEST FENCELINE - 224' X 12'

UTILITIES NOTES:

1. EXISTING UTILITIES (PIPE/STRUCTURE LOCATIONS, SIZES, AND INVERT ELEVATIONS) SHOWN ON THESE PLANS HAVE BEEN PLOTTED FROM FIELD SURVEYS AND RECORDED MAPS AND SHALL BE INTERPRETED AS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND FIELD VERIFYING ALL EXISTING INFORMATION AT ALL LOCATIONS IN CLOSE PROXIMITY TO THE UTILITIES AND WORK UNDER CONSTRUCTION. THIS INFORMATION INCLUDES BUT IS NOT LIMITED TO EXISTING PIPE AND STRUCTURE SIZES, PIPE AND STRUCTURE LOCATIONS, PIPE SLOPES, STRUCTURE RIM AND INVERT ELEVATIONS, PIPE MATERIALS AND PIPE CONDITIONS. THIS SHALL INCLUDE PIPE INVERTS, MATERIALS AND SIZES FOR UTILITIES CONNECTING TO DOWNSTREAM STRUCTURES. THIS VERIFICATION SHALL BE COMPLETED PRIOR TO THE COMMENCEMENT OF SHOP DRAWING SUBMITTALS, ORDERING OF MATERIALS, AND THE START OF ANY REMOVALS FOR THIS PROJECT. ANY PROPOSED MODIFICATIONS TO THE DESIGN SHALL BE SUBMITTED AS SHOP DRAWINGS INCLUDING BUT NOT LIMITED TO DESIGN DRAWINGS AND UTILITY PROFILES INCLUDING PIPE AND STRUCTURE LAYOUT, STRUCTURE RIM AND INVERT ELEVATIONS, AND PIPE SIZES, MATERIALS AND SLOPES.
2. THE OWNER'S REPRESENTATIVE SHALL REVIEW THE LAYOUT OF ALL PAVEMENTS, UTILITIES, AND PLANTINGS IN THE FIELD BEFORE INSTALLATION. THE CONTRACTOR SHALL SCHEDULE ADVANCED NOTIFICATION TO THE OWNER'S REPRESENTATIVE TO FACILITATE TIMELY REVIEW.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER IN ADVANCE OF ANY EXCAVATION WORK THAT WILL TAKE PLACE WITHIN 5' OF THE UTILITY POLE. THE CONTRACTOR SHALL INCLUDE THE COST OF TEMPORARY POLE SUPPORT IN THE APPROPRIATE BID ITEM. WHERE UTILITY POLES ARE REQUIRED TO BE SUPPORTED DURING CONSTRUCTION, THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND MAINTENANCE OF SURFACE WATER AND/OR GROUNDWATER ENCOUNTERED DURING THE COURSE OF WORK.
5. PRIOR TO START OF WORK, THE CONTRACTOR SHALL PROVIDE EXPLORATORY EXCAVATIONS AND COORDINATE ALL PIPING LAYOUTS WITH THE OWNER'S REPRESENTATIVE TO ELIMINATE ALL CONFLICTS WITH EXISTING UTILITIES.
6. THE USE OF EXPLOSIVES OF ANY DESCRIPTION ON THE SITE IS PROHIBITED.
7. CONSTRUCTION DEBRIS AND DEMOLISHED MATERIALS SHALL BE REMOVED FROM THE SITE AT REGULAR INTERVALS AS DETERMINED BY THE OWNER'S REPRESENTATIVE AND SHALL NOT BE ALLOWED TO ACCUMULATE. EMPLOY APPROPRIATE MEASURES TO PREVENT LOOSE DEBRIS FROM LEAVING THE CONSTRUCTION AREA.
8. PERFORM WORK AND PROVIDE ALL MATERIALS NECESSARY TO DISCONNECT OR RELOCATE EXISTING UTILITIES. COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR SHUTOFF AND RECONNECTION OF ACTIVE SERVICES. RECORD EXISTING UTILITY TERMINATION POINTS BEFORE DISCONNECTION.
9. THE CONTRACTOR SHALL MAINTAIN EXISTING SANITARY SEWER AND WATER SERVICES AT ALL TIMES.
10. ALL STRUCTURES SHALL MEET THE AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS (AASHTO) H20 LOADING REQUIREMENTS.
11. ALL NEW UTILITY LATERALS SHALL BE INSTALLED WITH A MINIMUM 1/4" PER FOOT SLOPE.
12. UNDERDRAINS SHALL BE INSTALLED PARALLEL TO FINISHED GRADE, OR AS INDICATED ON THE PLAN.
13. ALL EXISTING DRAINAGE FACILITIES SHALL BE MAINTAINED FREE OF DEBRIS AND FOREIGN MATTER AND BE IN OPERATION THROUGHOUT CONSTRUCTION.
14. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.

EROSION & SEDIMENT CONTROL & POLLUTION PREVENTION NOTES

1. AVOID ANY DISTURBANCE OF EXISTING VEGETATION ON THE SITE EXCEPT THE VEGETATION SPECIFICALLY DESIGNATED TO BE REMOVED.
2. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT EROSION AND CONTROL SEDIMENTATION AS REQUIRED BY THE AGENCIES OF GOVERNMENT HAVING JURISDICTION.
3. THIS PROJECT WILL OBTAIN COVERAGE UNDER THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES, PERMIT NO. GP-0-25-001 (GENERAL PERMIT). THE GENERAL PERMIT AUTHORIZES STORMWATER DISCHARGES TO SURFACE WATERS OF THE STATE FROM CONSTRUCTION RELATED ACTIVITIES. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED IN ACCORDANCE WITH THIS PERMIT AND IS PART OF THE CONTRACT AND CONSTRUCTION REQUIREMENTS FOR THIS PROJECT. THE CONTRACTOR SHALL OBTAIN A COPY OF THE APPROVED SWPPP FOR THIS PROJECT, PRIOR TO DEVELOPING A BID PRICE FOR THE OWNER. THE SWPPP INCLUDES THE REQUIREMENTS FOR PRECONSTRUCTION ACTIVITIES, INSPECTIONS DURING CONSTRUCTION, AND POST CONSTRUCTION CERTIFICATIONS THAT MUST BE FOLLOWED BY THE CONTRACTOR AND THE OWNER TO STAY IN COMPLIANCE WITH THIS PERMIT. THESE REQUIREMENTS ARE DESCRIBED IN THE SWPPP AND SHALL BE INCLUDED INTO THE CONTRACTOR'S BID PRICING FOR THIS PROJECT, AS WELL AS THE CONDITIONS OF WORK BY BOTH THE CONTRACTOR AND OWNER.
4. TOP DRESS, SEED, AND MULCH OR SOD ALL LAWN AREAS DISTURBED BY THE CONSTRUCTION AS SOON AS THE FINISHED GRADING OPERATION IS COMPLETED.
5. MAINTAIN AN ADEQUATE SUPPLY OF EROSION AND SEDIMENT CONTROL MATERIALS AT THE CONSTRUCTION SITE AT ALL TIMES TO BE USED FOR URGENT SITUATIONS, SUCH AS UNEXPECTED HEAVY RAINFALL.
6. MAINTENANCE AND REPAIR OF ALL EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM AND FUEL TANK DRAIN DOWN, DEGREASING OPERATIONS AND OTHER ACTIVITIES THAT MAY RESULT IN THE ACCIDENTAL RELEASE OF CONTAMINANTS MUST BE CONDUCTED OFF-SITE. ACCIDENTAL SPILLS MUST BE CLEANED UP IMMEDIATELY AND CONTAMINANTS DISPOSED OF PROPERLY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING SOIL AND EXCESS EXCAVATED EARTH STOCKPILES AT A STABLE LOCATION. STOCKPILES SHALL BE STABILIZED PER THE DETAIL.
8. ALL UNSUITABLE OR EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
9. CONSTRUCTION ROUTES SHALL BE STABILIZED PER THE NYS STANDARDS FOR EROSION AND SEDIMENT CONTROL, AS NECESSARY BASED ON SITE CONDITIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT, DESIGN, APPROVAL, AND OPERATION OF THE CONCRETE WASHOUTS. THE CONCRETE WASHOUTS SHALL BE INSTALLED A MINIMUM OF 50' FROM STORM DRAINAGE OR SURFACE WATER. CONCRETE WASTE MATERIAL SHALL NOT BE ALLOWED TO ESCAPE FROM THE CONCRETE WASHOUT.
11. SOLID WASTE SHALL BE STORED IN COVERED DUMPSTERS OR OTHER APPROPRIATE CONTAINERS. WASTE IS TO BE DISPOSED OF REGULARLY AND PROPERLY IN ACCORDANCE WITH LOCAL, STATE, AND/OR FEDERAL REGULATIONS.
12. THE EROSION AND SEDIMENT CONTROLS ARE SHOWN FOR A CONDITION WHEN ALL WORK IS OCCURRING SIMULTANEOUSLY. ACTUAL INSTALLATIONS SHALL BE ADJUSTED BASED ON CURRENT CONSTRUCTION ACTIVITY AND SITE CONDITIONS.
13. TREE CLEARING SHALL OCCUR BETWEEN NOVEMBER 1 AND MARCH 31.

CODES AND STANDARDS:

1. ALL CODES, REGULATIONS, AND STANDARDS REFERRED TO HEREIN ARE TO BE CONSIDERED AS PART OF THESE DRAWINGS AND SPECIFICATIONS. THE LATEST REVISION OF THE FOLLOWING CODES, REGULATIONS, AND STANDARDS APPLY AT A MINIMUM FOR THE WORK:
    - 1.1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
    - 1.2. AMERICAN CONCRETE INSTITUTE (ACI)
    - 1.3. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
    - 1.4. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
    - 1.5. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
    - 1.6. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
    - 1.7. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
    - 1.8. CODE OF FEDERAL REGULATIONS (CFR)
    - 1.9. INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)
    - 1.10. INTERNATIONAL ELECTRO-TECHNICAL COMMISSION (IEC)
    - 1.11. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
    - 1.12. NATIONAL BUREAU OF STANDARDS (NBS)
    - 1.13. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
    - 1.14. NATIONAL ELECTRIC CODE (NEC)
    - 1.15. NATIONAL ELECTRIC SAFETY CODE (NESC)
    - 1.16. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
    - 1.17. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
    - 1.18. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)
    - 1.19. NATIONAL READY MIXED CONCRETE ASSOCIATION (NRMCA)
    - 1.20. NEW YORK STATE DEPARTMENT OF ENVIORNMENTAL CONCERVATION (NYSDEC)
    - 1.21. NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)
    - 1.22. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
    - 1.23. UNIFORM BUILDING CODE (UBC)
    - 1.24. UNDERWRITER'S LABORATORIES, INC. (UL).
2. IN THE ABSENCE OF A DEFINED LOCAL BUILDING CODE OR REGULATION, THE LATEST VERSION OF THE INTERNATIONAL CODE COUNCIL CODES SHALL BE USED AS THE BASIS FOR THE WORK.

PERMANENT SEEDING

PERMANENT SEEDING IS DEFINED AS ESTABLISHING PERMANENT GRASSES WITH OTHER FORBS AND/OR SHRUBS TO PROVIDE A MINIMUM 80% PERENNIAL VEGETATIVE COVER ON AREAS DISTURBED BY CONSTRUCTION AND CRITICAL AREAS TO REDUCE EROSION AND SEDIMENT TRANSPORT. CRITICAL AREAS MAY INCLUDE BUT ARE NOT LIMITED TO STEEP EXCAVATED CUT OR FILL SLOPES AS WELL AS ERODING OR DENUDED NATURAL SLOPES AND AREAS SUBJECT TO EROSION.

SEEDING SPECIFICATIONS:

1. PERMANENT SEEDING SHALL BE DONE IN ACCORDANCE WITH THE *NYS STANDARDS AND SPECIFICATIONS (STANDARDS AND SPECIFICATIONS) FOR EROSION AND SEDIMENT CONTROL PERMANENT CONSTRUCTION*.
2. ALL WATER CONTROL MEASURES SHALL BE INSTALLED AS NEEDED PRIOR TO FINAL GRADING AND SEEDBED PREPARATION.
3. ANY SEVERELY COMPACTED SECTIONS WILL REQUIRE CHISELING OR DISKING TO PROVIDE AN ADEQUATE ROOTING ZONE, TO A MINIMUM DEPTH OF 1 2", SEE SOIL RESTORATION STANDARD.
4. THE SEEDBED MUST BE PREPARED TO ALLOW GOOD SOIL TO SEED CONTACT, WITH THE SOIL NOT TOO SOFT AND NOT TOO COMPACT. ADEQUATE SOIL MOISTURE MUST BE PRESENT TO ACCOMPLISH THIS.
5. IF SURFACE IS POWDER DRY OR STICKY WET, POSTPONE OPERATIONS UNTIL MOISTURE CHANGES TO A FAVORABLE CONDITION.
6. IF SEEDING IS ACCOMPLISHED WITHIN 24 HOURS OF FINAL GRADING, ADDITIONAL SCARIFICATION IS GENERALLY NOT NEEDED, ESPECIALLY ON DITCH OR STREAM BANKS.
7. REMOVE ALL STONES AND OTHER DEBRIS FROM THE SURFACE THAT ARE GREATER THAN 4 INCHES, OR THAT WILL INTERFERE WITH FUTURE MOWING OR MAINTENANCE.
8. SOIL AMENDMENTS SHOULD BE INCORPORATED INTO THE UPPER 2 INCHES OF SOIL WHEN FEASIBLE. THE SOIL SHOULD BE TESTED TO DETERMINE THE AMOUNTS OF AMENDMENTS NEEDED. APPLY GROUND AGRICULTURAL LIMESTONE TO ATTAIN A PH OF 6. 0 IN THE UPPER 2 INCHES OF SOIL.
9. IF SOIL MUST BE FERTILIZED BEFORE RESULTS OF A SOIL TEST CAN BE OBTAINED TO DETERMINE FERTILIZER NEEDS, APPLY COMMERCIAL FERTILIZER AT 600 LBS. PER ACRE OF 5 -5-1 0 OR EQUIVALENT.

PERMANENT SEED MIX:

ALL SEED MIXES SHALL BE FREE OF INVASIVE SPECIES.

PERMANENT SEED MIX SHALL BE THE *STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL PERMANENT CONSTRUCTION* AREA MIX #6 OR APPROVED EQUAL.

MIX #6

Species	Variety	Rate in lbs./ acre (PLS)	Rate in lbs. / 1,000 ft2
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	0.45
Chewings Fescue	Common	20	0.45
Perennial ryegrass	Pennfine, Linn	5	0.10
Red Clover	Common	10	0.45

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed.

SEEDING DATES:

EARLY SPRING IS THE OPTIMUM TIMING FOR SEEDING.

PERMANENT SEEDINGS MAY BE MADE ANY TIME OF YEAR IF PROPERLY MULCHED AND ADEQUATE MOISTURE IS PROVIDED.

SEEDING IN LATE JUNE THROUGH EARLY AUGUST IS NOT RECOMMENDED BUT MAY BE USED TO FACILITATE COVERING THE LAND WITHOUT ADDITIONAL DISTURBANCE IF CONSTRUCTION IS COMPLETED. PORTIONS OF THE SEEDING MAY FAIL DUE TO DROUGHT AND HEAT, AND THESE AREAS MAY NEED RESEEDING IN LATE SUMMER/FALL OR THE FOLLOWING SPRING.

METHOD OF SEEDING:

BROADCASTING, DRILLING, CULTIPACK TYPE SEEDING, OR HYDROSEEDING ARE ACCEPTABLE METHODS.

MULCHING

MULCHING SHALL BE DONE USING SMALL GRAIN STRAW APPLIED AT A RATE OF 2 TONS PER ACRE AND ANCHORED WITH A NETTING OR TACKIFIER. APPLY MULCH AFTER SOIL AMENDMENTS AND PLANTING IS ACCOMPLISHED OR SIMULTANEOUSLY IF HYDROSEEDING IS USED. SEE THE *STANDARD AND SPECIFICATIONS FOR MULCHING* FOR MULCHING AND ANCHORING SELECTION AND REQUIREMENTS.

ABBREVIATIONS

AL	ALUMINUM	ES	END SECTION	MAX	MAXIMUM	SPEC	SPECIFICATIONS/ SPECIFIED
ACT	ACTUAL	EX	EXISTING	MH	MANHOLE	SQ	SQUARE
APPR	APPROXIMATE/ APPROXIMATELY	EXP	EXPANSION	MIN	MINIMUM	SS	STAINLESS STEEL
BC	BOTTOM OF CURB	FFE	FINISHED FLOOR ELEVATION	MISC	MISCELLANEOUS	STA	STATION
BLDG	BUILDING	FG	FINISHED GRADE	MON	MONUMENT	STL	STEEL
BM	BENCHMARK	FIN	FINISH	N	NORTH	SY	SQUARE YARD
BOS	BOTTOM OF SLOPE	FL	FLOOR	NIC	NOT IN CONTRACT	T	TANGENT
BS	BOTTOM OF STAIR	FTG	FOOTING	NOM	NOMINAL	TB	TEST BORING
BW	BOTTOM OF WALL	FT	FOOT/FEET	NTS	NOT TO SCALE	TC	TOP OF CURB
B&B	BALLED AND BURLAPPED	GA	GAUGE	NUM	NUMBER	TOS	TOP OF SLOPE
CAL	CALIPER	GAL	GALLON	OC	ON CENTER	TS	TOP OF STAIR
CB	CATCH BASIN	GALV	GALVANIZED	OCEW	ON CENTER EACH WAY	TW	TOP OF WALL
CF	CUBIC FEET	GC	GENERAL CONTRACTOR	OD	OUTSIDE DIAMETER	TYP	TYPICAL
CI	CAST IRON	GR	GUARDRAIL	OP	OUTLET PROTECTION	T&G	TONGUE AND GROOVE
CIP	CAST IN PLACE	GV	GAS VALVE	PA	PLANTING AREA	UD	UNDERDRAIN
CIR	CIRCLE/CIRCULAR	HOR	HORIZONTAL	PC	POINT OF CURVATURE	USGS	UNITED STATES GEOLOGICAL SURVEY
CJ	CONTROL JOINT	HP	HIGH POINT	PL	PROPERTY LINE	VAR	VARIES/VARIABLE
CLF	CHAIN-LINK FENCE	HT	HEIGHT	PT	POINT OF TANGENT/ PERCOLATION TEST LOCATION	VCP	VITRIFIED CLAY PIPE
CLL	CONTRACT LIMIT LINE	HW	HEAD WALL	PVC	POLYVINYL CHLORIDE	VERT	VERTICAL
CLR	CLEAR	HWY	HIGHWAY	R	RADIUS	W	WEST
CMP	CORRUGATED METAL PIPE	HYD	HYDRANT	RCP	REINFORCED CONCRETE PIPE	WE	WATER ELEVATION
CO	CLEANOUT	ID	INSIDE DIAMETER	REINF	REINFORCING	WL	WALK LIGHT
COL	COLUMN	IN	INCH/INCHES	REQD	REQUIRED	WV	WATER VALVE
CONC	CONCRETE	INL	INLET	REV	REVISION	WWM	WOVEN WIRE MESH
CONT	CONTAINER	INV	INVERT	ROW	RIGHT OF WAY	W/	WITH
CONTR	CONTRACTOR	IP	IRON PIPE	RT	RIGHT	W/O	WITHOUT
CY	CUBIC YARDS	JB	JUNCTION BOX	S	SOUTH	YD	YARD DRAIN
DET	DETAIL	L	LENGTH/LONG	SAN	SANITARY	℄	CENTER LINE
DIM	DIMENSION	LA	LANDSCAPE ARCHITECT	SECT	SECTION	±	PLUS OR MINUS
DIA	DIAMETER	LAT	LATITUDE	SF	SQUARE FOOT	Δ	CHANGE IN VALUE
DMH	DROP MANHOLE	LF	LINEAR FEET	SG	SUB GRADE	<	LESS THAN
DWG	DRAWING	LFT	LEFT	SH	SHEET	>	GREATER THAN
E	EAST	LIN	LINEAR	SI	STORM INLET		
EA	EACH	LP	LOW POINT	SL	STREET LIGHT		
EJ	EXPANSION JOINT	M	METER				
EL	ELEVATION						
EQ	EQUAL						

TEMPORARY SEEDING:

SEEDING SPECIFICATIONS:

1. PROVIDING TEMPORARY EROSION CONTROL PROTECTION TO DISTURBED AREAS AND/OR LOCALIZED CRITICAL AREAS FOR AN INTERIM PERIOD BY COVERING ALL BARE GROUND THAT EXISTS AS A RESULT OF CONSTRUCTION ACTIVITIES OR A NATURAL EVENT. CRITICAL AREAS MAY INCLUDE BUT ARE NOT LIMITED TO STEEP EXCAVATED CUT OR FILL SLOPES AND ANY DISTURBED, DENUDED NATURAL SLOPES SUBJECT TO EROSION
2. WATER MANAGEMENT PRACTICES MUST BE INSTALLED AS APPROPRIATE FOR SITE CONDITIONS.
3. THE AREA MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE.
4. LARGE DEBRIS AND ROCKS ARE USUALLY REMOVED.
5. SEEDBED MUST BE SEEDED WITHIN 24 HOURS OF DISTURBANCE OR SCARIFICATION OF THE SOIL SURFACE WILL BE NECESSARY PRIOR TO SEEDING.

TEMPORARY SEED MIX:

ALL SEED MIXES SHALL BE FREE OF INVASIVE SPECIES.

TEMPORARY SEEDING MIX SHALL BE DONE IN ACCORDANCE WITH *STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TEMPORARY CONSTRUCTION* AREA.

SPRING OR SUMMER OR EARLY FALL: RYEGRASS (ANNUAL OR PERENNIAL) AND 30 LBS. PER ACRE (APPROXIMATELY 0.7 LB./1000 SQ. FT. OR USE 1 LB./1000 SQ. FT.)

LATE FALL OR EARLY WINTER: CERTIFIED 'AROOSTOOK' WINTER RYE (CEREAL RYE) AT 100 LBS. PER ACRE (2.5 LBS./1000 SQ. FT.) AT 100 LBS. PER ACRE (2.5 LBS./1000 SQ. FT.).

MULCHING

MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/ACRE (APPROX. 90 LBS./1000 SQ. FT. OR 2 BALES). MULCH ANCHORING IS REQUIRED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE OF CONCERN. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATION. NYLON OR SYNTHETIC MULCH PRODUCTS SHALL NOT BE USED.

ZONING INFORMATION

TAX PARCEL	ZONING DISTRICT	
18.1-1-5.100	I	INDUSTRIAL & AQUIFER PROTECTION OVERLAY DISTRICT (AQUIFER WATERSHED ZONE)
SETBACKS		
TYPE	MINIMUM PER CODE	MINIMUM PROVIDED
FRONT	40'	922'
SIDE	30'	61'
REAR	50'	N/A
LOT COVERAGE		
TOTAL LOT AREA	59.8	ACRE
PROPOSED LOT COVERAGE	0.516	ACRE
PROPOSED LOT COVERAGE	0.86	PERCENT

CONSTRUCTION SEQUENCE:

THE CONTRACTORS SHALL INSTALL EROSION AND SEDIMENT CONTROL PRACTICES DOWNSTREAM OF THE PROJECT AREA, PRIOR TO DISTURBANCE, TO PREVENT SEDIMENT TRANSPORT TO OFFSITE AREAS. GENERAL CONSTRUCTION SEQUENCE INCLUDES:

1. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE AND TEMPORARY CONSTRUCTION STAGING AREA. INSTALL SILT FENCE ON DOWNGRADIENT SIDE OF ENTIRE TEMPORARY STAGING AREA.
2. INSTALL CONSTRUCTION FENCE, VEGETATION PROTECTION, AND CONSTRUCTION ROAD STABILIZATION AS NECESSARY FOR SITE WORK.
3. INSTALL SILT FENCE PRIOR TO UPGRADIENT SOIL DISTURBANCES.
4. REMOVAL OF ORGANIC MATERIAL FOR ACCESS ROAD.
5. CLEAR TREES AND GRUB STUMPS AND BRUSH.
6. CLEAR TREES WITHIN WETLANDS VIA NON MECHANIZED METHODS, STUMPS TO REMAIN.
7. STRIP TOPSOIL AND CREATE STABILIZED STOCKPILE ON SITE.
8. INSTALL AND STABILIZE SEDIMENT TRAPPING DEVICES ALONG WITH CONTRIBUTING DRAINAGE SWALES.
9. ESTABLISH ROUGH GRADE FOR SITE AND STORMWATER MANAGEMENT PRACTICES. LEAVE SLOPE SURFACES SLIGHTLY ROUGHENED TO A DEPTH OF 1-2 INCHES. DO NOT BACK BLADE SLOPES.
10. INSTALL TEMPORARY AND/OR PERMANENT CHECK DAMS IN DRAINAGE SWALES AS DETAILED AND SHOWN ON THE EROSION AND SEDIMENT CONTROL PLANS.
11. BEGIN SITE WORK INCLUDING UTILITIES INSTALLATION, GRADING, AND ROAD CONSTRUCTION.
12. COMPLETE SOIL RESTORATION PER SECTION 5.1.6 OF THE DESIGN MANUAL ON ALL DISTURBED AREAS THAT WILL BE VEGETATED IN THEIR FINAL STATES.
13. COMPLETE FINE GRADING.
14. APPLY PERMANENT SEED AND MULCH.
15. WHEN SITE HAS REACHED FINAL STABILIZATION, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

FOR MUNICIPAL REVIEW

7/27/2026

NOT FOR CONSTRUCTION

Date Printed: 7/27/2026 11:40:38 AM

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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CLIENT: KEY CAPTURE ENERGY

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41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

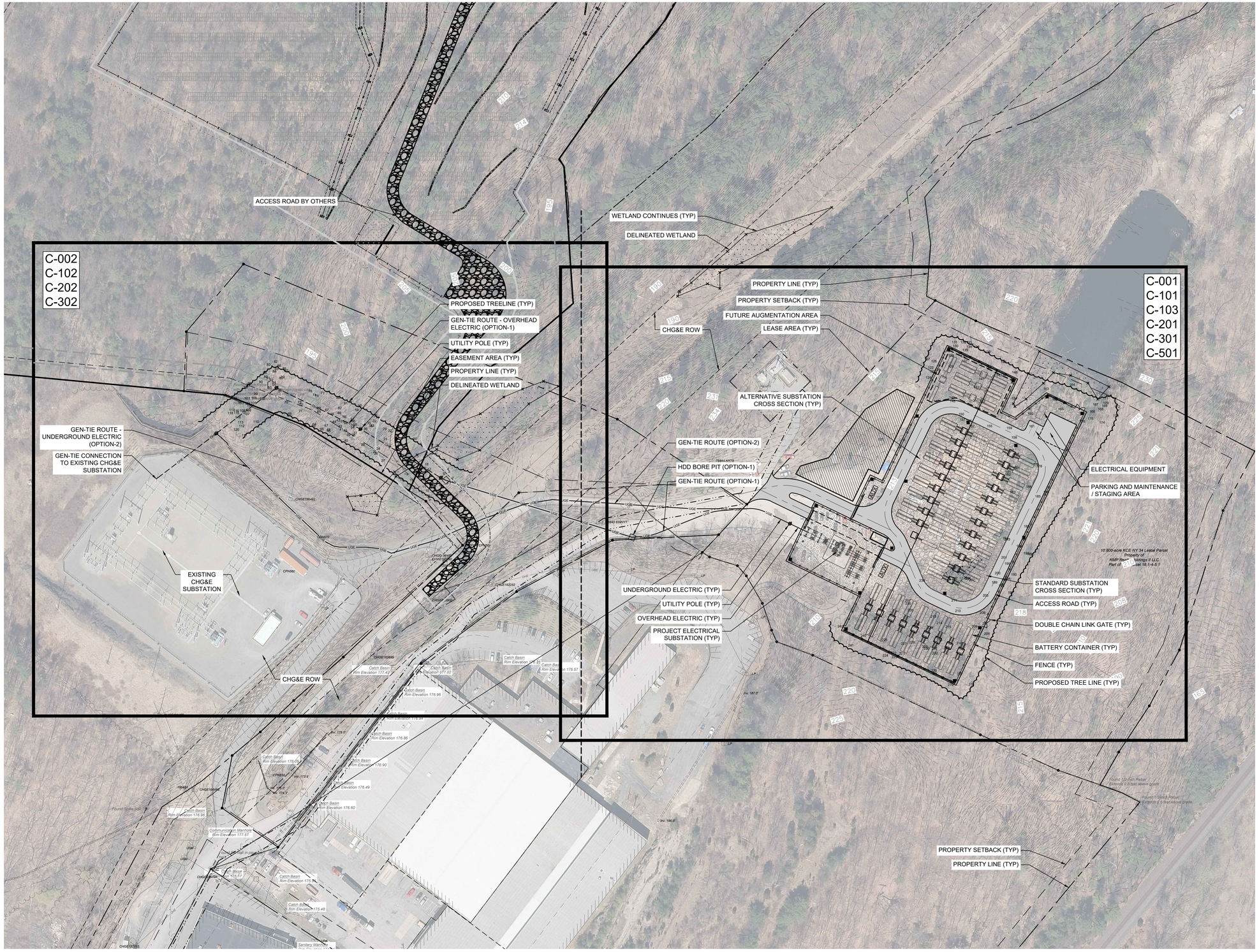
DRAWING TITLE: **GENERAL NOTES AND ABBREVIATIONS**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **AS NOTED**
DRAWN BY: **ZR**
CHECKED BY: **TD**
DRAWING NUMBER: **G-002**

Date Printed: 7/6/2026 9:23:43 AM



SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.

Legend:

- *Property Line*
- *Proposed Lease Parcel Line*
- *Proposed Easement Line*
- *Easement Lines*
- *Interior Deed Line/Tax Line*
- *Tree Line*
- *Barb Wire Fence Line*
- *Stone Wall*
- *Overhead Electric*
- *Gas Line*
- *Water Line*
- *Found Iron (Pipe, Rebar, et cetera)*
- *Set 5/8 rebar with 1 1/4 inch diameter red plastic cap labeled "Thew Associates"*
- *Communications Manhole*
- *Sanitary Manhole*
- *Power Pole*
- *Guy Pole*
- *Utility Pole with Light*
- *Guy Wire*
- *Light Pole*
- *Tree*
- *Fire Hydrant*
- *Water Valve*
- *Point Not Monumented*
- *Boulder*
- *Wetland w / Flags*

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

N

80 40 0 40 80 160
GRAPHIC SCALE (IN FEET)

EXISTING SITE PLAN
SCALE: 1" = 80'

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **OVERALL SITE PLAN AND DRAWING INDEX**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JIO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 80'**
DRAWN BY: **MR, ZR**
CHECKED BY: **TD**
DRAWING NUMBER: **C-000**

Date Printed: 6/30/2026 3:13:17 PM



EXISTING SITE PLAN

SCALE: 1" = 40'

DEMOLITION LEGEND

SYMBOL	ITEM
	REMOVE EXISTING GRAVEL PAVEMENT
	CLEAR EXISTING TREES AND GRUB STUMPS
	TREE CLEARING WITHIN WETLAND
	REMOVE EXISTING TRAILER (BY OWNER)

Legend:

- *Property Line*
- *Proposed Lease Parcel Line*
- *Proposed Easement Line*
- *Easement Lines*
- *Interior Deed Line/Tax Line*
- *Tree Line*
- *Barb Wire Fence Line*
- *Stone Wall*
- *Overhead Electric*
- *Gas Line*
- *Water Line*
- *Found Iron (Pipe, Rebar, et cetera)*
- *Set 5/8 rebar with 1 1/4 inch diameter red plastic cap labeled "Thew Associates"*
- *Communications Manhole*
- *Sanitary Manhole*
- *Power Pole*
- *Guy Pole*
- *Utility Pole with Light*
- *Guy Wire*
- *Light Pole*
- *Tree*
- *Fire Hydrant*
- *Water Valve*
- *Point Not Monumented*
- *Boulder*
- *Wetland w / Flags*

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6/30/2026

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N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **EXISTING CONDITIONS AND DEMOLITION PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

SCALE: **1" = 40'**

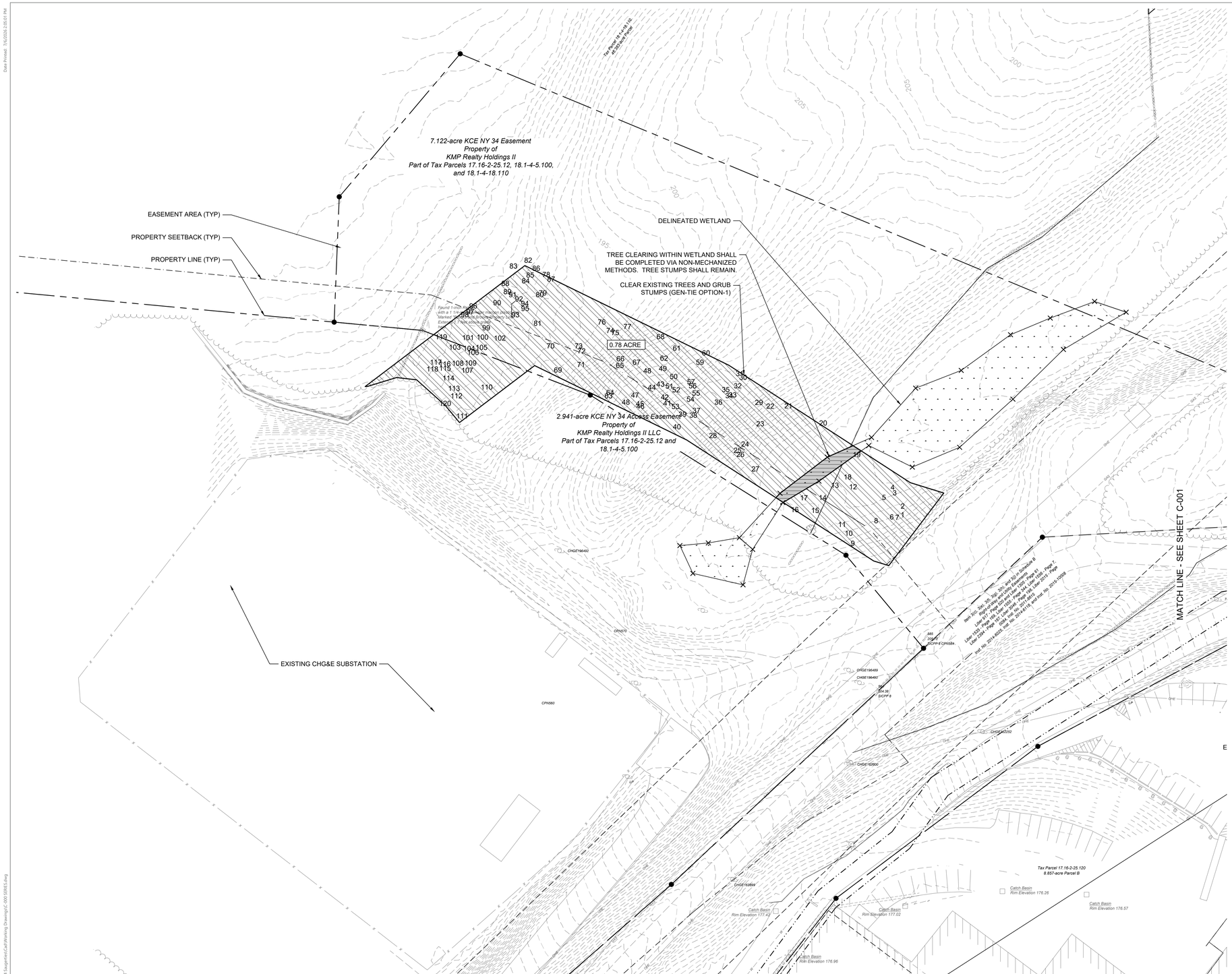
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CHECKED BY: **TD**

DRAWING NUMBER:

C-001

Date Printed: 7/6/2026 2:05:01 PM



EXISTING SITE PLAN
SCALE: 1" = 40'

DEMOLITION LEGEND

SYMBOL	ITEM
	REMOVE EXISTING GRAVEL PAVEMENT
	CLEAR EXISTING TREES AND GRUB STUMPS
	TREE CLEARING WITHIN WETLAND
	REMOVE EXISTING TRAILER (BY OWNER)

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.

Legend:

- *Property Line*
- *Proposed Lease Parcel Line*
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- *Barb Wire Fence Line*
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- *Guy Wire*
- *Light Pole*
- *Tree*
- *Fire Hydrant*
- *Water Valve*
- *Point Not Monumented*
- *Boulder*
- *Wetland w / Flags*

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7/6/2026
NOT FOR CONSTRUCTION

GRAPHIC SCALE (IN FEET)
40 20 0 20 40 80

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **EXISTING CONDITIONS AND DEMOLITION PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY: **MR, ZR**
CHECKED BY: **TD**
DRAWING NUMBER:
C-002

Date Printed: 7/6/2026 3:43:41 PM



EXISTING SITE PLAN

SCALE: 1" = 40'

DEMOLITION LEGEND

SYMBOL	ITEM
	REMOVE EXISTING GRAVEL PAVEMENT
	CLEAR EXISTING TREES AND GRUB STUMPS
	TREE CLEARING WITHIN WETLAND
	REMOVE EXISTING TRAILER (BY OWNER)

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.
2. ALL TREES 6-INCHES DIAMETER AT BREAST HEIGHT (DBH) AND GREATER WITHIN THE CLEARING AREA ARE INDICATED ON THE PLANS. TRESS SHOWN FOR PERMITTING PURPOSES ONLY

Legend:

- *Property Line*
- *Proposed Lease Parcel Line*
- *Proposed Easement Line*
- *Easement Lines*
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- *Sanitary Manhole*
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- *Guy Pole*
- *Utility Pole with Light*
- *Guy Wire*
- *Light Pole*
- *Tree 6" DBH or Greater*
- *Fire Hydrant*
- *Water Valve*
- *Point Not Monumented*
- *Boulder*
- *Wetland w / Flags*

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7/6/2026

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N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

REFER TO DRAWING C-005 FOR TREE IDENTIFICATION TABLE

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Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **TREE INVENTORY PLAN EAST**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MIL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

SCALE: **1" = 40'**

DRAWN BY: **MR, ZR**

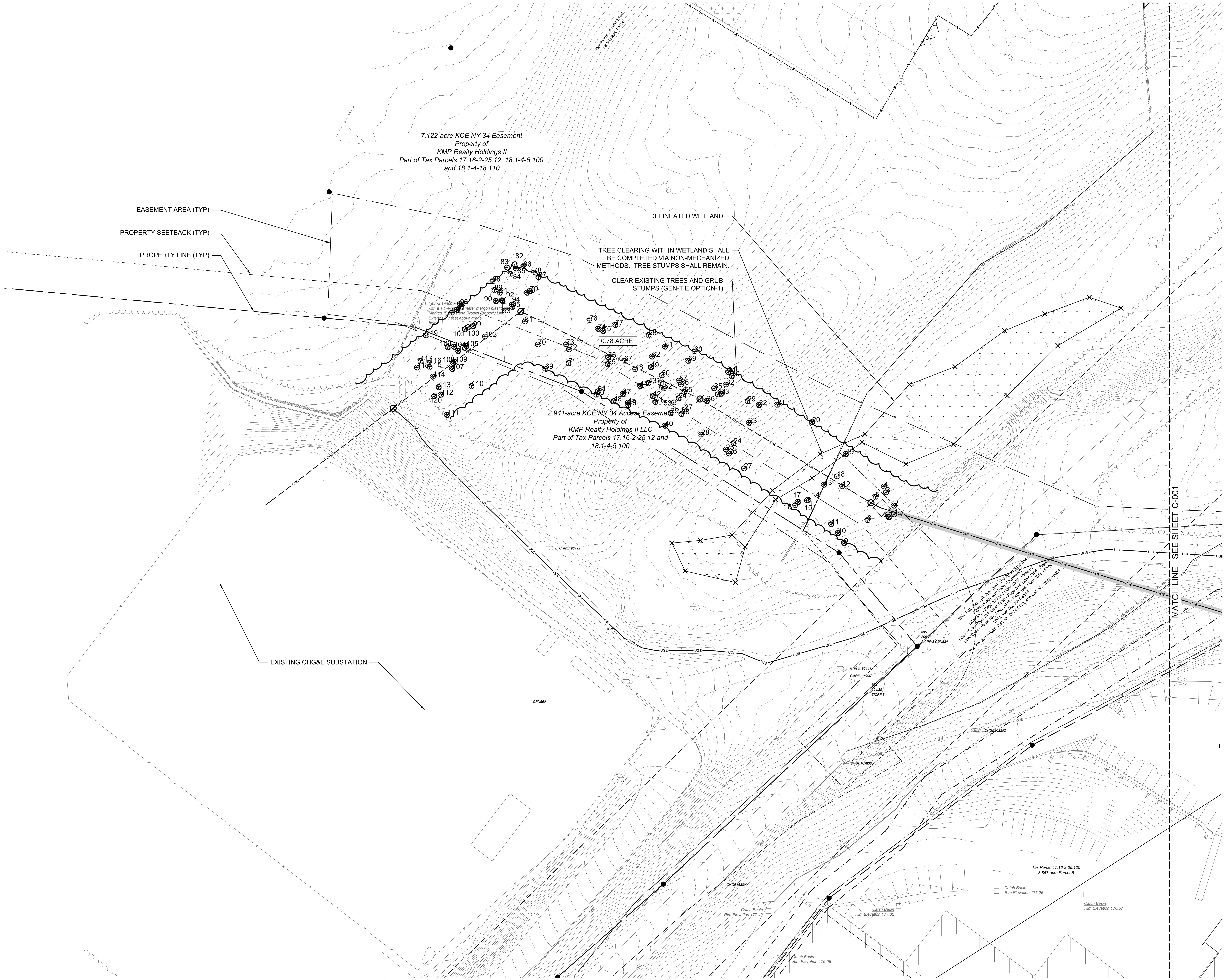
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DRAWING NUMBER: **C-003**

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

Date Printed: 7/6/2026 1:53:25 PM



EXISTING SITE PLAN

SCALE: 1" = 40'

REFER TO DRAWING C-005 FOR TREE IDENTIFICATION TABLE

DEMOLITION LEGEND

SYMBOL	ITEM
	REMOVE EXISTING GRAVEL PAVEMENT
	CLEAR EXISTING TREES AND GRUB STUMPS
	TREE CLEARING WITHIN WETLAND
	REMOVE EXISTING TRAILER (BY OWNER)

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.
2. ALL TREES 6-INCHES DIAMETER AT BREAST HEIGHT (DBH) AND GREATER WITHIN THE CLEARING AREA ARE INDICATED ON THE PLANS. TRESS SHOWN FOR PERMITTING PURPOSES ONLY

Legend:

- *Property Line*
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- *Tree 6" DBH or Greater*
- *Fire Hydrant*
- *Water Valve*
- *Point Not Monumented*
- *Boulder*
- *Wetland w / Flags*

FOR MUNICIPAL REVIEW

7/6/2026

NOT FOR CONSTRUCTION

GRAPHIC SCALE (IN FEET): 40 20 0 20 40 80

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **TREE INVENTORY PLAN WEST**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY: **MR, ZR**
CHECKED BY: **TD**
DRAWING NUMBER: **C-004**

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

Tree_ID	DBH (inches)	Common Name	Scientific Name	Health	Within Wetland
1	23	Eastern White Pine	*Pinus strobus*	Dead	No
2	11.4	Sugar Maple	*Acer saccharum*	Healthy	No
3	10.7	Black Birch	*Betula lenta*	Dying	No
4	14.8	Sugar Maple	*Acer saccharum*	Healthy	No
5	12.6	Sugar Maple	*Acer saccharum*	Healthy	No
6	7.3	Sugar Maple	*Acer saccharum*	Healthy	No
7	11.1	Sugar Maple	*Acer saccharum*	Dying	No
8	16.1	Sugar Maple	*Acer saccharum*	Dying	No
9	7.2	Sugar Maple	*Acer saccharum*	Dying	No
10	15.2	Sugar Maple	*Acer saccharum*	Dying	No
11	15.7	Sugar Maple	*Acer saccharum*	Dying	No
12	20.9	Pin Oak	*Quercus palustris*	Healthy	No
13	10.3	Sugar Maple	*Acer saccharum*	Healthy	No
14	12.6	Eastern White Pine	*Pinus strobus*	Dying	No
15	14	Eastern White Pine	*Pinus strobus*	Dying	No
16	18	Eastern White Pine	*Pinus strobus*	Dead	No
17	7.6	Sugar Maple	*Acer saccharum*	Healthy	No
18	7.6	Sugar Maple	*Acer saccharum*	Healthy	No
19	8	Red Maple	*Acer rubrum*	Healthy	No
20	26	Eastern White Pine	*Pinus strobus*	Dead	No
21	10.7	Eastern White Pine	*Pinus strobus*	Dead	No
22	8.4	Sugar Maple	*Acer saccharum*	Healthy	No
23	13.3	Sugar Maple	*Acer saccharum*	Healthy	No
24	6.9	Sugar Maple	*Acer saccharum*	Healthy	No
25	16.9	Eastern White Pine	*Pinus strobus*	Dead	No
26	12.6	Red Oak	*Quercus rubra*	Healthy	No
27	8.1	Silver Maple	*Acer saccharinum*	Healthy	No
28	16.1	Sugar Maple	*Acer saccharum*	Healthy	No
29	8.1	Sugar Maple	*Acer saccharum*	Healthy	No
30	11.5	Sugar Maple	*Acer saccharum*	Dying	No
31	7.9	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
32	6.6	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
33	8.7	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
34	9.7	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
35	8.2	Sugar Maple	*Acer saccharum*	Healthy	No
36	8.2	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
37	8.4	Bur Oak	*Quercus macrocarpa*	Healthy	No
38	15.9	Eastern White Pine	*Pinus strobus*	Dead	No
39	7.9	Black Birch	*Betula lenta*	Healthy	No
40	6.1	Sugar Maple	*Acer saccharum*	Healthy	No
41	9.6	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
42	6.2	Sugar Maple	*Acer saccharum*	Healthy	No
43	9.5	Black Birch	*Betula lenta*	Healthy	No
44	7.3	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
45	6.7	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
46	7	Sugar Maple	*Acer saccharum*	Healthy	No
47	12.4	Sugar Maple	*Acer saccharum*	Healthy	No
48	9.7	Eastern White Pine	*Pinus strobus*	Dead	No
48	7.6	Red Oak	*Quercus rubra*	Healthy	No
49	7.9	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
50	11.4	Red Oak	*Quercus rubra*	Healthy	No
51	6.4	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
52	8.2	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
53	10.7	Red Oak	*Quercus rubra*	Healthy	No
54	8.6	Sugar Maple	*Acer saccharum*	Healthy	No
55	7.5	Black Birch	*Betula lenta*	Healthy	No
56	8.6	Eastern White Pine	*Pinus strobus*	Dead	No
57	6.1	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
59	7.4	Red Oak	*Quercus rubra*	Dying	No
60	11.4	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
61	6.4	Sugar Maple	*Acer saccharum*	Healthy	No
62	13.5	Black Birch	*Betula lenta*	Healthy	No
63	14.1	Sugar Maple	*Acer saccharum*	Healthy	No
64	8.4	Eastern Red Cedar	*Juniperus virginiana*	Dying	No
65	9.7	Sugar Maple	*Acer saccharum*	Healthy	No
66	8.8	Green Ash	*Fraxinus pennsylvanica*	Dead	No
67	7.1	Sugar Maple	*Acer saccharum*	Healthy	No
68	12.1	Sugar Maple	*Acer saccharum*	Healthy	No
69	15.5	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
70	9	Sugar Maple	*Acer saccharum*	Healthy	No
71	13.3	Red Maple	*Acer rubrum*	Healthy	No
72	20	Red Pine	*Pinus resinosa*	Dead	No
73	7.4	Black Birch	*Betula lenta*	Healthy	No
74	10.9	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
75	12.2	Sugar Maple	*Acer saccharum*	Healthy	No
76	22	Red Maple	*Acer rubrum*	Healthy	No
77	11.5	Eastern White Pine	*Pinus strobus*	Dead	No
78	7.4	Sugar Maple	*Acer saccharum*	Healthy	No
79	9.2	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
80	9	Sugar Maple	*Acer saccharum*	Healthy	No
81	7.4	Black Birch	*Betula lenta*	Healthy	No
82	8.5	Eastern White Pine	*Pinus strobus*	Dead	No
83	13	Eastern White Pine	*Pinus strobus*	Dead	No
84	7	Eastern White Pine	*Pinus strobus*	Dead	No
85	6.6	Sugar Maple	*Acer saccharum*	Healthy	No
86	7.7	Eastern White Pine	*Pinus strobus*	Dead	No
87	18	Eastern White Pine	*Pinus strobus*	Dead	No
88	19.4	Eastern White Pine	*Pinus strobus*	Dead	No
89	16.6	Eastern White Pine	*Pinus strobus*	Dead	No
90	7.1	Black Birch	*Betula lenta*	Healthy	No
91	6.6	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
92	8.3	Sugar Maple	*Acer saccharum*	Healthy	No
93	20.2	Eastern White Pine	*Pinus strobus*	Dead	No
94	6.8	Sugar Maple	*Acer saccharum*	Healthy	No
95	8.8	Eastern Red Cedar	*Juniperus virginiana*	Dead	No
96	10	Black Birch	*Betula lenta*	Healthy	No
97	8.4	Black Birch	*Betula lenta*	Healthy	No
98	6.7	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
99	8.6	Sugar Maple	*Acer saccharum*	Healthy	No
100	6.2	Sugar Maple	*Acer saccharum*	Healthy	No
101	8.6	Eastern White Pine	*Pinus strobus*	Dying	No
102	8.4	Sugar Maple	*Acer saccharum*	Healthy	No
103	9	Eastern White Pine	*Pinus strobus*	Dead	No
104	6.2	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
105	7.9	Sugar Maple	*Acer saccharum*	Healthy	No
106	11	Red Maple	*Acer rubrum*	Healthy	No
107	15.3	Red Pine	*Pinus resinosa*	Dying	No
108	6.2	Black Birch	*Betula lenta*	Healthy	No
109	11	Red Maple	*Acer rubrum*	Healthy	No
110	8.6	Black Birch	*Betula lenta*	Healthy	No
111	8.1	Black Birch	*Betula lenta*	Healthy	No
112	22.9	Red Pine	*Pinus resinosa*	Dead	No
113	6	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
114	6.1	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
115	6.6	Red Maple	*Acer rubrum*	Healthy	No
116	23.2	Red Maple	*Acer rubrum*	Healthy	No
117	8.1	Red Maple	*Acer rubrum*	Healthy	No
118	9.3	Paper Birch	*Betula papyrifera*	Healthy	No
119	6.6	Red Maple	*Acer rubrum*	Healthy	No
120	22.6	Red Pine	*Pinus resinosa*	Dead	No
121	11.5	Big-Toothed Aspen	*Populus grandidentata*	Healthy	No
122	6.8	Pin Oak	*Quercus palustris*	Healthy	No
123	6.8	Pin Oak	*Quercus palustris*	Healthy	No
124	6.5	American Elm	*Ulmus americana*	Healthy	No
125	6.2	Pin Oak	*Quercus palustris*	Healthy	No
126	8.1	American Elm	*Ulmus americana*	Dead	No
127	8.4	Black Cherry	*Prunus serotina*	Healthy	No
128	12.4	Red Maple	*Acer rubrum*	Healthy	No
129	9.6	Sugar Maple	*Acer saccharum*	Healthy	No
130	9.8	Red Maple	*Acer rubrum*	Healthy	No
131	12.3	Black Birch	*Betula lenta*	Healthy	No
132	8	Sugar Maple	*Acer saccharum*	Healthy	No
133	7.2	Sugar Maple	*Acer saccharum*	Healthy	No
134	7.6	Sugar Maple	*Acer saccharum*	Healthy	No
135	15	Eastern White Pine	*Pinus strobus*	Dead	No
136	15.5	Red Maple	*Acer rubrum*	Healthy	No
137	12.4	Eastern White Pine	*Pinus strobus*	Dead	No
138	7.9	Red Maple	*Acer rubrum*	Healthy	No
139	12.6	Sugar Maple	*Acer saccharum*	Healthy	No
140	6.3	Green Ash	*Fraxinus pennsylvanica*	Dying	No
141	6.2	Black Gum	*Nyssa sylvatica*	Healthy	No
142	13.6	Green Ash	*Fraxinus pennsylvanica*	Dead	No
143	7.2	Mountain Ash	*Sorbus aucuparia*	Healthy	No
144	6.9	Unknown	Unkown	Dead	No
146	8	Sugar Maple	*Acer saccharum*	Healthy	No
147	7.3	Black Walnut	*Juglans nigra*	Healthy	No
148	6.2	White Ash	*Fraxinus americana*	Healthy	No
149	10.1	Eastern White Pine	*Pinus strobus*	Healthy	No
150	6	White Ash	*Fraxinus americana*	Healthy	No
151	10.5	Eastern White Pine	*Pinus strobus*	Healthy	No
152	6.6	Eastern White Pine	*Pinus strobus*	Healthy	No
153	10.5	Red Oak	*Quercus rubra*	Healthy	No
154	7.4	Eastern White Pine	*Pinus strobus*	Healthy	No
155	13.5	Red Oak	*Quercus rubra*	Healthy	No
156	9.3	Eastern Cottonwood	*Populus deltoides*	Healthy	No
157	8.3	Eastern Cottonwood	*Populus deltoides*	Healthy	No
158	6.3	Eastern Cottonwood	*Populus deltoides*	Healthy	No
159	6.3	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
160	7	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
161	12	Willow	*Salix sp.*	Healthy	No
162	9	Eastern Cottonwood	*Populus deltoides*	Healthy	No
163	6.8	Eastern White Pine	*Pinus strobus*	Healthy	No
164	10.5	Eastern White Pine	*Pinus strobus*	Healthy	No
165	8	Eastern Cottonwood	*Populus deltoides*	Healthy	No
166	8.5	Sugar Maple	*Acer saccharum*	Healthy	No
167	10.4	Eastern White Pine	*Pinus strobus*	Healthy	No
168	13.3	Eastern White Pine	*Pinus strobus*	Healthy	No
169	8.3	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
170	6.5	Eastern White Pine	*Pinus strobus*	Healthy	No
171	8.8	Eastern White Pine	*Pinus strobus*	Healthy	No
172	7.1	White Oak	*Quercus alba*	Healthy	No
173	6.1	Red Oak	*Quercus rubra*	Healthy	No
174	10.1	Sugar Maple	*Acer saccharum*	Healthy	No
175	12.5	Eastern Hemlock	*Tsuga canadensis*	Healthy	No
176	10.8	Eastern White Pine	*Pinus strobus*	Healthy	No
178	9.2	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
179	11	Eastern White Pine	*Pinus strobus*	Healthy	No
180	7.2	Eastern White Pine	*Pinus strobus*	Healthy	No
181	7.2	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
182	7.5	Eastern White Pine	*Pinus strobus*	Healthy	No
183	7	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
184	7.5	Eastern White Pine	*Pinus strobus*	Healthy	No
185	7.7	White Oak	*Quercus alba*	Healthy	No
186	7.8	Red Oak	*Quercus rubra*	Healthy	No
187	9.1	White Oak	*Quercus alba*	Healthy	No
188	10	Black Walnut	*Juglans nigra*	Healthy	No
189	6.2	Red Oak	*Quercus rubra*	Healthy	No
190	7.5	Eastern White Pine	*Pinus strobus*	Healthy	No
191	6.1	Quaking Aspen	*Populus tremuloides*	Healthy	No
192	7.3	Eastern White Pine	*Pinus strobus*	Healthy	No
193	8.1	Pin Oak	*Quercus palustris*	Healthy	No
194	8.3	Pin Oak	*Quercus palustris*	Healthy	No
195	9	White Ash	*Fraxinus americana*	Healthy	No
196	10.2	Eastern White Pine	*Pinus strobus*	Healthy	No
197	9	White Oak	*Quercus alba*	Healthy	No
198	6	Red Oak	*Quercus rubra*	Healthy	No
199	11.3	Red Oak	*Quercus rubra*	Healthy	No
200	7	White Oak	*Quercus alba*	Healthy	No
201	6.9	Green Ash	*Fraxinus pennsylvanica*	Healthy	No
202	11.4	Red Oak	*Quercus rubra*	Healthy	No
203	6	Eastern White Pine	*Pinus strobus*	Healthy	No
204	6	Green Ash	*Fraxinus pennsylvanica*	Dying	No
205	8.7	White Oak	*Quercus alba*	Healthy	No
206	6.1	Sugar Maple	*Acer saccharum*	Healthy	No
207	8.6	Red Oak	*Quercus rubra*	Healthy	No
208	8.6	Eastern White Pine	*Pinus strobus*	Healthy	No
209	7.1	Red Oak	*Quercus rubra*	Healthy	No
210	6.5	Eastern Red Cedar	*Juniperus virginiana*	Healthy	No
211	11.5	Big-Toothed Aspen	*Populus grandidentata*	Healthy	No
212	16.6	Eastern White Pine	*Pinus strobus*	Healthy	No
213	6.2	Pin Oak	*Quercus palustris*	Healthy	No
214	9	Eastern White Pine	*Pinus strobus*	Healthy	No
215	11.8	Eastern White Pine	*Pinus strobus*	Dead	No
216	6.7	Pin Oak	*Quercus palustris*	Healthy	No
217	10.5	Pin Oak	*Quercus palustris*	Healthy	No
218	8.2	White Oak	*Quercus alba*	Healthy	No
219	6.9	Pin Oak	*Quercus palustris*	Healthy	No
220	8.7	Eastern White Pine	*Pinus strobus*	Healthy	No
221	8.2	Pin Oak	*Quercus palustris*	Healthy	No
222	6	Eastern White Pine	*Pinus strobus*	Healthy	No
223	7	Pin Oak	*Quercus palustris*	Healthy	No
224	7	White Oak	*Quercus alba*	Healthy	No
225	8.5	Red Oak	*Quercus rubra*	Healthy	No
227	7.8	Red Oak	*Quercus rubra*	Healthy	No
228	6.3	Red Oak	*Quercus rubra*	Healthy	No
229	6	Red Oak	*Quercus rubra*	Healthy	No
230	6.5	Eastern White Pine	*Pinus strobus*	Healthy	No
231	7	Pin Oak	*Quercus palustris*	Healthy	No
232	8.9	Eastern White Pine	*Pinus strobus*	Healthy	No
232	7.8	Eastern White Pine	*Pinus strobus*	Dying	No
233	6.4	Red Maple	*Acer rubrum*	Healthy	No
233	7.3	Eastern White Pine	*Pinus strobus*	Dying	No
234	7.8	White Ash	*Fraxinus americana*	Healthy	No
235	7.3	Eastern White Pine	*Pinus strobus*	Healthy	No
236	8	Red Oak	*Quercus rubra*	Healthy	No
237	7	Shagbark Hickory	*Carya ovata*	Healthy	No
238	16.8	Quaking Aspen	*Populus tremuloides*	Healthy	No
239	7	Eastern White Pine	*Pinus strobus*	Healthy	No
240	9.3	Quaking Aspen	*Populus tremuloides*	Healthy	No
241	10	Red Oak	*Quercus rubra*	Dying	No
242	11.3	Big-Toothed Aspen	*Populus grandidentata*	Healthy	No
243	7.3	Black Locust	*Robinia pseudoacacia*	Healthy	No
244	11.9	Eastern White Pine	*Pinus strobus*	Healthy	No
245	9.5	Eastern White Pine	*Pinus strobus*	Dead	No

FOR MUNICIPAL REVIEW

6/30/2026

NOT FOR CONSTRUCTION

N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

Date Printed: 6/30/2026 4:04:57 PM

T:\2055 KCE NY 34 Saugerties\Cad\Working Drawings\C-000 [EBE].dwg

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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The following is paraphrased from the New York Education Law, Article 145, Section 7209, and Chapter II, Section 79-1.4, and applies to this drawing: "It is a violation of this law for any person unless he is acting under the direction of a licensed professional engineer, licensed landscape architect or licensed land surveyor to alter an item in any way. If an item bearing the seal of an engineer, landscape architect or land surveyor is altered, the altering engineer, landscape architect or land surveyor shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration and a specific description of the alteration".

CLIENT: KEY CAPTURE ENERGY

EDR a better environment

Environmental Design & Research,

Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **TREE IDENTIFICATION TABLE**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

SCALE: **1" = 40'**

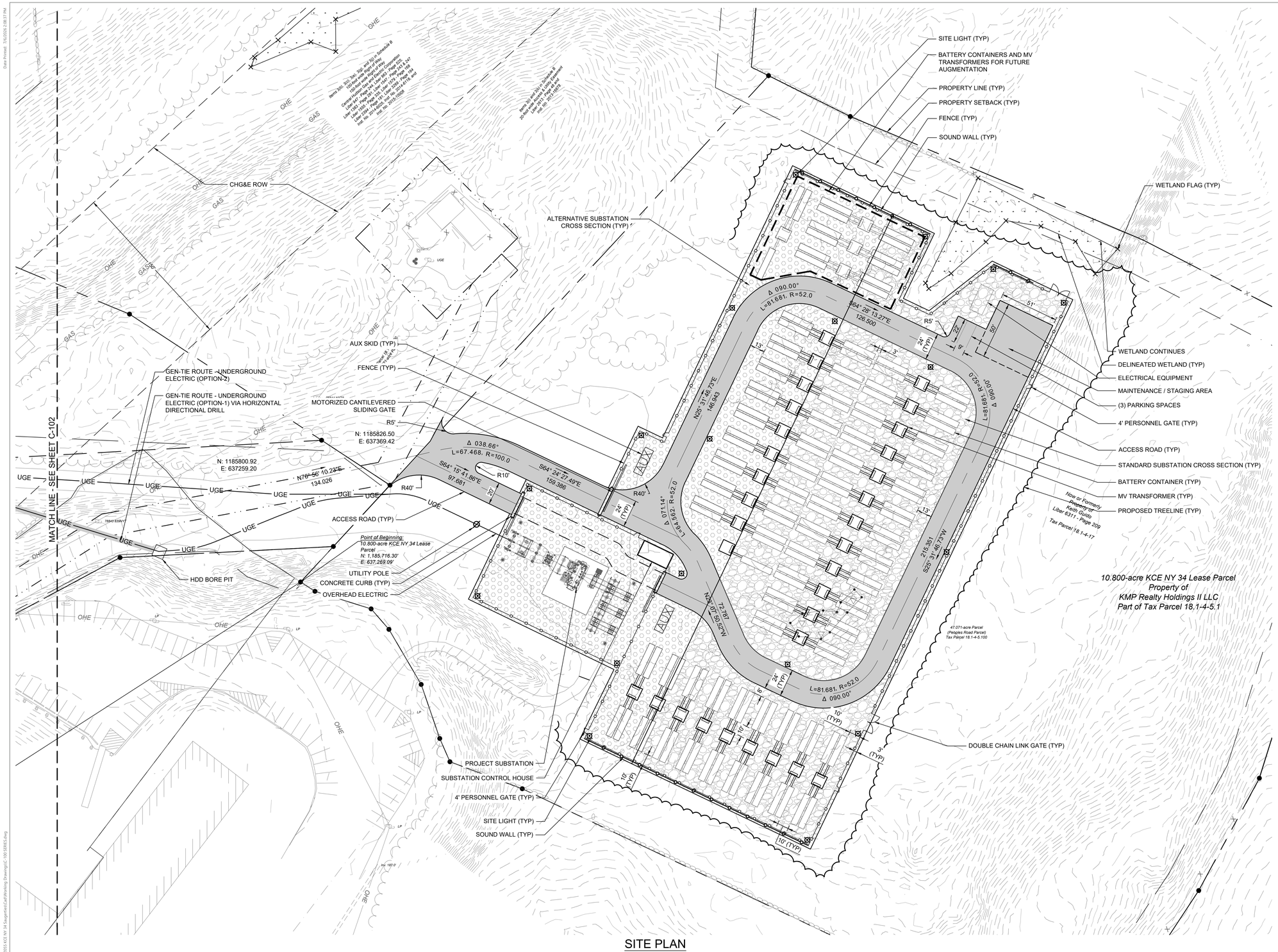
DRAWN BY: **MJL**

CHECKED BY:

DRAWING NUMBER:

C-005

Date Printed: 7/6/2026 2:08:37 PM



SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

NOTES:

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.
2. GROUNDING GRID SHALL EXTEND 3'-0" BEYOND THE PERIMETER FENCE WITHIN THE CRUSHED STONE.
3. SITE LIGHTS SHALL BE SWITCH OPERATED FOR USE DURING NIGHT TIME MAINTENANCE ACTIVITIES.
4. CONTRACTOR SHALL FOLLOW THE NATIONAL ELECTRIC CODE FOR UNDERGROUND ELECTRIC AND FIBER CONDUIT PULL BOXES AND JUNCTION BOXES.
5. ALL DISTURBED AREAS SHALL BE REVEGETATED UNLESS INDICATED OTHERWISE.
6. SOUND WALL BARRIER SEGMENTS SHALL HAVE A SURFACE DENSITY OF AT LEAST 2LB./SF AND BE MOSTLY REFLECTIVE WITH AN AVERAGE ABSORPTION COEFFICIENT OF 0.21

DRAFT

7/6/2026

NOT FOR CONSTRUCTION

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GRAPHIC SCALE (IN FEET)

SITE PLAN

SCALE: 1" = 40'

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **SITE LAYOUT PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

SCALE: **1" = 40'**

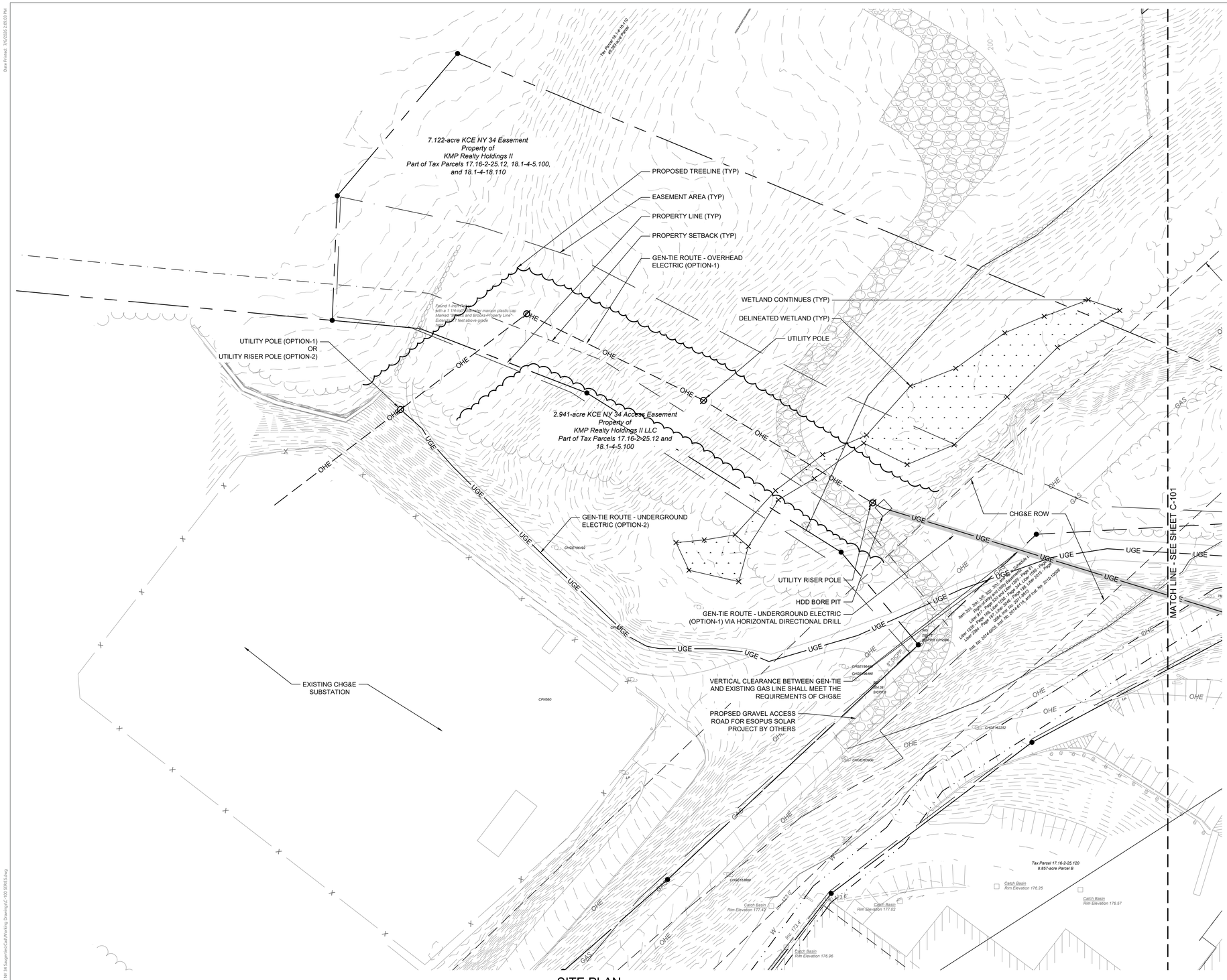
DRAWN BY: **MR**

CHECKED BY: **ZR/TD**

DRAWING NUMBER:

C-101

Date Printed: 7/6/2026 2:09:03 PM



SITE PLAN
SCALE: 1" = 40'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

NOTES:

1. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.
2. GROUNDING GRID SHALL EXTEND 3'-0" BEYOND THE PERIMETER FENCE WITHIN THE CRUSHED STONE.
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5. ALL DISTURBED AREAS SHALL BE REVEGETATED UNLESS INDICATED OTHERWISE.
6. SOUND WALL BARRIER SEGMENTS SHALL HAVE A SURFACE DENSITY OF AT LEAST 2LB./SF AND BE MOSTLY REFLECTIVE WITH AN AVERAGE ABSORPTION COEFFICIENT OF 0.21

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

N
40 20 0 20 40 80
GRAPHIC SCALE (IN FEET)

T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\C-100 SERIES.dwg
ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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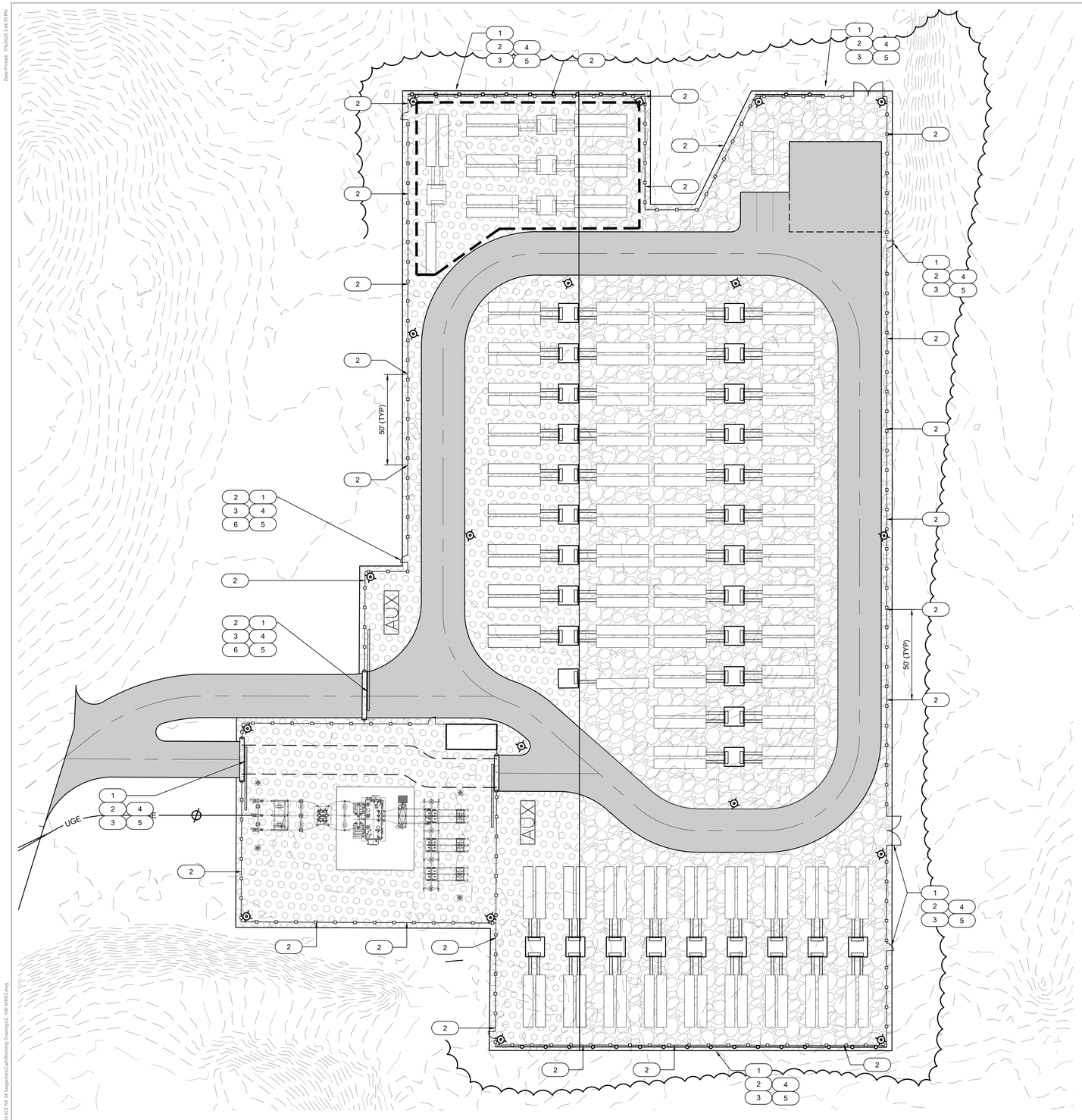
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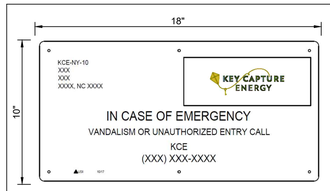
PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **SITE LAYOUT PLAN**

DRAWINGS ISSUED FOR / REVISIONS

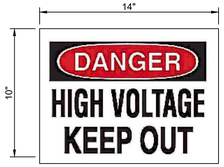
NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY: **MR**
CHECKED BY: **ZR/TD**
DRAWING NUMBER:
C-102

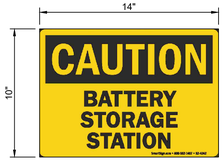




OWNER
INFORMATION SIGN



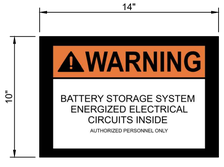
DANGER
HIGH VOLTAGE SIGN



BATTERY STORAGE STATION
WARNING SIGN



APPLY NO WATER
DANGER SIGN



BATTERY STORAGE SYSTEM
WARNING SIGN



BATTERY STORAGE STATION
WARNING SIGN

TYPICAL WARNING SIGNS
Scale: NTS

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

SIGNAGE PLAN NOTES:

1. SIGNS SHALL COMPLY WITH ANSI Z535.1-Z535.5 (LATEST REVISION).
2. SIGNS SHALL BE MANUFACTURED FROM AN 80 MIL ALUMINUM SHEET, TYPE 3003 H-14 COATED FRONT AND BACK WITH AN ACRYLIC ENAMEL. ALL SHARP EDGES AND BURRS SHALL BE REMOVED. THE SIGNS SHALL HAVE A THICKNESS OF 0.080". THE MOUNTING HOLES SHALL BE PROTECTED BY BRASS FERRULES.
3. CONTRACTOR SHALL USE AVAILABLE IMAGES FROM THE SIGN MANUFACTURER.
4. DANGER HIGH VOLTAGE SIGNS TO BE PLACED ON THE BASE OF ALL PAD-MOUNTED TRANSFORMERS AND SUBSTATIONS.
5. DISCONNECT AND OTHER EMERGENCY SHUTOFF INFORMATION SHALL BE CLEARLY DISPLAYED ON A LIGHT REFLECTIVE SURFACE.

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

SIGNAGE PLAN
SCALE: 1" = 30'

30 0 10 30 60
GRAPHIC SCALE (IN FEET)

Date Printed: 7/6/2026 3:44:39 PM
T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\C-100-SIGNS.dwg
ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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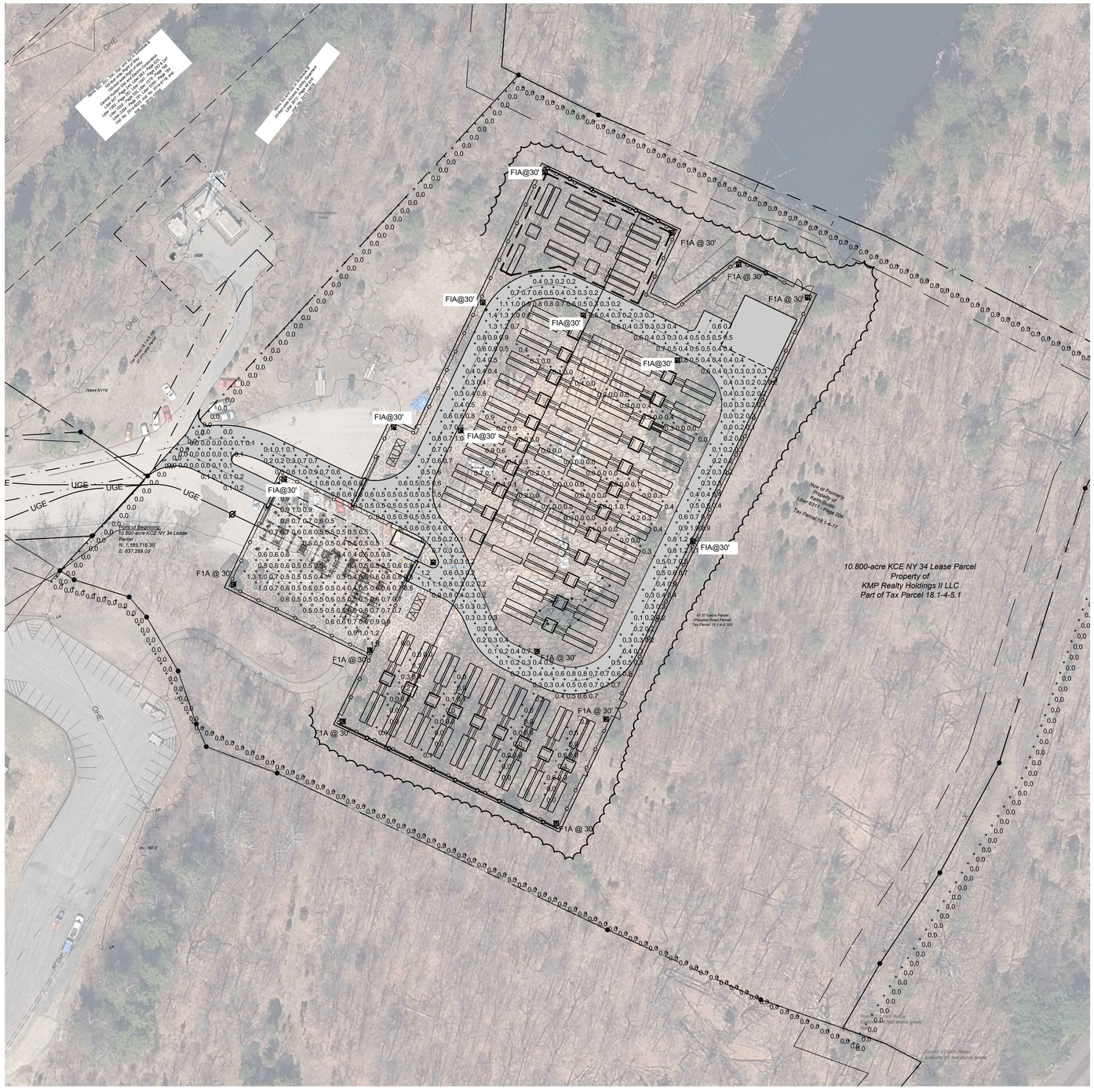
PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **SITE SIGNAGE PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 30'**
DRAWN BY: **ZR**
CHECKED BY: **TD**
DRAWING NUMBER:
C-103

Date Printed: 7/6/2026 2:31:18 PM



SITE PLAN
SCALE: 1" = 50'

Schedule								
Symbol	Label	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage
	F1A	RSX1 LED P1 30K R4	RSX Area Fixture Size 1 P1 Lumen Package 3000K CCT Type R4 Distribution		1	6543	0.88	51.34

Statistics

Description	Avg	Max	Min	Max/Min	Avg/Min
East Property Line	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
Entry Driveway	0.1 fc	0.2 fc	0.0 fc	N/A	N/A
North Property Line	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
Roadway	0.5 fc	1.4 fc	0.0 fc	N/A	N/A
South Property Line	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
Transformer Area	0.6 fc	1.5 fc	0.3 fc	5.0:1	2.0:1
Typical East/West Aisles	0.1 fc	0.9 fc	0.0 fc	N/A	N/A
Typical North/South Aisles	0.1 fc	0.8 fc	0.0 fc	N/A	N/A
West Property Line	0.0 fc	0.0 fc	0.0 fc	N/A	N/A

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

N

50 0 25 50 100
GRAPHIC SCALE (IN FEET)

T:\2025\KCE NY 34 Saugerties\Cad\Working Drawings\C-100 SITE1.dwg
ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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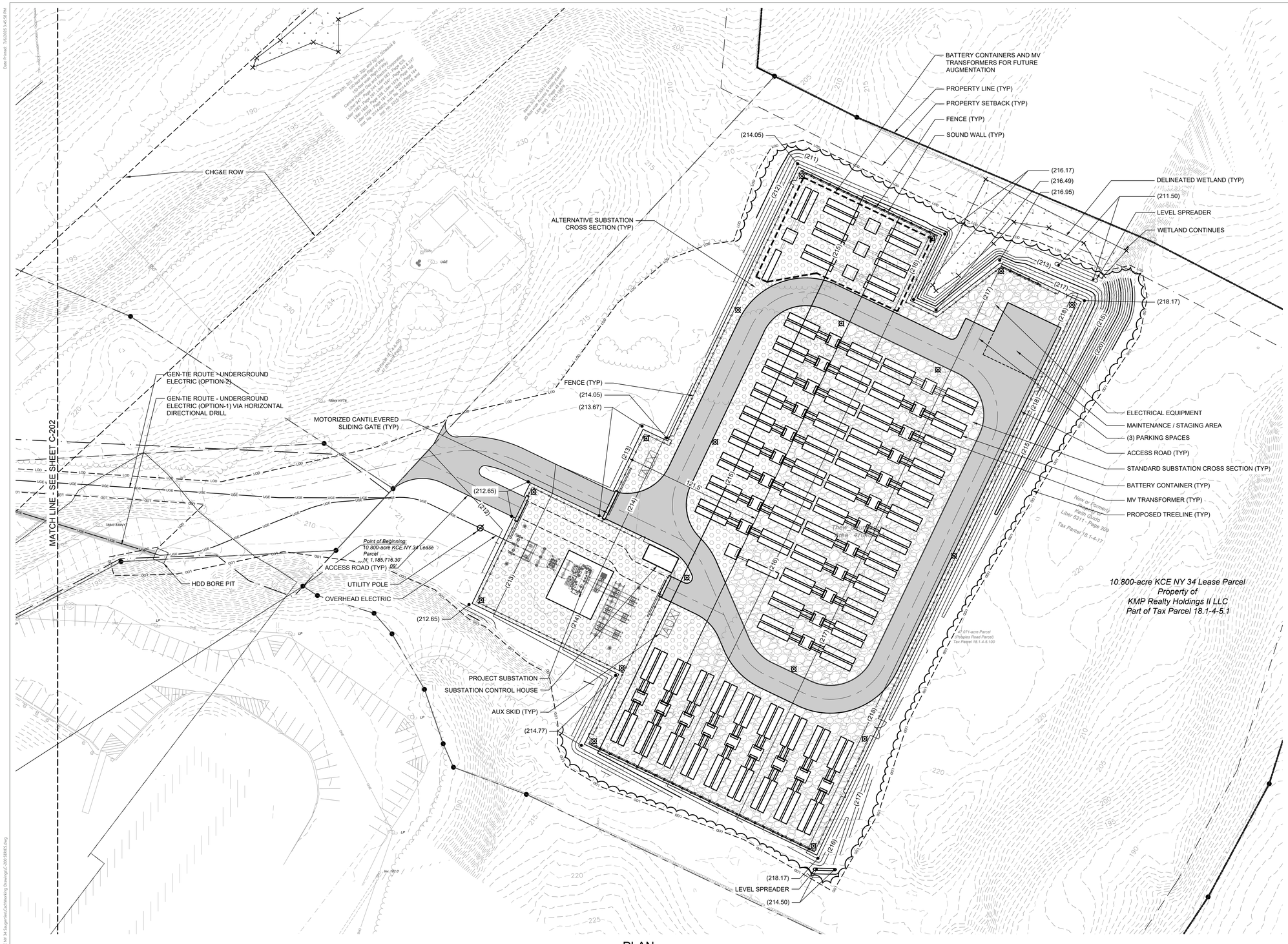
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P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **PHOTOMETRIC PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 50'**
DRAWN BY: **AG**
CHECKED BY:
DRAWING NUMBER:
C-104



PLAN
SCALE: 1" = 40'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

N

40 20 0 20 40 80
GRAPHIC SCALE (IN FEET)

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN**

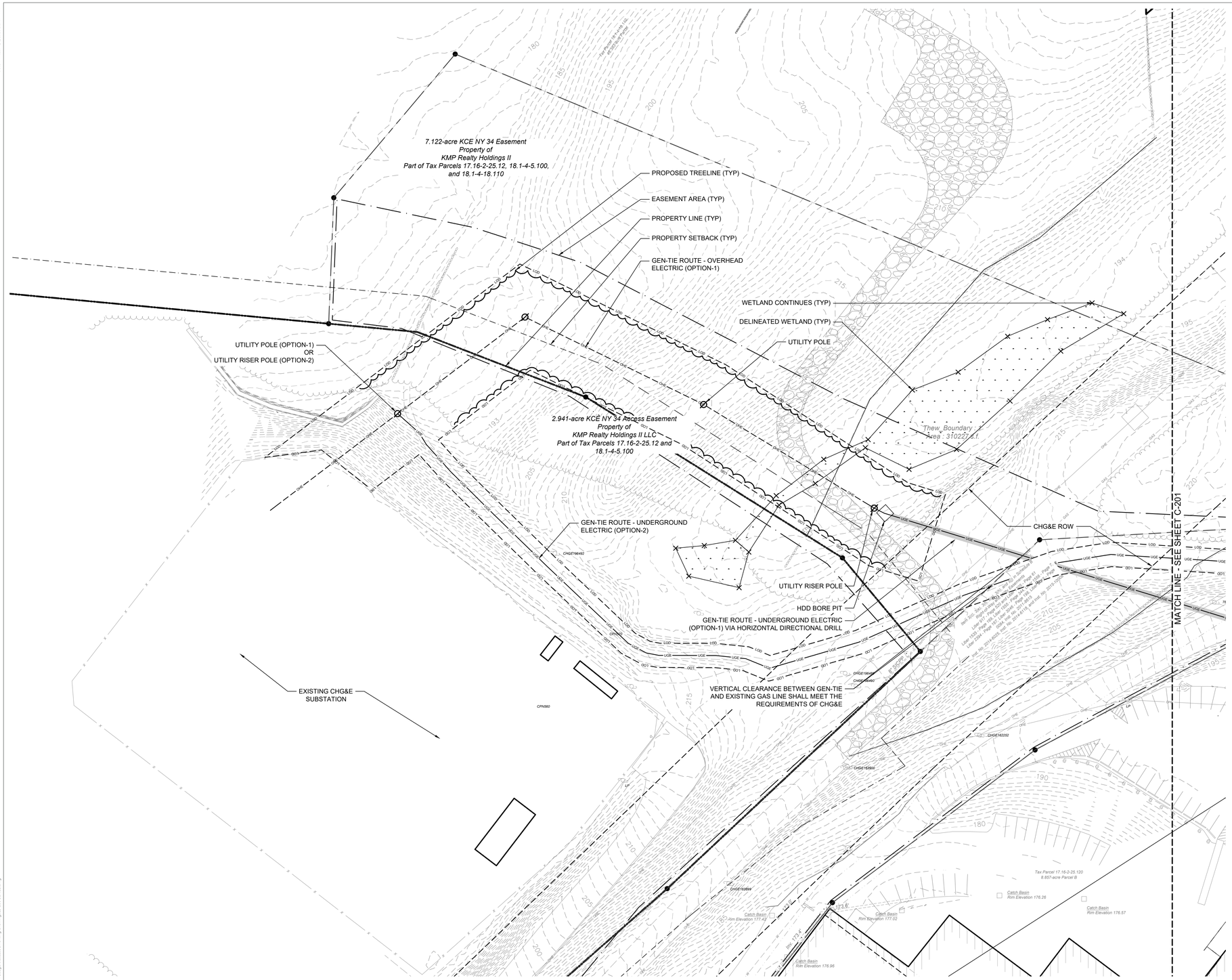
DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER:
C-201

Date Printed: 7/6/2026 3:45:58 PM
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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

Date Printed: 7/6/2026 3:37:43 PM



PLAN
SCALE: 1" = 40'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX

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7/6/2026
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N

40 20 0 20 40 80
GRAPHIC SCALE (IN FEET)

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\C-200 SERIES.dwg

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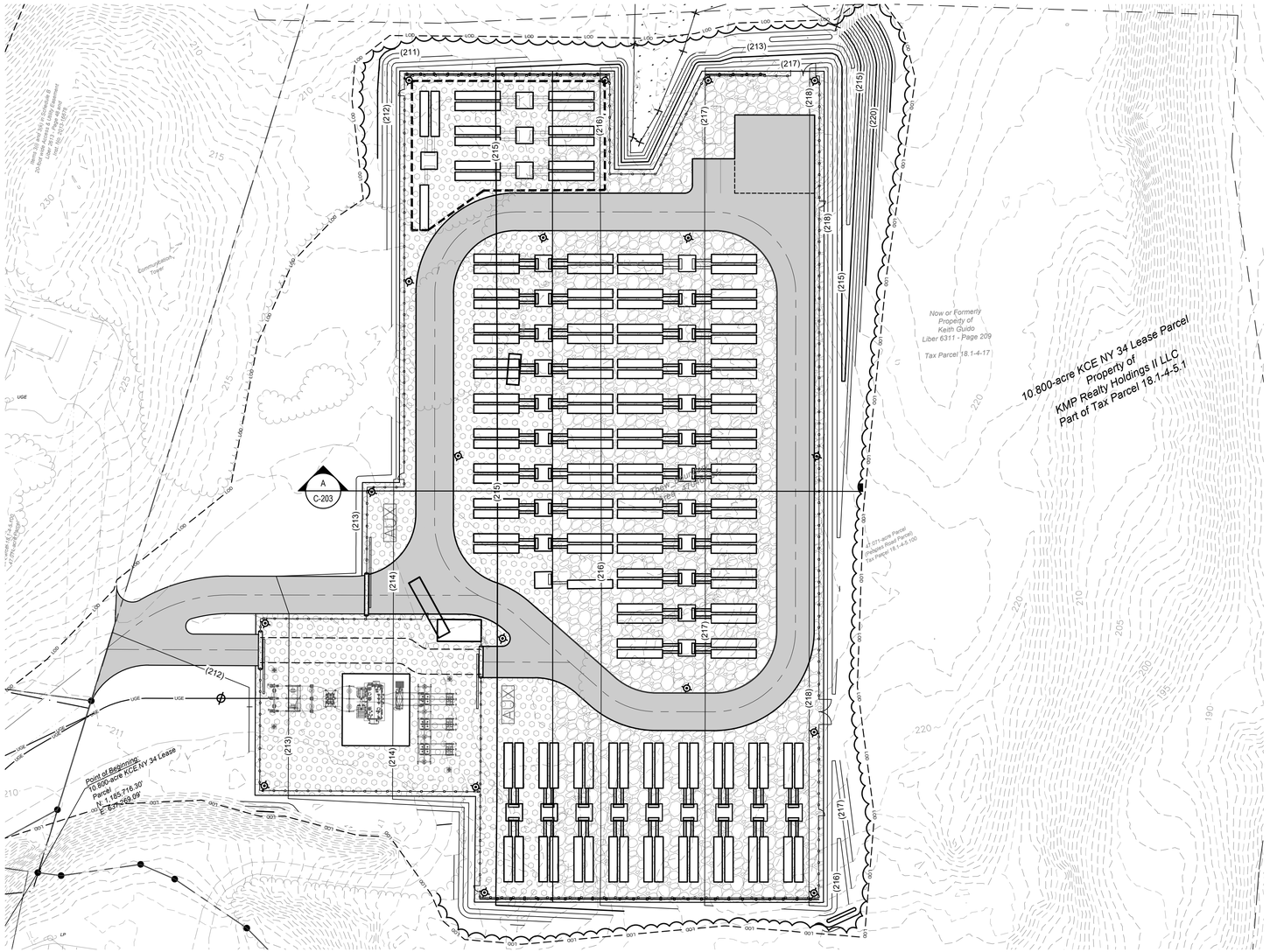
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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN**

DRAWINGS ISSUED FOR / REVISIONS

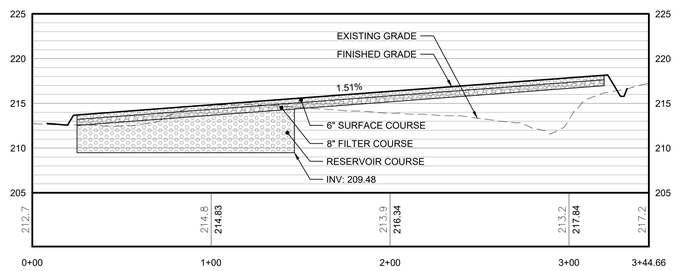
NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER:
C-202



SECTION 'A' - PLAN VIEW

Scale: 1"=40'



SECTION 'A' - SECTION VIEW

Scale: H: 1"=40'; V: 1"=8'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX

FOR MUNICIPAL REVIEW

6/30/2026

NOT FOR CONSTRUCTION

N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

SCALE: HORZ. 1" = 40'
VERT. 1"= 8'

Date Printed: 6/30/2026 4:12:06 PM
T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\C-200 SERIES.dwg
ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **SECTION 'A' PLAN VIEW AND SECTION VIEW**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

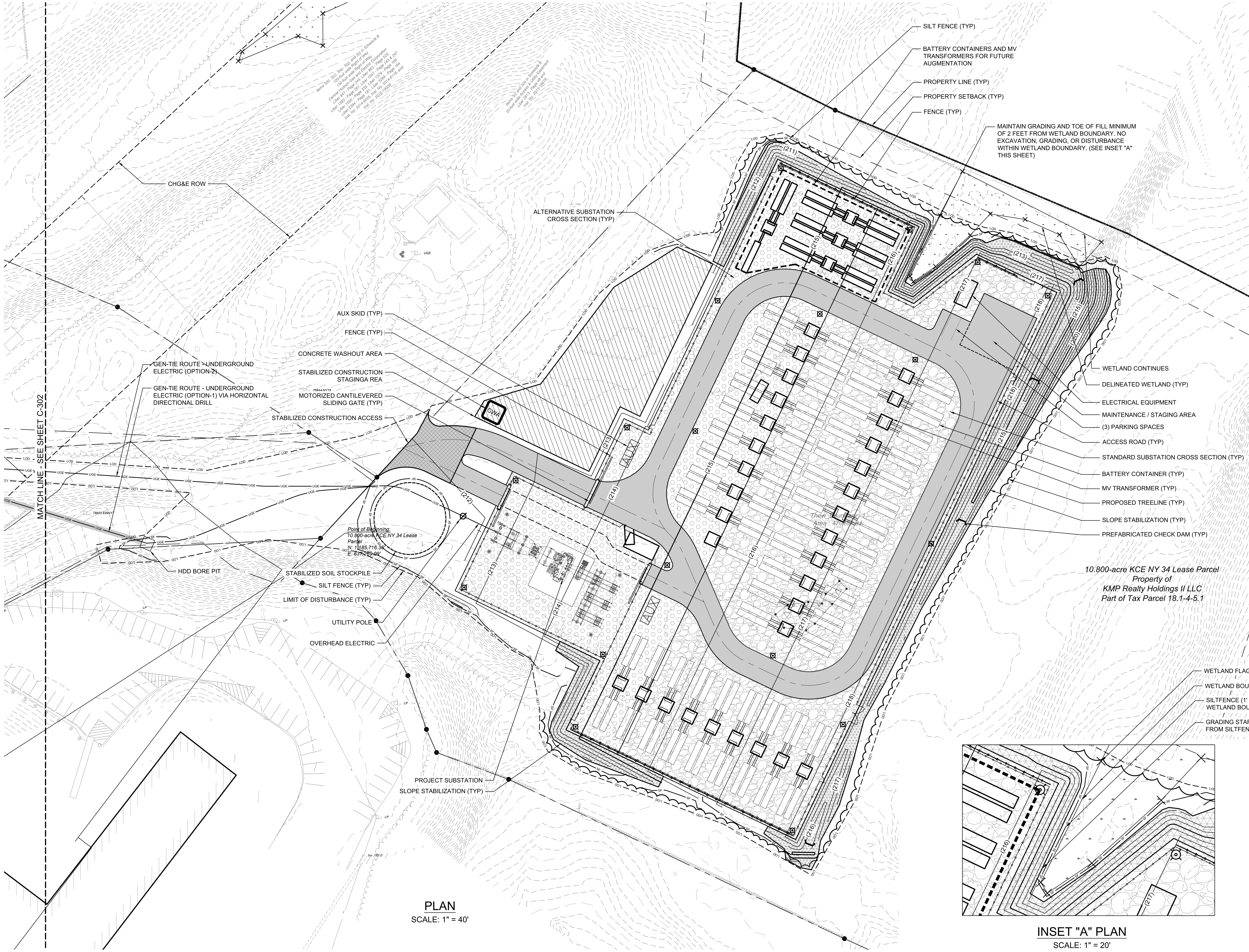
SCALE: **AS NOTED**

DRAWN BY:

CHECKED BY: **ZR/TD**

DRAWING NUMBER:

C-203



PLAN
SCALE: 1" = 40'

INSET "A" PLAN
SCALE: 1" = 20'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
— — — OHE — — — OHE — —	ELECTRIC - OVERHEAD
—— UGE —Ø— UGE ——	ELECTRIC - UNDERGROUND
	UTILITY POLE

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX

EROSION CONTROL LEGEND

SYMBOL	ITEM
—— SF —— SF —— SF ——	SILT FENCE
— — — LOD — — — LOD —	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	PREFABRICATED CHECK DAM
	TIMBER MAT
CWA	CONCRETE WASHOUT AREA
	SLOPE STABILIZATION (RECP)
	STABILIZED SOIL STOCKPILE

NOTE:

1. ALL DISTURBED AREAS SHALL BE REVEGETATED UNLESS INDICATED OTHERWISE.
2. WETLAND DELINEATION PERFORMED BY EDR ON MAY 21, 2025.

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7/6/2026
NOT FOR CONSTRUCTION

N

40 20 0 20 40 80
GRAPHIC SCALE (IN FEET)

20 10 0 10 20 40
GRAPHIC SCALE (IN FEET)

Date Printed: 7/6/2026 3:55:39 PM

T:\22055 KCE NY 34 Saugerties\Cad\Working Drawings\C-300 SERIES.dwg

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **EROSION & SEDIMENT CONTROL PLAN**

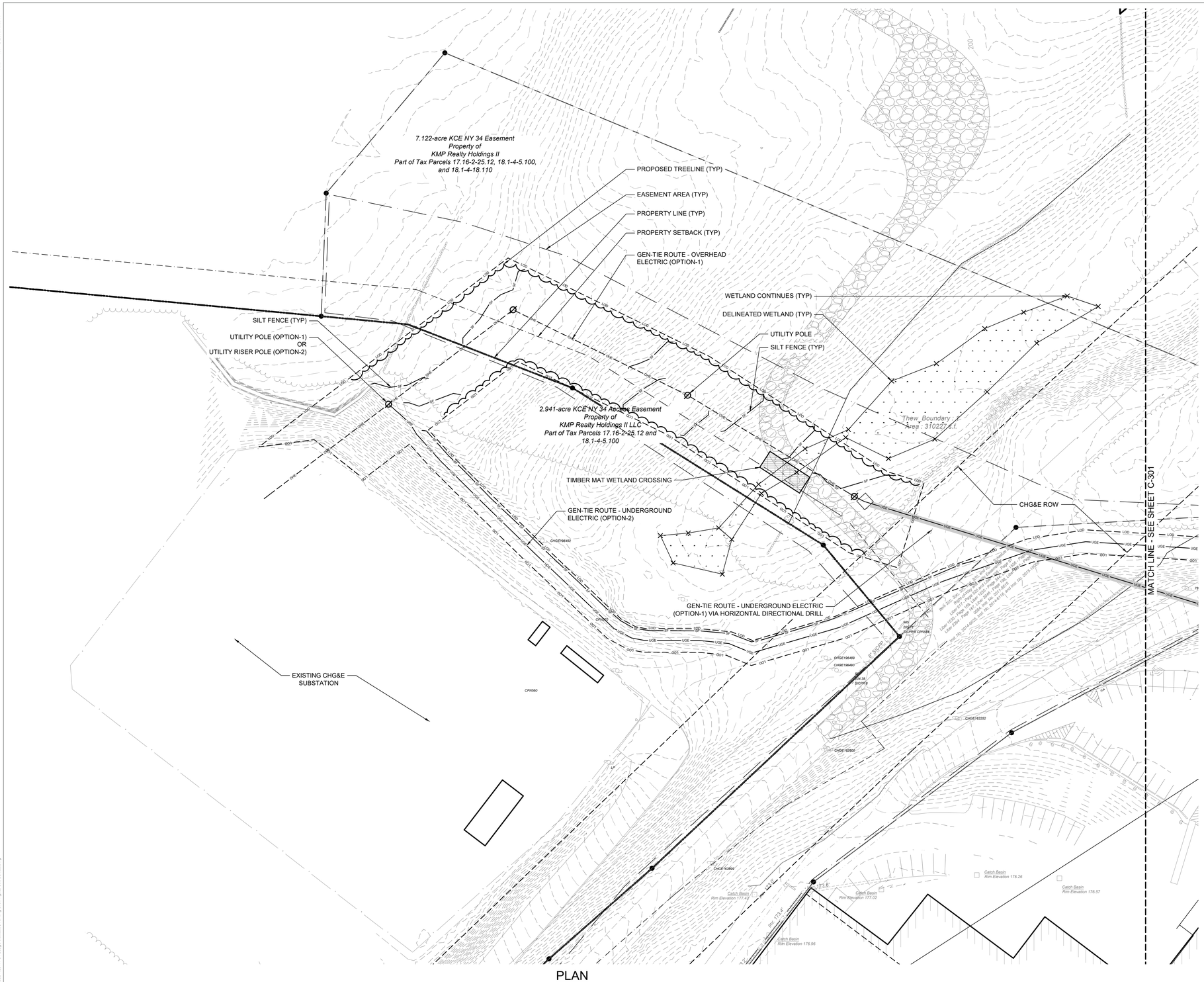
DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER:

C-301

Date Printed: 7/6/2026 3:55:06 PM



PLAN
SCALE: 1" = 40'

SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	SOUND WALL
OHE	ELECTRIC - OVERHEAD
UGE	ELECTRIC - UNDERGROUND
	UTILITY POLE

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(491)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(491)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX

EROSION CONTROL LEGEND

SYMBOL	ITEM
SF	SILT FENCE
LOD	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	PREFABRICATED CHECK DAM
	TIMBER MAT
CWA	CONCRETE WASHOUT AREA
	SLOPE STABILIZATION (RECP)
	STABILIZED SOIL STOCKPILE

FOR MUNICIPAL REVIEW
7/6/2026
NOT FOR CONSTRUCTION

N

40 20 0 20 40 80
GRAPHIC SCALE (IN FEET)

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
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CLIENT:
KEY CAPTURE ENERGY

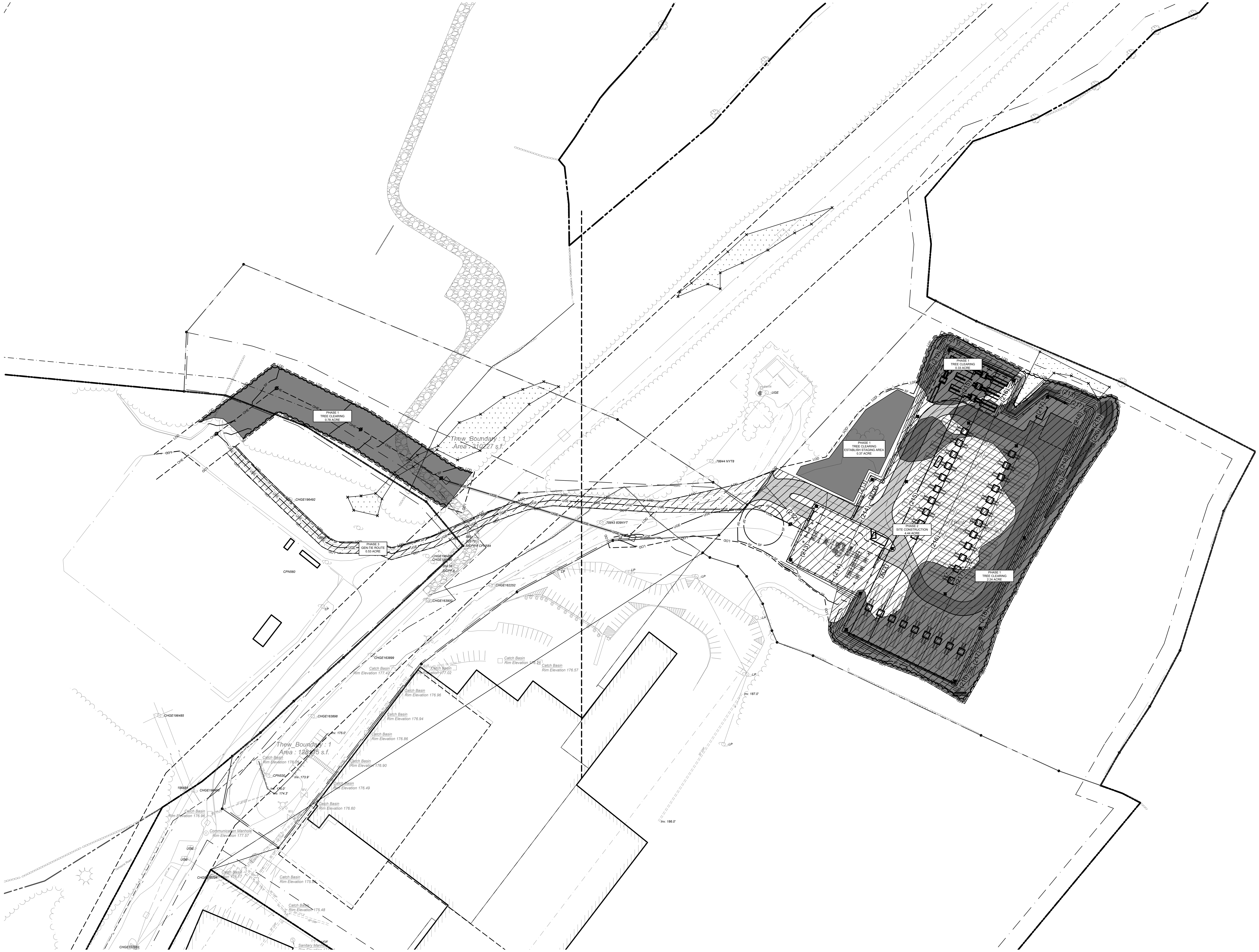
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Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **EROSION & SEDIMENT CONTROL PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER:
C-302



PHASING PLAN LEGEND

SYMBOL	ITEM
(solid fill)	PHASE 1- TREE CLEARING
(hatch)	PHASE 2- SITE CONSTRUCTION
(dotted hatch)	PHASE 3- GEN-TIE ROUTE

PHASING PLAN NOTES:

1. NO MORE THAN 5 ACRES MAY BE DISTURBED AT ONCE. REFER TO PROJECT SWPPP

N

80 40 0 40 80 160

GRAPHIC SCALE (IN FEET)

PLAN

SCALE: 1" = 80'

Date Printed: 8/12/2026 4:41:51 PM

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

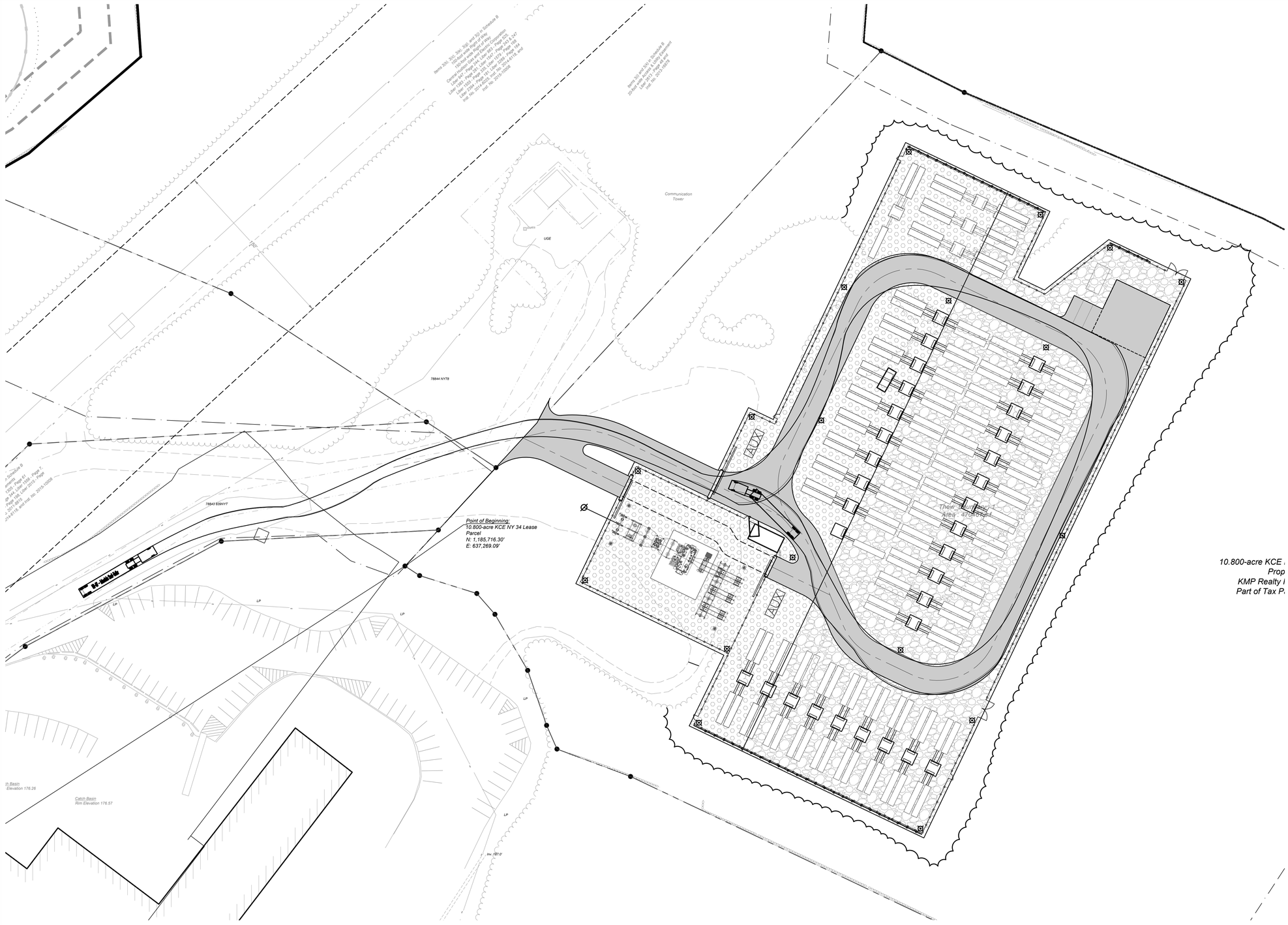
CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **PHASING PLAN**

DRAWINGS ISSUED FOR / REVISIONS

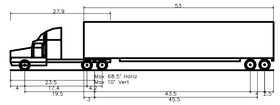
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1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **1" = 80'**
DRAWN BY: **AB**
CHECKED BY:
DRAWING NUMBER:
C-303



WB-67 TURNING ANALYSIS - THROUGH BESS YARD

Scale: 1" = 40'



WB-67 – Interstate Semi-Trailer	
Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°

DESIGN VEHICLE: WB-67

Scale: NTS

FOR MUNICIPAL REVIEW

6/30/2026

NOT FOR CONSTRUCTION

N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

Date Printed: 6/30/2026 4:08:08 PM

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ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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CLIENT: KEY CAPTURE ENERGY

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Albany, New York 12207
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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **VEHICLE TURNING ANALYSIS PLAN**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
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EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

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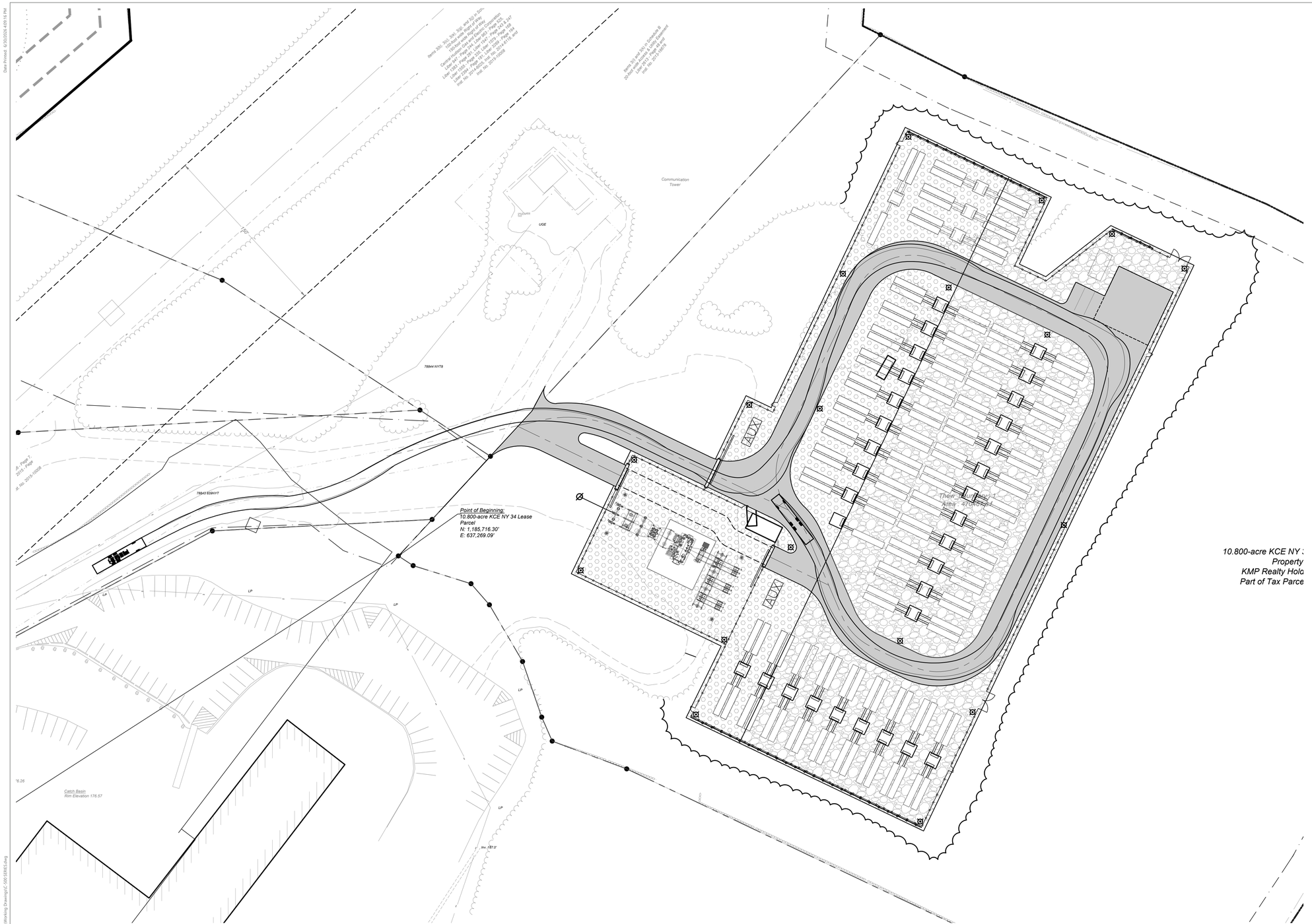
DRAWN BY: **JM**

CHECKED BY: **TD**

DRAWING NUMBER:

C-501

Date Printed: 6/30/2026 4:09:16 PM



DESIGN VEHICLE: E-ONE HP95

Scale: NTS

FIRE TRUCK TURNING ANALYSIS - THROUGH BESS YARD

Scale: 1" = 40'

FOR MUNICIPAL REVIEW

6/30/2026

NOT FOR CONSTRUCTION

N

40 20 0 20 40 80

GRAPHIC SCALE (IN FEET)

T:\2025\KCE NY 34 Saugerties\Cad\Working Drawings\C-500 SITE1.dwg

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **VEHICLE TURNING ANAYLSIS PLAN**

DRAWINGS ISSUED FOR / REVISIONS

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1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
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DATE: **APRIL 03, 2026**

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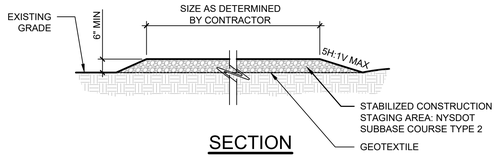
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C-502

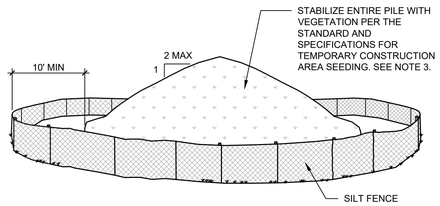
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SECTION

STABILIZED CONST STAGING AREA

Scale: NTS TEMPORARY

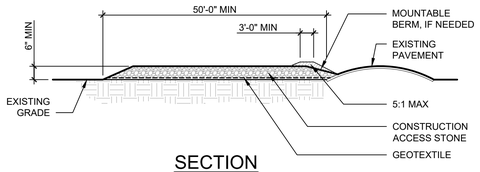


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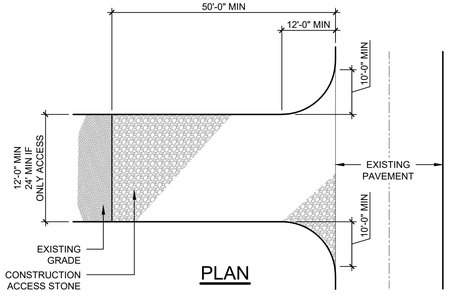
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY, STABILIZED AND LOCATED AWAY FROM KNOWN WORK AREAS TO PREVENT RELOCATION.
2. MAXIMUM STOCKPILE HEIGHT SHALL BE 12 FEET.
3. EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, INSTALLED PER SILT FENCE DETAIL, THEN STABILIZED IN ACCORDANCE WITH THE NYSDEC STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA SEEDING WITHIN 7 DAYS OF COMPLETION.
4. A PERIMETER DIKE/SWALE SHALL BE LOCATED UP-SLOPE OF THE TOPSOIL STOCKPILE TO DIVERT STORMWATER AROUND THE STOCKPILE.

STABILIZED SOIL STOCKPLIE

Scale: NTS TEMPORARY



SECTION



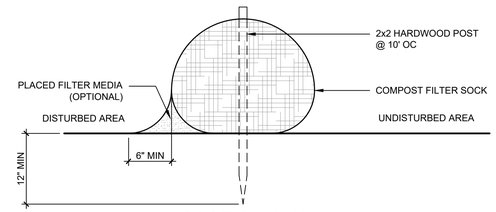
PLAN

NOTES:

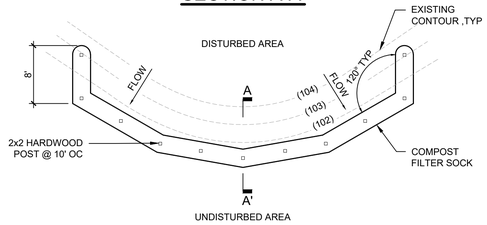
1. CONSTRUCTION ACCESS STONE SIZE - USE A 50% TO 50% MIX OF NYSDOT #4 AND #5 STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. GEOTEXTILE:
   2.A. MIRAFI 500X OR APPROVED EQUAL.
   2.B. SHALL BE PLACED UNDER THE ENTIRE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO PLACING OF STONE.
3. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED ACROSS THE STABILIZED CONSTRUCTION ACCESS. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHALL BE USED.
4. MAINTENANCE - THE CONSTRUCTION ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
5. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ACCESS ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO A NYSDEC APPROVED SEDIMENT TRAPPING DEVICE.
6. TRAINED CONTRACTOR SHALL PROVIDE DAILY INSPECTIONS.

STABILIZED CONSTRUCTION ACCESS

Scale: NTS TEMPORARY



SECTION A-A'



PLAN

NOTE:

1. COMPOST FILTER SOCKS SHALL BE PLACED ON THE CONTOUR WITH BOTH TERMINAL ENDS OF THE SOCK EXTENDED 8 FEET UPSLOPE AT A 45° ANGLE TO PREVENT BYPASS FLOW.
2. DIAMETERS DESIGNED FOR USE SHALL BE 12"-32".
3. THE FLAT DIMENSION OF THE SOCK SHALL BE AT LEAST 1.5 TIMES THE NOMINAL DIAMETER.
4. THE MAXIMUM SLOPE LENGTH (IN FEET) ABOVE A COMPOST FILTER SOCK SHALL NOT EXCEED THE FOLLOWING LIMITS:

TABLE 1 - MAXIMUM SLOPE LENGTH ABOVE COMPOST FILTER SOCK (FEET)

DIA (IN)	SLOPE %						
	2	5	10	20	25	33	50
8	225	200	100	5	20	-	-
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

TABLE 2 - COMPOST FILTER MEDIA STANDARDS

ORGANIC MATTER CONTENT	25% - 100% DRY WEIGHT
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	6.0 - 8.0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100% PASSING A 1" SCREEN AND 10-50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

TABLE 3 - COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

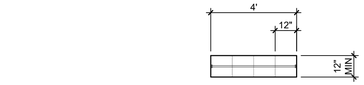
MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MILTI-FILAMENT POLYPROPYLENE	HEAVY DUTY MILTI-FILAMENT POLYPROPYLENE
MATERIAL CHARACTERISTICS	PHOTODEGR AD-ABLE	PHOTODEGR AD-ABLE	BIODEGR AD-ABLE	PHOTODEGRAD-ABLE	PHOTODEGRAD-ABLE
SOCK DIAMETERS	12", 18"	12", 18", 24", 32"	12", 18", 24", 32"	12", 18", 24", 32"	12", 18", 24", 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

5. THE COMPOST INFILL SHALL BE WELL DECOMPOSED (MATURED AT LEAST 3 MONTHS), WEED-FREE, ORGANIC MATTER. IT SHALL BE AEROBICALLY COMPOSTED, POSSESS NO OBJECTIONABLE ODORS, AND CONTAIN LESS THAN 1%, BY DRY WEIGHT, OF MAN-MADE FOREIGN MATTER. THE PHYSICAL PARAMETERS OF THE COMPOST SHALL MEET THE STANDARDS LISTED IN TABLE 5.2-COMPOST FILTER MEDIA STANDARDS TABLE*. NOTE ALL BIOSOLIDS COMPOST PRODUCED IN NEW YORK STATE (OR APPROVED FOR IMPORTATION) MUST MEET NYS DEC'S 6 NYCRR PART 360 (SOLIDS WASTE MANAGEMENT FACILITIES) REQUIREMENTS. THE PART 360 REQUIREMENTS ARE EQUAL TO OR MORE STRINGENT THAN 40 CFR PART 503 WHICH ENSURE SAFE STANDARDS FOR PATHOGEN REDUCTION AND HEAVY METALS CONTENT. WHEN USING COMPOST FILTER SOCKS ADJACENT TO SURFACE WATER, THE COMPOST SHOULD HAVE A LOW NUTRIENT VALUE.
6. THE COMPOST FILTER SOCK FABRIC MATERIAL SHALL MEET THE MINIMUM SPECIFICATIONS GIVEN IN TABLE 5.3-COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS TABLE*.
7. COMPOST FILTER SOCKS SHALL BE ANCHORED IN EARTH WITH 2x2 WOODEN STAKES DRIVEN 12" INTO THE SOIL ON 10 FOOT CENTER ON THE CENTERLINE OF THE SOCK. ON UNEVEN TERRAIN, EFFECTIVE GROUND CONTACT CAN BE ENHANCED BY THE PLACEMENT OF A FILLET OR FILTER MEDIA ON THE DISTURBED AREA SIDE OF THE COMPOST SOCK.
8. ALL SPECIFIC CONSTRUCTION DETAILS AND MATERIAL SPECIFICATIONS SHALL APPEAR ON THE EROSION AND SEDIMENT CONTROL CONSTRUCTIONS DRAWINGS WHEN COMPOST FILTER SOCKS ARE INCLUDED IN THE PLAN.

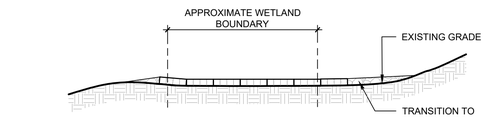
*TABLE FROM THE 2016 NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

COMPOST FILTER SOCK

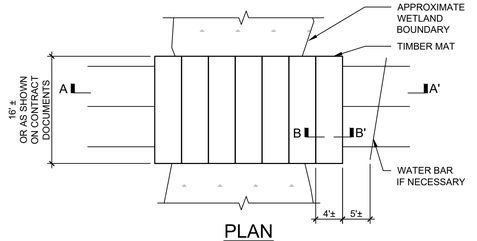
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SECTION B-B'



SECTION A-A'



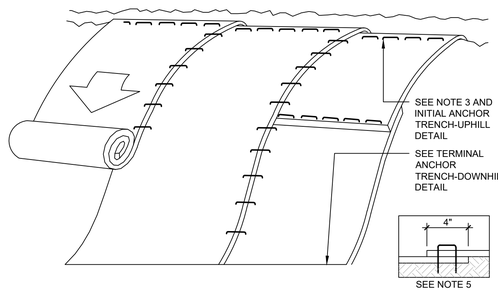
PLAN

NOTES:

1. TIMBER MATS SHALL BE INSTALLED IN WETLANDS AND OTHER AREAS IF NECESSARY TO PREVENT RUTTING.
2. BASED ON ACTUAL SITE CONDITIONS, MULTIPLE LAYERS OF TIMBER MATS MAY BE REQUIRED.
3. TIMBER MAT SURFACE MUST BE LEVEL TO PREVENT EQUIPMENT AND VEHICLES FROM SLIDING OFF DURING MUDDY OR ICING CONDITIONS, AND PREVENT TIMBERS FROM BREAKING.
4. SEDIMENT TRACKED ONTO TIMBER MATTING MUST BE REMOVED AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING WETLAND DURING RAIN EVENTS. SEDIMENT MUST BE REMOVED TO A STABILIZED SOIL STOCKPILE.
5. PERIMETER EROSION AND SEDIMENT CONTROLS ARE REQUIRED TO BE INSTALLED PRIOR TO PLACING TIMBER MATTING.
6. UNLESS PERMITTED FOR REMOVAL, STUMPS WITHIN THE WETLAND MUST REMAIN. THIS MAY REQUIRE ADDITIONAL TIMBERS TO BRIDGE ABOVE.
7. UPON REMOVAL OF TIMBER MATTING ALL SPLINTERED WOOD MUST BE REMOVED. IF EXPOSED SOILS ARE PRESENT STRAW MULCH SHALL BE APPLIED.

TIMBER MAT

Scale: NTS TEMPORARY



PERSPECTIVE VIEW

NOTES:

1. ROLLED EROSION CONTROL PRODUCT (RECP) SHALL BE NORTH AMERICAN GREEN BIONET S150BN OR APPROVED EQUAL.
2. PREPARE SOIL BEFORE INSTALLING RECP INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP IN A TRENCH, AS SHOWN ON THE INITIAL ANCHOR TRENCH-UPHILL DETAIL. ANCHOR THE RECP WITH A ROW OF STAPLES APPROXIMATELY 12" APART IN THE BOTTOM OF TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECP OVER COMPACTED SOIL WITH A ROW OF STAPLES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE ROLLED EROSION CONTROL PRODUCTS.
4. ROLL THE RECP DOWN THE SLOPE. RECP WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE PROVIDED BY MANUFACTURER.
5. THE EDGES OF PARALLEL RECP MUST BE STAPLED WITH 4" MINIMUM OVERLAP. OVERLAP PER MANUFACTURER'S INSTRUCTIONS.
6. CONSECUTIVE RECP SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH A 4" MINIMUM OVERLAP. STAPLE THROUGH OVERLAPPED AREA APPROXIMATELY 12" APART ACROSS ENTIRE RECP WIDTH. NOTE: IN LOOSE SOIL CONDITIONS THE USE OF STAPLE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP.
7. REFER TO TERMINAL ANCHOR TRENCH-DOWNHILL DETAIL FOR TERMINAL ANCHOR TRENCH INSTALLATION.

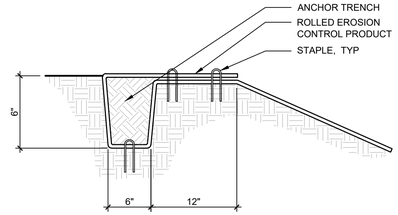
SLOPE STABILIZATION

Scale: NTS TEMPORARY

FOR MUNICIPAL REVIEW

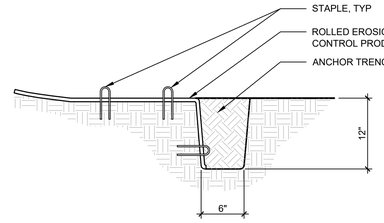
6/30/2026

NOT FOR CONSTRUCTION



SECTION

INITIAL ANCHOR TRENCH-UPHILL

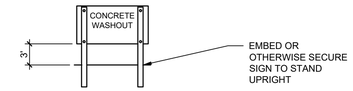


SECTION

TERMINAL ANCHOR TRENCH-DOWNHILL

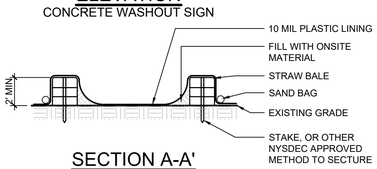
ANCHOR TRENCH

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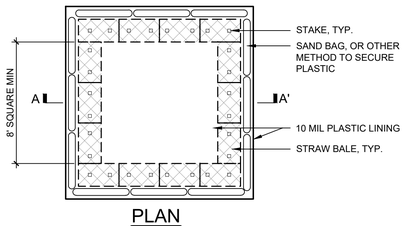


ELEVATION

CONCRETE WASHOUT SIGN



SECTION A-A'



PLAN

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING, CONSTRUCTION, AND INTEGRITY OF THE WASHOUT. THE CAPACITY OF THE WASHOUT SHALL BE 60 GALLONS PER TRUCK TO BE CLEANED WITHIN THE EXPECTED MAINTENANCE FREQUENCY. ADDITIONAL CAPACITY SHALL BE PROVIDED TO ACCOMMODATE RAINFALL.
2. OTHER METHODS OF CONCRETE WASHOUT CONTAINMENT MAY BE UTILIZED IF APPROVED BY THE OWNER'S REPRESENTATIVE.
3. LOCATE WASHOUT AREA AT LEAST 100' FROM STORM DRAINS, OPEN DITCHES, OR WATER BODIES.
4. THE PLASTIC LINING SHALL BE MAINTAINED IN A WATER TIGHT CONDITION AND SHALL BE REPLACED AT EVERY CLEANING.
5. DO NOT ALLOW RUNOFF TO ENTER THIS AREA.
6. THE CONCRETE WASHOUT SIGN SHALL BE PLACED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CONCRETE WASHOUT AREA

Scale: NTS TEMPORARY

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
T:\2055 KCE NY 34 Saugerties\Cad\Working Drawings\C-600 SERIES.dwg
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The following is paraphrased from the New York Education Law, Article 145, Section 7209, and Chapter II, Section 79-1.4, and applies to this drawing: "It is a violation of this law for any person unless he is acting under the direction of a licensed professional engineer, licensed landscape architect or licensed land surveyor to alter an item in any way. If an item bearing the seal of an engineer, landscape architect or land surveyor is altered, the altering engineer, landscape architect or land surveyor shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration and a specific description of the alteration".

CLIENT: KEY CAPTURE ENERGY

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Environmental Design & Research,
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Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **DETAILS**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MIL	SS	
5					
6					

EDR JOB#: **22055**

DATE: **APRIL 03, 2026**

SCALE: **AS NOTED**

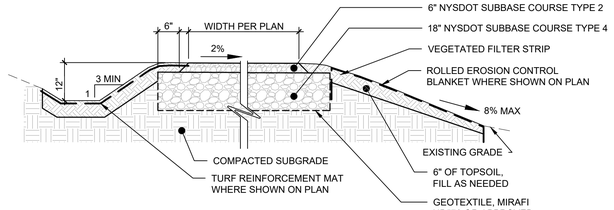
DRAWN BY: **ZR**

CHECKED BY: **TD**

DRAWING NUMBER: **C-601**

Date Printed: 8/3/2026 8:27:01 AM

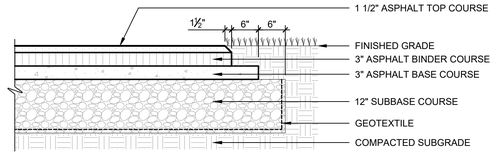
FOR MUNICIPAL REVIEW
8/3/2026
NOT FOR CONSTRUCTION



NOTES:
1. TREATMENT OF THE SURFACE ADJACENT TO THE GRAVEL ROAD WILL VARY BASED ON ADJACENT GRADING. LOCATIONS OF THE OF TURF REINFORCEMENT MAT (TRM) AND EROSION CONTROL BLANKET (ECB) WILL BE IDENTIFIED ON THE EROSION & SEDIMENT CONTROL PLAN.
2. SURFACE COURSE OF CRUSHED STONE SHALL HAVE A MINIMUM RESISTIVITY OF 3,000 OHM/METER.

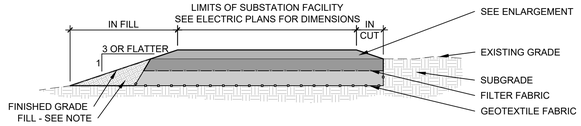
ACCESS ROAD - GRAVEL

Scale: NTS OPTION-1



ACCESS ROAD - ASPHALT

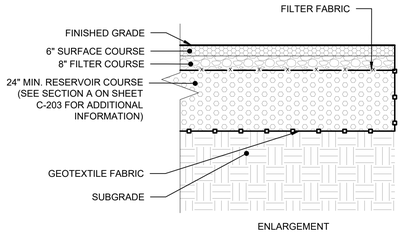
Scale: NTS OPTION-2



NOTE: ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.

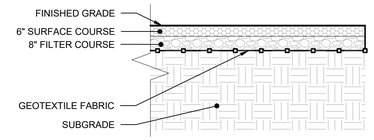
SUBSTATION ALTERNATIVE CROSS-SECTION

Scale: NTS SOIL INFILTRATION RATE >0.5 IN/HR



ENLARGEMENT

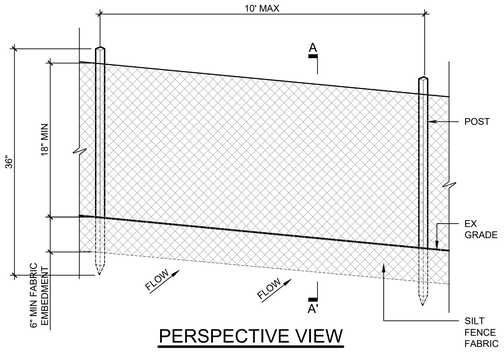
MATERIALS:
1. SURFACE COURSE - NYSDOT #1 AND #2 @ 50% EACH, BLENDED.
2. SURFACE COURSE OF CRUSHED STONE SHALL HAVE A MINIMUM RESISTIVITY OF 3,000 OHM/METER.
3. FILTER COURSE - NYSDOT 304.12 TYPE 2 SUBBASE COMPACTED @ 95% STANDARD PROCTOR.
4. FILTER FABRIC - MIRAFI 140N, OR APPROVED EQUAL.
5. RESERVOIR COURSE - NYSDOT WASHED #2 STONE.
6. UNDERDRAIN WITH FILTER SOCK - 4" OR 6" (AS IDENTIFIED ON THE PLANS) PERFORATED DOUBLE WALL HDPE UNDERDRAIN PIPE, SHALL BE BY ADS OR APPROVED EQUAL.
7. GEOTEXTILE FABRIC - MIRAFI 500X, OR APPROVED EQUAL.



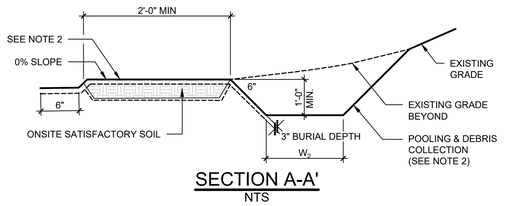
MATERIALS:
1. SURFACE COURSE - NYSDOT #1 AND #2 @ 50% EACH, BLENDED.
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3. FILTER COURSE - NYSDOT 304.12 TYPE 2 SUBBASE COMPACTED @ 95% STANDARD PROCTOR.
4. GEOTEXTILE FABRIC - MIRAFI 500X, OR APPROVED EQUAL.

SUBSTATION STANDARD CROSS-SECTION

Scale: NTS

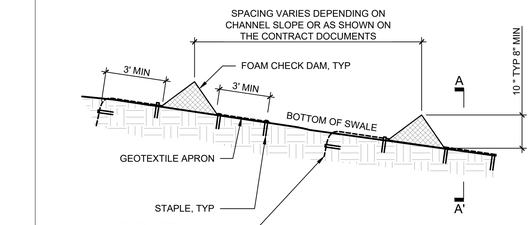


PERSPECTIVE VIEW

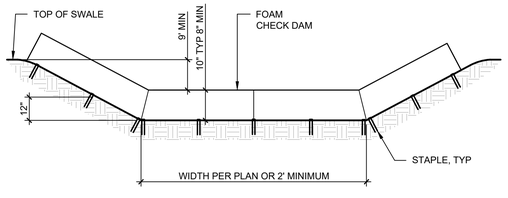


SECTION A-A'

NTS



PROFILE



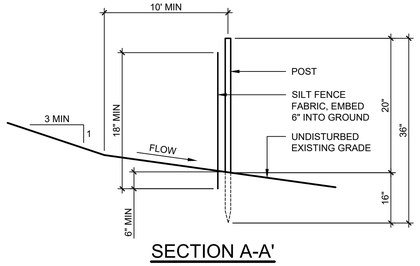
SECTION A-A'

NOTES:

1. PREFABRICATED TEMPORARY CHECK DAMS SHALL BE EITHER URETHANE FOAM (CFC FREE) COVERED WITH GEOTEXITLE, TRIANGULAR SILT DIKE BY ACF, GEORDIGE BY NILEX OR EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. STAPLES SHALL BE PLACED WHERE UNITS OVERLAP AND A DIRECTED BY MANUFACTURERS INSTRUCTIONS.

PREFABRICATED CHECK DAM

Scale: NTS



SECTION A-A'

NOTES:

1. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABLINKA T140N, OR APPROVED EQUAL.
2. PREFABRICATED UNITS SHALL MEET THE MINIMUM REQUIREMENTS SHOWN.
3. MAINTENANCE SHALL BE PERFORMED IMMEDIATELY AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE - STANDARD

Scale: NTS TEMPORARY

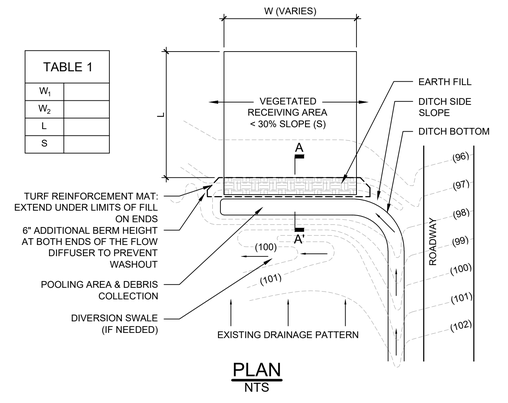


TABLE 1	
W_1	
W_2	
L	
S	

PLAN

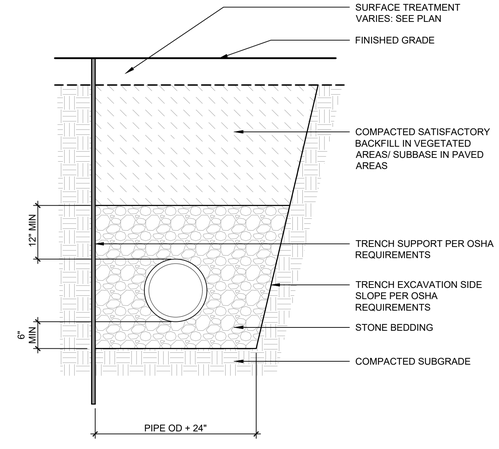
NTS

NOTES:

1. ALL SIDE SLOPES SHALL BE 3H:1V OR FLATTER.
2. NOTE TO DESIGNER: TABLE 1 SHALL BE COMPLETED, SEE CALCULATIONS ON PAGES 3.16 AND 3.17 OF THE 2016 NYSDEC STANDARDS AND SPECIFICATIONS FOR EROSION & SEDIMENT CONTROL.

LEVEL SPREADER

Scale: NTS



PIPE TRENCH

Scale: NTS WITH STONE BEDDING

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
T:\22055 KCE NY 34 Swaugerties\Cad\Working Drawings\C-600 SERIES.dwg
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CLIENT: KEY CAPTURE ENERGY

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41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **DETAILS**

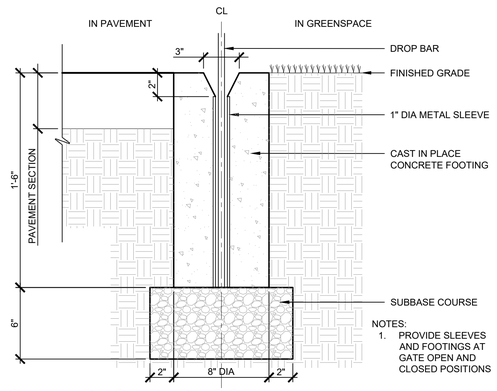
DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK.	APP
1	1/30/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB	SS	
3	04/03/2026	REVISED PER COMMENTS	JJO	SS	
4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **AS NOTED**
DRAWN BY: **ZR**
CHECKED BY: **TD**
DRAWING NUMBER: **C-602**

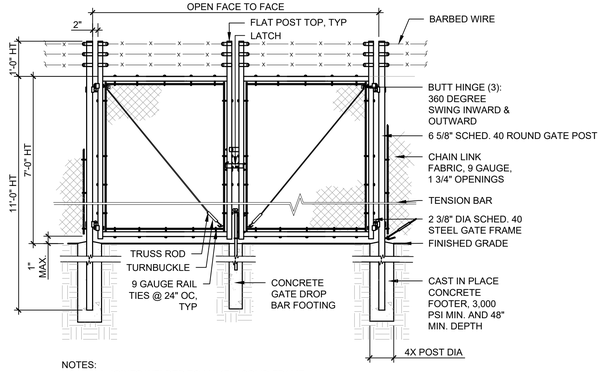
Date Printed: 6/30/2026 4:10:51 PM

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6/30/2026
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GATE - DROP BAR FOOTING

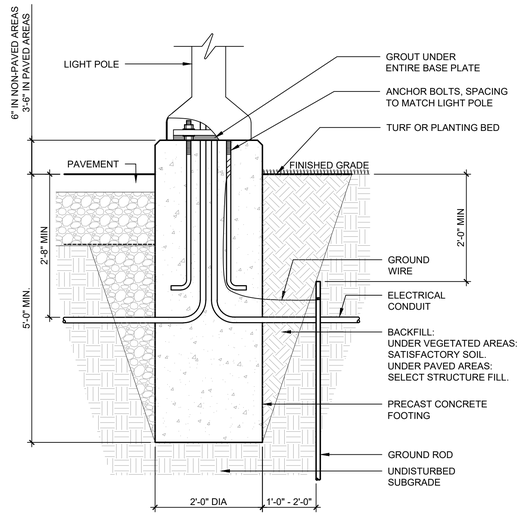
Scale: NTS



NOTES:
1. ALL JOINTS WELDED TO MAKE A SOLID FRAME

CHAIN LINK GATE

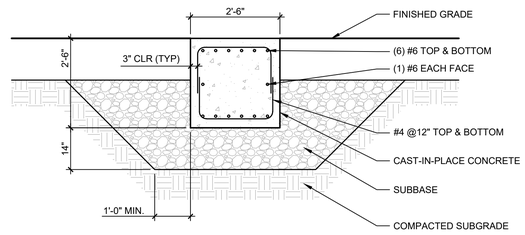
Scale: NTS DOUBLE



NOTES:
1. FOUNDATIONS SHALL NOT BE PLACED IN SLOPES STEEPER THAN 1V:2H

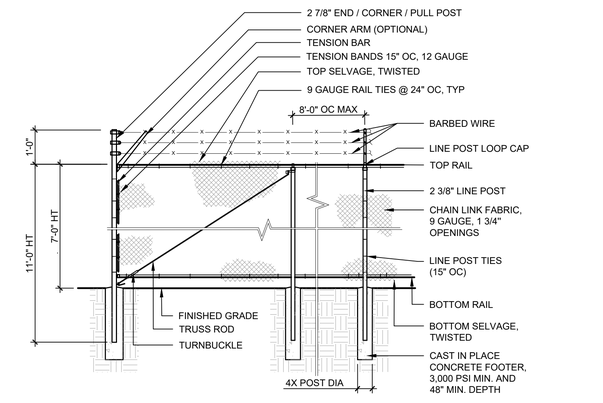
PRECAST CONCRETE LIGHT POLE FOOTING

Scale: NTS



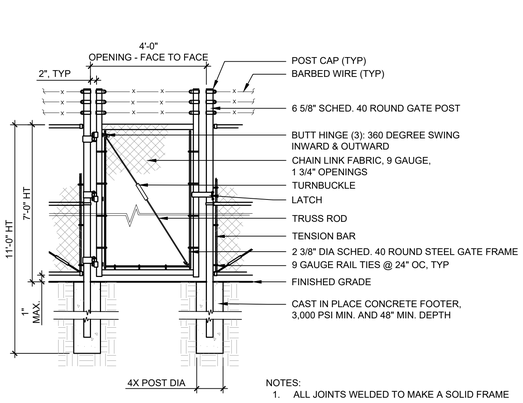
CONCRETE CURB

Scale: NTS



CHAIN LINK FENCE

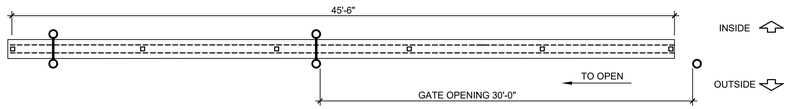
Scale: NTS TOP AND BOTTOM RAILS



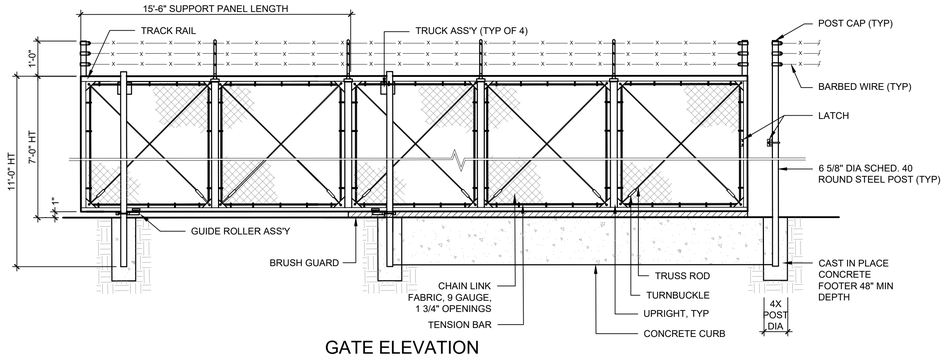
NOTES:
1. ALL JOINTS WELDED TO MAKE A SOLID FRAME

CHAIN LINK GATE

Scale: NTS SINGLE



GATE PLAN



GATE ELEVATION

CHAIN LINK GATE

Scale: NTS CANTILEVERED SLIDE

ORIGINAL DRAWING SIZE: ARCH D (24" X 36")
T:\22055 KCE NY 34 Gallagher\Cad\Working Drawings\C-600 DETAILS.dwg
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CLIENT: KEY CAPTURE ENERGY

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41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TOMSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **DETAILS**

DRAWINGS ISSUED FOR / REVISIONS

NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
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4	07/07/2026	REVISED FOR PERMITTING	MJL	SS	
5					
6					

EDR JOB#: **22055**
DATE: **APRIL 03, 2026**
SCALE: **AS NOTED**
DRAWN BY: **ZR**
CHECKED BY: **TD**
DRAWING NUMBER: **C-603**

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies that would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No." If the answer to the initial question is "Yes," complete the following sub-questions. If the answer to the initial question is "No," proceed to the next question. Section F allows the project sponsor to identify and attach additional information. Section G requires the name and signature of the applicant or project sponsor to verify the information in Part 1 is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: KCE NY 34, LLC		
Project Location (describe and attach a general location map): 7 Tompsons Rd, Town of Saugerties, Ulster County, New York State, 12477		
Brief Description of Proposed Action (include purpose or need): KCE NY 34, LLC ("KCE 34" or "Applicant") proposes a battery energy storage system (BESS) facility (the Facility) and associated necessary infrastructure located on a parcel owned by KMP Realty Holdings II LLC. The parcel on which the project is located is at 7 Tomsons Road and Saug Manor Road Off in the Town of Saugerties, County of Ulster, State of New York, designated as Tax Parcel Number 18.1-4-5.100 containing approximately 59.8 acres of land. The Applicant has secured access to the site through Parcel Number 17.16-2-25.110, both are zoned "I" Industrial Zoning District. The premises are adjacent to the existing Saugerties Substation, currently owned by Central Hudson Gas & Electric (CHG&E) . The proposed project is a 1 00MW / 400 MWh Battery Energy Storage System that will include one 69/34.5kV main power transformer, a 69kV breaker, three 34.5kV feeder breakers, and containers with battery and inverter modules arranged in series strings. These facilities will all be located within the project fence as depicted on the site plans.		
Name of Applicant/Sponsor: Paul Williamson	Telephone: 207-242-3521 E-Mail: paul.williamson@keycaptureenergy.com	
Address: 69 State Street Suite 1100 B		
City/PO: Albany	State: NY	Zip Code: 12207
Project Contact (if not same as sponsor; give name and title/role):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): KMP Realty Holdings II LLC	Telephone: (845) 338-1325 E-Mail: kpitcock@peaktrading.com	
Address: 1 Tomsons Road, #150		
City/PO: Saugerties	State: NY	Zip Code: 12477

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
Government Entity	**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Council, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Town of Saugerties Planning Board; Site Plan Approval and Special Use Permit	
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Ulster County Planning Board GML-239M Referral	
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC SPDES Permit, NYSORHP, CPCN	
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule, or regulation be the only approval(s) that must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally adopted (city, town, village, or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other)? ☑Yes ☐No

If Yes, identify the plan(s):

Hudson River Valley National Heritage Area

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan or an adopted municipal farmland protection plan? ☑Yes ☐No

If Yes, identify the plan(s):

Ulster County Open Space Plan

d. Is the proposed action in a municipality with an adopted comprehensive or individual plan that addresses climate change? ☑ Yes ☐ No

If Yes , identify the elements of the plan that are relevant to the action:

The Town of Saugerties discusses climate change in its Comprehensive Plan: 2021 Update (March 2021) and Open Space Plan (March 2010). None of the recommendations contained therein are relevant for the proposed action.

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance? ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?

Industrial

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes, what is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Saugerties School District

b. What police or other public protection forces serve the project site?

Town of Saugerties Police Department

c. Which fire protection and emergency medical services serve the project site?

Centerville/Cedar Grove Fire District

d. What parks serve the project site?

N/A

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?
Industrial

b. a. Total acreage of the site of the proposed action? 18.2 acres
b. Total acreage to be physically disturbed? 7.06 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 18.2 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? %_____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum_____Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No

i. If No, anticipated period of construction: 12 months

ii. If Yes:

- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month_____year
- Anticipated completion date of final phase _____ month_____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐ Yes ☑ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑ Yes ☐ No

If Yes, Equipment: battery energy storage system. See project description in Part I, A and Site Plans for more detail.

i. Total number of structures N/A

ii. Dimensions (in feet) of largest proposed structure: N/A height; N/A width; and N/A length

iii. Approximate extent of building space to be heated or cooled: N/A square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify: _____

iii. If other than water, identify the type of impounded/contained liquids and their source. _____

iv. Approximate size of the proposed impoundment. Volume:_____million gallons; surface area:_____acres

v. Dimensions of the proposed dam or impounding structure: _____ height;_____length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i. What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. _____

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

v. What is the total area to be dredged or excavated?_____acres

vi. What is the maximum area to be worked at any one time?_____acres

vii. What would be the maximum depth of excavation or dredging?_____feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

ii. Describe how the proposed action would affect that waterbody or wetland, e.g., excavation, fill, placement of structures, or alteration of channels, banks, and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☑ No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☑ No

If Yes:

i. Total anticipated liquid waste generation per day:_____gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☐ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☐ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e., sheet flow) during construction or post construction? ☑ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.63 acres (impervious surface)

_____ Square feet or 59.8 acres (parcel size)

ii. Describe types of new point sources. N/A

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water, or off-site surface waters)?

Stormwater will be directed to an on-site stormwater management facility.

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

- Will stormwater runoff flow to adjacent properties? ☐ Yes ☑ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, boilers, electric generation, surface coating)

_____

g. Will any air emission sources named in D.2.f (above), require an Air Facility Registration, Air State Facility Permit, Title IV Permit or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the proposed action subject to the Nonattainment New Source Review or Prevention of Significant Deterioration requirements discussed in 6 NYCRR Part 231? ☐ Yes ☐ No

ii. As calculated in the air permit application, the proposed action has the potential to emit:

- _____Tons/year (short tons) of carbon monoxide (CO)
- _____Tons/year (short tons) of oxides of nitrogen (NOx)
- _____Tons/year (short tons) of particulate matter (PM-10, PM-2.5)
- _____Tons/year (short tons) of volatile organic compounds (VOC)
- _____Tons/year (short tons) of sulfur dioxide (SO_2)

iii. Will emissions of air contaminants from the proposed action described above exceed the corresponding major source thresholds? ☐ Yes ☐ No

iv. Does the proposed action have the potential to emit 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 (6NYCRR 200.1(ag))? ☐ Yes ☐ No

If Yes, provide the total potential to emit hazardous air pollutants in short tons/year: _____

h. Will the proposed action generate or emit annual direct and indirect greenhouse gas emissions, such as carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, or perfluorocarbons in excess of 10,000 metric tons of total carbon dioxide equivalents per year at any point in the lifetime of the proposed action (estimated using the carbon dioxide equivalent definition and global warming potentials provided in 6 NYCRR Part 496)? ☐ Yes ☑ No

If Yes:

i. Estimate the proposed action's metric tons of carbon dioxide equivalents in tons/year (metric): _____

ii. Describe any greenhouse gas capture, control, or elimination measures included in project design: _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐ Yes ☑ No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐ Yes ☑ No

If Yes:

i. When is the peak traffic expected (Check all that apply): Morning Evening ☐ Weekend

☐ Randomly between hours of_____to_____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks):

_____

iii. Parking spaces: Existing_____Proposed_____Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐ Yes ☐ No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐ Yes ☐ No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐ Yes ☐ No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐ Yes ☐ No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional energy demand? ☐Yes ☑No
If Yes:
i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): _____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐ Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:
- Monday - Friday: 7AM - 7PM
- Saturday: 8AM - 5PM
- Sunday: 8AM - 5PM
- Holidays: 8AM - 5PM

ii. During Operations:
- Monday - Friday: 24/7
- Saturday: 24/7
- Sunday: 24/7
- Holidays: 24/7

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑Yes ☐No
If yes:
i. Provide details including sources, time of day and duration:

Operation of construction equipment during the approved construction hours may exceed ambient noise levels. The Project will comply with the Town Special Use Permit noise standard at the property line. See the Sound Level Impact Assessment Report, dated July 6, 2026 and prepared by Epsilon Associates, Inc. for additional detail.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑Yes ☐No
Describe: Some trees will be removed. However, the site is adjacent to a substation, warehouses, a telecommunication facility, wooded areas, and is near the NYS Thruway and self-storage facilities. These existing surrounding features will continue to provide a noise barrier.

n. Will the proposed action have outdoor lighting? ☑Yes ☐No
If yes:
i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

The light poles will be as indicated on the site plan. The light poles will have a maximum height of 30 feet and LED full-cutoff fixtures operated only during maintenance. When in use, lighting will be directed downward to minimize light pollution at property boundaries.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑Yes ☐No
Describe: The proposed action will involve some tree clearing. The site is next to a substation, warehouses, a telecommunications facility, wooded areas, and near a thruway & self-storage facilities. Existing surrounding woods and structures will maintain natural and structural screening.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐Yes ☑No
If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐Yes ☑No
If Yes:
i. Product(s) to be stored _____
ii. Volume(s)_____ per unit time_____(e.g., month, year)
iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticide) during construction or operation? ☐ Yes ☑No
If Yes:
i. Describe proposed treatment(s):

_____

ii. Will the proposed action use Integrated Pest Management Practices? ☐Yes ☐No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑Yes ☐No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: >1 tons per Month (unit of time)
- Operation : N/A tons per N/A (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: During construction there will be minimal waste generated such as packaging, and off cuts of materials such as concrete reinforcement materials, electrical conduit and wiring. Metals including steel, aluminum and copper will be recycled.
- Operation:

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: During construction a receptacle for metals and recycled materials and a receptacle for non recycled materials will be kept on site. These receptacles will be picked up by a party contracted for these services as needed.
- Operation:

s. Does the proposed action include construction or modification of a solid waste management facility? ☐Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐Yes ☑No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled, or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents:

iii. Specify amount to be handled or generated_____tons/month

iv. Describe any proposals for on-site minimization, recycling, or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐Yes ☐No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐Urban ☒Industrial ☒Commercial ☐Residential (suburban) ☐Rural (non-farm)
☒Forest ☐Agriculture ☐Aquatic ☐Other (specify):

ii. If mix of uses, generally describe:

The project site is predominantly deciduous forestland with smaller grassland/herbaceous and limited developed areas (gravel access roads and parking areas and maintained grassland/herbaceous areas). Adjoining properties include an electric substation and nearby industrial and commercial facilities

b. Land uses and cover types on the project site.

Land use or Cover type	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces (total)	1.97	3.60	+1.63
• Industrial or manufacturing			
• Commercial			
• Residential			
• Forested	3.43	0	-3.43
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1.59	1.27	-0.32
• Agricultural (includes active orchards, field, greenhouse, etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal) [1]	0.07	0.05	-0.02
• Non-vegetated (bare rock, earth, or fill)	0	0	0
• Other, Describe: Pervious substation subbase	0	2.14	+2.14

1. Per EAF Part 1 instructions, the vernal pool (0.02-acres) was included in the wetland acreage.

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☒ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☒ No

If Yes,

i. Identify facilities:

e. Does the project site contain an existing dam? ☐ Yes ☒ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property that is now, or was at one time, used as a solid waste management facility? ☐ Yes ☒ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If Yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☒ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☒ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☒ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☒ Yes ☐ No

If Yes, provide DEC ID number(s): 356010

iv. If Yes to (i), (ii) or (iii) above, describe current status of site(s):

Classification: C - Site Remediation Completed in 1992. No further action issued in 1994.

v. Is the project site subject to an institutional control limiting property uses? ☐Yes ☒No

- If Yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐Yes ☐No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 6.8 feet

b. Are there bedrock outcroppings on the project site? ☐Yes ☒No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

Farmington-Rock (FAE)	34.1 %
Bath-Nassau-Rock (BOD)	32.2 %
Nassau-Bath-Rock (NBF)	13.9 %

d. What is the average depth to the water table on the project site? Average: 5.1 feet

e. Drainage status of project site soils:
☑ Well Drained: 98 % of site
☑ Moderately Well Drained: 2 % of site
☐ Poorly Drained _____ % of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 11 % of site
☐ 10-15%: _____ % of site
☑ 15% or greater: 89 % of site

g. Are there any unique geologic features on the project site? ☐Yes ☒No
If Yes, describe:

h. Surface water features.
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds, or lakes)? ☒Yes ☐No
ii. Do any wetlands or other waterbodies adjoin the project site? ☒Yes ☐No
If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☒Yes ☐No
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size See TAB 13, Figure 7
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐Yes ☒No
If Yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐Yes ☒No

j. Is the project site in the 100-year Floodplain? ☐Yes ☒No

k. Is the project site in the 500-year Floodplain? ☐Yes ☒No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☒Yes ☐No
If Yes:
i. Name of aquifer: Principal Aquifer

m. Identify the predominant wildlife species that occupy or use the project site:

Racoon, Songbirds/woodpecker

Skunk, Deer

Squirrel

n. Does the project site contain a designated significant natural community? ☐ Yes ☒ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation:

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☒ No

If Yes:

i. Species and listing (endangered or threatened): _____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☒ Yes ☐ No

If Yes:

i. Species and listing:

Red-headed Woodpecker, species of special concern

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☒ No

If Yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☒ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☒ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☒ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☒ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYSOffice of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐Yes ☒No

If Yes:

i. Nature of historic/archaeological resource: ☐Archaeological Site ☐Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the New York State Historic Preservation Office (SHPO) archaeological site inventory? ☒Yes ☐No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐Yes ☒No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic, or aesthetic resource? ☒Yes ☐No

If Yes:

i. Identify resource: Estates District, Ulster-North; Hudson River Historic District; Bristol Beach; Clermont Historic Site

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail, or scenic byway, etc.): NYS Scenic Areas of Statewide Significance; National Historic Landmark; NYS Park; NYS Park

iii. Distance between project and resource: 1; 1.8; 2.5; 2.2 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐Yes ☒No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐Yes ☐No

E.4. Disadvantaged Communities Designated Pursuant to ECL Article 75

a. Is the project located within, or within ½ mile of, a disadvantaged community? ☒Yes ☐No

If No, could impacts(see examples below in E.4.b) from the project affect a disadvantaged community? ☐Yes ☐No

If Yes to either question in E.4.a, answer the remaining questions in this section.

b. Will there be direct or indirect impacts that may affect a disadvantaged community, such as those listed below? ☐Yes ☒No

i. new noise sources or expansions/modification of existing noise sources;
   - noise from operational sources
   - noise from construction activities

ii. emissions of air pollutants including, mobile emissions;

iii. wastewater discharges;

iv. generation of odors;

v. light pollution;

vi. new or modified radiation sources;

vii. new or modified sources of solid waste generation, management, or disposal.

If Yes, describe the impacts: See Note 1 at the bottom of this page.

c. Do any of the State agency approvals identified in question B.g include any of the following DEC permits?

State Pollutant Discharge Elimination System (SPDES)	☒Yes	☐No	*General Permit not subject to EJ Siting Law*
Solid Waste Management Facility	☐Yes	☒No	
Hazardous Waste Management Facility	☐Yes	☒No	
Air Pollution Control (Title V or Air State Facility)	☐Yes	☒No	
Water Withdrawal over 20 MGD for Cooling Water	☐Yes	☒No	
Waste Transporter	☐Yes	☒No	

Note 1: Operation of construction equipment during the approved construction hours may exceed ambient noise levels. For details on operational noise impacts, see the Sound Level Impact Assessment Report, dated July 6, 2026 and prepared by Epsilon Associates, Inc. The proposed lighting will be directed downward. The Photometric Plan demonstrates that when in use, the proposed lighting will not spill onto adjacent properties.

E.5 Future Physical Climate Risks

Will the proposed action be vulnerable to the following future physical climate risks under current or projected future conditions:

a. Is the proposed action vulnerable to damage from a projected 100-year flood? ☐ Yes ☒ No

b. Is the proposed action vulnerable to damage from a projected 500-year flood? ☐ Yes ☒ No

c. Is the proposed action in an area potentially affected by sea level rise? ☐ Yes ☒ No

d. Will the proposed action increase the vulnerability of human or ecological communities to the following:

i. drought? ☐ Yes ☒ No

ii. temperature extremes (hot or cold)? ☐ Yes ☒ No

iii. extreme storms, including high winds? ☐ Yes ☒ No

iv. landslides? ☐ Yes ☒ No

v. coastal erosion? ☐ Yes ☒ No

vi. stormwater flooding? ☐ Yes ☒ No

vii. other climate or weather hazards? ☐ Yes ☒ No If Yes, describe: _____

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

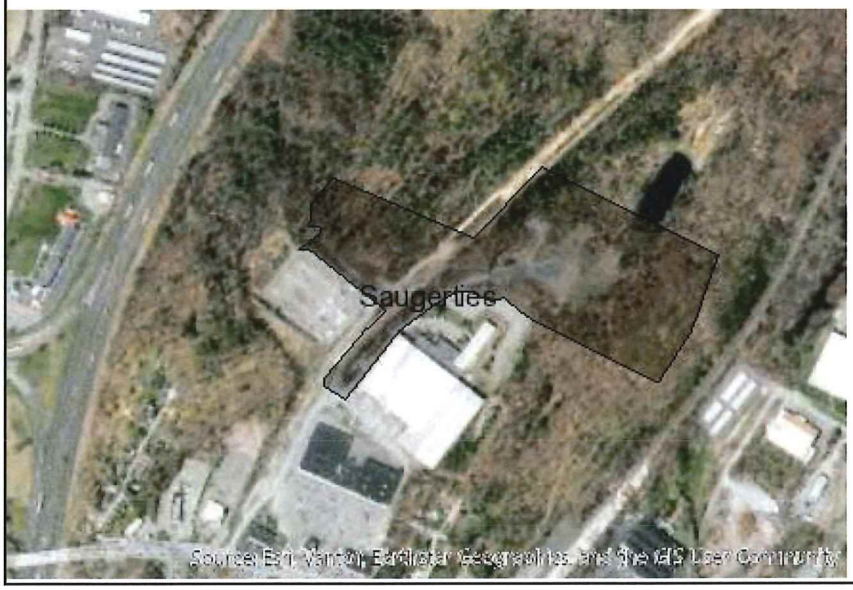
I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Paul Williamson Date August 13, 2026

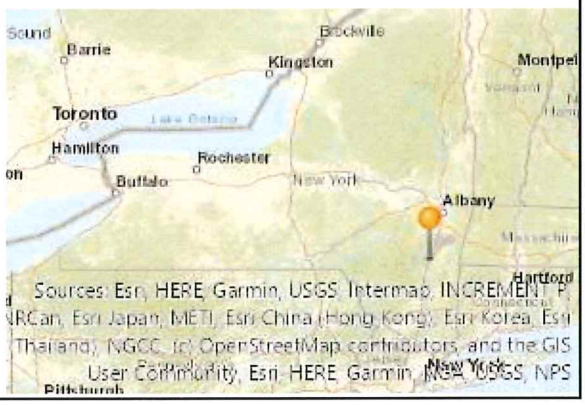
Signature Paul W. Williamson Title Director, Development

EAF Mapper Summary Report

Thursday, July 30, 2026 4:38 PM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	356010
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No

E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	Yes
E.2.p. [Rare Plants or Animals - Name]	Red-headed Woodpecker
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No
E.4.a [Disadvantaged Community]	Yes

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

KCE NY 34

PREPARED FOR:
Key Capture Energy, LLC
Ulster County
7 Tomsons Road
Saugerties, NY 12477



PREPARED BY:

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1100
Syracuse, New York 13202
P: 315.471.0688
www.edrdpc.com

August 2026

EDR Project No. 22055

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Appendix B	NYSDEC Acknowledgement of NOI Letter	Appendix H	Stormwater Management Memorandum
Appendix C	Location Map/Soils Information	Appendix I	NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001
Appendix D	SHPO and E&T Documentation		
Appendix E	Pre-Construction Requirements		
Appendix F	Stormwater Construction Site Inspection Reports	Appendix J	Amendments

CONTRACT DRAWINGS (Full Size Drawings Bound Separately)

G-001	Cover Sheet
G-002	Notes and Abbreviations
C-000	Overall Site Plan and Drawing Index
C-001	Existing Conditions and Demolition Plan
C-002	Existing Conditions and Demolition Plan
C-003	Tree Inventory Plan West
C-004	Tree Inventory Plan East
C-005	Tree Identification Table
C-101	Site Layout Plan
C-102	Site Layout Plan
C-103	Site Signage Plan
C-201	Site Grading, Utility, and Stormwater Management Plan
C-202	Site Grading, Utility, and Stormwater Management Plan
C-301	Erosion and Sediment Control Plan
C-302	Erosion and Sediment Control Plan
C-501	Vehicle Turning Analysis Plan
C-502	Vehicle Turning Analysis Plan
C-601	Details
C-602	Details
C-603	Details

1. DEFINITIONS AND ACRONYMS

DEFINITIONS

Commencement of Construction: The initial disturbance of soils associated with clearing, grading or excavation activities, or other construction related activities that disturb or expose soils such as demolition or stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP.

Discharge(s): Any addition of pollutant to waters of the State through an outlet or point source.

EDR: Environmental Design and Research, Landscape Architecture, Engineering and Environmental Services, DPC

Embankment: An earthen or rock slope that supports a road/highway

Final Stabilization: All soil disturbance activities at the site have ceased and uniform perennial vegetative cover with a density of 80 percent over the entire pervious surface has been established or equivalent stabilization measures such as permanent landscape mulches, rock rip-rap, or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete, or pavement.

Qualified Inspector: A person that is knowledgeable in the principles and practices of erosion and sediment control. Qualified Inspectors include:

- A person with one of the following credentials: Licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), or Registered Landscape Architect.

- A person working under the direct supervision of, and at the same company as, the Licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control (i.e., the individual has received four hours of NYSDEC endorsed training in proper erosion and sediment control within the prior three years).

Temporarily Ceased: An existing disturbed area that will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization: When exposed soil has been covered with materials to prevent the exposed soil from eroding as set forth in the NYS Standards and Specifications for Erosion and Sediment Control. Examples of materials include mulch, seed and mulch, and rolled erosion control products.

Trained Contractor: An employee from a contracting (construction) firm that has received four hours of NYSDEC endorsed training from a Soil and Water Conservation District (or other NYSDEC endorsed entity) in proper erosion and sediment control principles no later than two years from the date this general permit is issued. After receiving the initial training, the trained individual shall receive four hours of training every three years.

ACRONYMS

DOW	Division of Water
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOT	Notice of Termination
NYSDEC	New York State Department of Environmental Conservation
SWPPP	Stormwater Pollution Prevention Plan

2. INTRODUCTION AND REGULATORY REQUIREMENTS

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared by EDR (Engineer) to provide instruction on appropriate construction management practices that will guide **Key Capture Energy (KCE NY 34, LLC)** (Owner) in its field activities and operations to minimize the discharge of pollutants in stormwater runoff and protect water quality during and after construction activities.

ALL PERSONNEL ENGAGED IN **KCE NY 34** CONSTRUCTION ACTIVITIES SHALL ABIDE BY THIS SWPPP.

This SWPPP is a requirement of New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities, Permit No. GP-0-25-001 (General Permit) effective January 29,2025 with an expiration date of January 28, 2030. The General Permit authorizes stormwater discharges to surface waters of the State from construction related activities. The contents of this SWPPP discuss and describe the requirements of this permit.

The SWPPP is required to be kept at the project site and made available for review by applicable regulatory agencies, Engineer, and Contractors. Regulatory agencies that have jurisdiction over the project site may elect to review this SWPPP and, if necessary, may notify the Owner that modifications to the SWPPP or site conditions are required.

The Notice of Intent (NOI), SWPPP, and inspection reports must be made available for public review by the Owner. The Owner shall produce copies of these documents for any person within five business days of the receipt of a written request. The requester is responsible for copying costs.

The owner or operator is authorized to commence construction activity as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete Electronic Notice of Intent (eNOI) is submitted.

Coverage under this permit authorizes stormwater discharges from only those areas of disturbance that are identified in the eNOI. Prior to disturbing soil not yet authorized, the owner or operator must:

a. amend the SWPPP and eNOI in (contact Stormwater_info@dec.ny.gov to receive access to amend the eNOI); and
b. receive an updated LOA.

If the owner or operator makes substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of SMP(s) changes, there is a reduction in the sizing of the SMP(s) that were not reflected in the original eNOI submitted to NYSDEC, they must amend the eNOI prior to implementing such revisions (contact Stormwater_info@dec.ny.gov to receive access to amend the eNOI).

As of the date the LOA is received, the owner or operator must make the eNOI and SWPPP available for review and copying for the NYSDEC within five (5) business days.

The owner or operator must ensure compliance with all requirements of this permit and that the provisions of the SWPPP, including any changes made to the SWPPP are properly implemented and maintained from the commencement of construction activity until:

a. all areas of disturbance have achieved final stabilization; and
b. the electronic Notice of Termination (eNOT) has been accepted by NYSDEC

The owner or operator must maintain at the construction site, until all areas of disturbance have achieved final stabilization and the eNOT has been accepted by NYSDEC, a copy of the:

a. responsible contractor's or subcontractor's certification statement(s)
b. inspection reports;
c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres (when applicable);

The owner or operator must maintain all documentation necessary to demonstrate eligibility with this permit, in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the owner or operator must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

a. The new owner or operator must meet the applicable prerequisites for submitting an eNOI.
b. The new owner or operator must submit an eNOI.
c. Permit coverage for the new owner or operator will be effective upon receipt of the LOA
d. The new owner or operator, upon receipt of their LOA, must provide their Permit ID to the original owner or operator.
e. If the original owner or operator will no longer be the owner or operator of the construction activity identified in the original owner's or operator's eNOI, the original owner or operator, upon receipt of the new owner's or operator's Permit ID, must submit to NYSDEC a completed eNOT that includes the name and Permit ID of the new owner or operator.
f. If the original owner or operator maintains ownership of a portion of the construction activity, the original owner or operator must maintain their coverage under the permit by amending the original eNOI; amendments to the eNOI must include:
    i. the revised area of disturbance and/or impervious area(s);
    ii. the revised SMP information, if applicable;
    iii. a narrative description of what has changed; and
    iv. the new owner's or operator's Permit ID for the portion of the project removed from the eNOI.

To receive access to amend the original eNOI, contact: Stormwater_info@dec.ny.gov

The General Permit requires that a review of the project be completed to determine whether stormwater discharge or construction activities affect a property that is an historic or archaeological resource listed or eligible for listing on the State or National Register of Historic Places. Further, the General Permit requires that a review of the project be completed to determine whether construction activities or discharges from construction activities may adversely affect an endangered or threatened species. Documentation of this review is included in Appendix D – State Historic Preservation Office (SHPO) and Endangered and Threatened Species (E&T) documentation.

Construction activities constitute construction of a point source and therefore the owner or operator must have coverage under a SPDES permit prior to commencement of construction activities. The owner or operator cannot wait until there is an actual discharge from the construction site to obtain permit coverage.

The Owner shall retain the following documents for a period of at least five years from the date that the site achieves final stabilization:

1. The SWPPP including:
    - NOI
    - Municipal Separate Storm Sewer System (MS4) acceptance form
    - NOI acknowledgement letter
    - Contractor Certification(s)
    - NOT
2. Stormwater Construction Site Inspection Reports
3. Contract Documents including construction drawings and technical specifications
4. Correspondence (from NYSDEC, municipality, Engineer, etc.) regarding stormwater management

3. PERMIT COVERAGE

KCE NY 34 project site involves the disturbance and reconstruction of existing impervious areas and is therefore considered redevelopment. The project design followed the Chapter 9 design process and was prepared with no deviations from the 2024 New York State Stormwater Management Design Manual and the 2016 New York State Standards and Specifications for Erosion and Sediment Control.

KCE NY 34 is subject to the requirements of a regulated, traditional land use control MS4. Construction related stormwater discharges from the project construction site will be authorized as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted. (Appendix A).

4. SWPPP REVISION REQUIREMENTS

The Owner or the Contractors shall amend this SWPPP when modifications to the design, construction, operator, or maintenance of the project could affect the potential for discharge of pollutants in stormwater runoff. Scenarios where amendments are required include, but are not limited to, the following:

- The currently installed erosion and sediment control practices are ineffective in minimizing pollutants in stormwater discharges.
- An additional Contractor will be implementing the stormwater management and/or erosion and sediment control facilities and must complete the Contractor certification.
- Issues are identified by qualified inspector, a NYSDEC representative, or other regulatory authority that require a modification.

The Contractor is responsible for the installation of all erosion and sediment control devices as specified in this SWPPP.

If changes in site conditions occur as a result of the workmanship or actions of the Contractor, time of year, and/or weather conditions, the Contractor will be responsible for revising the SWPPP documents, implementing all SWPPP revisions, and installing all additional or revised stormwater management and erosion and sediment control devices at their own cost. All SWPPP revisions will be completed within seven days of receiving notification that revisions are necessary. Revisions shall be reviewed and accepted by the Owner and the Engineer prior to implementation.

If existing site conditions observed by the Contractor are different than what is shown in the SWPPP documents, the Contractor shall report in writing all discrepancies to the Owner prior to any site disturbance. The Owner shall review the documented discrepancies and provide in writing acceptance or denial of discrepancies to the Contractor. When the Owner provides written acceptance of any agreed upon discrepancies prior to any site disturbance, the Owner shall revise the SWPPP document and provide it to the Contractor within three days. The Contractor shall review the revised SWPPP within three days of receipt and document in writing any changes to the negotiated contract. After acceptance by the Owner**,** the Contractor shall be responsible for full implementation of the revised SWPPP's stormwater management and erosion and sediment control practices. All SWPPP revisions will be completed within seven days of receiving notification to proceed with the revisions.

All SWPPP revisions must be marked with the revision date and distributed by the Owner or the Contractors to the involved parties (i.e., subcontractors, Engineer, and municipality).

Where there are planned amendments or modifications to the postconstruction stormwater management practice (SMP) component of the SWPPP, the owner or operator must:

a. notify NYSDEC via email at Stormwater_info@dec.ny.gov;
b. prior to implementing the planned amendments or modifications to the SMPs, update the eNOI to reflect the planned amendments or modifications and resubmit the eNOI in accordance with Part I.D.; and
c. implement the planned amendments or modifications to the SMPs after the eNOI updates have been accepted by NYSDEC

5. SITE INFORMATION

5.1 SITE AND PROJECT DESCRIPTION

The Owner is constructing a 100MW / 400 MWh Battery Energy Storage System (BESS) facility and associated necessary infrastructure located on a parcel owned by KMP Realty Holdings II LLC. The parcel on which the project is located is at 7 Tomsons Road and Saug Manor Road in the Town of Saugerties, County of Ulster, State of New York, designated as Tax Parcel Number 18.1-4-5.100 containing approximately 59.8 acres of land. The project limit of disturbance is 7.1 Acres. The project will include one 69/34.5kV main power transformer, a 69kV breaker, three 34.5kV feeder breakers, a project substation, and containers with battery and inverter modules arranged in series strings. These facilities will all be located within the project fence. The project will interconnect with the adjacent, existing Saugerties substation, which is currently owned by Central Hudson Gas & Electric, via a proposed 69kV gen-tie line.

Stormwater from the northern portion of the site discharges into Sawyer Kill Creek and stormwater from the southern portion of the site discharges into a separate storm sewer. The entire site ultimately discharges to the Hudson River

5.2 SITE LOCATION AND OWNER/OPERATOR CONTACT INFORMATION

Contact information for the site is as follows:

Owner/Operator: KCE NY 34, LLC
Contact: Paul Williamson
Address: 69 State Street, Suite 1100B, Albany, NY 12207
Telephone: 207-242-3521
Email: paul.williamson@keycaptureenergy.com

5.3 CONTRACT DOCUMENTS

The Contract Documents include construction drawings as listed in the Table of Contents, and this SWPPP.

6. SWPPP CONSTRUCTION REQUIREMENTS

6.1 PRE-CONSTRUCTION REQUIREMENTS

Prior to construction, the Owner shall have the Contractors and subcontractors identify at least one person from their company who meets the requirements of a Trained Contractor. This person will be responsible for the implementation of the SWPPP and the inspection of the erosion and sediment controls in accordance with the New York Standards and Specifications for Erosion and Sediment Controls. The Owner's representative shall ensure that at least one Trained Contractor is onsite daily when soil disturbance activities are being performed. The Trained Contractor shall inspect the site's erosion and sediment control practices daily to ensure these facilities are operational.

Pre-construction requirements to be followed by the Owner and Contractors prior to the commencement of any construction activities are described in Appendix E.

6.2 CONSTRUCTION REQUIREMENTS

Construction activity will not disturb greater than 5 acres of soil at any one time without prior written permission of the Owner's representative and the MS4 stormwater contact.

6.2a Over 5 Acres of Disturbance

To obtain approval from the MS4, the Owner is required to submit a written request to MS4 stormwater contact that contains the following information:

1. A phasing plan that defines:
   - The maximum disturbed area per phase
   - The required cuts and fills
   - Any additional erosion and sediment control measures that will be implemented
   - Identification of additional water quality treatment practices to be installed
2. An explanation of why the 5 acre disturbance limit must be exceeded.
3. Acknowledgement that a qualified inspector will conduct at least two site inspections every seven days. The inspections must be separated by a minimum of two calendar days.
4. Acknowledgement that where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures, in conformance with the New York State Standards and Specifications for Erosion and Sediment Control, shall be installed within seven days of the date the soil disturbance activity ceased.
5. Acknowledgement that the Owner/Operator shall install any additional practices to protect water quality as necessary based on site conditions.

If the current site disturbance is reduced to less than 5 acres, then the inspection frequency can be reduced to the required frequency as identified in Section 6.2c. The Owner shall notify the MS4 stormwater contact in writing prior to reducing the frequency of inspections.

6.2b Construction Phasing

Construction activity will not disturb greater than 5 acres of soil at any one time without prior written permission of the Owner's representative and the MS4 stormwater contact. It is not anticipated to disturb greater than 5 acres of soil at a time on this project. A preliminary phasing plan is included below for reference. Should the owner desire to exceed 5 acres of disturbance at a given time, a request to disturb greater than 5 acres must be submitted to the NYS DEC's Regional Office and MS4 contact as required in the SPDES permit Part I.E.6.

Table 1. Phasing Plan

Phase #	Description	Max Disturbance of Phase (Acres)	Notes
1a*	Tree clearing and Staging Area (Gen-Tie Route 1)	3.94	Tree clearing and establishment of staging area as shown on Demo and ESC plans, including Gen-tie Option 1 clearing. Stabilized with stone subbase during installation of infiltration courses.
1b*	Tree clearing and Staging (Gen Tie route 2)	3.16	Tree clearing and staging area as shown on Demo and ESC plans. Stabilized with stone subbase during installation of infiltration courses.
2	Site Construction	4.44	Site construction and perimeter grading. Final site condition is mainly pervious stone for infiltration.
3a*	Gen-tie Route 1	1.17	Restored to existing conditions
3b*	Gen-tie Route 2	0.61	Restored to existing conditions

1. *Total disturbance is dependent upon which gen tie route is approved by CHG&E. Only one of the routes will be constructed. Both options are being carried forward through permitting pending approval from CHG&E.

6.2c Construction Sequence

The Contractors shall install erosion and sediment control practices downstream of the project area, prior to disturbance, to prevent sediment transport to offsite areas. General Construction Sequence includes:

1. Install temporary stabilized construction entrance and temporary construction staging area. Install silt fence on downgradient side of entire temporary staging area.
2. Install construction fence, vegetation protection, and construction road stabilization as necessary for site work.
3. Install silt fence prior to upgradient soil disturbances.
4. Removal of organic material for access road.
5. Clear trees and grub stumps and brush.
6. Clear trees within wetlands via non mechanized methods, stumps to remain.
7. Strip topsoil and create stabilized stockpile on site.
8. Install and stabilize sediment trapping devices along with contributing drainage swales.
9. Establish rough grade for site and stormwater management practices. Leave slope surfaces slightly roughened to a depth of 1-2 inches. Do not back blade slopes.
10. Install temporary and/or permanent check dams in drainage swales as detailed and shown on the erosion and sediment control plans.
11. Begin site work including utilities installation, grading, and road construction.
12. Complete soil restoration per Section 5.1.6 of the Design Manual on all disturbed areas that will be vegetated in their final states.
13. Complete fine grading.
14. Apply permanent seed and mulch.
15. When site has reached final stabilization, remove temporary erosion and sediment control measures.

6.2d Construction Site Inspection

The Owner will be responsible for providing a Qualified Inspector to inspect erosion and sediment control practices, post-construction stormwater management practices that are under construction, disturbed areas, and all points of discharge from the construction site.

Specifically, the Qualified Inspector shall:

- Inspect all erosion and sediment control practices to ensure integrity and effectiveness.
- Verify that erosion and sediment control practices required by the SWPPP and the General Permit have been installed as appropriate for the phase of work and conditions at the site.
- Ensure that post-construction stormwater management practices are installed in accordance with the SWPPP.
- Inspect all areas of disturbance that have not achieved final stabilization.
- Observe all points of discharge from the site, including natural surface waterbodies located within or immediately adjacent to the construction site, conveyance systems, and overland flow.
- Provide the certifications required for the eNOT.

The Qualified Inspector shall also take digital photographs with date-stamp that clearly show the conditions of erosion and sediment control practices and stormwater management practices that have been identified as needing corrective actions and of practices that have had corrective actions since the last inspection. These photographs shall be attached to the inspection from within seven calendar days of the inspection. The Qualified Inspector must also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The Qualified Inspector must attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven calendar days of the inspection.

If corrective actions are needed, the Qualified Inspector must notify the Owner and the appropriate Contractor within one business day of completing the inspection. If the corrective action does not require engineering design, it will be implemented within one business day and completed within five business days. If the corrective action does require engineering design, the engineering design process will begin within five business days and completed in a reasonable time frame but no later than within 60 calendar days. The Contractor shall begin implementing the corrective action within one business day of receiving notification and complete it within seven calendar days

following the date of the inspection. Additional mitigation measures are to be implemented by the Contractors if necessary due to site conditions to minimize sediment transport or discharge of sediment laden runoff offsite.

The Qualified Inspector shall complete an inspection at least once every seven calendar days. If authorization to disturb greater 5 acres of soil at one time is received, the qualified inspector shall conduct at least two site inspections every seven calendar days. There shall be a minimum of two full calendar days between inspections. An Inspection Report form for conducting the inspections is included in Appendix F. Completed Inspection Reports are to remain on file at the site in Appendix F.

Temporary Construction Shutdown

If soil disturbing activities have been temporarily suspended, such as for winter shutdown, and temporary stabilization measures have been applied to all disturbed areas, the Owner may reduce inspections to a minimum of one inspection every 30 calendar days. The Owner shall notify the MS4 stormwater contact in writing prior to reducing the frequency of inspections. The Owner shall resume inspections in accordance with this section as soon as soil disturbance activities resume.

Final Site Inspection

The Qualified Inspector shall perform a final inspection of the site, as required by NYSDEC to certify that:

- All disturbed areas have achieved final stabilization
- Temporary erosion and sediment control practices have been removed
- Post-construction stormwater management practices have been constructed in conformance with the SWPPP

Prior to certification, at their own cost, the Contractors shall supply as-built topographic surveys of all post-construction stormwater management practices to document that the stage/storage relationship has been met. As-builts shall also show rims, inverts, orifices, pipe sizes, elevations, etc. Upon satisfactory completion of the final site inspection, as required by the NYSDEC, the Qualified Inspector shall fill out and submit the eNOT form.

6.2e Authorized Non-Stormwater Discharges

Discharges from the following sources are authorized provided that they are directed to a sediment trapping device and discharges are minimized:

- Clean wash water (does not contain soaps, detergents or solvents) from cleaning construction vehicles and equipment
- Site dewatering (ground water) from pits, excavations, and trenches

Sediment trapping devices shall be designed and located by the Contractor and approved by the Owner and the Engineer prior to installation.

If clean, potable water is discharged from the site for any reason, it shall be directed over a grassed area prior to reaching offsite areas. Potable water shall not be discharged directly to a natural waterbody or watercourse.

Water used for dust control shall be applied using appropriate quantities and methods. No chemicals, soaps, detergents, etc., shall be used.

6.2f Prohibited Non-Stormwater Discharges

The following discharges are prohibited:

- Wastewater from washout and cleanout of concrete, stucco, paint, form release oils, curing compounds, and other construction materials (It is a requirement of this SWPPP that these materials be washed out into

a containment area or tank on site. All waste material must be disposed of offsite in accordance with Federal, State, and local requirements.)
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance
- Soaps or solvents used in vehicle and equipment washing
- Toxic or hazardous substances from a spill or other release

6.2g Maintaining Surface Water Quality

It is expected that compliance with this SWPPP and the General Permit will prevent discharges of pollutants which would cause or contribute to a violation of the surface water quality standards contained in Parts 700 through 705 of Title 6 of Official Compilation of Codes, Rules and Regulations of the State of New York. Potential violations include:

- An increase in turbidity that will cause substantial visible contrast to natural conditions
- An increase of suspended, colloidal or settleable solids that will cause deposition or impair surface waters for their best usages
- A residue from oil and floating substances, visible oil film, or globules of grease

If there is evidence indicating that the stormwater discharges authorized by the General Permit are causing, have reasonable potential to cause, or are contributing to a violation of surface water quality standards, the Owner or operator must take appropriate corrective action within one business day. The corrective action must be documented in the next SWPPP inspection report. To address the surface water quality standard violation, the Owner or operator may need to provide additional information, include and implement appropriate controls from this SWPPP to correct the problem, or obtain an individual SPDES Permit.

Discharges authorized by this permit must achieve, at a minimum, the effluent limitations must meet erosion and sediment control, soil stabilization, dewatering, pollution prevention measures, and surface outlet standards as described in the general permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

6.2h – Chemical and Oil Management

Secondary containment for oil containers shall be provided. If total oil storage onsite exceeds a cumulative total of 1,320 gallons, a spill prevention control and countermeasure (SPCC) plan is to be prepared by the Contractors and maintained onsite.

Spills of petroleum products, chemicals, and other hazardous materials shall be reported in accordance with State, Federal, and local regulations. If a spill occurs at the site during construction, the Contractors shall contact the NYSDEC Spill Hotline (1-800-457-7362). The following material management practices are to be used by the Contractors to reduce the risk of spills or other accidental exposure of pollutants to stormwater runoff during construction:

- Products including, but not limited to, building materials, building products, construction waste, trash, landscaping materials, fertilizers, pesticides, herbicides, detergents, and sanitary waste shall be stored under a roof or other cover to minimize exposure to precipitation
- Products shall be securely stored in their original containers, or as recommended by the manufacturer, and labeled appropriately.
- The amount of product stored onsite will be appropriate for usage on the site. Do not bring excessive quantities to the site for storage.
- Whenever practical, products are to be used up or containers resealed before proper disposal of contents and containers offsite.
- Substances are not to be mixed with one another unless recommended by the manufacturer.
- Surplus product and empty containers are to be disposed of in accordance with manufacturer's recommendations and applicable regulations and/or permit conditions. Do not discharge any substances into the storm sewer.

- Onsite vehicles are to be monitored for leaks and receive regular preventative maintenance to reduce the chance of the leakage of petroleum products. Petroleum products are to be stored in closed containers that are clearly labeled.
- Used oils are to be disposed of properly.

In addition to the material management practices discussed above, the following practices are to be followed by the Contractors for spill preparedness and cleanup.

- Spills are to be reported and cleaned up immediately after discovery.
- Manufacturers' recommended methods for spill cleanup are to be followed in the case of a spill, including the use of appropriate Personal Protective Equipment (PPE). Material Safety Data Sheets (MSDS) for materials at the site provide information on spill cleanup and should be stored in the project office or other accessible location.
- Materials and equipment necessary for spill cleanup are to be kept in designated material storage areas onsite. Spill response materials are to include items such as brooms, dust pans, mops, rags, gloves, goggles, spill control materials, sand, sawdust, disposal containers specifically for spill cleanup, and other response materials dependent on the materials stored at the site.
- If a spill does occur at the site, a spill report is to be completed by the Contractor in accordance with NYSDEC requirements and filed with this SWPPP.

6.3 POST-CONSTRUCTION MAINTENANCE REQUIREMENTS

An eNOT shall be filed with the NYSDEC when the project is permanently stabilized. The NOT requires certification from the Qualified Inspector, as required by the NYSDEC that the site has been stabilized and that all post-construction practices have been constructed in conformance with the SWPPP. The Owner will be the ultimate owner of the stormwater facilities and are required to have a maintenance plan in place. Post-construction maintenance and inspection checklists have been included in Appendix G for reference. Prior to submitting the NOT, **KCE NY 34, LLC** must ensure it has a policy in place that ensures operation and maintenance of the stormwater management practices in accordance with this SWPPP.

7. STORMWATER MANAGEMENT DURING CONSTRUCTION

Anticipated locations for the erosion and sediment control practices are shown on the construction drawings. These practices, and any practices added due to conditions at the site, are to be installed and maintained in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2016).

The Contractor is to provide a construction stabilization schedule (see Appendix E) to detail when construction activities are anticipated to start and when areas will be stabilized. This record is to become part of this SWPPP as Appendix E.

7.1 EROSION AND SEDIMENT CONTROLS

Proposed erosion and sediment control practices were designed in accordance with the following documents:

- New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC 2016)
- New York State Stormwater Management Design Manual (the Design Manual) NYSDEC (June 2024)
- NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-25-001) (effective date January 29, 2025)

The erosion and sediment control practices are identified in the Contract Documents and must be installed and maintained to meet the requirements of the SWPPP.

Practices that must be directed to a temporary sediment trapping device that was not identified in the contract drawings shall be designed by the Contractor. Prior to installing these practices, the Contractor shall provide a detail and proposed location of the sediment trap to be approved by the Owner prior to installation.

Structural erosion and sediment control practices should generally be inspected weekly by a Qualified Inspector and after storms by the Trained Contractor.

7.2 STABILIZATION PRACTICES

7.2a Warm Weather Stabilization Practices

Stabilization practices must follow the guidelines specified in the 2016 New York State Standards and Specifications for Erosion and Sediment. For portions of the site where soil disturbance activities have temporarily or permanently ceased, stabilization measures must be initiated by the end of the next business day and completed within 14 days of the date the most recent soil disturbance activity ceased, or within seven days if the current project disturbance is 5 acres or greater.

7.2b Winter Stabilization Practices

The following stabilization practices, per the 2016 New York State Standards and Specifications for Erosion and Sediment, will be employed by the Contractor for any construction activities with ongoing land disturbance and exposure between November 15 to the following April 1:
The Contractor shall:

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.
2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.
3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.
4. Edges of disturbed areas that drain to a waterbody within 100 feet will have two rows of silt fence, 5 feet apart, installed on the contour.
5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations that restrict the flow of runoff and meltwater shall be removed.
6. Sediment barriers must be installed at all appropriate perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.
7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.
8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three days. Rolled erosion control blankets must be used on all slopes, three horizontal to one vertical or steeper.
9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.
10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:
    - Work will resume within 24 hours in the same area and no precipitation is forecast; or
    - The work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.
11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum of 10 feet in width but wider as necessary to accommodate equipment.

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the winter season, all bare exposed soil must be stabilized by established vegetation, straw, or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly by the Qualified Inspector in accordance with the SWPPP for all sites under a winter shutdown.

7.3 ADDITIONAL STORMWATER CONTROLS

The following are additional Best Management Practices to be implemented at the site to minimize pollutant transport:

- Material Transport – Take proper precautions to prevent spilling materials during transport. Any spilled materials will be swept or removed as soon as practicable so that they do not enter surface and/or subsurface drainage systems.
- Dust Control – Provide dust control measures to prevent dust from leaving the site. Measures may include water application or mulching but shall not include the use of chemical additives. Any sediment that is tracked off the site shall be removed using a hand broom or other cleaning equipment.
- Solid Waste Management – Store waste in covered dumpsters or other appropriate containers. Waste is to be disposed of regularly and properly in accordance with local, State, and/or Federal regulations.
- Portable Toilets – Install and clean portable toilets regularly. Locate portable toilets where they will not be impacted by construction activities.
- Building Materials Storage – Properly store and contain building materials onsite.

8. POST-CONSTRUCTION STORMWATER MANAGEMENT

8.1 STORMWATER QUALITY

The project falls under the Chapter 9 requirements of the Stormwater Design Manual for redevelopment and is considered redevelopment with an increase in impervious area.

Water quality volume for new impervious portions of this site will be treated by the implementation of one (1) infiltration basin through the NYSDEC approved alternative cross section for BESS yards. Since infiltration is a Runoff Reduction Technique, 25% of the total water quality volume for the disturbed impervious area of the site must be treated and 100% of the new impervious area water quality volume for the site must be treated under the Chapter 9 requirements of the Stormwater Design Manual. The infiltration area has been sized to treat 7318 cubic feet, which is 25% of the total water quality volume for the disturbed impervious plus 100% of the total water quality volume for the new impervious area.

Detailed calculations and design information related to stormwater quality can be found in the Stormwater Management Engineering Memo included in Appendix H and the contract drawings bound separately from this report.

8.2 STORMWATER QUANTITY

There is no increase in stormwater quantity on this site due to the use of alternative cross sections as storage and complete infiltration of each storm event up to and including the 100-year storm.

Channel protection volume (CPv) is provided through the alternative cross section via complete infiltration.

9. CLIMATE CHANGE CONSIDERATIONS

As outlined in the 2025 Stormwater General Permit (GP-0-25-001), climate change is expected to cause a range of impacts in New York State, including increases in temperature, precipitation, frequency and severity of flooding, chances of drought, sea level, storm surge, and a shifting ecology.

Below is a list of how each of these climate change risks have been addressed from overall site planning:

Increasing Temperature:

- Issues:
  - Vegetative stabilization
  - Dust suppression
  - Impervious area creating hot spots
  - Heat stress
- Mitigation strategies:
  - Native/drought resistant plantings
  - Avoiding vehicle idling onsite to the extent practicable

Increasing Precipitation:

- **Issues:**
  - Erosion/sedimentation
  - Loss of temporary/permanent stabilization cover
  - Ability of BMPs/SCMs to function as designed
  - Permanent structure siting
- **Mitigation strategies:**
  - Phased soil disturbance/stabilization approaches
  - Native vegetation as stabilization
  - Avoiding slope disturbance

Increasing variability in precipitation, including chance of drought:

- **Issues:**
  - Erosion/sedimentation
  - Loss of temporary/permanent stabilization cover
  - Access constraints due to roadway erosion

- **Mitigation strategies**
  - Implementation of temporary and permanent erosion control practices
  - Native vegetation as stabilization
  - Avoiding slope disturbance

Shifting Ecology:

- **Issues:**
  - Loss of habitat
  - Invasive plants/species
- **Mitigation strategies:**
  - Use of native plants/trees as habitat
  - Minimizing habitat fragmentation

Rising Sea Level:
This will not impact the project site since the project site is not in proximity to a coastal area and therefore no adjustments are needed.

Increasing Storm Surge:
This will not impact the project site since the project site is not in proximity to a floodway or floodplain.

APPENDIX A

NYSDEC Notice of Intent (NOI) and MS4 Acceptance Form

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Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.17

(Submission #: HQE-5A35-6ZP05, version 1)

Details

Originally Started By	EDR Engineering
Alternate Identifier	KCE NY-34 Battery Energy Storage System Region 3
Submission ID	HQE-5A35-6ZP05
Status	Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR ��428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Pl
or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more tl
50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional ha
determined is a historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet

- 5-20 acres of disturbance—50 feet
- 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

a) that the construction activity is not within an archeologically sensitive area indicated on the sensitivity map, and that the construction activ not immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, an

b) that there is no new permanent building to be built on the construction site within the following distances from a building, structure, or obje that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the buildin structure, or object more than 50 years old is not historically/archeologically significant:

- 1-5 acres of disturbance – 20 feet
- 5-20 acres of disturbance – 50 feet
- 20+ acres of disturbance – 100 feet?

Yes

State Environmental Quality Review (SEQR)

---

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
No

Uniform Procedures Act (UPA) Permits

---

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001? Select "Yes" if no UPA permits, or the equivalent, are required for this construction activity.
Yes

Steep Slope

---

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?
No

Owner/Operator Information

8. Owner/Operator Name
KCE NY 34, LLC

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
Paul Williamson	207-242-3521	paul.williamson@keycaptureenergy.com

10. Owner/Operator Mailing Address

69 State Street, Suite 1100B
Albany, NY 12207
USA

11. Is the billing contact different from the Owner/Operator Contact?
Yes

11.a. Billing Contact Person Information

First and Last Name	Phone	E-mail
Paul Williamson	207-242-3521	accountspayable@keycaptureenergy.com

11.b. Billing Mailing Address

69 State Street, Suite 1100B
Albany, NY 12207
USA

12. What type of organization is the owner/operator?
Corporation

12.b. Is the owner/operator registered with the Department of State to do business in New York State?
Yes

12.b.i. Department of State ID #
5403869

The Department of State ID can be found using the following link:
Department of State | Division of Corporations

Site Information

13. Project/Site Name
KCE NY-34 Battery Energy Storage System

14. Site Address

7 Tomsons Rd
Saugerties, NY 12477
Ulster

DEC Region
3

15. Site Latitude & Longitude
42.087283,-73.963785

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
The Owner is constructing a 100MW / 400 MWh Battery Energy Storage System (BESS) facility and associated necessary infrastructure located on a parcel owned by KMP Realty Holdings II LLC. The parcel on which the project is located is at 7 Tomsons Road and Saug Manor Road in the Town of Saugerties, County of Ulster, State of New York, designated as Tax Parcel Number 18.1-4-5.100 containing approximately 59.8 acres of land. The project will include one 69/34.5kV main power transformer, a 69kV breaker, three 34.5kV feeder breakers, a project substation, and containers with battery and inverter modules arranged in series strings. These facilities will all be located within the project fence. The project will interconnect with the adjacent, existing Saugerties substation, which is currently owned by Central Hudson Gas & Electric , via a proposed 69kV gen-tie line.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
59.8

20. Total Area to be Disturbed (acres)
7.1

21. Existing Impervious Area to be Disturbed (acres)
2.0

22. Future Impervious Area Within Disturbed Area (acres)
3.6

Nature of the project:
Redevelopment with increase in impervious area

23. Do you plan to disturb more than 5 acres of soil at any one time?
No

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
75

D (%)
25

25. Enter the planned start and end dates of the disturbance activities.

Start Date
05/01/2027

End Date
12/01/2028

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Sawyer Kill Creek

27. Type of waterbody identified in question 26?
Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.
Town of Saugerties

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

37. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?
Yes

37.a. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2024

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP
Mike Tamblin

41. SWPPP Preparer Organization Name
EDR

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
Mike Tamblin	315.952.1863	mtamblin@edrdpc.com

43. SWPPP Preparer Address

217 Montgomery St
Suite 100
SYRACUSE, NY 13202

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form
Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?
Yes

Erosion & Sediment Control Criteria

45. Has a construction sequence schedule for the planned management practices been prepared?
Yes

Post-Construction Criteria

Site Planning and Soil Restoration

46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Driveway Reduction

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
0.169	0.169			0.169

Water Quantity Criteria

50. Per Section 9.2.1.C.VI and VII of the 2024 Design Manual, is there 0% change to hydrology that increases the discharge rate and volume from the project site?
Yes

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.
KCE-NY 34

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Infiltration Basin (I-2)	3.460	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*	*NONE PROVIDED*

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
Yes

59.a. Which form is required per Part I.D.2.b.ii.?
MS4 SWPPP Acceptance Form

MS4 SWPPP Acceptance Form Download

Download the MS4 SWPPP Acceptance Form from the link below.
MS4 SWPPP Acceptance Form

60. MS4 Acceptance or No Jurisdiction Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

60.a. Has the form been signed by the principal executive officer or ranking elected official or duly authorized representative of that person in accordance with Part VII.J. and submitted along with this NOI?
Yes

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?
Yes

Additional Project Information

62. Enter any additional pertinent project information in the text box below.
The main portion of the project's development is within 5.3 acres. There is also linear work being done outside of this acreage. The linear work was omitted from water quality calcs.

Owner/Operator Certification Form

SPDES Construction General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC via nForm.

Project/Site Name: KCE NY 34

eNOI Submission ID: HQE-5A35-6ZP05

eNOI Submitted by: ☐ **Owner/Operator** **SWPPP Preparer** **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization or a Letter of Continued Coverage from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

Signature

Date

Revised: May 2024

SWPPP Preparer Certification Form

SPDES Construction General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC via nForm.)

Project/Site Name:	KCE NY-34
eNOI Submission ID:	HQE-5A35-6ZP05
Owner/Operator Name:	KCE NY 34

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Michael	E	Tamblin
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name



Signature

3/9/26

Date

Revised: May 2024

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES Construction General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC via nForm.)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	KCE NY 34, LLC
2. Contact Person:	Paul Williamson
3. Street Address:	69 State Street, Suite 1100B
4. City/State/Zip:	Albany, NY 12207
II. Project Site Information	
5. Project/Site Name:	KCE NY-34 Battery Energy Storage System
6. Street Address:	7 Tomsons Rd
7. City/State/Zip:	Saugerties, NY 12477
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4 Operator:	Saugerties
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Street Address:	
14. City/State/Zip:	
15. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES Construction General Permit (CGP) for Stormwater Discharges from Construction Activity, GP-0-25-001. Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

APPENDIX B

NYSDEC Acknowledgement of NOI Letter

APPENDIX C

Location Map/Soils Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ulster County, New York



July 17, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,750 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 23, Aug 29, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 4, 2020—Nov 7, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BOD	Bath-Nassau-Rock outcrop complex, hilly	6.0	70.6%
FAE	Farmington-Rock outcrop complex, steep	1.9	22.1%
NBF	Nassau-Bath-Rock outcrop complex, very steep	0.6	7.2%
STD	Stockbridge-Farmington-Rock outcrop complex, hilly	0.0	0.0%
Totals for Area of Interest		**8.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Ulster County, New York

BOD—Bath-Nassau-Rock outcrop complex, hilly

Map Unit Setting

National map unit symbol: 9xfv
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Bath and similar soils: 40 percent
Nassau and similar soils: 25 percent
Rock outcrop: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

H1 - 0 to 6 inches: gravelly silt loam
H2 - 6 to 28 inches: gravelly loam
H3 - 28 to 48 inches: very gravelly loam
H4 - 48 to 52 inches: bedrock

Properties and qualities

Slope: 10 to 25 percent
Depth to restrictive feature: 26 to 38 inches to fragipan; 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Description of Nassau

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 6 inches: channery silt loam
H2 - 6 to 16 inches: very channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 10 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 10 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydric soil rating: Unranked

Minor Components

Hudson

Percent of map unit: 5 percent
Hydric soil rating: No

Volusia

Percent of map unit: 5 percent
Hydric soil rating: No

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Manlius

Percent of map unit: 5 percent
Hydric soil rating: No

FAE—Farmington-Rock outcrop complex, steep

Map Unit Setting

National map unit symbol: 9xgf
Elevation: 100 to 900 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 45 percent
Rock outcrop: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F140XY029NY - Rich Shallow Till Upland
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Stockbridge

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Nassau

Percent of map unit: 5 percent
Hydric soil rating: No

Lordstown

Percent of map unit: 5 percent
Hydric soil rating: No

Plainfield

Percent of map unit: 5 percent
Hydric soil rating: No

NBF—Nassau-Bath-Rock outcrop complex, very steep

Map Unit Setting

National map unit symbol: 9xhh
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 35 percent
Bath and similar soils: 25 percent
Rock outcrop: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 6 inches: channery silt loam
H2 - 6 to 16 inches: very channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Bath

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

H1 - 0 to 6 inches: gravelly silt loam
H2 - 6 to 28 inches: gravelly loam
H3 - 28 to 48 inches: very gravelly loam
H4 - 48 to 52 inches: bedrock

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: 26 to 38 inches to fragipan; 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Manlius

Percent of map unit: 5 percent
Hydric soil rating: No

Hoosic

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Arnot

Percent of map unit: 5 percent
Hydric soil rating: No

STD—Stockbridge-Farmington-Rock outcrop complex, hilly

Map Unit Setting

National map unit symbol: 9xjp
Elevation: 100 to 2,460 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Stockbridge and similar soils: 31 percent
Farmington and similar soils: 29 percent
Rock outcrop: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stockbridge

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile

H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 34 inches: gravelly silt loam
H3 - 34 to 56 inches: gravelly silt loam
H4 - 56 to 60 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 40 to 80 inches to lithic bedrock

Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F142XB012VT - Rich Till Upland
Hydric soil rating: No

Description of Farmington

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

O - 0 to 1 inches: slightly decomposed plant material
H1 - 1 to 6 inches: gravelly silt loam
H2 - 6 to 16 inches: gravelly silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F140XY029NY - Rich Shallow Till Upland
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydric soil rating: Unranked

Minor Components

Rhinebeck

Percent of map unit: 5 percent
Hydric soil rating: No

Volusia

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

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APPENDIX D

SHPO and E&T Documentation

New York State
Parks, Recreation and
Historic Preservation

KATHY HOCHUL
Governor

KATHY MOSER
Acting Commissioner

October 17, 2025

Joseph Kwiatek
Archaeology Project Manager
Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, DPC
274 North Goodman Street
Rochester, NY 14607

Re: DEC
KCE NY 34 Battery Energy Storage System
Thomsons Road, Saugherties, Ulster County, NY
25PR09304

Dear Joseph Kwiatek:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project.

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above. If you have any questions, please contact Josalyn Ferguson at the following email address:

Josalyn.Ferguson@parks.ny.gov

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

APPENDIX E

Pre-Construction Requirements

E-1: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

General Project Information			
Project Name	KCE NY 34		
Project Location	Tomsons Rd, Saugerties, NY	**County**	Ulster
SPDES Permit ID No.		**NYSDEC Date of Authorization**	

PREAMBLE TO SITE ASSESSMENT AND INSPECTIONS – TO BE READ BY ALL PERSONS INVOLVED IN THE CONSTRUCTION OF STORMWATER RELATED ACTIVITIES

1. The Owner/Operator and Contractors shall read the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities GP-0-25-001. This SWPPP has been prepared for the project and represents the minimum standards for compliance. The Contractors must follow the requirements of the SWPPP.
2. A copy of the General Permit (GP-0-25-001), the SWPPP, NOI, NOI Acknowledgement Letter, MS4 Acceptance form (if applicable), inspection reports and any correspondence with the NYSDEC must be kept at the work site at all times. (e.g., in the job trailer.)
3. Prior to commencing soil disturbance, the Owner/Operator and/or Contractors must complete the forms and certifications in this Appendix. This information must be kept up to date.
4. All enclosed certifications shall be completed by the contractor. Subcontractors responsible for implementing erosion and sediment control measures or constructing stormwater management practices shall also complete the certifications. Each certification is to be completed and signed by a president, treasurer or vice president, or any person who performs similar policy or decision-making functions, and by the onsite individual having responsibility for the firm.
5. The Owner/Operator shall have a qualified inspector conduct an assessment of installed erosion and sediment controls and overall preparedness of the site prior to the commencement of construction. The inspection report in this section shall be used record the results of the inspection.
6. Site inspections shall be conducted by the qualified inspector at least once every seven calendar days when construction actives commence. For sites where the Owner/Operator has received authorization from the New York State Department of Environmental Conservation (NYSDEC) to disturb greater than five acres of soil at one time or where the project site discharges directly to a 303(d) impaired waterbody or is in a watershed listed in Appendix C of the General Permit, the qualified inspector shall conduct at least two site inspections every seven calendar days. There shall be a minimum of two full calendar days between inspections. The Owner/Operator shall maintain a record of all inspection reports onsite in Appendix F and have them available to the permitting authorities upon request.
7. The qualified inspector will notify the Owner/Operator and Contractor of any items to be addressed within one day business day of the inspection. The Contractors need to start corrective measures within one business day of notification and complete corrective actions in a reasonable time frame.
8. Prior to filing the Notice of Termination (NOT) or the end of permit term, the Owner/Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing, etc.) have been removed and that post-construction stormwater management practices have been installed in accordance with the SWPPP. The Owner/Operator must certify that, based upon their inquiry, all the information contained within the NOT is true.

9. Prior to submitting the NOT, the Owner/Operation is required to have one of the following in place (for permanent stormwater practices):
    a. Provide proof that the post-construction stormwater management practices, including any right-of-ways needed for maintenance of such practices, have been deeded to the municipality in which the practices are located, or
    b. Provide confirmation that the municipality has executed an agreement to maintain the post-construction stormwater management practices, or
    c. For privately-owned post-construction stormwater management practices, provide proof that the Owner/Operator has modified their deed of record to include a deed covenant that requires operation of the practices in accordance with the operations and maintenance plan.
    d. For institutional-owned or municipal-owned post-construction stormwater practices, provide proof that the Owner/Operator has policy and procedure in place to ensure operation of the practices in accordance with the operations and maintenance plan.
10. In the event of a transfer of ownership or responsibility for stormwater runoff, the original Owner/Operator (permittee) must notify the new Owner/Operator in writing of the requirement to obtain permit coverage by submitting a new Notice of Intent. Once the new Owner/Operator obtains permit coverage, the original Owner/Operator shall submit a completed NOT with the name and permit identification number of the new Owner/Operator. If the original Owner/Operator maintains ownership of a portion of the construction activity and will disturb soil, they must obtain their coverage under the general permit. Permit coverage for the new Owner/Operator will be effective when an acknowledgement letter is received from the NYSDEC confirming receipt of the completed Notice of Intent (NOI), provided the original Owner/Operator was not subject to a sixty business day authorization period that has not expired as of the date the Department receives the NOI from the new Owner/Operator.

E-1: PRE-CONSTRUCTION MEETING DOCUMENTS AND INSPECTION REPORTS

General Project Information			
Project Name	KCE NY 34		
Project Location	Tomsons Rd, Saugerties, NY	**County**	Ulster
SPDES Permit ID No.		**NYSDEC Date of Authorization**	

PRE-CONSTRUCTION SITE ASSESSMENT CHECKLIST

Construction (soil disturbance) shall not commence until all Erosion & Sediment Control Facilities have been installed, inspected, and found acceptable by the Owner/Operator. Add comments below as necessary.

Notice of Intent, SWPPP, and Contractor's Certification		
1.	Has Notice of Intent (NOI) been filed with NYSDEC, MS4 Certification (if applicable) and the NOI Acknowledgment form been received?	☐Yes ☐ No
2.	Is the SWPPP onsite? If yes, where? _____	☐Yes ☐ No
3.	Is the SWPPP current? What is the latest revision date? _____/_____/_____	☐Yes ☐ No
4.	Have all the Contractors involved with stormwater-related activities signed a Contractor's Certification Statement (Appendix E-3)?	☐Yes ☐ No
5.	Has the Contractor's Construction Stabilization Schedule (Appendix E-2) been received?	☐Yes ☐ No
Resource Protection		
6.	Are construction limits clearly flagged or fenced?	☐Yes ☐ No ☐ NA
7.	Have the important trees and associated root zones, onsite septic system absorption fields, existing vegetation areas suitable for filter strips been flagged for protection?	☐Yes ☐ No ☐ NA
8.	Were creek-crossings installed prior to land-disturbing activity?	☐Yes ☐ No ☐ NA
9.	Have wetlands been identified, flagged and protected?	☐Yes ☐ No ☐ NA
Surface Water Protection		
10.	Has runoff from undisturbed areas been diverted away from or around areas to be disturbed?	☐Yes ☐ No ☐ NA
11.	Have bodies of water either onsite or in the vicinity been identified and protected?	☐Yes ☐ No ☐ NA
12.	Have appropriate practices to protect onsite or downstream surface water been installed?	☐Yes ☐ No ☐ NA
13.	Has any grading operation occurred prior to this inspection, except for Erosion & Sediment Control Practices installation?	☐Yes ☐ No ☐ NA
Stabilized Construction Entrance		
14.	Has a temporary construction entrance been installed to prevent mud and debris from entering the public roadway?	☐Yes ☐ No ☐ NA
15.	Have construction routes and equipment parking areas needed to begin construction been stabilized immediately as work takes place, with gravel or other cover?	☐Yes ☐ No ☐ NA
16.	Is there a plan to remove or clean sediment tracked on to public roadways?	☐Yes ☐ No ☐ NA

Sediment Controls		
17.	Does the silt fence material and installation comply with the contract drawing, SWPPP, and specifications?	☐Yes ☐ No ☐ NA
18.	Are silt fences installed at appropriate spacing intervals?	☐Yes ☐ No ☐ NA
19.	Were sediment trapping devices installed as the first land disturbing activity?	☐Yes ☐ No ☐ NA
Waste and Hazardous Material Handling		
20.	Has the Owner and/or Operator or designated representative been assigned to implement the spill prevention avoidance and response approach?	☐Yes ☐ No ☐ NA
21.	Are there appropriate materials to control spills onsite? If yes, where? _____	☐Yes ☐ No ☐ NA

Items that need to be addressed prior to completion of Qualified Inspector's Certification

1.
2.
3.
4.
5.
6.

Qualified Inspector's Credentials and Certification

I hereby certify that I meet the Qualified Inspector criteria set forth in the General Permit and that the appropriate erosion and sediment controls described in the SWPPP and as described this checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction.

Signature: _____

Name (please print): _____

Title: _____ Date: _____

Company Name: _____

Address: _____

Phone: _____ Email: _____

Inspector Qualifications: ☐ PE ☐ RLA ☐ CPESC

4-hour Contractor Training Completed

Card Received: ☐ Yes ☐ No

Expiration Date: _____

E-2: CONSTRUCTION STABILIZATION SCHEDULE

General Project Information			
Project Name	KCE NY 34		
Project Location	Tomsons Rd, Saugerties, NY	**County**	Ulster
SPDES Permit ID No.		**NYSDEC Date of Authorization**	

For portions of the site where soil disturbance activities have temporarily or permanently ceased, stabilization measures must be initiated by the contractor by the end of the next business day and completed within 14 calendar days from the date the current soil disturbance activity ceased. Stabilization must be completed within 7 calendar days if the site current disturbance 5 acres or greater

When construction activity is precluded by snow cover, stabilization measures shall be initiated as soon as practical.

Contractors are responsible to provide a construction schedule for review and approval by the Owner/Operator:

Soil Disturbing Activities	Location	Anticipated Start Date	Anticipated Stabilization Date
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

E-3: CONTRACTOR CERTIFICATION STATEMENT

General Project Information			
Project Name	KCE NY 34		
Project Location	Tomsons Rd, Saugerties, NY	**County**	Ulster
SPDES Permit ID No.		**NYSDEC Date of Authorization**	

Each Contractor/Subcontractor is required to complete this form and sign this certification statement prior to working onsite.

Contractor Information

Contracting Firm: _____

Address: _____

Phone (Office): _____ Job Site (Trailer): _____

Contacts: 1) _____ Mobile: _____

2) _____ Mobile: _____

3) _____ Mobile: _____

Trained Contactor Responsibilities

A Trained Individual is an employee that has received 4 hours of training approved by the NYSDEC, from a Soil and Water Conservation District, from CPESC, Inc., or from another NYSDEC-endorsed entity providing training in proper erosion and sediment control principles. Training must be completed prior to the date that this project commences (prior to project mobilization). After receiving the initial training, the individual shall receive 4 hours of NYSDEC-approved training every 3 years.

Names of Trained Individuals from the Contractor's company that will be responsible for implementing the SWPPP:

Name: _____ Title: _____

Measures Responsible for: 1) _____

2) _____

3) _____

4) _____

Name: _____ Title: _____

Measures Responsible for: 1) _____
2) _____
3) _____
4) _____

Name: _____ Title: _____

Measures Responsible for: 1) _____
2) _____
3) _____
4) _____

Contractor's Certification

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the Qualified Inspector during a site inspection. I also understand that the Owner and/or Operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities, and it is unlawful for any person to cause, or contribute to, a violation of water quality standards.

Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.

I also certify that I have received a copy of the SWPPP and will retain a copy of such SWPPP onsite during construction.

Signature of President, Vice President, or Treasurer DSF

Signature: _____ Date: _____

Print Name: _____ Title: _____

Signature of Responsible Onsite Individual (Must Meet Requirements of Trained Contractor)

Signature: _____ Date: _____

Print Name: _____ Title: _____

APPENDIX F

Stormwater Construction Site Inspection Reports

Stormwater Construction Site Inspection Report Report

General Information			
Project Name	KCE NY 34		
SPDES Permit I.D. No.			
Date of Inspection		Project Location	
Qualified Inspector's Name(s)		Qualified Inspector's Title(s)	
Inspector's Contact Information			
Describe present phase of construction			

Type of Inspection
☐ Weekly ☐ Monthly ☐ Twice Weekly

Weather at time of this inspection?
☐ Sunny ☐ Cloudy ☐ Raining ☐ Snow Cover

Soil Conditions at time of this inspection?
☐ Dry ☐ Wet ☐ Saturated

Are there any discharges at the time of inspection? ☐Yes ☐No

Describe the condition of all points of discharge to natural surface waters and all point of discharge from the construction site located within, or immediately adjacent to the project's property boundaries, which receive runoff from disturbed areas (specifically note if sediment is present):

SWPPP Documentation Compliance		
1.	Has Notice of Intent (NOI) been filed with NYSDEC and the NOI Acknowledgment form been received?	☐Yes ☐No
2.	Is the SWPPP on-site? SWPPP documentation onsite and current	☐Yes ☐No ☐Yes ☐No
3.	Is the Approved Phasing Plan for Disturbance > 5 Acres being followed?	☐Yes ☐No ☐N/A
4.	Is the Project Schedule being followed?	☐Yes ☐No
5.	Any SWPPP revisions? Latest revision date: (list all revisions and dates)	☐Yes ☐No

	BMP/Activity		Maintained? If no, list Corrective Action	List Required Completion Date, Company, and Responsible Person
Disturbance				
1.	Are construction limits and important resource areas clearly flagged or fenced?	☐Yes ☐No ☐N/A	☐Yes ☐No	
2.	Are areas outside the construction limits undergoing disturbance? If yes, explain	☐Yes ☐No		
3.	Has any single area > 5 Acres been disturbed?	☐Yes ☐No	☐Yes ☐No	
4.	Are clearing and grubbing operations minimized to the smallest practicable area?	☐Yes ☐No ☐N/A	☐Yes ☐No	
5.	Has clean stormwater runoff been diverted around areas to be disturbed?	☐Yes ☐No ☐N/A	☐Yes ☐No	
E&SC Practices				
6.	Were the sediment traps installed prior to any land-disturbing activity?	☐Yes ☐No ☐N/A	☐Yes ☐No	
7.	Are stabilized temporary construction entrances and construction staging area(s) in place?	☐Yes ☐No ☐N/A	☐Yes ☐No	
8.	Have construction access roads been properly stabilized?	☐Yes ☐No ☐N/A	☐Yes ☐No	
9.	Is there evidence of sediment being tracked onto the street?	☐Yes ☐No	☐Yes ☐No	
10.	Has silt fence been or other perimeter sediment control barriers been installed?	☐Yes ☐No ☐N/A	☐Yes ☐No	
11.	Are storm drain inlets properly protected?	☐Yes ☐No ☐N/A	☐Yes ☐No	
12.	Are washout facilities for concrete available and clearly marked?	☐Yes ☐No ☐N/A	☐Yes ☐No	
13.	Are temporary and/or permanent check dams in place?	☐Yes ☐No ☐N/A	☐Yes ☐No	
14.	Are top soil and excess excavated material stored in stabilized stock piles?	☐Yes ☐No ☐N/A	☐Yes ☐No	

	BMP/Activity		Maintained? If no, list Corrective Action	List Required Completion Date, Company, and Responsible Person
15.	Are dust control measures being properly implemented?	☐Yes ☐No ☐N/A	☐Yes ☐No	
16.	Were creek crossings installed prior to any land-disturbing activity?	☐Yes ☐No ☐N/A	☐Yes ☐No	
Stabilization				
17.	Are all slopes not being actively worked properly stabilized?	☐Yes ☐No ☐N/A	☐Yes ☐No	
18.	Are soil slopes steeper than 1V: 3H undergoing surface roughening/seed/mulch?	☐Yes ☐No ☐N/A	☐Yes ☐No	
19.	Are disturbed areas stabilized within 14 days?	☐Yes ☐No ☐N/A	☐Yes ☐No	
20.	Is the site adequately stabilized at this time?	☐Yes ☐No	☐Yes ☐No	
Other Best Management Practices				
21.	Are vehicle and equipment fueling, clean-out, and maintenance areas free of spills, leaks, or any other deleterious material?	☐Yes ☐No ☐N/A	☐Yes ☐No	
22.	Are materials that are potential stormwater contaminants stored inside or under cover?	☐Yes ☐No ☐N/A	☐Yes ☐No	
23.	Are appropriate materials to control spill located onsite?	☐Yes ☐No ☐N/A	☐Yes ☐No	
24.	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	☐Yes ☐No ☐N/A	☐Yes ☐No	
25.	Is trash/litter from work areas collected and placed in covered dumpsters?	☐Yes ☐No ☐N/A		
26.	Are any practices listed in the SWPPP missing?	☐Yes ☐No		

Inspector's Signature: _____

Date: _____

APPENDIX G

Post-Construction Maintenance Requirements

General Site Post-Construction Checklist	
Project Name	KCE NY 34
Location	7 Tomsons Rd Saugerties, NY
Site Status	

	Maintenance Task	Frequency	Task Completed By & Date
1.	Inspect drainage inlets and remove debris	Monthly	
2.	Remove sediment from catch basin and sediment basins when design capacity is reduced by 50%	Bi-Annually (Spring & Fall)	
3.	Clean and vacuum porous pavement areas and filter strips	Bi-Annually (Spring & Fall)	
4.	Inspect swales, riprap outlet protection and stormwater practices. Remove debris and repair or restabilize areas as necessary.	Bi-Annually (Spring & Fall)	
5.	Complete stormwater practice specific (i.e. bioretention area, stormwater pond, etc.) Operation and Maintenance Check List	Bi-Annually (Spring & Fall)	
6.	Inspect site for areas of poor vegetative cover. Apply top soil, seed and mulch as necessary to revegetate.	Bi-Annually (Spring & Fall)	
7.	Inspect culverts and remove obstructions.	Annually (Spring)	
8.	Sweep paved surfaces	Annually (Spring)	
9.	Removed vegetative debris and fallen trees from buffers and undisturbed areas	Annually (Spring)	

Actions to be Taken:

_____

_____

_____

_____

_____

_____

Inspector's Signature: _____

Post-Construction Operation & Maintenance – Alternative Substation Cross-Section			
Project Name	KCE NY 34		
Location	7 Tomsons Rd Saugerties, NY		
Site Status			
Date		**Inspector's Name**	

	Maintenance Item	Satisfactory/ Unsatisfactory	Comments
Substation Surface & Side Slopes (Spring and Fall)			
1.	Area is free of sediment and debris	☐ Satisfactory ☐ Unsatisfactory	
2.	Area is free of ponded water	☐ Satisfactory ☐ Unsatisfactory	
3.	Side slopes are free of erosion and evidence of weeping water	☐ Satisfactory ☐ Unsatisfactory	
4.	Observation wells are free of water (check when there has been more than 24 hours since last rain event)	☐ Satisfactory ☐ Unsatisfactory	
5.	Inspect for any other signs of infiltration system failing	☐ Satisfactory ☐ Unsatisfactory	

Actions to be Taken:

_____

_____

_____

_____

_____

_____

Inspector's Signature: _____

APPENDIX H

Stormwater Management Memorandum

Stormwater Management Memorandum

To:	KCE NY 34, LLC
Copies To:	Project Manager
From:	Samuel Schneider, PE
Date:	July 31, 2026
Reference:	SWPPP Appendix H - Stormwater Management Memorandum KCE NY 34
EDR Project No:	22055

Memorandum Contents:

1. Project Introduction
2. Methodology
3. Pre-Construction Site Conditions
4. Post-Construction Site Conditions and Stormwater Management
5. Attachments
   a. Attachment 1 - Watershed Maps
      - EX-01 Existing Drainage Map
      - PR-01 Proposed Drainage Map
   b. Attachment 2 – Watershed Hydrologic Modeling Reports (Pre & Post Construction)
   c. Attachment 3 – Water Quality, RRv, SMP and Alternative Practice Calculations and Sizing
   d. Attachment 4 – Geotechnical Report

Project Introduction:

This memorandum describes the post-construction stormwater management for the KCE NY 34 Battery Storage Project. The KCE NY 34 Battery Storage is located on 7 Tomsons Rd in the town of Saugerties in Ulster County.

Methodology:

Stormwater modeling was completed using HydroCAD 10.20-5c. This software was used to perform a Natural Resource Conservation Service (NRCS) Technical Release No. 20 (TR-20) hydrologic analysis of each of the drainage areas. NRCS TR-20 is a computation methodology that develops a sequence of rainfall distributions to predict peak runoffs for a watershed that has been characterized by the Technical Release 55 (TR-55) procedures.

Pre-Construction Site Conditions:

The Pre-Construction condition of the 59.8 acre project site is a mixture of commercial and forest use. The soils for the site are mostly Hydrologic Soil Group (HSG) C (See Appendix C of the SWPPP for Web Soil Survey Reports). Four Points of Analysis (POAs) were selected for the site in the Pre-Construction Condition, including:

- POA 1 – Runoff from the northern portion of the site (Watershed E-1) flows north overland before discharging offsite where it flows to Sawyer Kill Creek and ultimately the Hudson River

- POA 2 – Runoff from the southern portion of the site (Watershed E-2) flows south overland before discharging onto the adjacent property and entering the MS4 storm sewer network. It ultimately discharges to the Hudson River.
- POA 3 – Runoff from the northeastern portion of the site (Watershed E-3) flows north overland before discharging to an isolated wetland.
- POA 4 – Runoff from the Eastern portion of the site (Watershed E-4) flows southeast overland before discharging onto the adjacent property and entering the MS4 storm sewer network. It ultimately discharges to the Hudson River.

Post-Construction Site Conditions and Stormwater Management:

The post-construction condition of the site is battery energy storage use. The post-construction condition of the four POAs are described below:

- POA 1 – Runoff from the northern portion of the site (Watershed P-1 and a portion of P-5 in storm events greater than the 100-year event) flows north overland before discharging offsite where it flows to Sawyer Kill Creek and ultimately the Hudson River.
- POA 2 – Runoff from the southern portion of the site (Watershed P-2 and a portion of P-5 in storm events greater than the 100-year event) flows south overland before discharging onto the adjacent property and entering the MS4 storm sewer network. It ultimately discharges to the Hudson River.
- POA 3 – Runoff from the northeastern portion of the site (Watershed P-3) flows north overland before discharging to a wetland.
- POA 4 – Runoff from the Eastern portion of the site (Watershed P-4 and P-4.1) flows southeast overland before discharging onto the adjacent property and entering the MS4 storm sewer network. It ultimately discharges to the Hudson River.

There is one alternative cross section area that provides WQv and RRv for the site through complete infiltration. Calculations for the infiltration area are in Attachment 3. CPv, Qp, and Qf is provided through the alternative cross section via complete infiltration. The cross section complies with infiltration practice design requirements of the 2024 NYS Stormwater Design Manual. A summary of the stormwater management is shown in Table 1.

Alternative Cross Section Sizing

The stormwater management cross section was sized by using HydroCAD to determine the storage volume needed to infiltrate the runoff generated from the 100-year storm. Shown in the sizing sheet, 36,738 CF of storage provided the volume required to maintain the water level below the top of storage elevation of 211.5. The stone has a porosity of 0.4 so the volume of stone required to provide that water storage volume is roughly 92,000 CF. An overflow structure was not provided as the practice has been designed to store and infiltrate the 100-year storm.

Rock Separation

Based on the geotechnical report, it is possible that rock will be encountered during the excavation required to place the stone reservoir course. Chapter 6 of the Stormwater design manual requires a 2’ separation from bedrock to the bottom of an infiltration practice. If bedrock is encountered in the designed reservoir course footprint within 2 feet of the bottom elevation, the footprint may be adjusted to add additional reservoir course under the standard cross section area equal to the volume displaced by the rock condition.

Table 1 – Water Quality Treatment Analysis

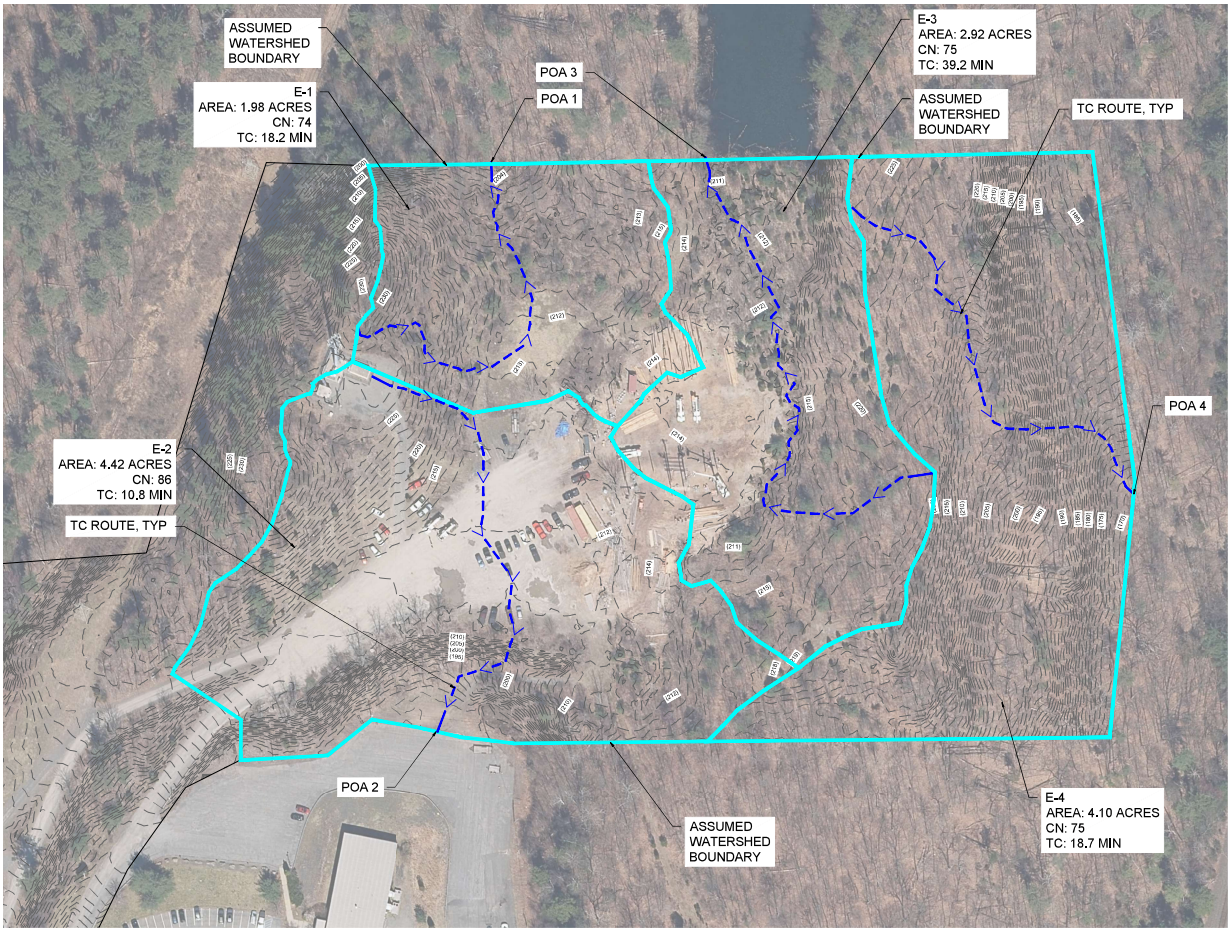
Area Tributary to	Total Disturbed Impervious Area	Total New Impervious Area	Required WQv	Required RRv	Impervious Area Treated by SMP	Total RRv Provided	Total WQv Provided	Stormwater Practice Providing RRv & WQv
	(ACRE)	(ACRE)	(CU-FT)	(CU-FT)	(ACRE)	(CU-FT)	(CU-FT)	
Entire Site	1.97	1.625	10,977	1,917	3.46	17,903	17,903	Infiltration

Table 2 - Point of Analysis - Comparison of Pre and Post Construction Conditions

Point of Analysis (POA)	Site Condition	1 Year	10 Year	100 Year
		Peak Flow (cfs)	Peak Flow (cfs)	Peak Flow (cfs)
POA 1	Post-Construction	0.94	3.55	9.01
	Pre-Construction	1.37	4.96	12.36
	Difference	-0.43	-1.41	-3.35
POA 2	Post-Construction	4.18	11.24	24.31
	Pre-Construction	8.64	20.56	41.73
	Difference	-4.46	-9.32	-17.42
POA 3	Post-Construction	0.55	2.24	5.85
	Pre-Construction	1.31	4.67	11.60
	Difference	-0.76	-2.43	-5.75
POA 4	Post-Construction	3.00	10.59	26.11
	Pre-Construction	3.04	10.54	25.76
	Difference	-0.04	0.05	0.35
eNOI	Post-Construction	8.43	26.99	63.92
	Pre-Construction	12.44	35.55	80.24
	Difference	-4.01	-8.56	-16.32

Attachment 1

Watershed Maps



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GRAPHIC SCALE (IN FEET)

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

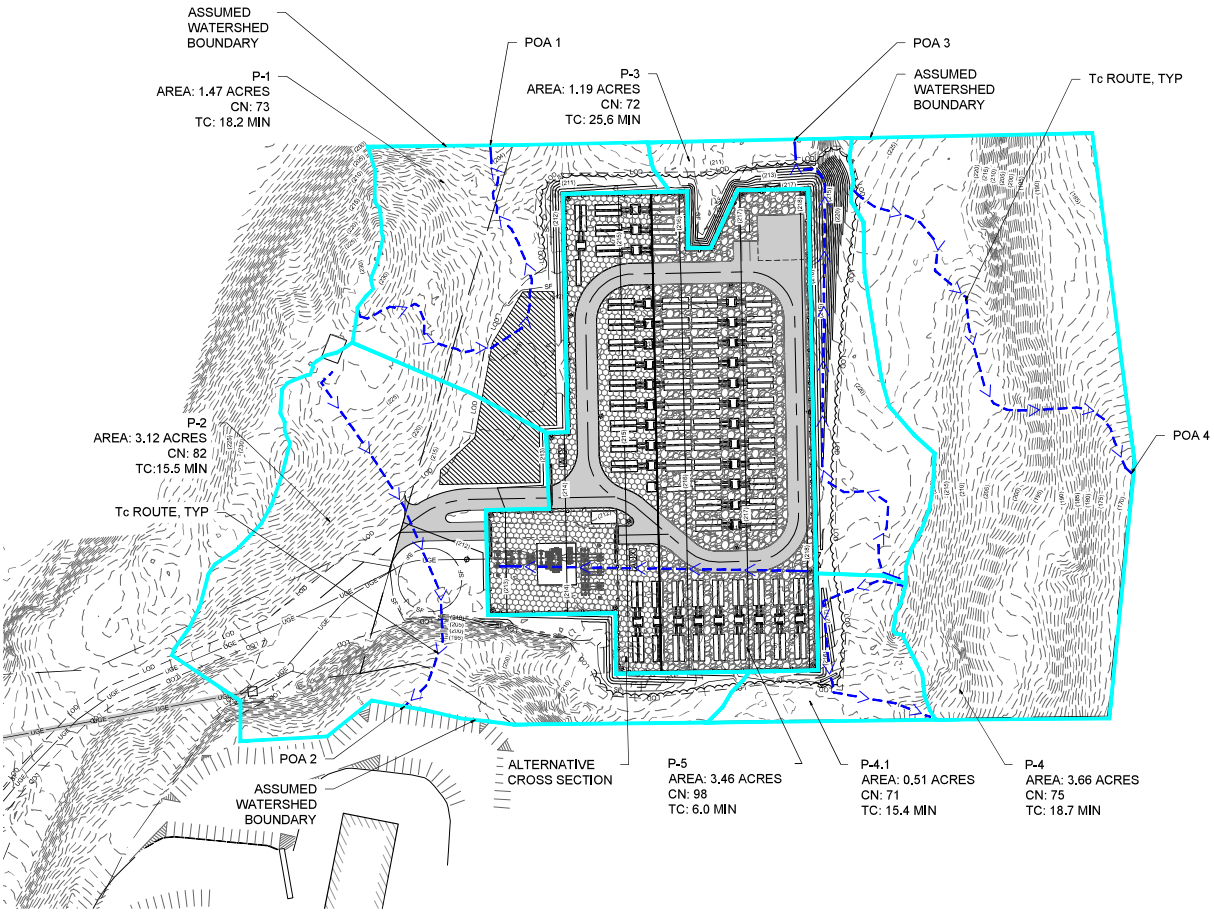
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DRAWING TITLE: **EXISTING DRAINAGE MAP**

DRAWING ISSUED FOR / REVISIONS					
NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1					
2					
3					
4					
5					
6					

EDR JOB#: 22055
DATE: DECEMBER 8, 2025
SCALE: 1" = 50'
DRAWN BY: MKR
CHECKED BY: ZR
DRAWING NUMBER: **EX-01**



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1/8/2026

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PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**

PROJECT LOCATION: TONSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY

CLIENT: KEY CAPTURE ENERGY, LLC

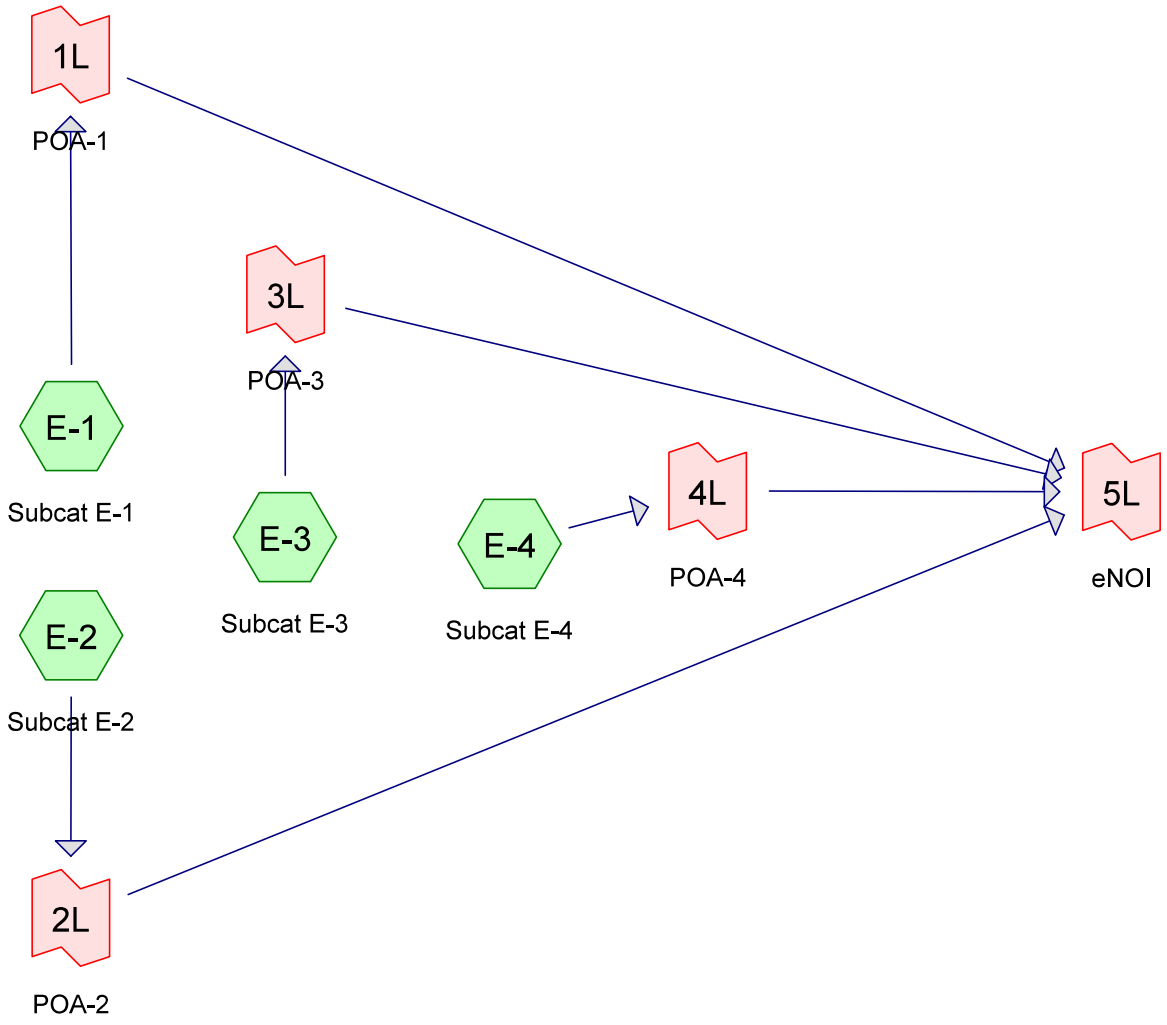
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EDR JOB#: 22055
DATE: DECEMBER 8, 2025
SCALE: 1" = 50'
DRAWN BY: MKR
CHECKED BY: ZR
DRAWING NUMBER: **PR-01**

Attachment 2

Watershed Hydrologic Modeling Reports
(Pre and Post-Construction)



Subcat Reach Pond Link

Routing Diagram for 22055 Existing Conditions
Prepared by Environmental Design & Research, Printed 12/19/2025
HydroCAD® 10.20-5c s/n 10386 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.501	74	>75% Grass cover, Good, HSG C (E-1, E-2, E-3, E-4)
0.884	80	>75% Grass cover, Good, HSG D (E-1, E-2, E-4)
1.344	98	Paved parking, HSG C (E-1, E-2, E-3)
1.134	98	Paved parking, HSG D (E-1, E-2)
5.358	70	Woods, Good, HSG C (E-1, E-2, E-3, E-4)
4.186	77	Woods, Good, HSG D (E-1, E-2, E-3, E-4)
13.407	**78**	**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: Subcat E-1 Runoff Area=1.977 ac 7.39% Impervious Runoff Depth=0.67"
Flow Length=454' Tc=18.2 min CN=74 Runoff=1.37 cfs 0.110 af

Subcatchment E-2: Subcat E-2 Runoff Area=4.420 ac 41.10% Impervious Runoff Depth=1.33"
Flow Length=519' Tc=10.8 min CN=86 Runoff=8.64 cfs 0.488 af

Subcatchment E-3: Subcat E-3 Runoff Area=2.914 ac 17.67% Impervious Runoff Depth=0.71"
Flow Length=651' Tc=39.2 min CN=75 Runoff=1.31 cfs 0.172 af

Subcatchment E-4: Subcat E-4 Runoff Area=4.095 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=514' Tc=18.7 min CN=75 Runoff=3.04 cfs 0.242 af

Link 1L: POA-1 Inflow=1.37 cfs 0.110 af
Primary=1.37 cfs 0.110 af

Link 2L: POA-2 Inflow=8.64 cfs 0.488 af
Primary=8.64 cfs 0.488 af

Link 3L: POA-3 Inflow=1.31 cfs 0.172 af
Primary=1.31 cfs 0.172 af

Link 4L: POA-4 Inflow=3.04 cfs 0.242 af
Primary=3.04 cfs 0.242 af

Link 5L: eNOI Inflow=12.44 cfs 1.012 af
Primary=12.44 cfs 1.012 af

Total Runoff Area = 13.407 ac Runoff Volume = 1.012 af Average Runoff Depth = 0.91"
81.52% Pervious = 10.929 ac 18.48% Impervious = 2.478 ac

Summary for Subcatchment E-1: Subcat E-1

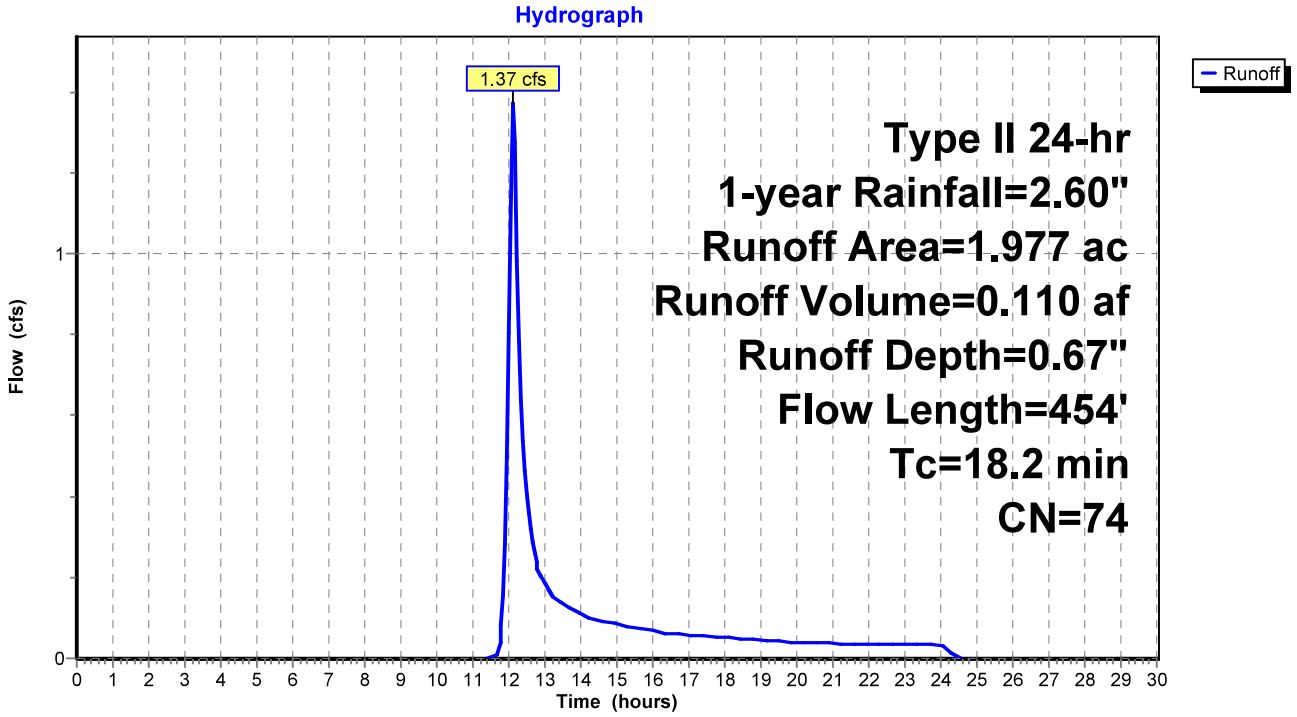
Runoff = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af, Depth= 0.67"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.206	77	Woods, Good, HSG D
1.214	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.123	98	Paved parking, HSG C
0.002	98	Paved parking, HSG C
0.394	74	>75% Grass cover, Good, HSG C
0.008	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.020	98	Paved parking, HSG D
1.977	74	Weighted Average
1.831		92.61% Pervious Area
0.146		7.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment E-1: Subcat E-1



Summary for Subcatchment E-2: Subcat E-2

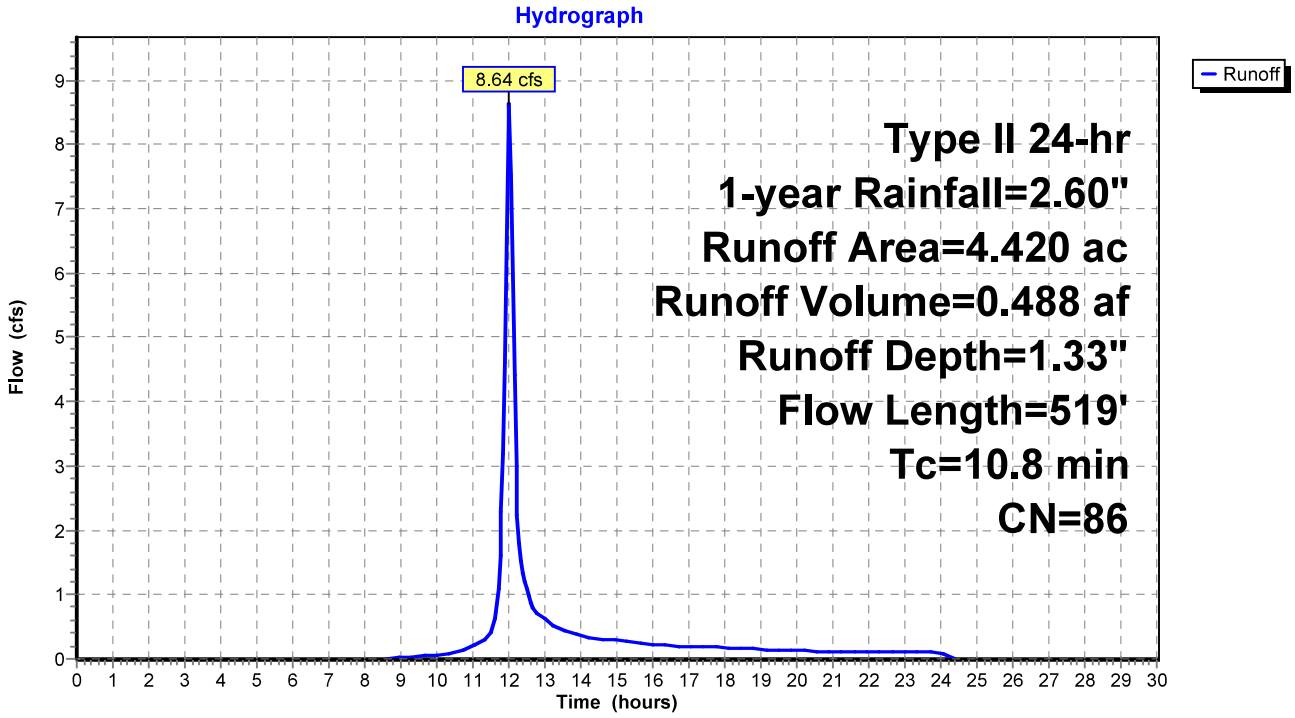
Runoff = 8.64 cfs @ 12.03 hrs, Volume= 0.488 af, Depth= 1.33"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.703	98	Paved parking, HSG C
0.079	77	Woods, Good, HSG D
0.325	77	Woods, Good, HSG D
0.861	77	Woods, Good, HSG D
0.416	70	Woods, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.024	74	>75% Grass cover, Good, HSG C
0.010	74	>75% Grass cover, Good, HSG C
0.019	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.165	80	>75% Grass cover, Good, HSG D
0.556	80	>75% Grass cover, Good, HSG D
0.030	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.038	98	Paved parking, HSG D
0.047	98	Paved parking, HSG D
1.028	98	Paved parking, HSG D
4.420	86	Weighted Average
2.603		58.90% Pervious Area
1.817		41.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.1	17	0.1471	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
5.4	52	0.1730	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.4	25	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	49	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	193	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	34	0.4118	3.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	118	0.0847	1.46		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	519	Total			

Subcatchment E-2: Subcat E-2



Summary for Subcatchment E-3: Subcat E-3

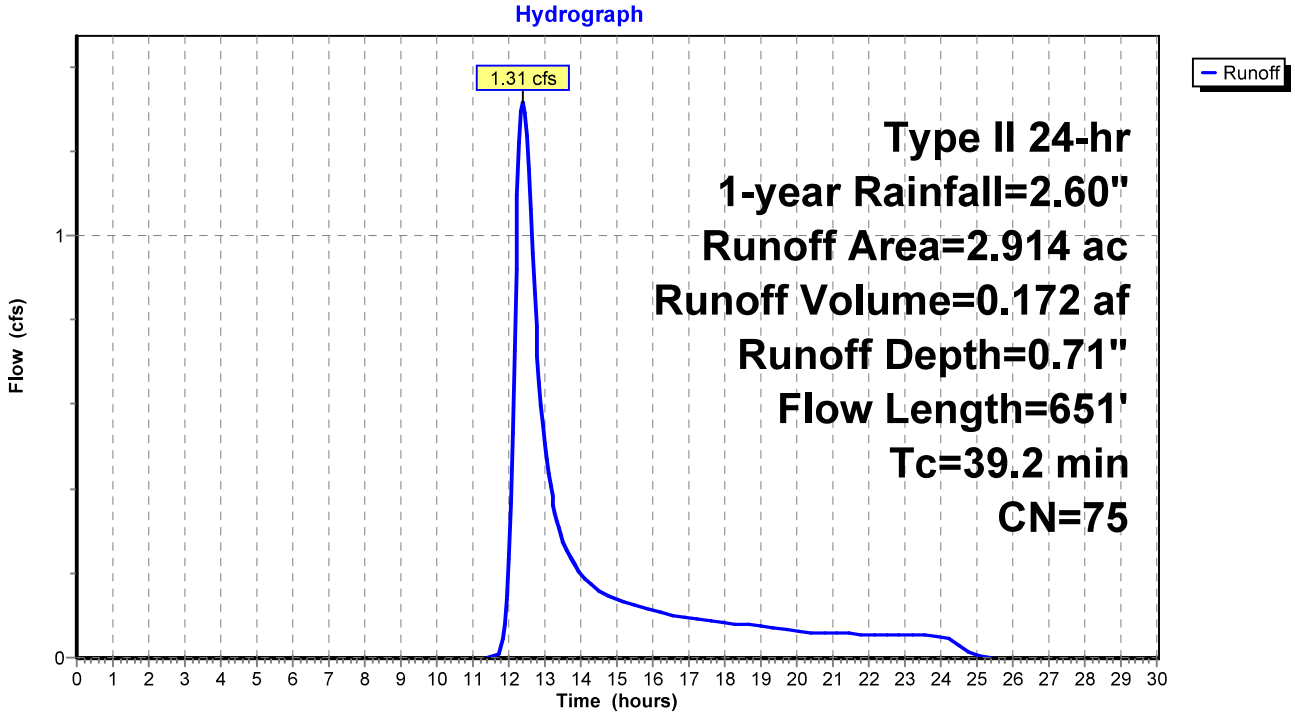
Runoff = 1.31 cfs @ 12.40 hrs, Volume= 0.172 af, Depth= 0.71"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
2.347	70	Woods, Good, HSG C
0.515	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.053	74	>75% Grass cover, Good, HSG C
0.000	77	Woods, Good, HSG D
2.914	75	Weighted Average
2.400		82.33% Pervious Area
0.515		17.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
17.6	551	0.0109	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
39.2	651	Total			

Subcatchment E-3: Subcat E-3



Summary for Subcatchment E-4: Subcat E-4

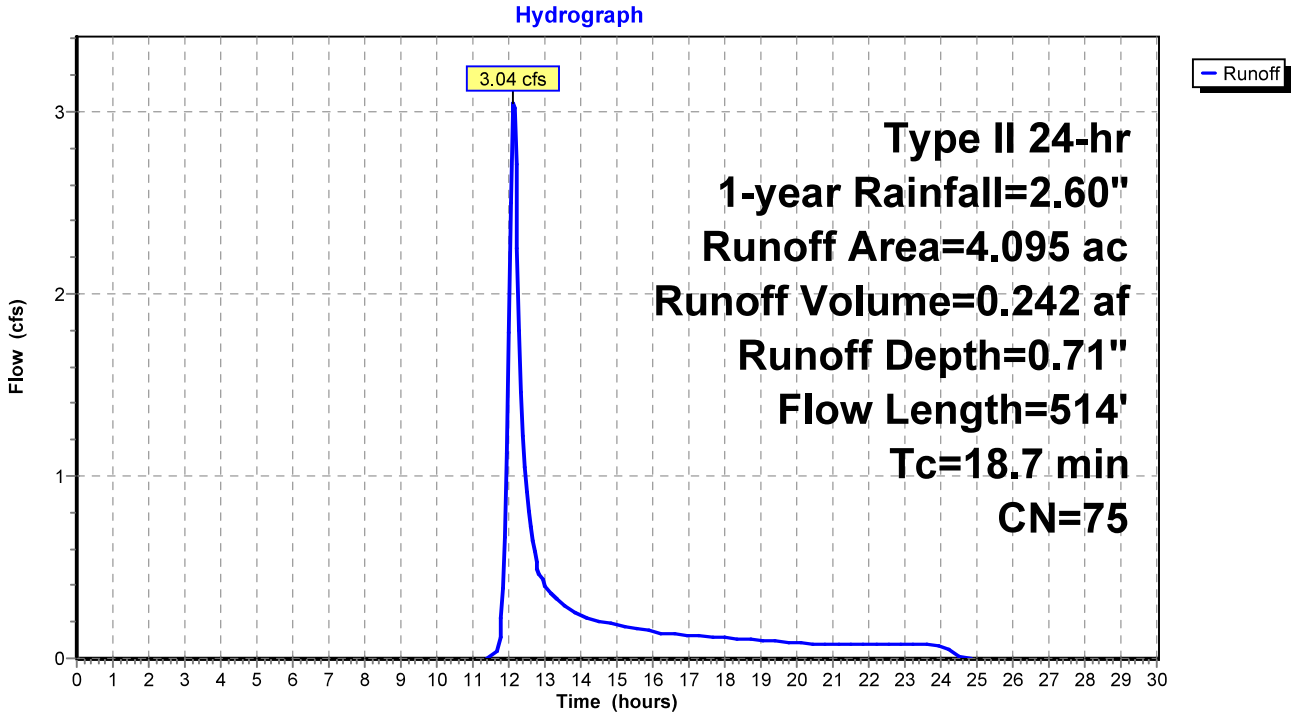
Runoff = 3.04 cfs @ 12.13 hrs, Volume= 0.242 af, Depth= 0.71"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.000	74	>75% Grass cover, Good, HSG C
1.381	70	Woods, Good, HSG C
2.715	77	Woods, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
4.095	75	Weighted Average
4.095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment E-4: Subcat E-4

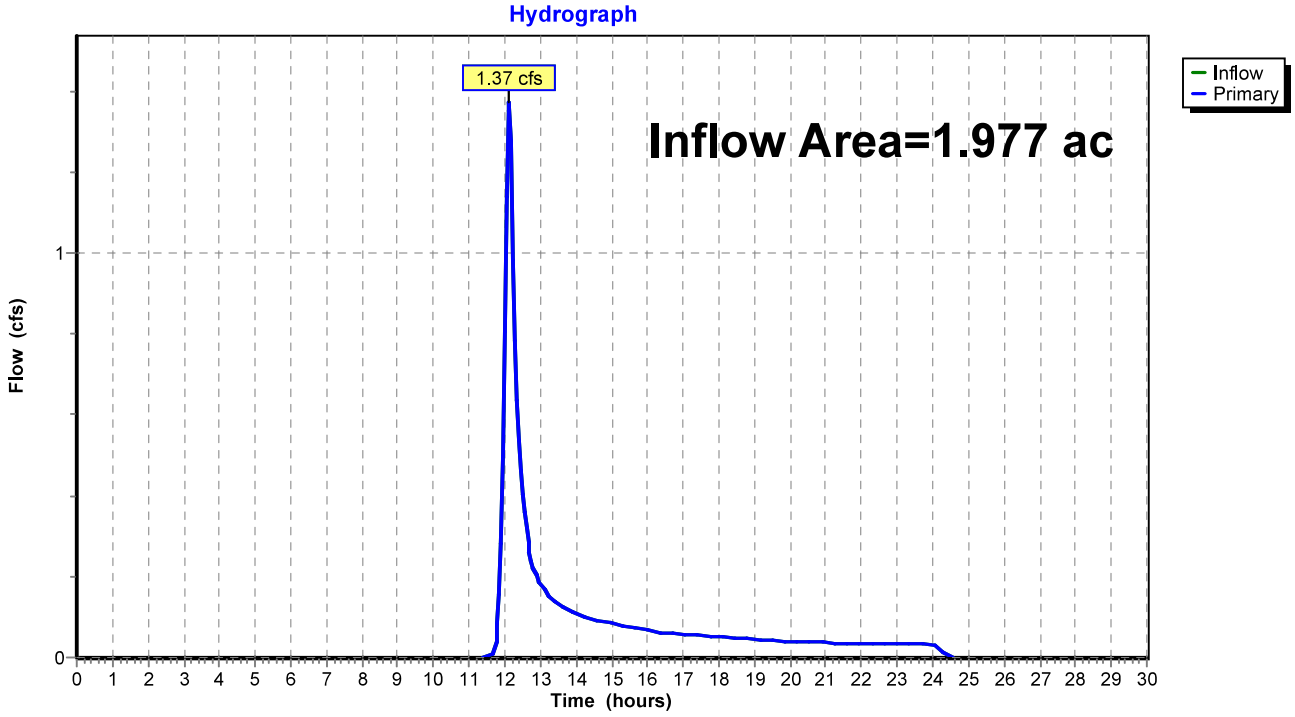


Summary for Link 1L: POA-1

Inflow Area = 1.977 ac, 7.39% Impervious, Inflow Depth = 0.67" for 1-year event
Inflow = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af
Primary = 1.37 cfs @ 12.13 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

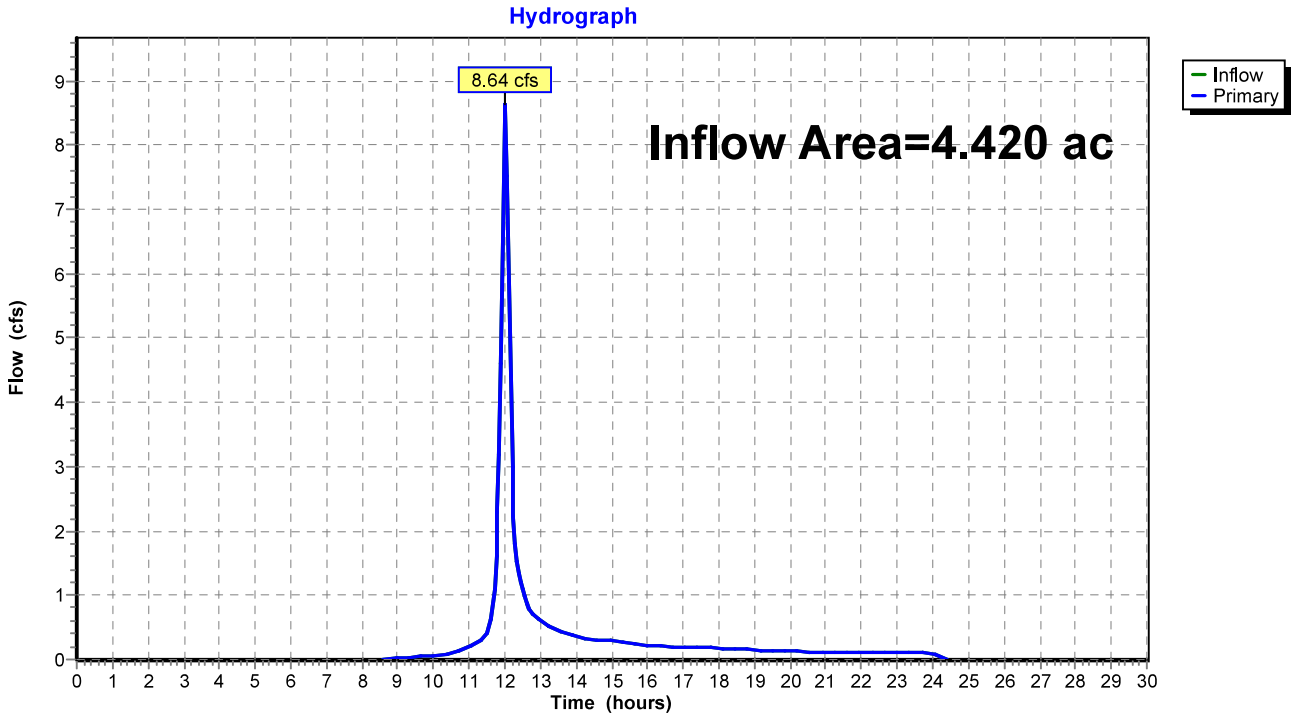


Summary for Link 2L: POA-2

Inflow Area = 4.420 ac, 41.10% Impervious, Inflow Depth = 1.33" for 1-year event
Inflow = 8.64 cfs @ 12.03 hrs, Volume= 0.488 af
Primary = 8.64 cfs @ 12.03 hrs, Volume= 0.488 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

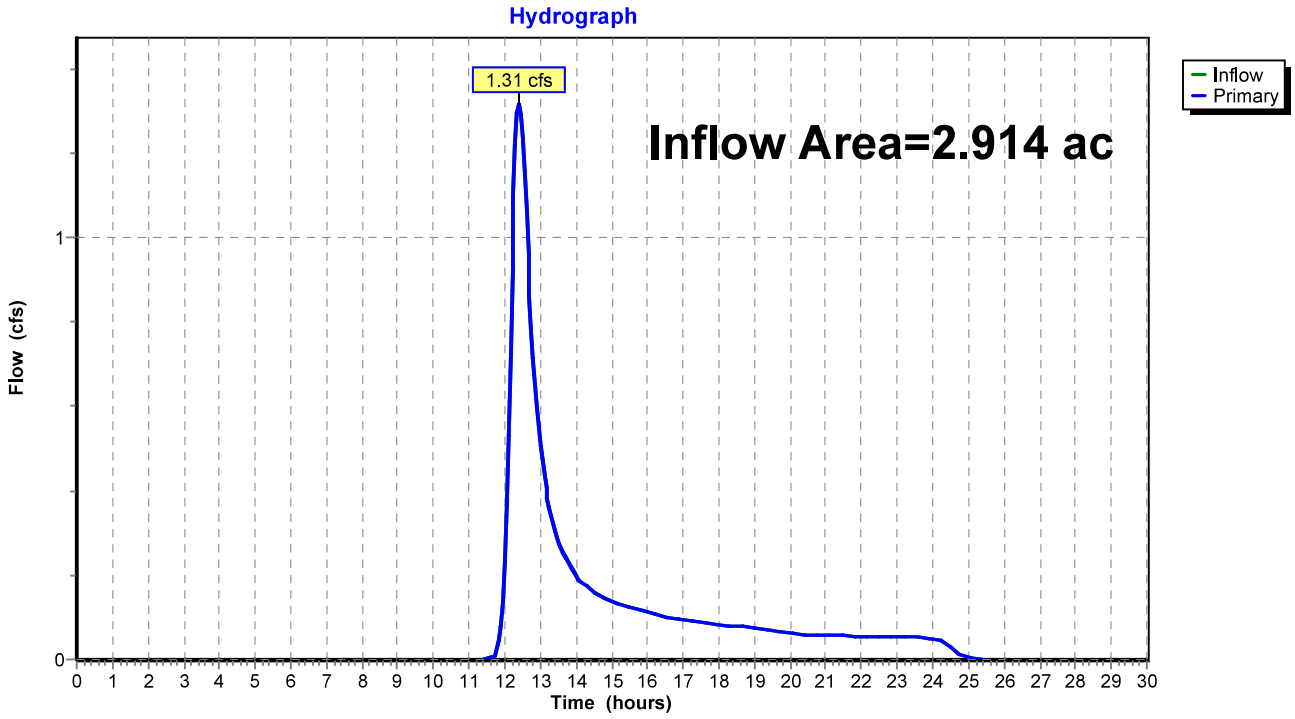


Summary for Link 3L: POA-3

Inflow Area = 2.914 ac, 17.67% Impervious, Inflow Depth = 0.71" for 1-year event
Inflow = 1.31 cfs @ 12.40 hrs, Volume= 0.172 af
Primary = 1.31 cfs @ 12.40 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

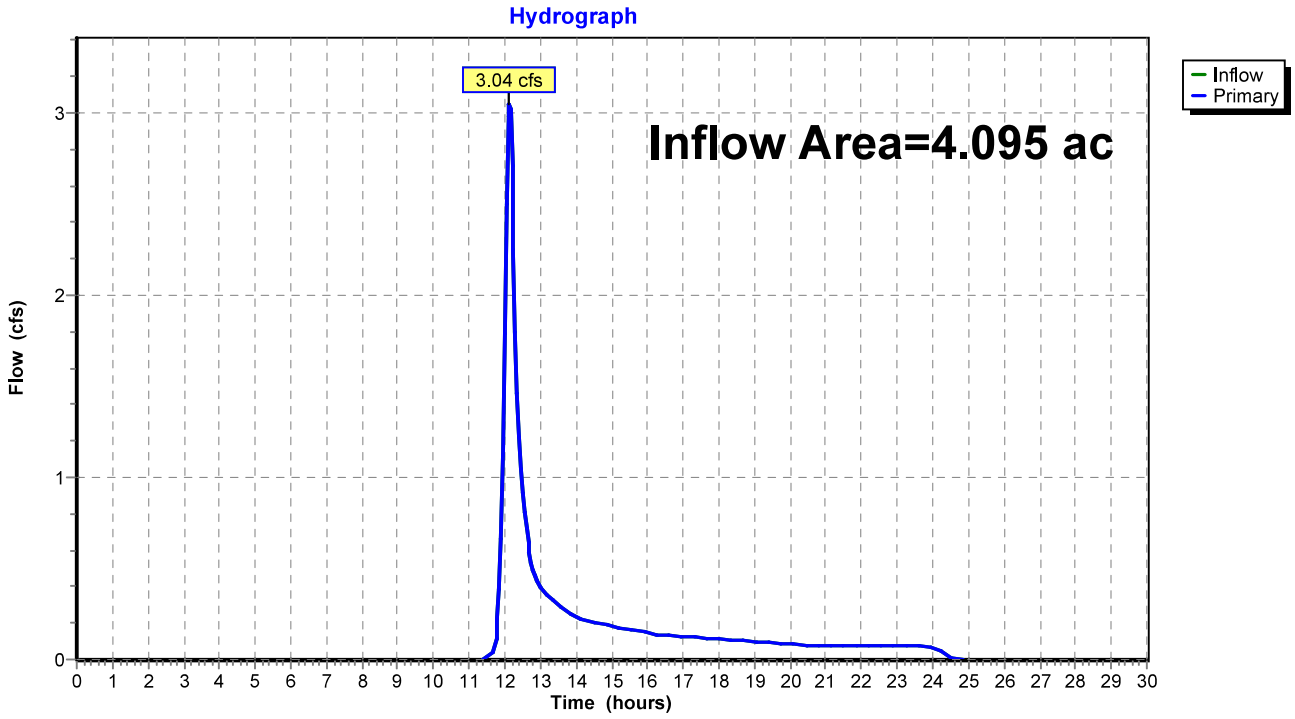


Summary for Link 4L: POA-4

Inflow Area = 4.095 ac, 0.00% Impervious, Inflow Depth = 0.71" for 1-year event
Inflow = 3.04 cfs @ 12.13 hrs, Volume= 0.242 af
Primary = 3.04 cfs @ 12.13 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

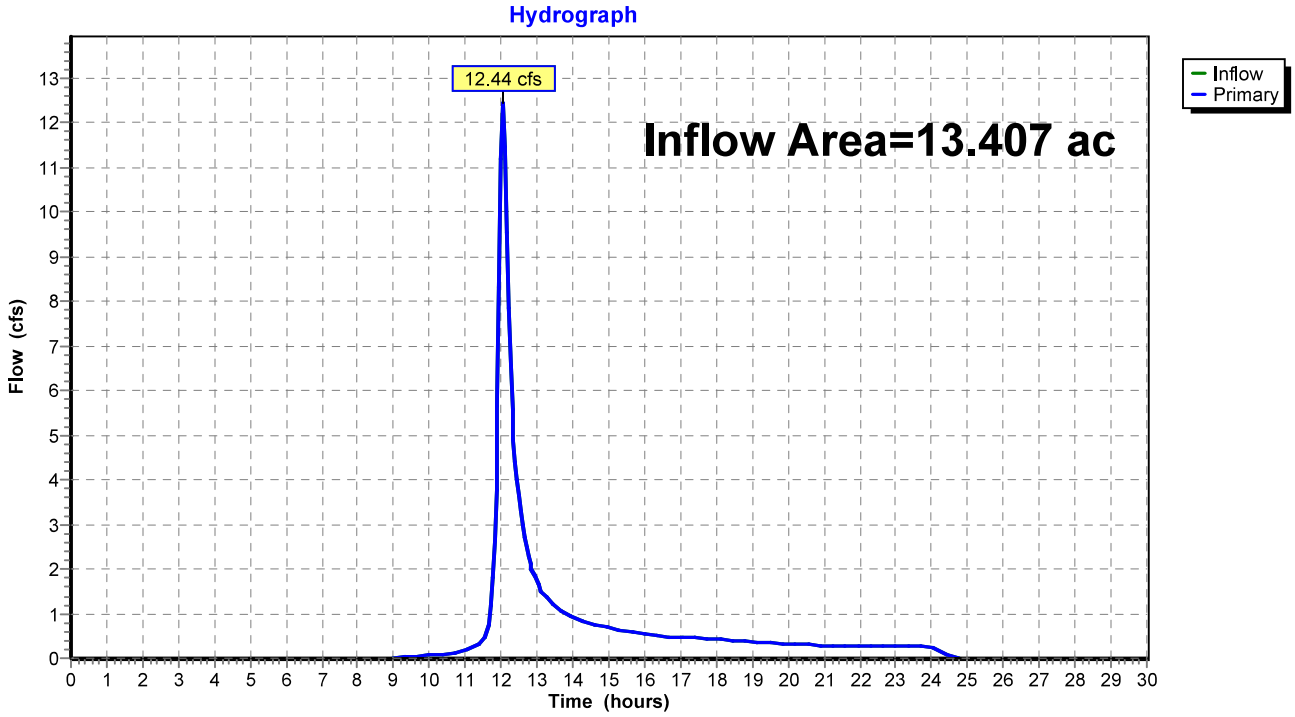


Summary for Link 5L: eNOI

Inflow Area = 13.407 ac, 18.48% Impervious, Inflow Depth = 0.91" for 1-year event
Inflow = 12.44 cfs @ 12.05 hrs, Volume= 1.012 af
Primary = 12.44 cfs @ 12.05 hrs, Volume= 1.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: Subcat E-1 Runoff Area=1.977 ac 7.39% Impervious Runoff Depth=2.17"
Flow Length=454' Tc=18.2 min CN=74 Runoff=4.96 cfs 0.357 af

Subcatchment E-2: Subcat E-2 Runoff Area=4.420 ac 41.10% Impervious Runoff Depth=3.23"
Flow Length=519' Tc=10.8 min CN=86 Runoff=20.56 cfs 1.191 af

Subcatchment E-3: Subcat E-3 Runoff Area=2.914 ac 17.67% Impervious Runoff Depth=2.25"
Flow Length=651' Tc=39.2 min CN=75 Runoff=4.67 cfs 0.546 af

Subcatchment E-4: Subcat E-4 Runoff Area=4.095 ac 0.00% Impervious Runoff Depth=2.25"
Flow Length=514' Tc=18.7 min CN=75 Runoff=10.54 cfs 0.767 af

Link 1L: POA-1 Inflow=4.96 cfs 0.357 af
Primary=4.96 cfs 0.357 af

Link 2L: POA-2 Inflow=20.56 cfs 1.191 af
Primary=20.56 cfs 1.191 af

Link 3L: POA-3 Inflow=4.67 cfs 0.546 af
Primary=4.67 cfs 0.546 af

Link 4L: POA-4 Inflow=10.54 cfs 0.767 af
Primary=10.54 cfs 0.767 af

Link 5L: eNOI Inflow=35.55 cfs 2.862 af
Primary=35.55 cfs 2.862 af

Total Runoff Area = 13.407 ac Runoff Volume = 2.862 af Average Runoff Depth = 2.56"
81.52% Pervious = 10.929 ac 18.48% Impervious = 2.478 ac

Summary for Subcatchment E-1: Subcat E-1

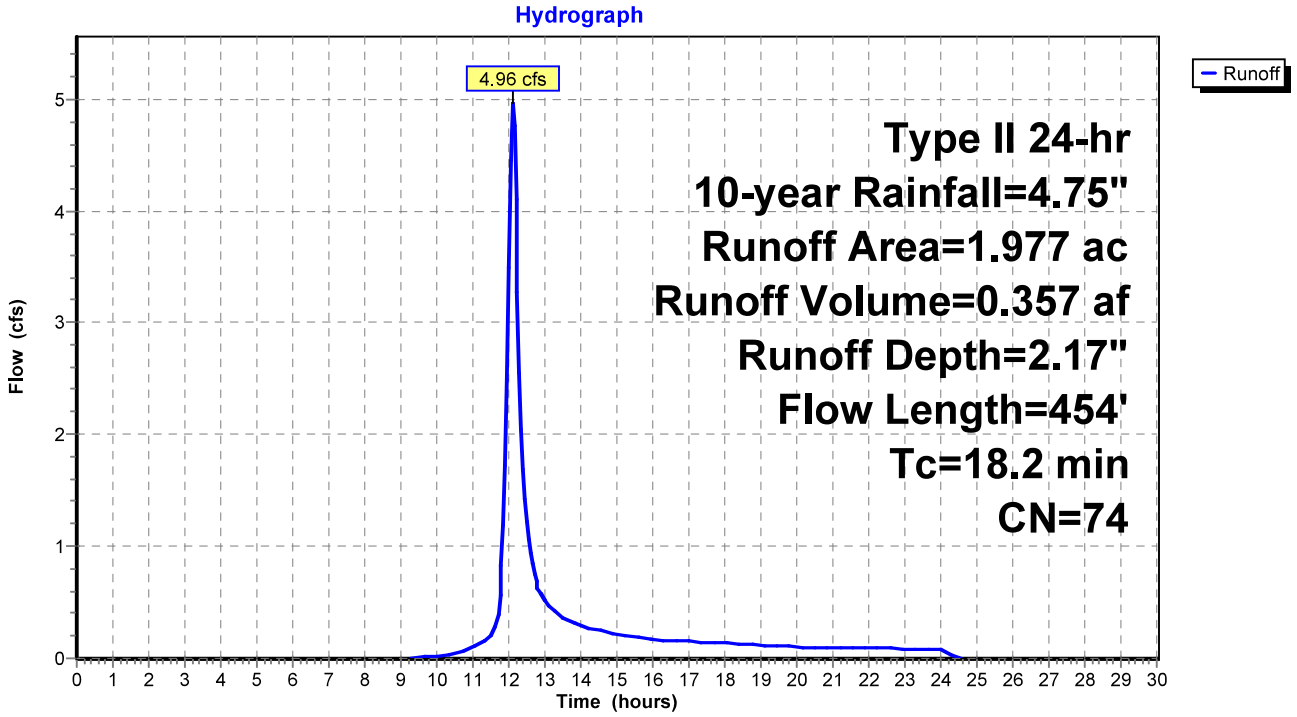
Runoff = 4.96 cfs @ 12.11 hrs, Volume= 0.357 af, Depth= 2.17"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.206	77	Woods, Good, HSG D
1.214	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.123	98	Paved parking, HSG C
0.002	98	Paved parking, HSG C
0.394	74	>75% Grass cover, Good, HSG C
0.008	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.020	98	Paved parking, HSG D
1.977	74	Weighted Average
1.831		92.61% Pervious Area
0.146		7.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment E-1: Subcat E-1



Summary for Subcatchment E-2: Subcat E-2

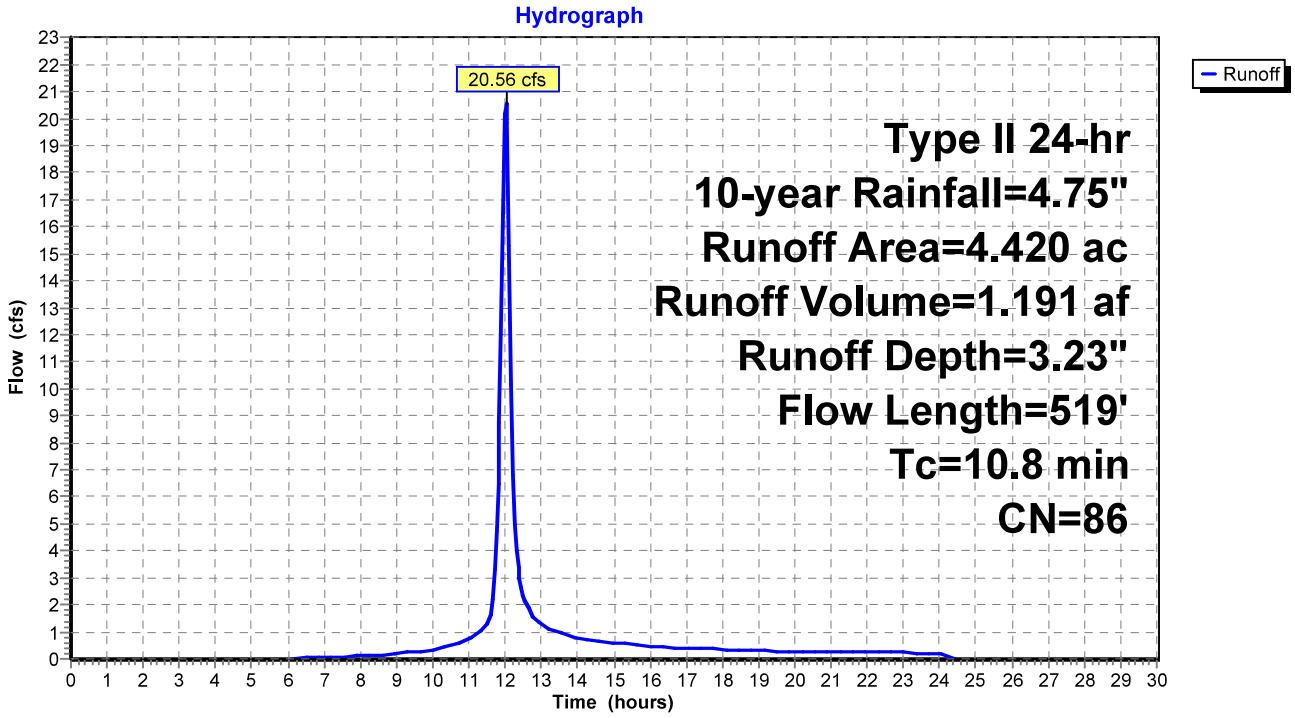
Runoff = 20.56 cfs @ 12.02 hrs, Volume= 1.191 af, Depth= 3.23"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.703	98	Paved parking, HSG C
0.079	77	Woods, Good, HSG D
0.325	77	Woods, Good, HSG D
0.861	77	Woods, Good, HSG D
0.416	70	Woods, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.024	74	>75% Grass cover, Good, HSG C
0.010	74	>75% Grass cover, Good, HSG C
0.019	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.165	80	>75% Grass cover, Good, HSG D
0.556	80	>75% Grass cover, Good, HSG D
0.030	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.038	98	Paved parking, HSG D
0.047	98	Paved parking, HSG D
1.028	98	Paved parking, HSG D
4.420	86	Weighted Average
2.603		58.90% Pervious Area
1.817		41.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.1	17	0.1471	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
5.4	52	0.1730	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.4	25	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	49	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	193	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	34	0.4118	3.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	118	0.0847	1.46		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	519	Total			

Subcatchment E-2: Subcat E-2



Summary for Subcatchment E-3: Subcat E-3

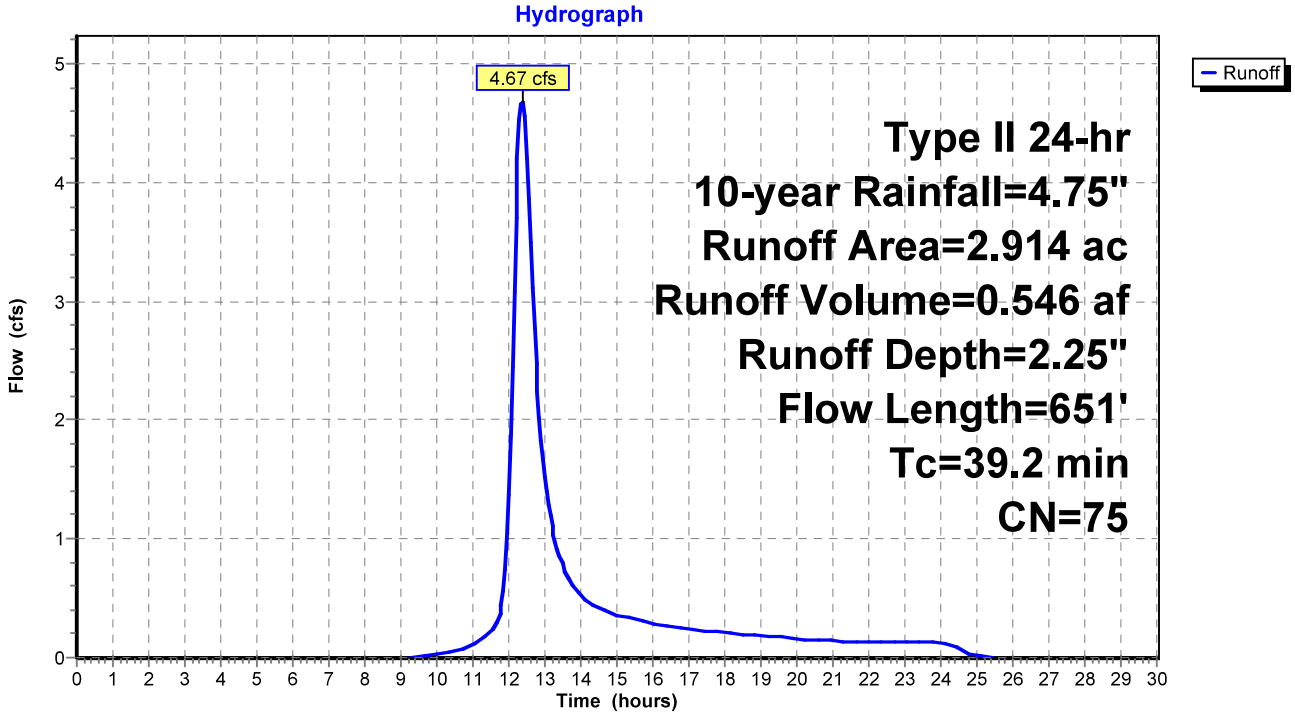
Runoff = 4.67 cfs @ 12.37 hrs, Volume= 0.546 af, Depth= 2.25"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
2.347	70	Woods, Good, HSG C
0.515	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.053	74	>75% Grass cover, Good, HSG C
0.000	77	Woods, Good, HSG D
2.914	75	Weighted Average
2.400		82.33% Pervious Area
0.515		17.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
17.6	551	0.0109	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
39.2	651	Total			

Subcatchment E-3: Subcat E-3



Summary for Subcatchment E-4: Subcat E-4

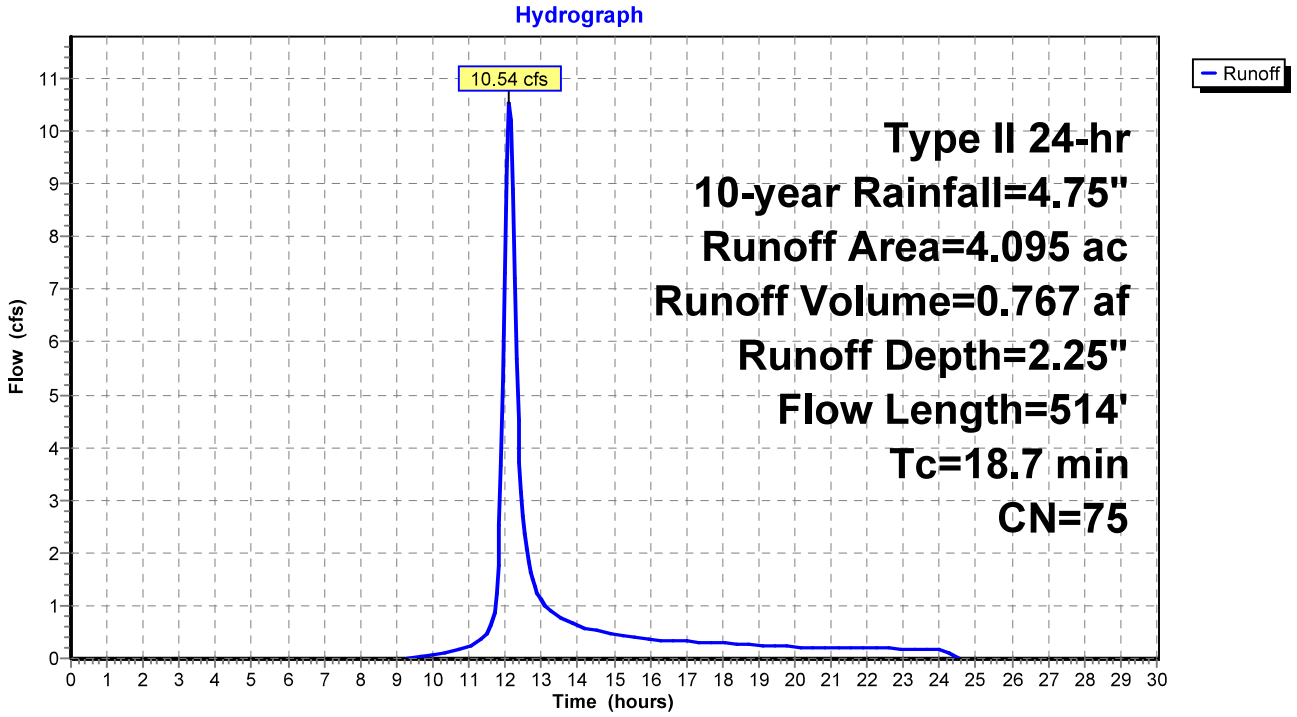
Runoff = 10.54 cfs @ 12.12 hrs, Volume= 0.767 af, Depth= 2.25"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.000	74	>75% Grass cover, Good, HSG C
1.381	70	Woods, Good, HSG C
2.715	77	Woods, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
4.095	75	Weighted Average
4.095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment E-4: Subcat E-4

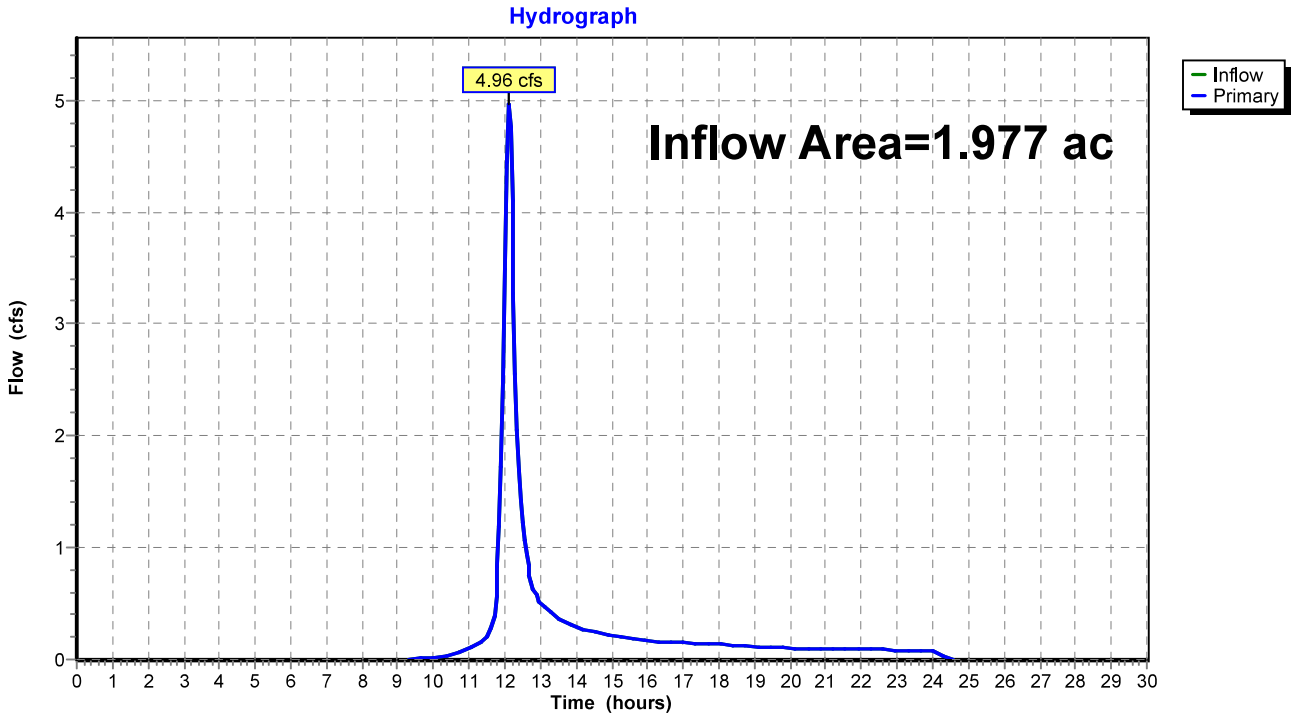


Summary for Link 1L: POA-1

Inflow Area = 1.977 ac, 7.39% Impervious, Inflow Depth = 2.17" for 10-year event
Inflow = 4.96 cfs @ 12.11 hrs, Volume= 0.357 af
Primary = 4.96 cfs @ 12.11 hrs, Volume= 0.357 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

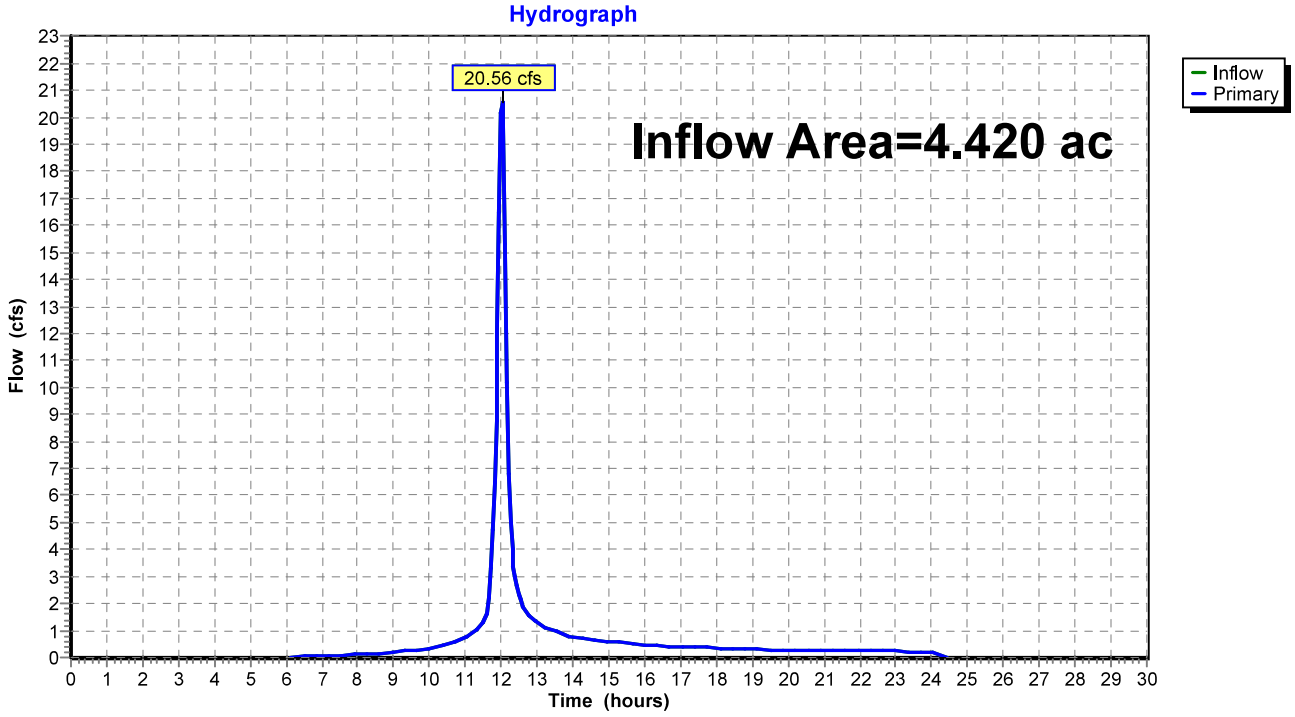


Summary for Link 2L: POA-2

Inflow Area = 4.420 ac, 41.10% Impervious, Inflow Depth = 3.23" for 10-year event
Inflow = 20.56 cfs @ 12.02 hrs, Volume= 1.191 af
Primary = 20.56 cfs @ 12.02 hrs, Volume= 1.191 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

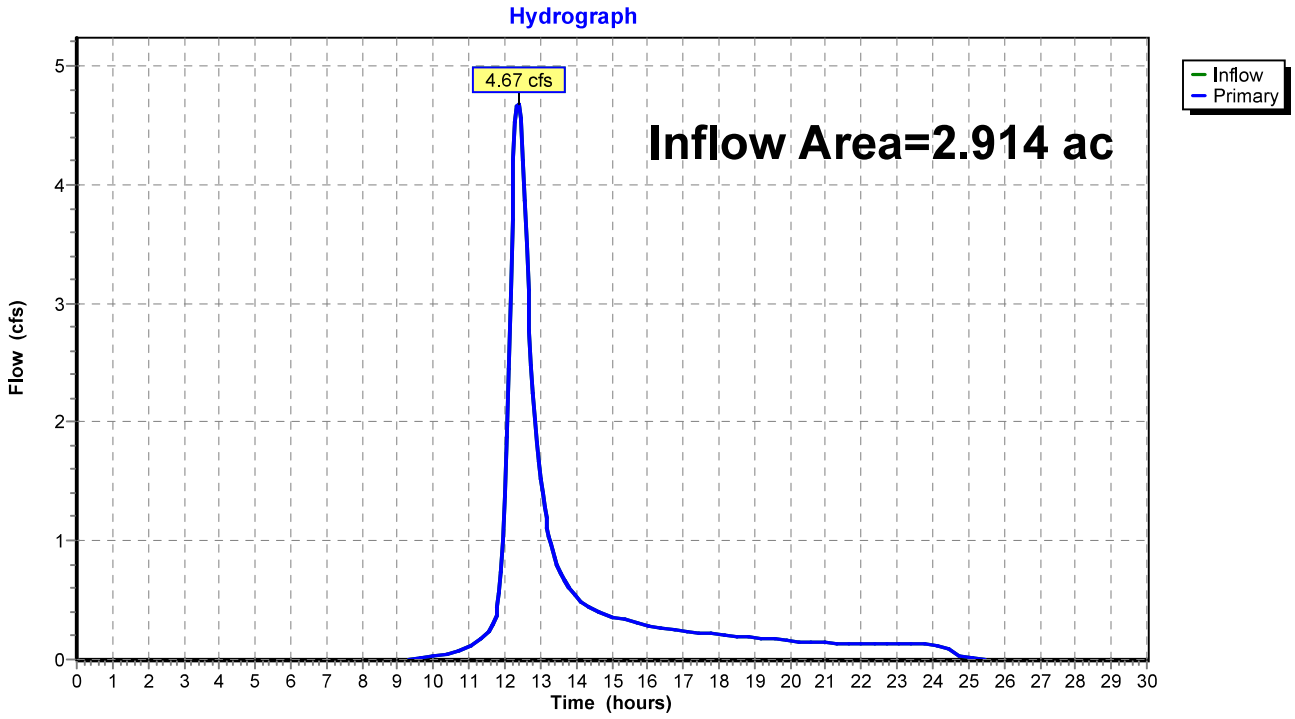


Summary for Link 3L: POA-3

Inflow Area = 2.914 ac, 17.67% Impervious, Inflow Depth = 2.25" for 10-year event
Inflow = 4.67 cfs @ 12.37 hrs, Volume= 0.546 af
Primary = 4.67 cfs @ 12.37 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

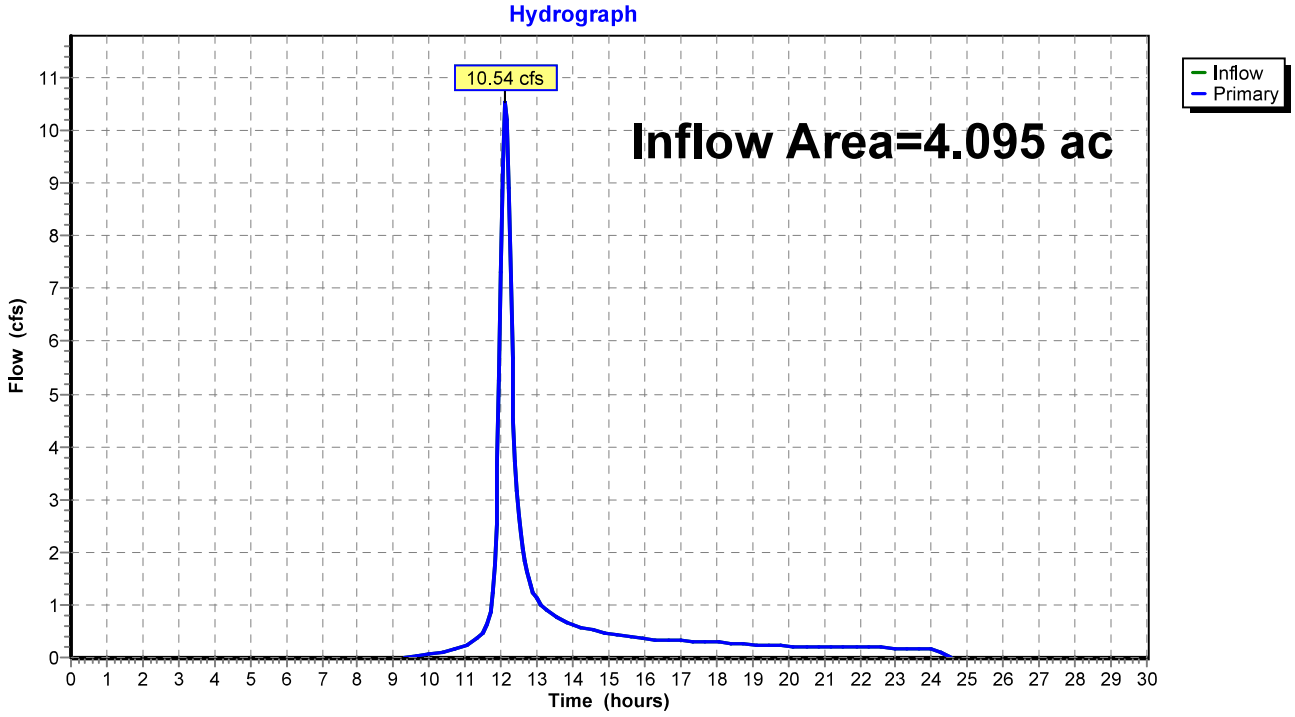


Summary for Link 4L: POA-4

Inflow Area = 4.095 ac, 0.00% Impervious, Inflow Depth = 2.25" for 10-year event
Inflow = 10.54 cfs @ 12.12 hrs, Volume= 0.767 af
Primary = 10.54 cfs @ 12.12 hrs, Volume= 0.767 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

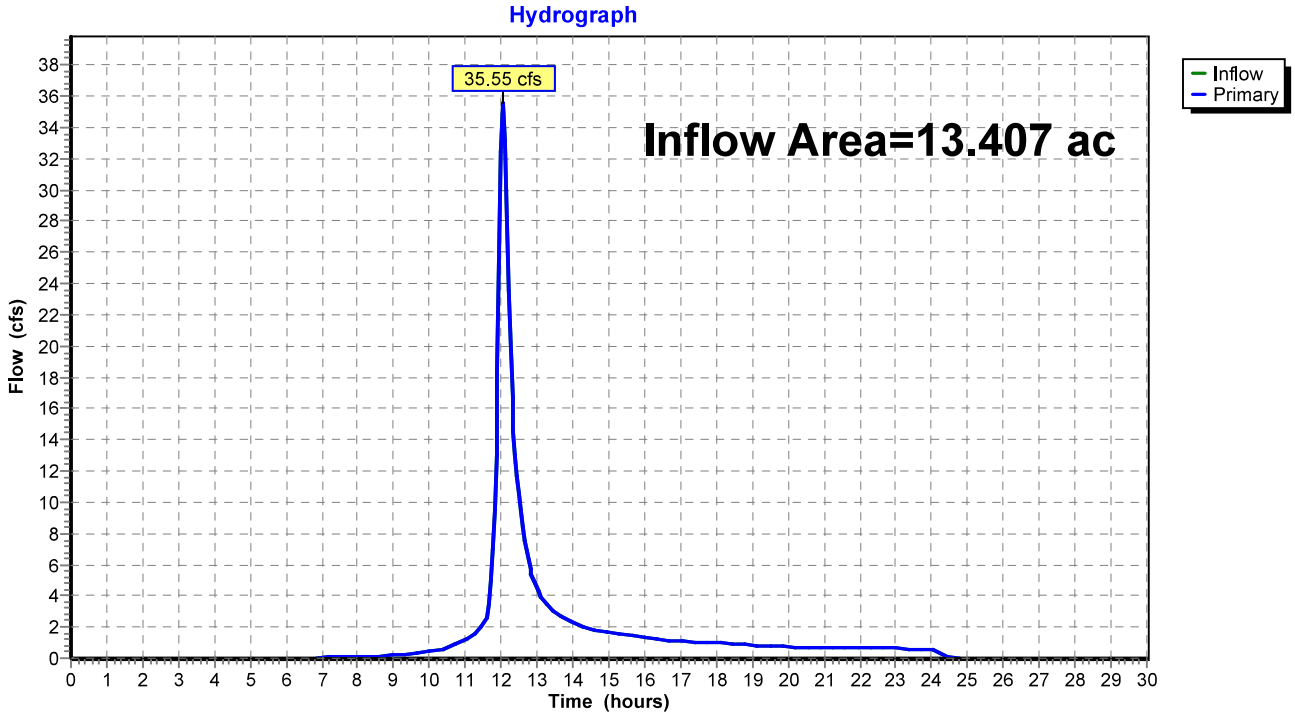


Summary for Link 5L: eNOI

Inflow Area = 13.407 ac, 18.48% Impervious, Inflow Depth = 2.56" for 10-year event
Inflow = 35.55 cfs @ 12.05 hrs, Volume= 2.862 af
Primary = 35.55 cfs @ 12.05 hrs, Volume= 2.862 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: Subcat E-1 Runoff Area=1.977 ac 7.39% Impervious Runoff Depth=5.38"
Flow Length=454' Tc=18.2 min CN=74 Runoff=12.36 cfs 0.887 af

Subcatchment E-2: Subcat E-2 Runoff Area=4.420 ac 41.10% Impervious Runoff Depth=6.83"
Flow Length=519' Tc=10.8 min CN=86 Runoff=41.73 cfs 2.515 af

Subcatchment E-3: Subcat E-3 Runoff Area=2.914 ac 17.67% Impervious Runoff Depth=5.50"
Flow Length=651' Tc=39.2 min CN=75 Runoff=11.60 cfs 1.337 af

Subcatchment E-4: Subcat E-4 Runoff Area=4.095 ac 0.00% Impervious Runoff Depth=5.50"
Flow Length=514' Tc=18.7 min CN=75 Runoff=25.76 cfs 1.878 af

Link 1L: POA-1 Inflow=12.36 cfs 0.887 af
Primary=12.36 cfs 0.887 af

Link 2L: POA-2 Inflow=41.73 cfs 2.515 af
Primary=41.73 cfs 2.515 af

Link 3L: POA-3 Inflow=11.60 cfs 1.337 af
Primary=11.60 cfs 1.337 af

Link 4L: POA-4 Inflow=25.76 cfs 1.878 af
Primary=25.76 cfs 1.878 af

Link 5L: eNOI Inflow=80.24 cfs 6.617 af
Primary=80.24 cfs 6.617 af

Total Runoff Area = 13.407 ac Runoff Volume = 6.617 af Average Runoff Depth = 5.92"
81.52% Pervious = 10.929 ac 18.48% Impervious = 2.478 ac

Summary for Subcatchment E-1: Subcat E-1

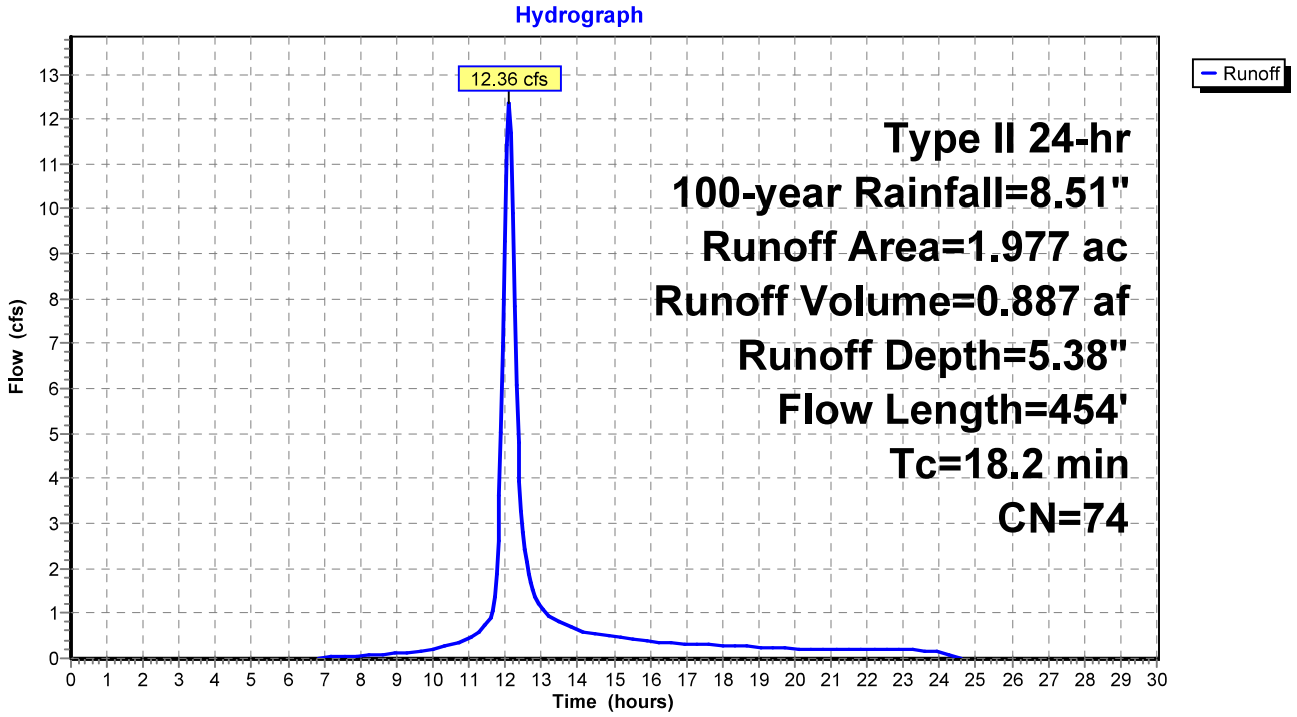
Runoff = 12.36 cfs @ 12.10 hrs, Volume= 0.887 af, Depth= 5.38"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.206	77	Woods, Good, HSG D
1.214	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.123	98	Paved parking, HSG C
0.002	98	Paved parking, HSG C
0.394	74	>75% Grass cover, Good, HSG C
0.008	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.008	80	>75% Grass cover, Good, HSG D
0.020	98	Paved parking, HSG D
1.977	74	Weighted Average
1.831		92.61% Pervious Area
0.146		7.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment E-1: Subcat E-1



Summary for Subcatchment E-2: Subcat E-2

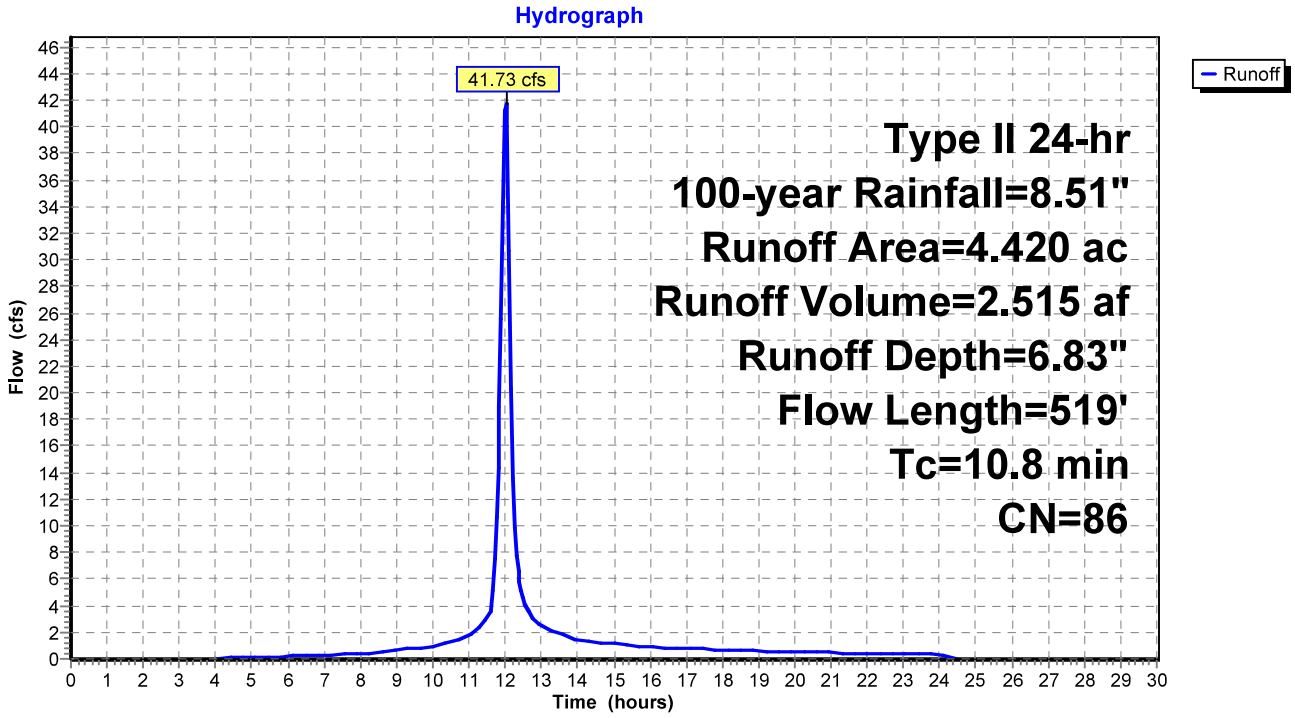
Runoff = 41.73 cfs @ 12.02 hrs, Volume= 2.515 af, Depth= 6.83"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.703	98	Paved parking, HSG C
0.079	77	Woods, Good, HSG D
0.325	77	Woods, Good, HSG D
0.861	77	Woods, Good, HSG D
0.416	70	Woods, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.024	74	>75% Grass cover, Good, HSG C
0.010	74	>75% Grass cover, Good, HSG C
0.019	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.165	80	>75% Grass cover, Good, HSG D
0.556	80	>75% Grass cover, Good, HSG D
0.030	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.038	98	Paved parking, HSG D
0.047	98	Paved parking, HSG D
1.028	98	Paved parking, HSG D
4.420	86	Weighted Average
2.603		58.90% Pervious Area
1.817		41.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0320	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.1	17	0.1471	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
5.4	52	0.1730	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.4	25	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	49	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.3	193	0.0155	2.53		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	34	0.4118	3.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	118	0.0847	1.46		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	519	Total			

Subcatchment E-2: Subcat E-2



Summary for Subcatchment E-3: Subcat E-3

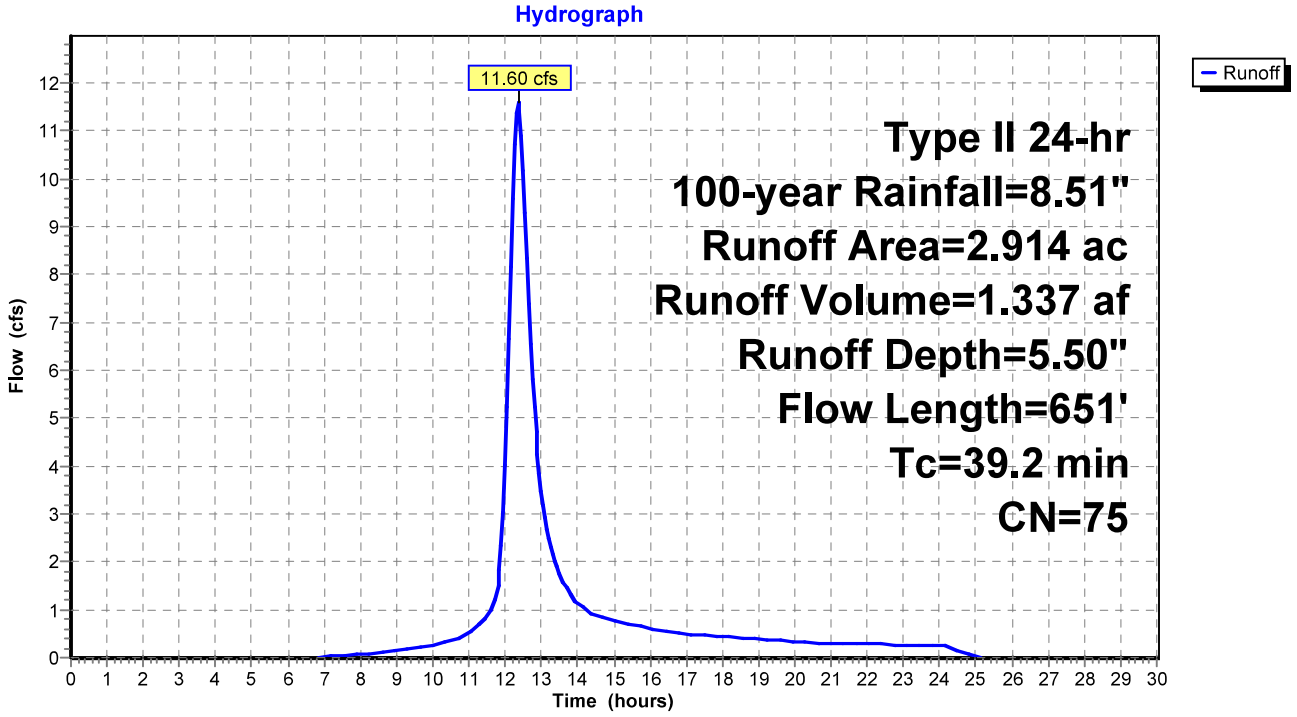
Runoff = 11.60 cfs @ 12.35 hrs, Volume= 1.337 af, Depth= 5.50"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
2.347	70	Woods, Good, HSG C
0.515	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.053	74	>75% Grass cover, Good, HSG C
0.000	77	Woods, Good, HSG D
2.914	75	Weighted Average
2.400		82.33% Pervious Area
0.515		17.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.6	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
17.6	551	0.0109	0.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
39.2	651	Total			

Subcatchment E-3: Subcat E-3



Summary for Subcatchment E-4: Subcat E-4

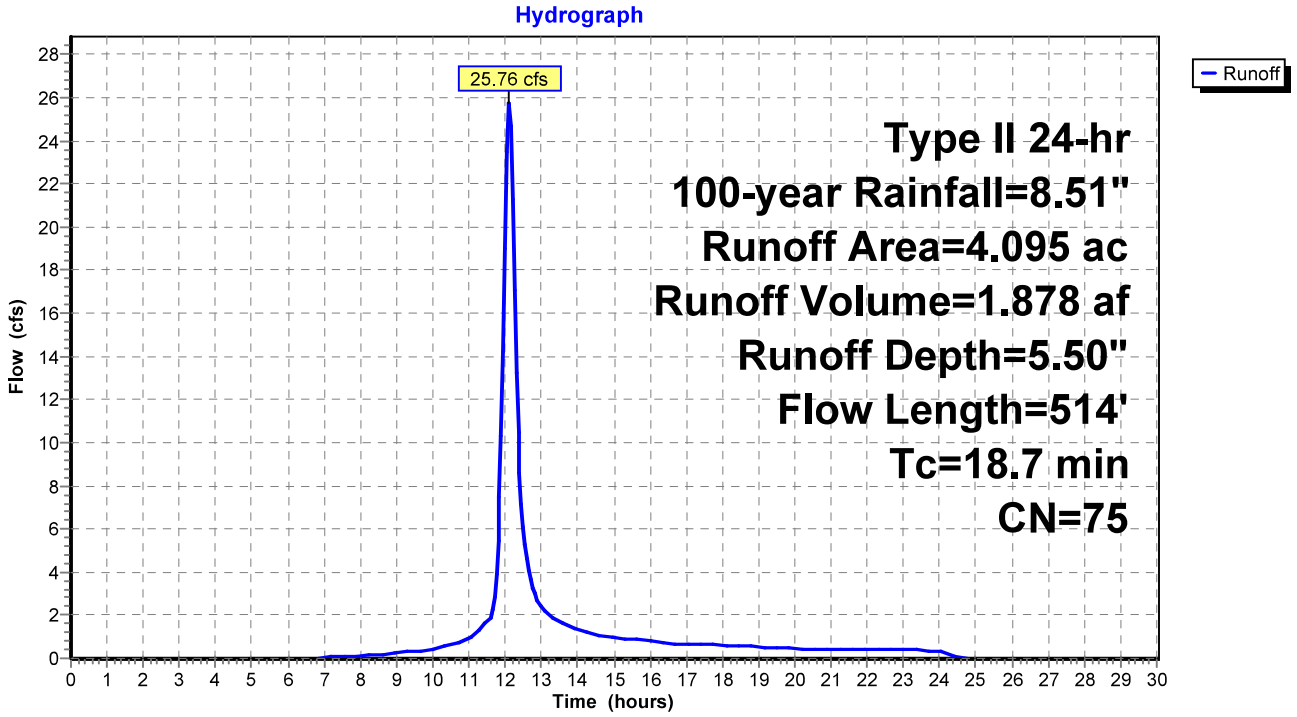
Runoff = 25.76 cfs @ 12.11 hrs, Volume= 1.878 af, Depth= 5.50"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.000	74	>75% Grass cover, Good, HSG C
1.381	70	Woods, Good, HSG C
2.715	77	Woods, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
4.095	75	Weighted Average
4.095		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment E-4: Subcat E-4

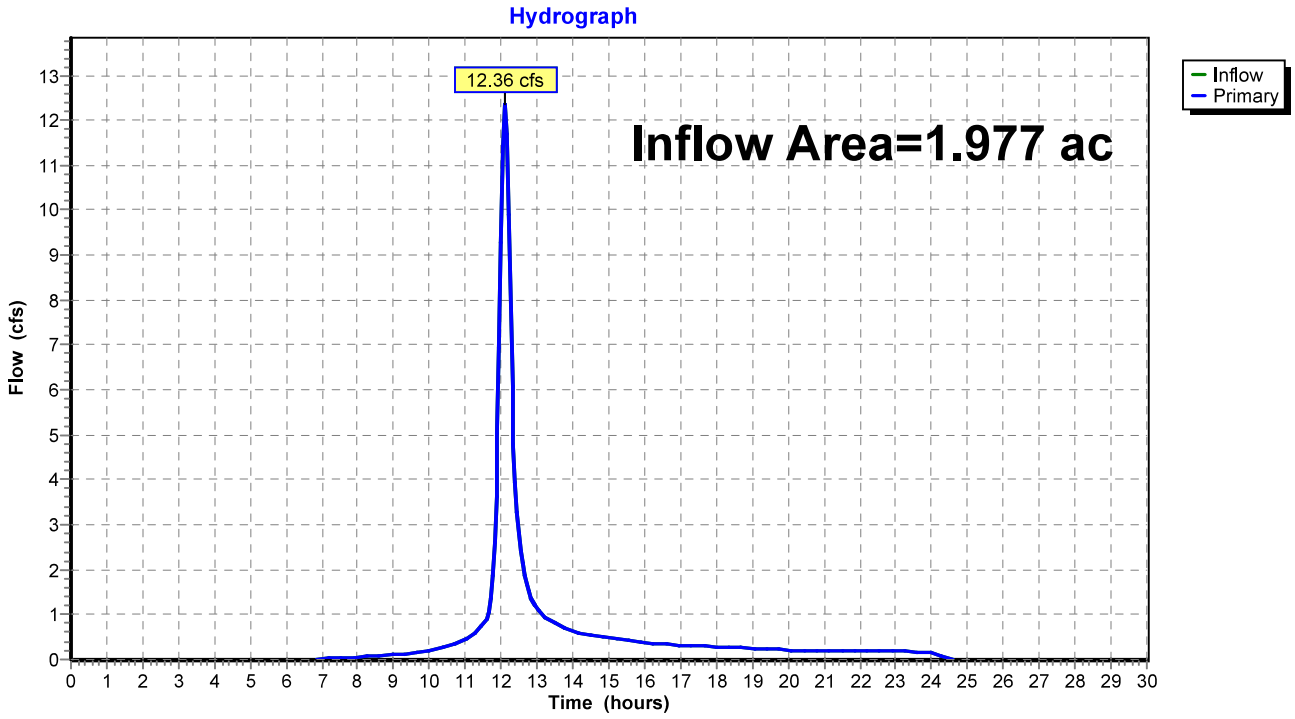


Summary for Link 1L: POA-1

Inflow Area = 1.977 ac, 7.39% Impervious, Inflow Depth = 5.38" for 100-year event
Inflow = 12.36 cfs @ 12.10 hrs, Volume= 0.887 af
Primary = 12.36 cfs @ 12.10 hrs, Volume= 0.887 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

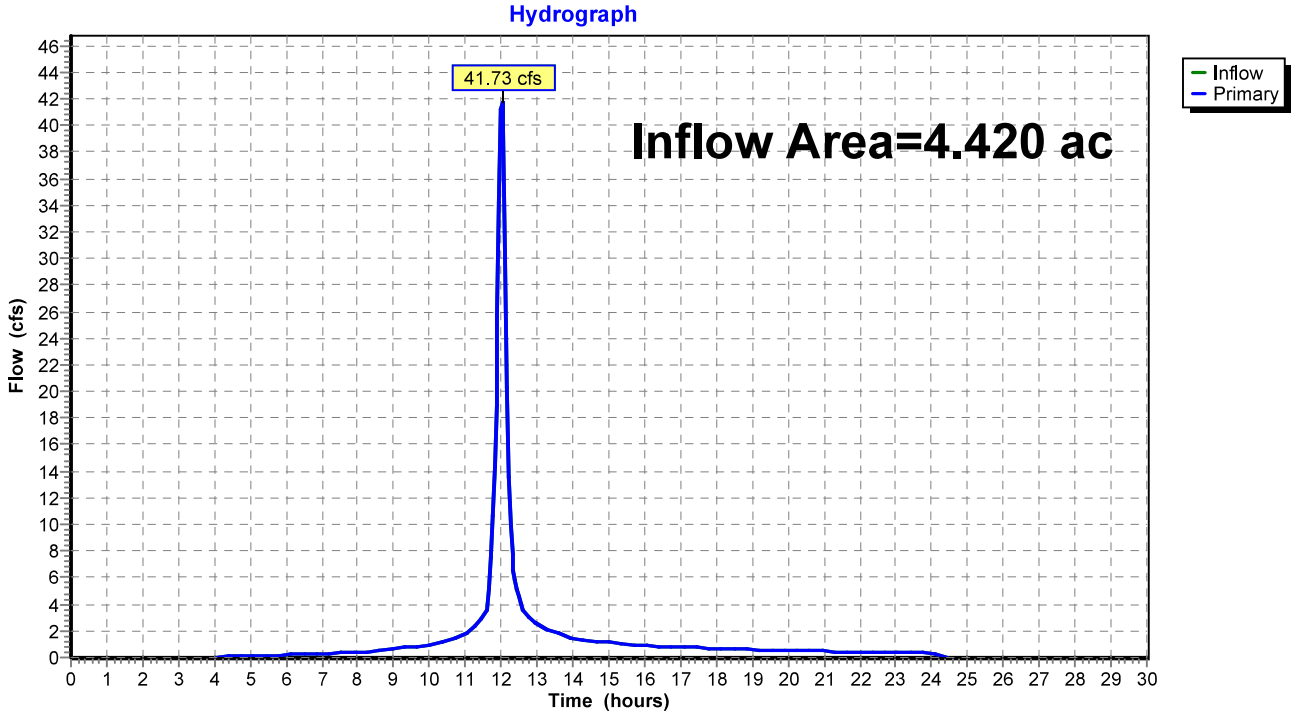


Summary for Link 2L: POA-2

Inflow Area = 4.420 ac, 41.10% Impervious, Inflow Depth = 6.83" for 100-year event
Inflow = 41.73 cfs @ 12.02 hrs, Volume= 2.515 af
Primary = 41.73 cfs @ 12.02 hrs, Volume= 2.515 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

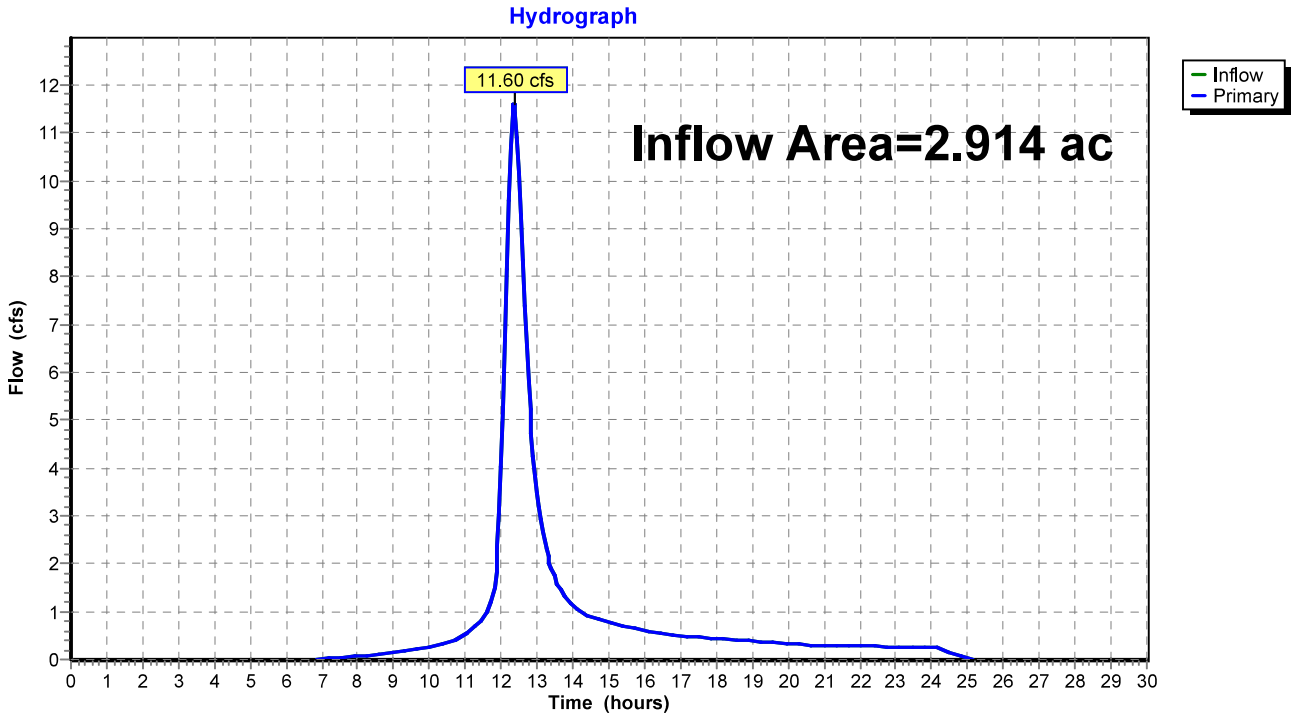


Summary for Link 3L: POA-3

Inflow Area = 2.914 ac, 17.67% Impervious, Inflow Depth = 5.50" for 100-year event
Inflow = 11.60 cfs @ 12.35 hrs, Volume= 1.337 af
Primary = 11.60 cfs @ 12.35 hrs, Volume= 1.337 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

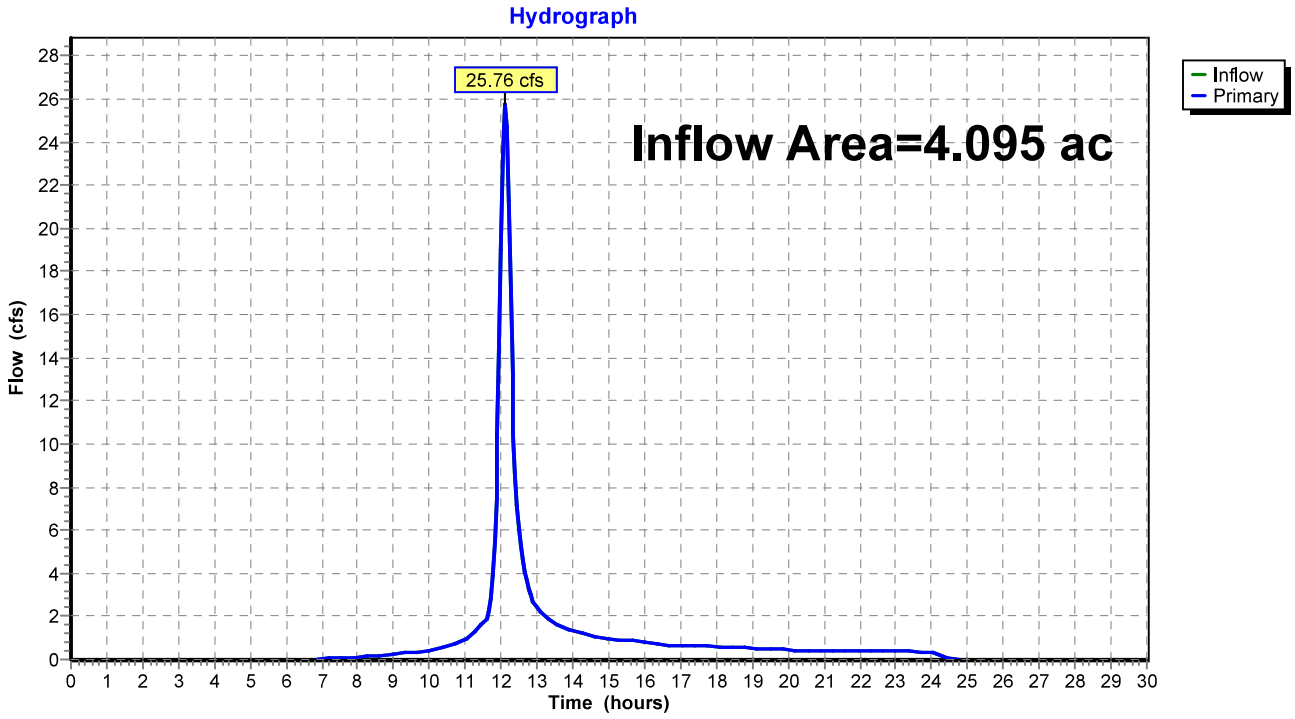


Summary for Link 4L: POA-4

Inflow Area = 4.095 ac, 0.00% Impervious, Inflow Depth = 5.50" for 100-year event
Inflow = 25.76 cfs @ 12.11 hrs, Volume= 1.878 af
Primary = 25.76 cfs @ 12.11 hrs, Volume= 1.878 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

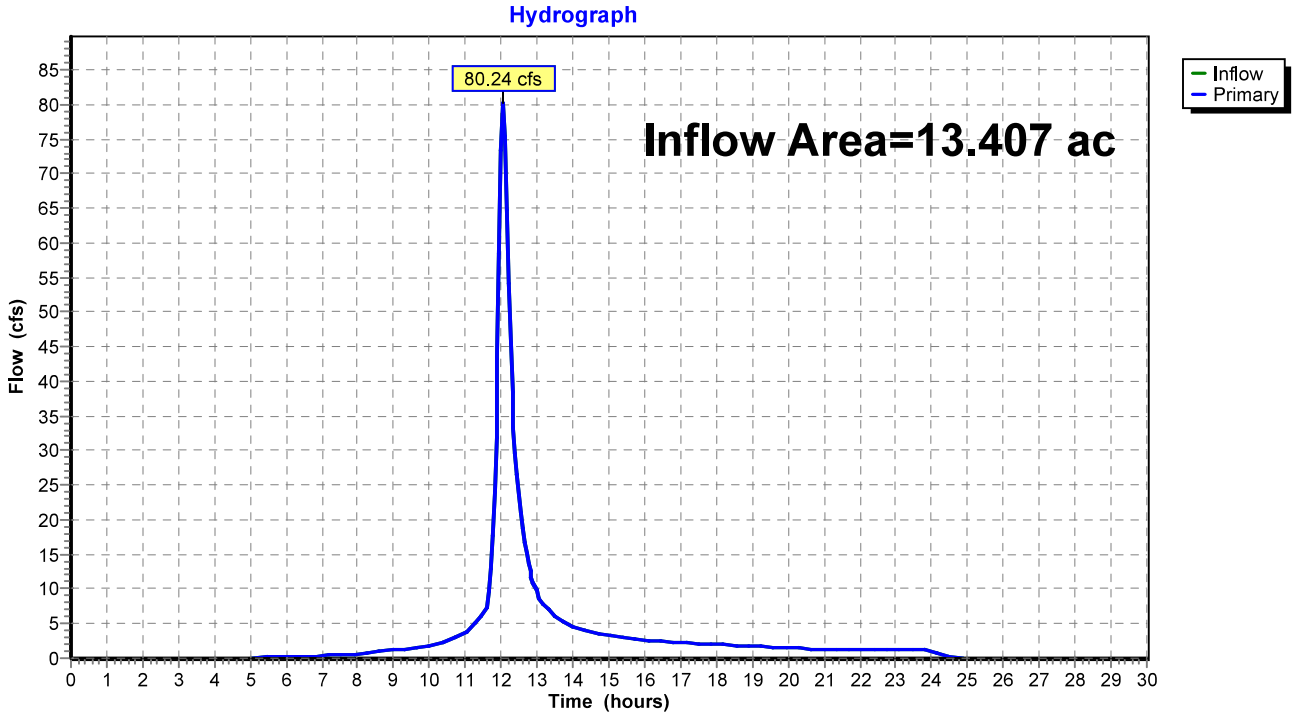


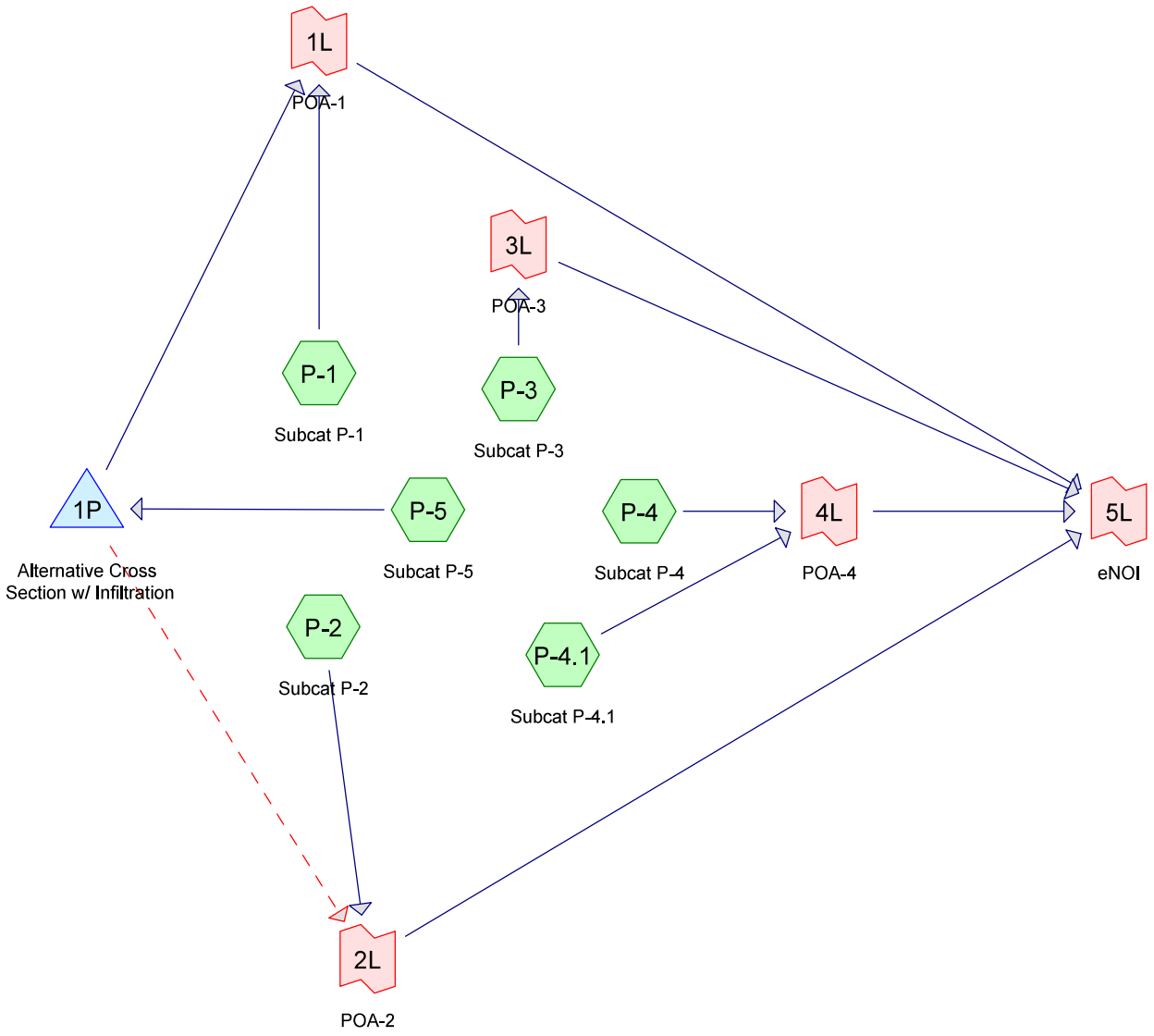
Summary for Link 5L: eNOI

Inflow Area = 13.407 ac, 18.48% Impervious, Inflow Depth = 5.92" for 100-year event
Inflow = 80.24 cfs @ 12.05 hrs, Volume= 6.617 af
Primary = 80.24 cfs @ 12.05 hrs, Volume= 6.617 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI





Subcat Reach Pond Link

Routing Diagram for 22055 Proposed Conditions
Prepared by Environmental Design & Research, Printed 12/19/2025
HydroCAD® 10.20-5c s/n 10386 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.127	74	>75% Grass cover, Good, HSG C (P-1, P-2, P-3, P-4, P-4.1, P-5)
1.283	80	>75% Grass cover, Good, HSG D (P-1, P-2, P-5)
3.198	98	Paved parking, HSG C (P-1, P-2, P-3, P-4.1, P-5)
0.871	98	Paved parking, HSG D (P-1, P-2, P-5)
2.878	70	Woods, Good, HSG C (P-1, P-2, P-3, P-4, P-4.1)
4.049	77	Woods, Good, HSG D (P-1, P-2, P-3, P-4, P-4.1)
13.405	**82**	**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP-1: Subcat P-1 Runoff Area=1.472 ac 1.71% Impervious Runoff Depth=0.62"
Flow Length=454' Tc=18.2 min CN=73 Runoff=0.94 cfs 0.076 af

SubcatchmentP-2: Subcat P-2 Runoff Area=3.123 ac 18.83% Impervious Runoff Depth=1.07"
Flow Length=421' Tc=15.5 min CN=82 Runoff=4.18 cfs 0.279 af

SubcatchmentP-3: Subcat P-3 Runoff Area=1.188 ac 0.05% Impervious Runoff Depth=0.58"
Flow Length=575' Tc=25.6 min CN=72 Runoff=0.55 cfs 0.058 af

SubcatchmentP-4: Subcat P-4 Runoff Area=3.656 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=514' Tc=18.7 min CN=75 Runoff=2.72 cfs 0.216 af

SubcatchmentP-4.1: Subcat P-4.1 Runoff Area=0.507 ac 0.01% Impervious Runoff Depth=0.54"
Flow Length=304' Tc=15.4 min CN=71 Runoff=0.30 cfs 0.023 af

SubcatchmentP-5: Subcat P-5 Runoff Area=3.459 ac 99.86% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=98 Runoff=12.29 cfs 0.683 af

Pond 1P: Alternative Cross Section w/ Peak Elev=209.81' Storage=6,503 cf Inflow=12.29 cfs 0.683 af
Discarded=3.40 cfs 0.683 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=3.40 cfs 0.683 af

Link 1L: POA-1 Inflow=0.94 cfs 0.076 af
Primary=0.94 cfs 0.076 af

Link 2L: POA-2 Inflow=4.18 cfs 0.279 af
Primary=4.18 cfs 0.279 af

Link 3L: POA-3 Inflow=0.55 cfs 0.058 af
Primary=0.55 cfs 0.058 af

Link 4L: POA-4 Inflow=3.00 cfs 0.239 af
Primary=3.00 cfs 0.239 af

Link 5L: eNOI Inflow=8.43 cfs 0.652 af
Primary=8.43 cfs 0.652 af

Total Runoff Area = 13.405 ac Runoff Volume = 1.335 af Average Runoff Depth = 1.20"
69.65% Pervious = 9.336 ac 30.35% Impervious = 4.068 ac

Summary for Subcatchment P-1: Subcat P-1

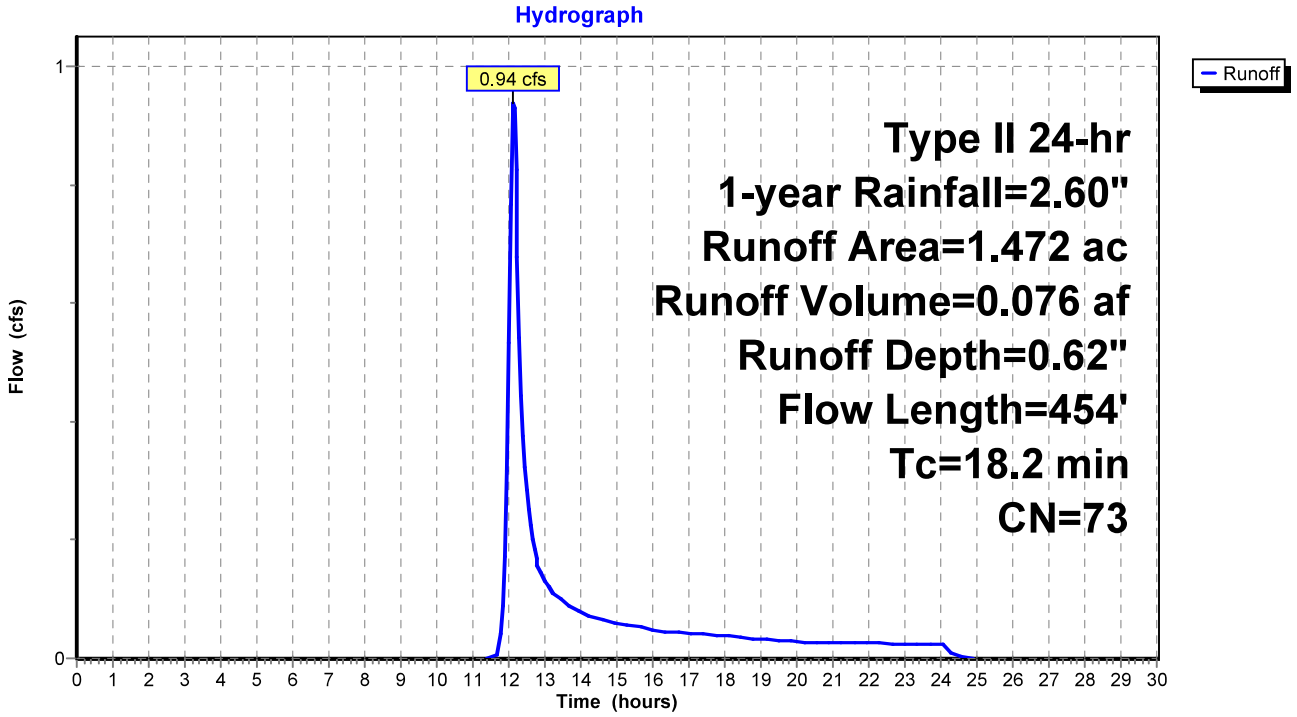
Runoff = 0.94 cfs @ 12.13 hrs, Volume= 0.076 af, Depth= 0.62"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.200	77	Woods, Good, HSG D
0.833	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.387	74	>75% Grass cover, Good, HSG C
0.010	80	>75% Grass cover, Good, HSG D
0.016	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.025	98	Paved parking, HSG D
1.472	73	Weighted Average
1.446		98.29% Pervious Area
0.025		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment P-1: Subcat P-1



Summary for Subcatchment P-2: Subcat P-2

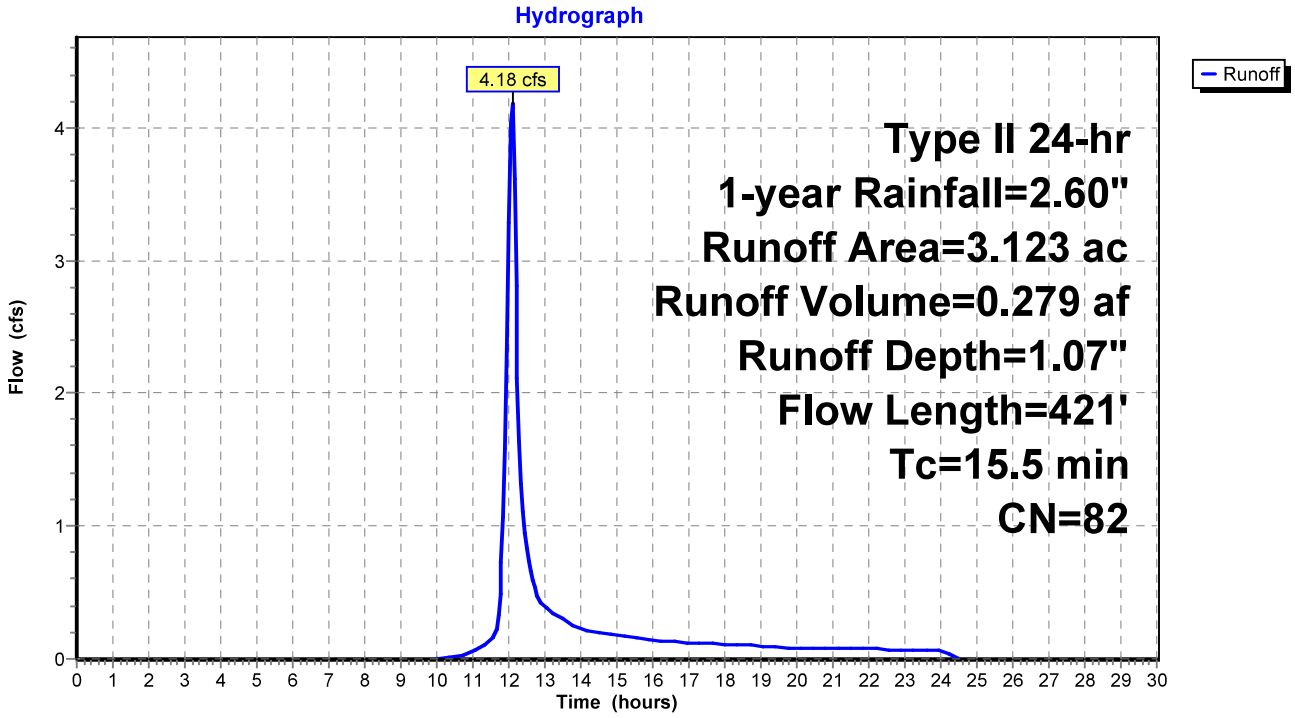
Runoff = 4.18 cfs @ 12.08 hrs, Volume= 0.279 af, Depth= 1.07"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.579	98	Paved parking, HSG D
0.000	98	Paved parking, HSG D
0.009	98	Paved parking, HSG C
0.714	77	Woods, Good, HSG D
0.335	77	Woods, Good, HSG D
0.086	77	Woods, Good, HSG D
0.056	70	Woods, Good, HSG C
0.040	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.048	74	>75% Grass cover, Good, HSG C
0.012	80	>75% Grass cover, Good, HSG D
0.463	80	>75% Grass cover, Good, HSG D
0.394	80	>75% Grass cover, Good, HSG D
0.031	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.237	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
3.123	82	Weighted Average
2.535		81.17% Pervious Area
0.588		18.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0417	1.38		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.8	15	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
10.7	60	0.0417	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	43	0.1429	2.65		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	82	0.0793	5.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	86	0.0233	1.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	69	0.3188	2.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	42	0.0476	1.53		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.5	421	Total			

Subcatchment P-2: Subcat P-2



Summary for Subcatchment P-3: Subcat P-3

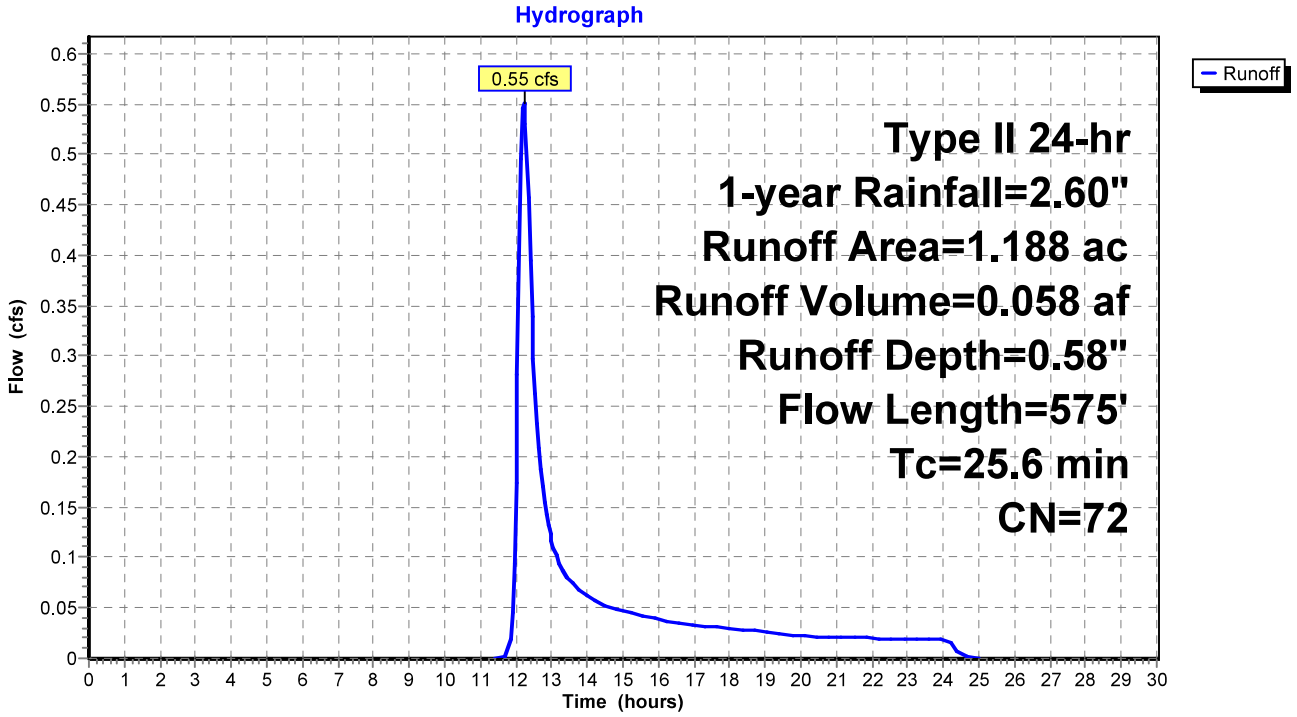
Runoff = 0.55 cfs @ 12.23 hrs, Volume= 0.058 af, Depth= 0.58"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.539	74	>75% Grass cover, Good, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.649	70	Woods, Good, HSG C
0.000	77	Woods, Good, HSG D
1.188	72	Weighted Average
1.188		99.95% Pervious Area
0.001		0.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
1.5	58	0.0172	0.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	392	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	25	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.6	575	Total			

Subcatchment P-3: Subcat P-3



Summary for Subcatchment P-4: Subcat P-4

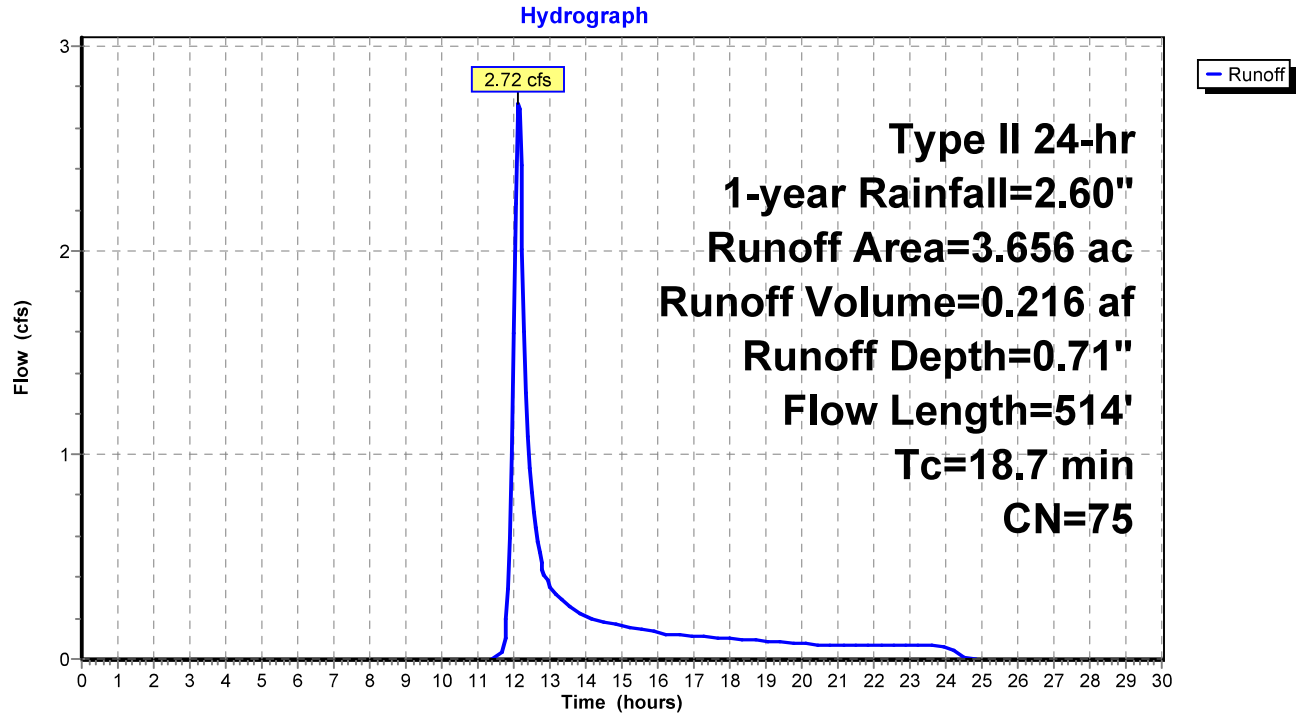
Runoff = 2.72 cfs @ 12.13 hrs, Volume= 0.216 af, Depth= 0.71"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.006	74	>75% Grass cover, Good, HSG C
0.976	70	Woods, Good, HSG C
2.674	77	Woods, Good, HSG D
3.656	75	Weighted Average
3.656		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment P-4: Subcat P-4



Summary for Subcatchment P-4.1: Subcat P-4.1

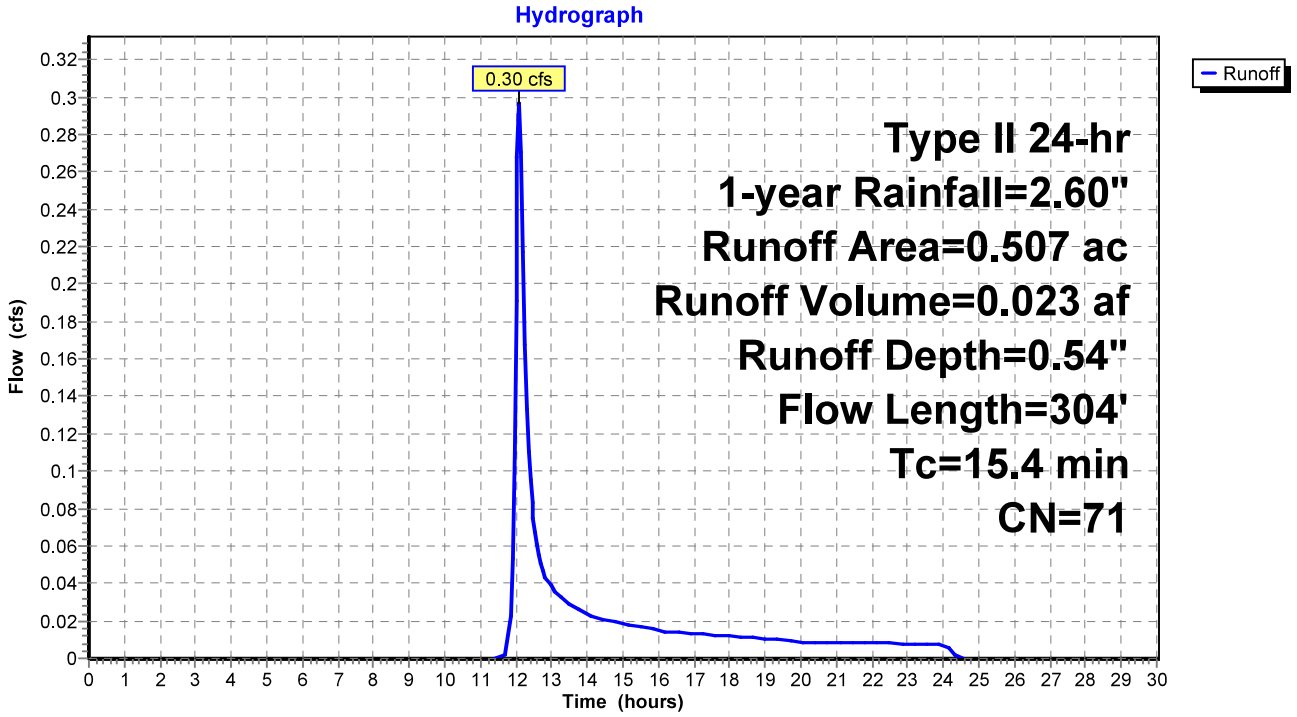
Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.023 af, Depth= 0.54"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
0.363	70	Woods, Good, HSG C
0.000	98	Paved parking, HSG C
0.104	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.040	77	Woods, Good, HSG D
0.507	71	Weighted Average
0.507		99.99% Pervious Area
0.000		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	71	0.0643	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
2.2	29	0.0690	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	124	0.0564	1.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	304	Total			

Subcatchment P-4.1: Subcat P-4.1



Summary for Subcatchment P-5: Subcat P-5

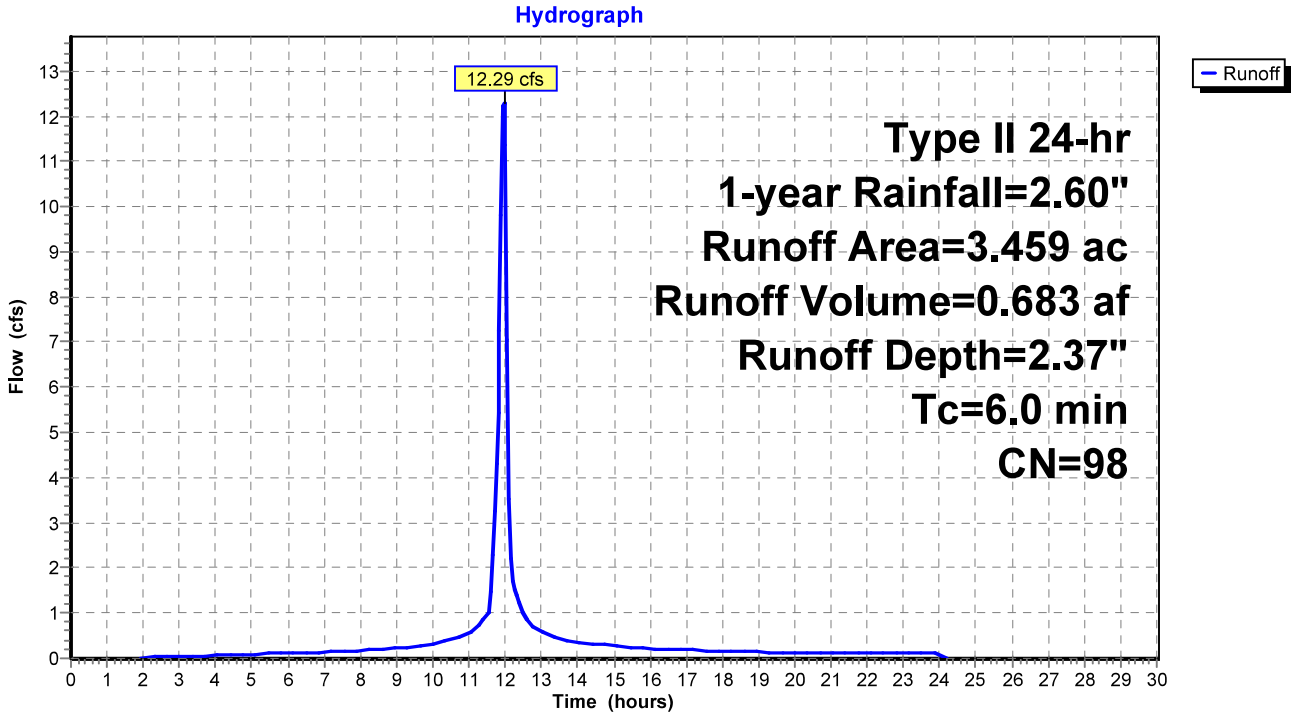
Runoff = 12.29 cfs @ 11.96 hrs, Volume= 0.683 af, Depth= 2.37"
Routed to Pond 1P : Alternative Cross Section w/ Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.60"

Area (ac)	CN	Description
3.187	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.001	80	>75% Grass cover, Good, HSG D
0.267	98	Paved parking, HSG D
3.459	98	Weighted Average
0.005		0.14% Pervious Area
3.454		99.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment P-5: Subcat P-5



Summary for Pond 1P: Alternative Cross Section w/ Infiltration

Inflow Area = 3.459 ac, 99.86% Impervious, Inflow Depth = 2.37" for 1-year event
Inflow = 12.29 cfs @ 11.96 hrs, Volume= 0.683 af
Outflow = 3.40 cfs @ 11.75 hrs, Volume= 0.683 af, Atten= 72%, Lag= 0.0 min
Discarded = 3.40 cfs @ 11.75 hrs, Volume= 0.683 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 2L : POA-2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 209.81' @ 12.11 hrs Surf.Area= 48,998 sf Storage= 6,503 cf

Plug-Flow detention time= 9.5 min calculated for 0.682 af (100% of inflow)
Center-of-Mass det. time= 9.5 min (766.7 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	209.48'	49,390 cf	**Alternative Cross Section (Prismatic)** Listed below (Recalc) 123,475 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.48	48,998	0	0
210.48	48,998	48,998	48,998
211.48	48,998	48,998	97,996
212.00	48,998	25,479	123,475

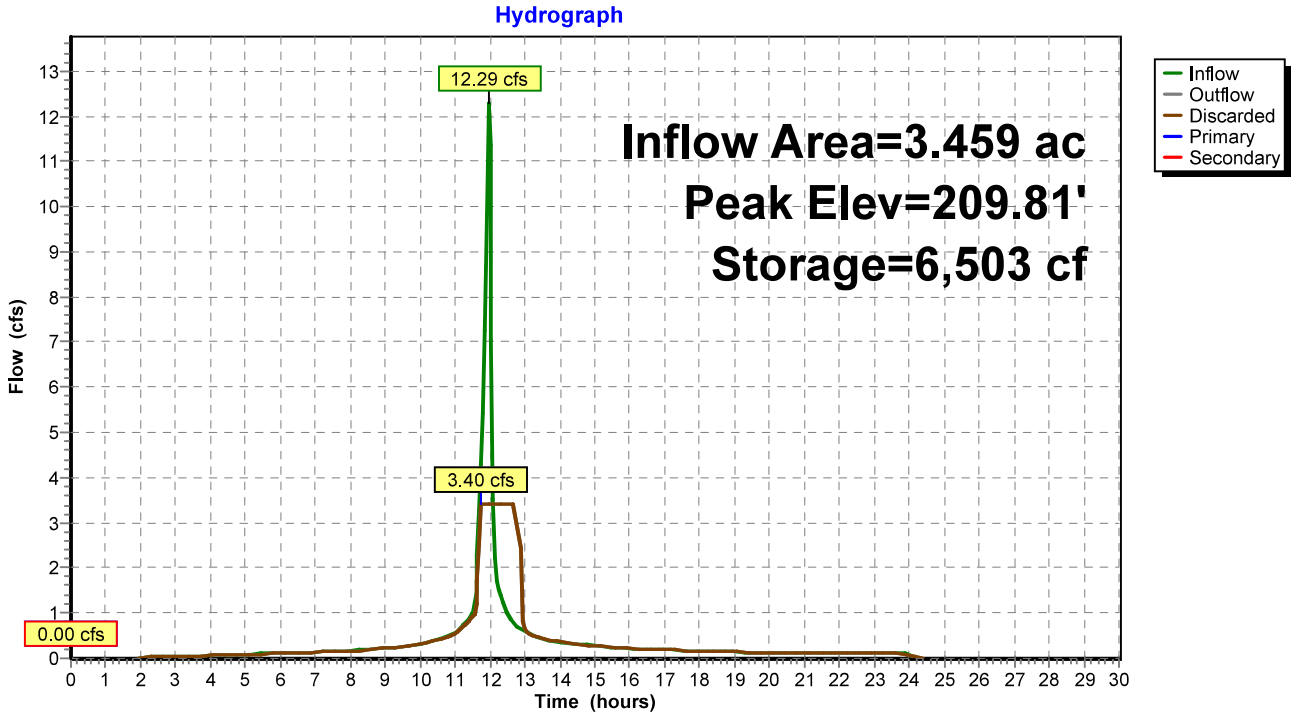
Device	Routing	Invert	Outlet Devices
#1	Discarded	209.48'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	211.48'	**357.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50
#3	Secondary	211.48'	**501.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50

Discarded OutFlow Max=3.40 cfs @ 11.75 hrs HW=209.51' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.40 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Alternative Cross Section w/ Infiltration

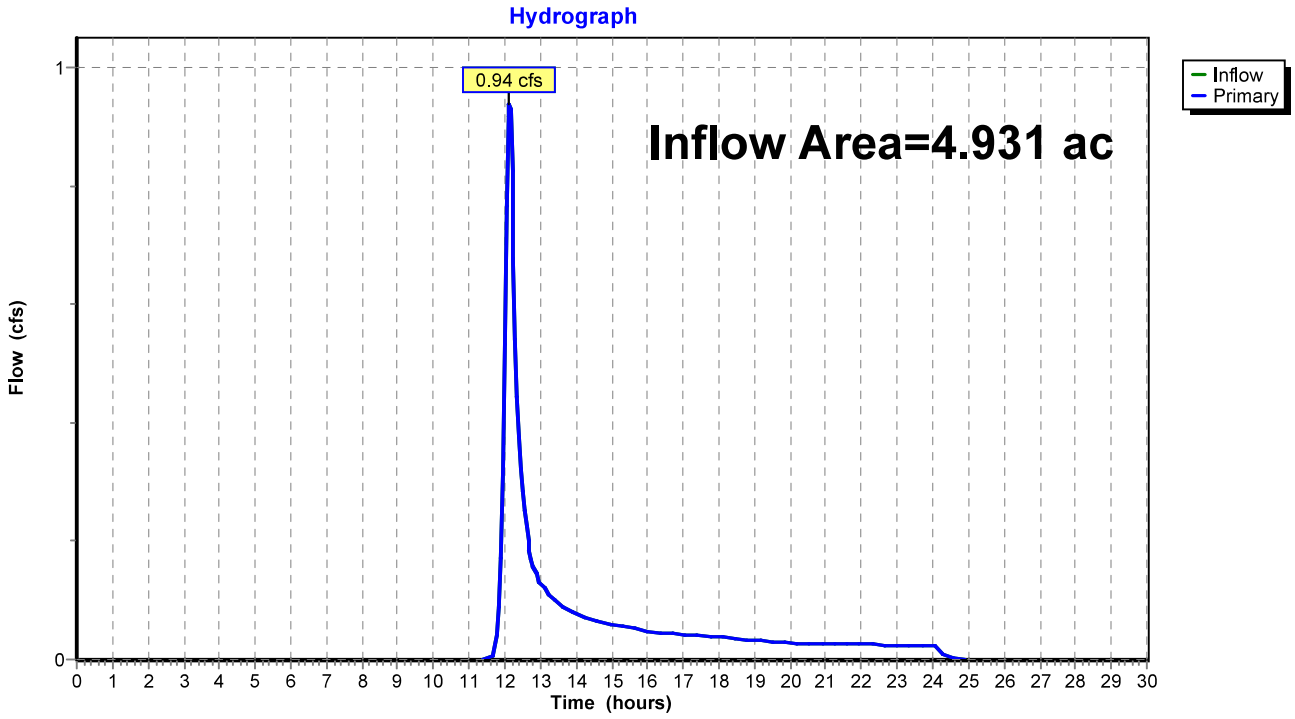


Summary for Link 1L: POA-1

Inflow Area = 4.931 ac, 70.57% Impervious, Inflow Depth = 0.19" for 1-year event
Inflow = 0.94 cfs @ 12.13 hrs, Volume= 0.076 af
Primary = 0.94 cfs @ 12.13 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

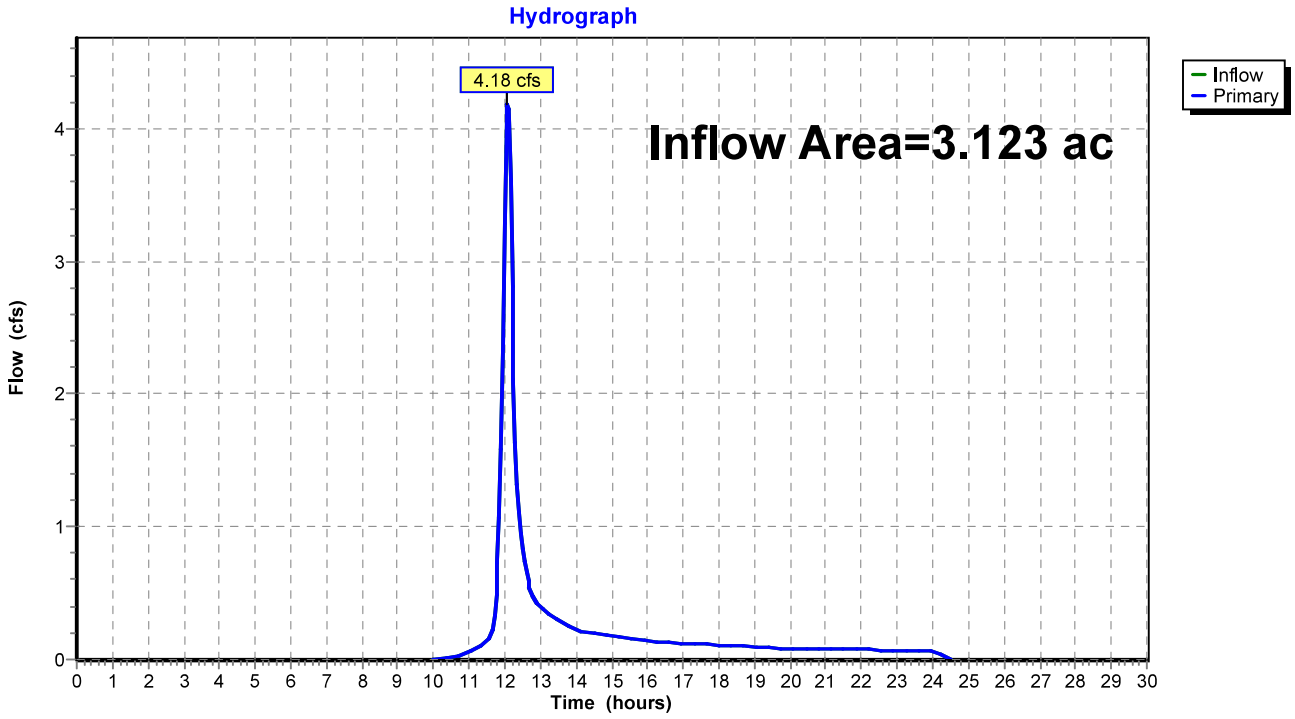


Summary for Link 2L: POA-2

Inflow Area = 3.123 ac, 18.83% Impervious, Inflow Depth = 1.07" for 1-year event
Inflow = 4.18 cfs @ 12.08 hrs, Volume= 0.279 af
Primary = 4.18 cfs @ 12.08 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

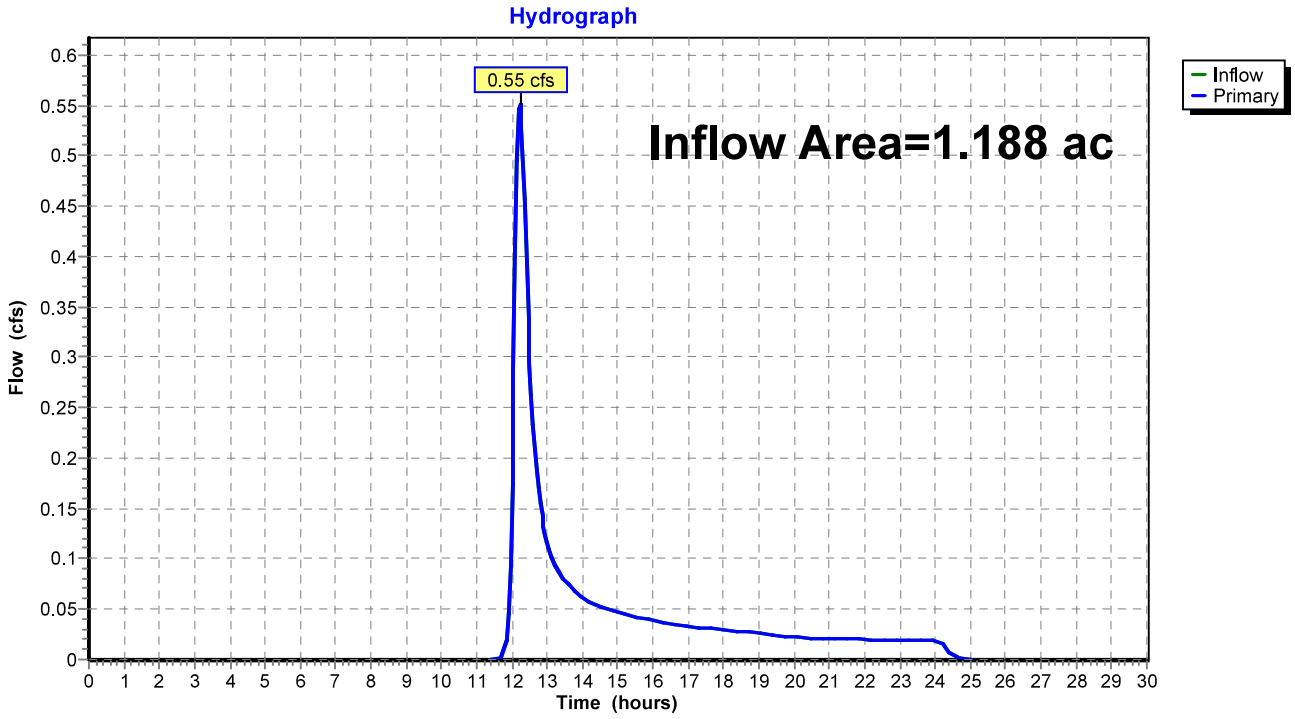


Summary for Link 3L: POA-3

Inflow Area = 1.188 ac, 0.05% Impervious, Inflow Depth = 0.58" for 1-year event
Inflow = 0.55 cfs @ 12.23 hrs, Volume= 0.058 af
Primary = 0.55 cfs @ 12.23 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

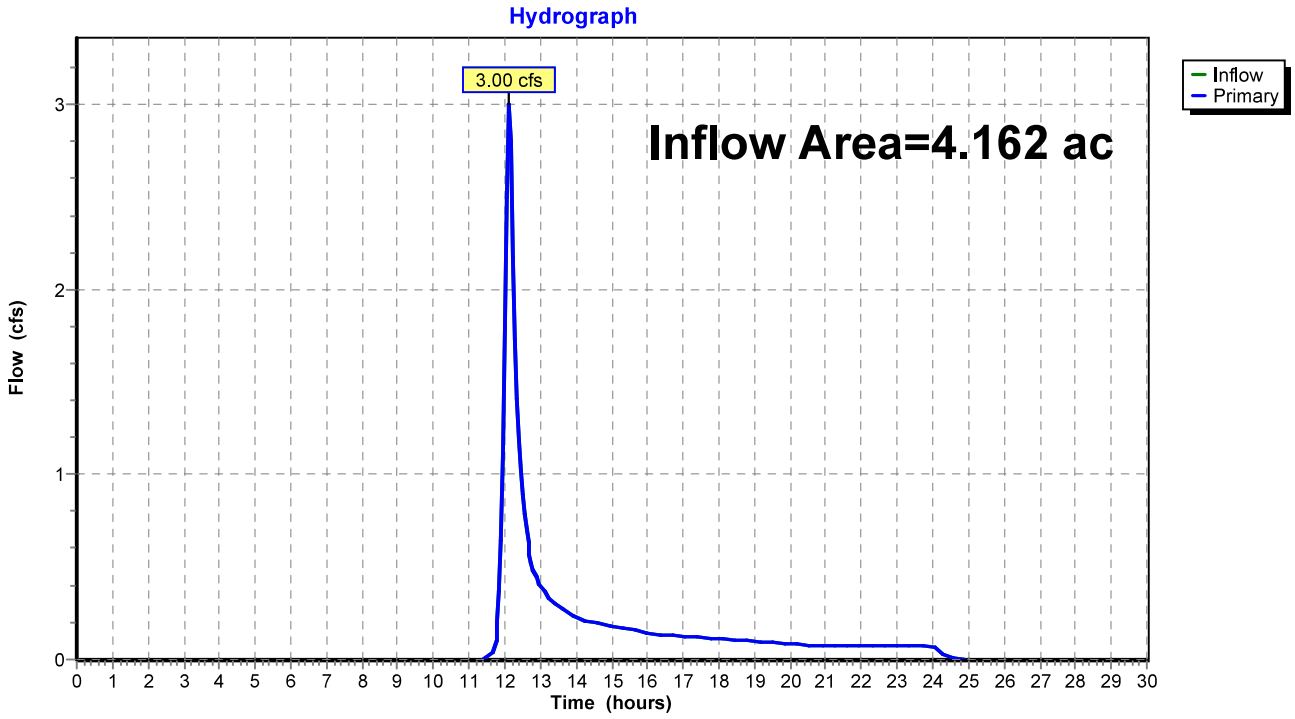


Summary for Link 4L: POA-4

Inflow Area = 4.162 ac, 0.00% Impervious, Inflow Depth = 0.69" for 1-year event
Inflow = 3.00 cfs @ 12.13 hrs, Volume= 0.239 af
Primary = 3.00 cfs @ 12.13 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

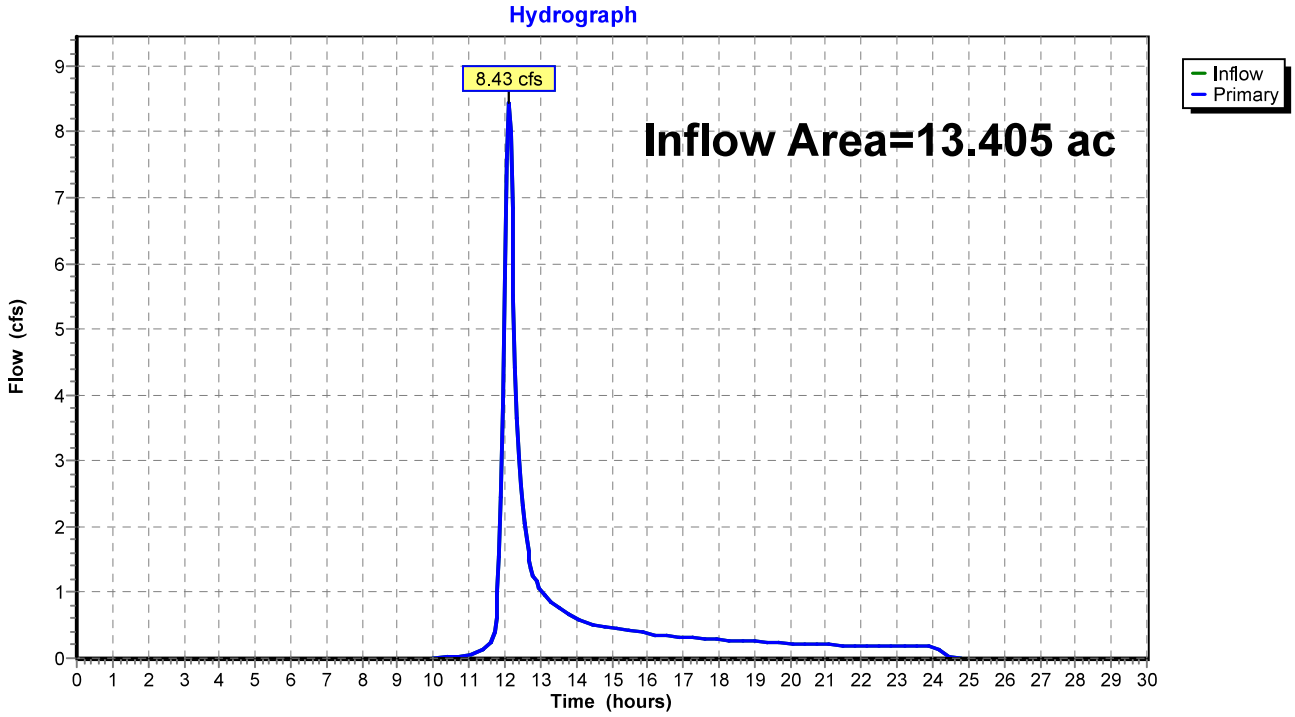


Summary for Link 5L: eNOI

Inflow Area = 13.405 ac, 30.35% Impervious, Inflow Depth = 0.58" for 1-year event
Inflow = 8.43 cfs @ 12.11 hrs, Volume= 0.652 af
Primary = 8.43 cfs @ 12.11 hrs, Volume= 0.652 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP-1: Subcat P-1 Runoff Area=1.472 ac 1.71% Impervious Runoff Depth=2.09"
Flow Length=454' Tc=18.2 min CN=73 Runoff=3.55 cfs 0.256 af

SubcatchmentP-2: Subcat P-2 Runoff Area=3.123 ac 18.83% Impervious Runoff Depth=2.86"
Flow Length=421' Tc=15.5 min CN=82 Runoff=11.24 cfs 0.743 af

SubcatchmentP-3: Subcat P-3 Runoff Area=1.188 ac 0.05% Impervious Runoff Depth=2.01"
Flow Length=575' Tc=25.6 min CN=72 Runoff=2.24 cfs 0.199 af

SubcatchmentP-4: Subcat P-4 Runoff Area=3.656 ac 0.00% Impervious Runoff Depth=2.25"
Flow Length=514' Tc=18.7 min CN=75 Runoff=9.41 cfs 0.685 af

SubcatchmentP-4.1: Subcat P-4.1 Runoff Area=0.507 ac 0.01% Impervious Runoff Depth=1.93"
Flow Length=304' Tc=15.4 min CN=71 Runoff=1.22 cfs 0.081 af

SubcatchmentP-5: Subcat P-5 Runoff Area=3.459 ac 99.86% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=98 Runoff=22.73 cfs 1.301 af

Pond 1P: Alternative Cross Section w/ Peak Elev=210.33' Storage=16,587 cf Inflow=22.73 cfs 1.301 af
Discarded=3.40 cfs 1.301 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=3.40 cfs 1.301 af

Link 1L: POA-1 Inflow=3.55 cfs 0.256 af
Primary=3.55 cfs 0.256 af

Link 2L: POA-2 Inflow=11.24 cfs 0.743 af
Primary=11.24 cfs 0.743 af

Link 3L: POA-3 Inflow=2.24 cfs 0.199 af
Primary=2.24 cfs 0.199 af

Link 4L: POA-4 Inflow=10.59 cfs 0.766 af
Primary=10.59 cfs 0.766 af

Link 5L: eNOI Inflow=26.99 cfs 1.964 af
Primary=26.99 cfs 1.964 af

Total Runoff Area = 13.405 ac Runoff Volume = 3.265 af Average Runoff Depth = 2.92"
69.65% Pervious = 9.336 ac 30.35% Impervious = 4.068 ac

Summary for Subcatchment P-1: Subcat P-1

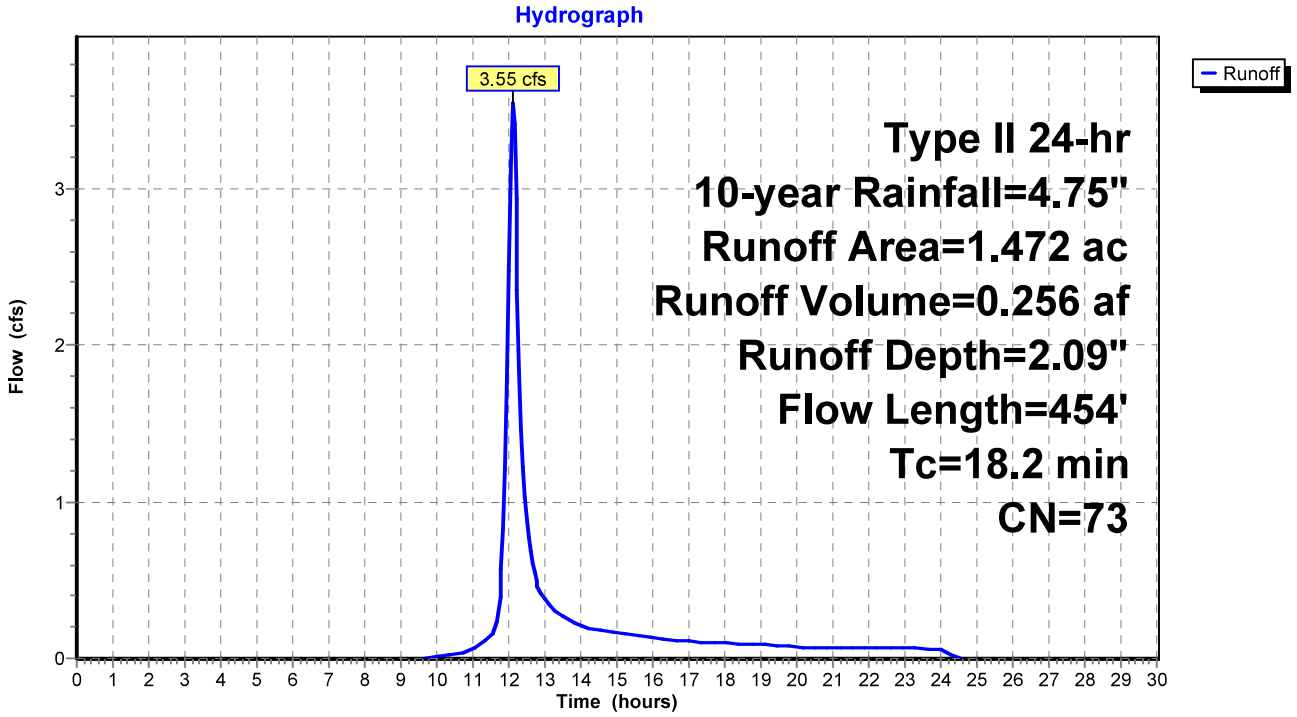
Runoff = 3.55 cfs @ 12.11 hrs, Volume= 0.256 af, Depth= 2.09"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.200	77	Woods, Good, HSG D
0.833	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.387	74	>75% Grass cover, Good, HSG C
0.010	80	>75% Grass cover, Good, HSG D
0.016	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.025	98	Paved parking, HSG D
1.472	73	Weighted Average
1.446		98.29% Pervious Area
0.025		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment P-1: Subcat P-1



Summary for Subcatchment P-2: Subcat P-2

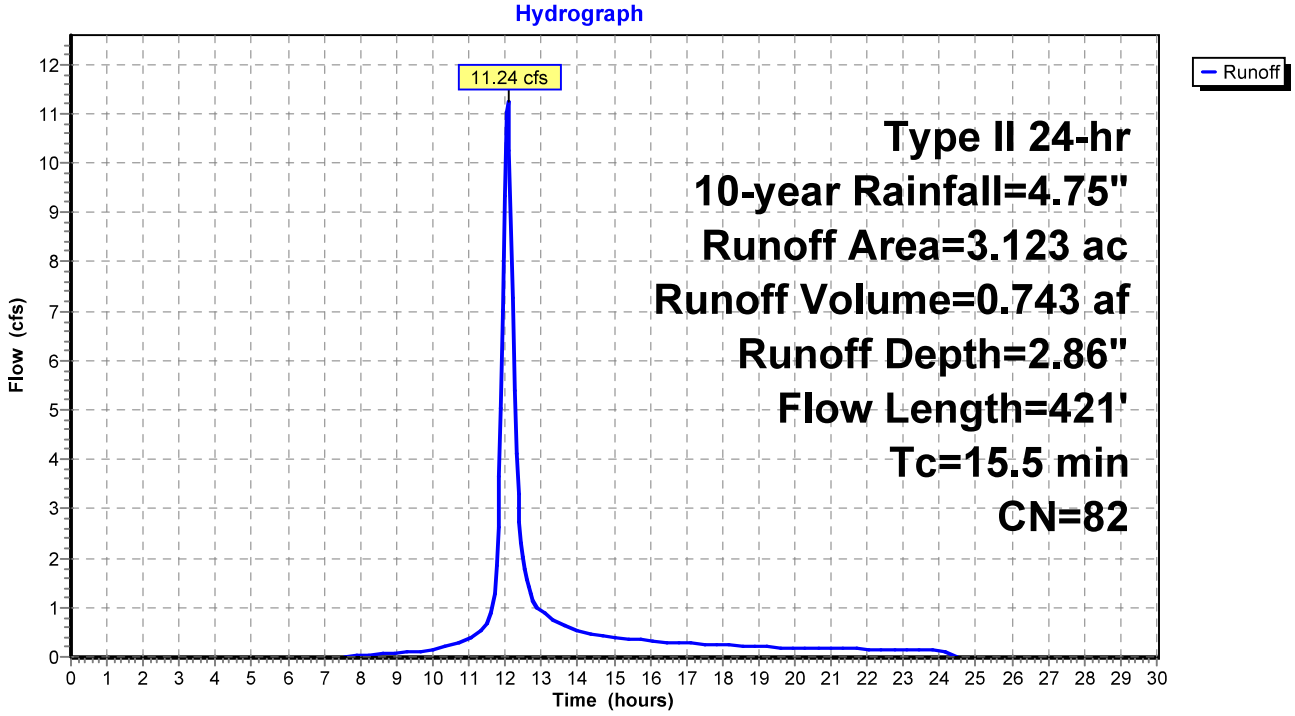
Runoff = 11.24 cfs @ 12.07 hrs, Volume= 0.743 af, Depth= 2.86"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.579	98	Paved parking, HSG D
0.000	98	Paved parking, HSG D
0.009	98	Paved parking, HSG C
0.714	77	Woods, Good, HSG D
0.335	77	Woods, Good, HSG D
0.086	77	Woods, Good, HSG D
0.056	70	Woods, Good, HSG C
0.040	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.048	74	>75% Grass cover, Good, HSG C
0.012	80	>75% Grass cover, Good, HSG D
0.463	80	>75% Grass cover, Good, HSG D
0.394	80	>75% Grass cover, Good, HSG D
0.031	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.237	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
3.123	82	Weighted Average
2.535		81.17% Pervious Area
0.588		18.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0417	1.38		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.8	15	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
10.7	60	0.0417	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	43	0.1429	2.65		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	82	0.0793	5.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	86	0.0233	1.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	69	0.3188	2.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	42	0.0476	1.53		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.5	421	Total			

Subcatchment P-2: Subcat P-2



Summary for Subcatchment P-3: Subcat P-3

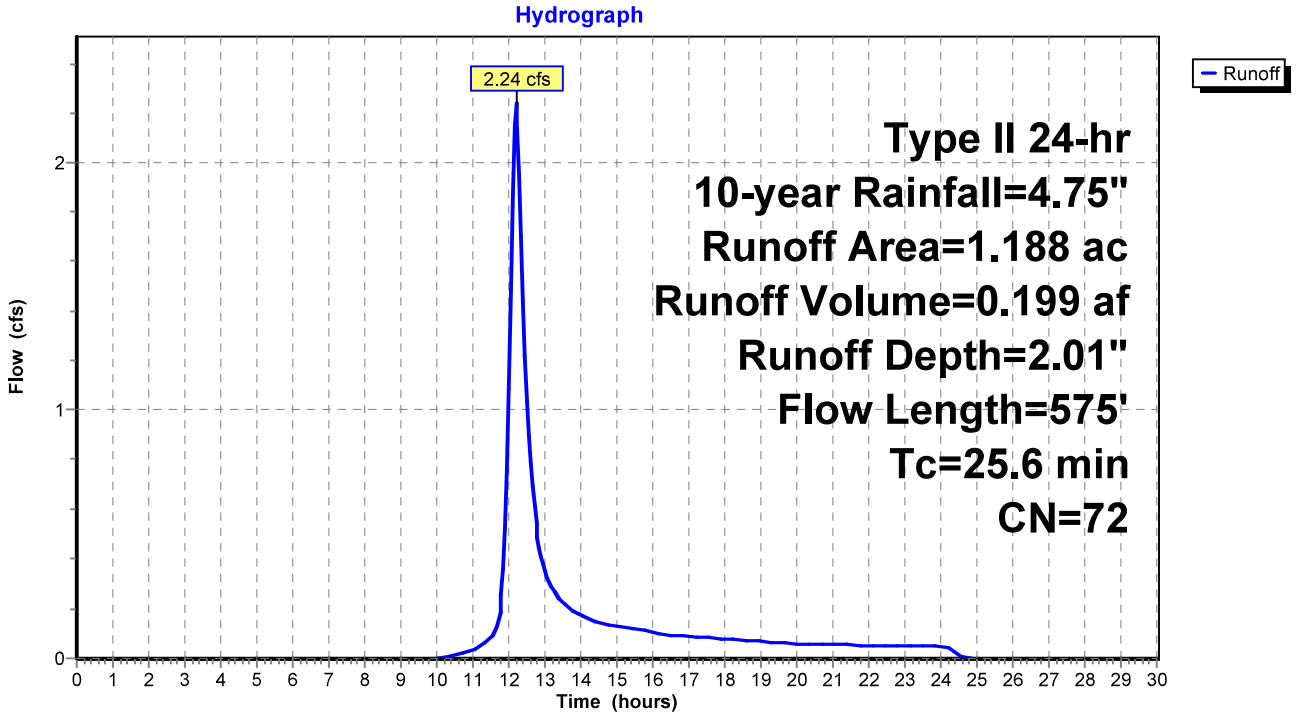
Runoff = 2.24 cfs @ 12.20 hrs, Volume= 0.199 af, Depth= 2.01"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.539	74	>75% Grass cover, Good, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.649	70	Woods, Good, HSG C
0.000	77	Woods, Good, HSG D
1.188	72	Weighted Average
1.188		99.95% Pervious Area
0.001		0.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
1.5	58	0.0172	0.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	392	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	25	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.6	575	Total			

Subcatchment P-3: Subcat P-3



Summary for Subcatchment P-4: Subcat P-4

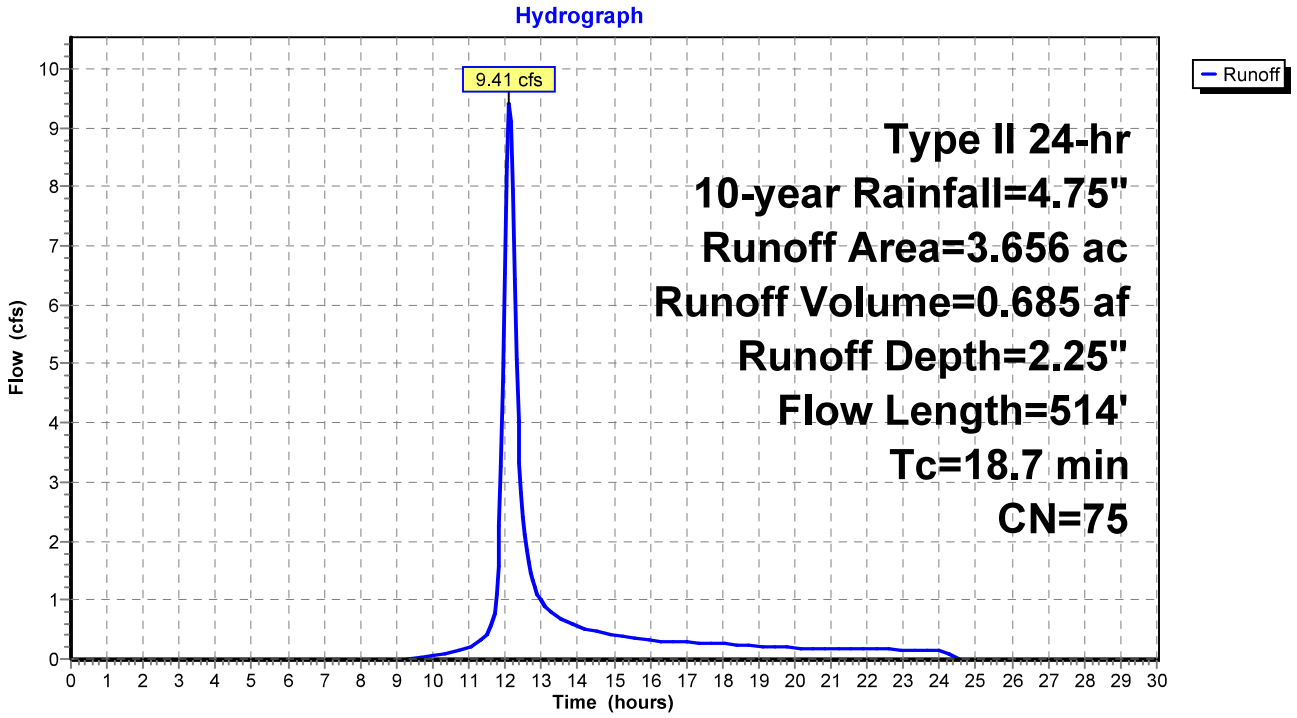
Runoff = 9.41 cfs @ 12.12 hrs, Volume= 0.685 af, Depth= 2.25"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.006	74	>75% Grass cover, Good, HSG C
0.976	70	Woods, Good, HSG C
2.674	77	Woods, Good, HSG D
3.656	75	Weighted Average
3.656		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment P-4: Subcat P-4



Summary for Subcatchment P-4.1: Subcat P-4.1

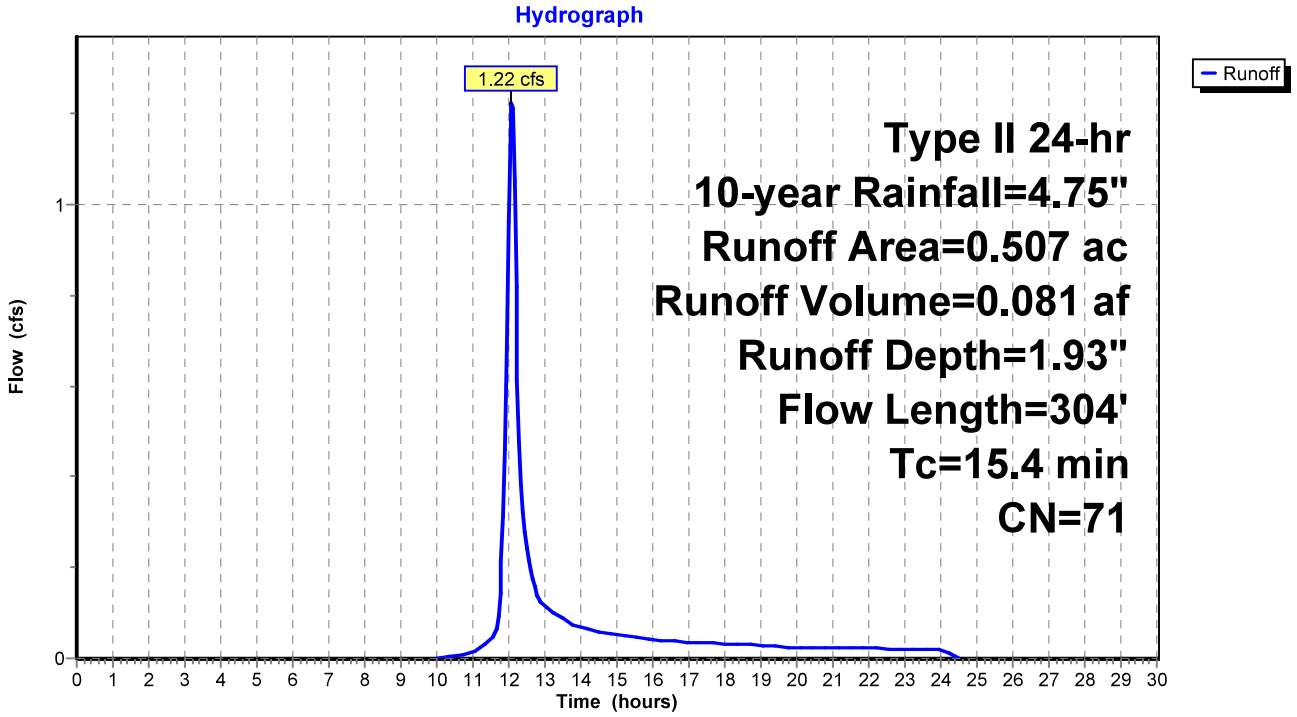
Runoff = 1.22 cfs @ 12.08 hrs, Volume= 0.081 af, Depth= 1.93"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
0.363	70	Woods, Good, HSG C
0.000	98	Paved parking, HSG C
0.104	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.040	77	Woods, Good, HSG D
0.507	71	Weighted Average
0.507		99.99% Pervious Area
0.000		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	71	0.0643	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
2.2	29	0.0690	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	124	0.0564	1.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	304	Total			

Subcatchment P-4.1: Subcat P-4.1



Summary for Subcatchment P-5: Subcat P-5

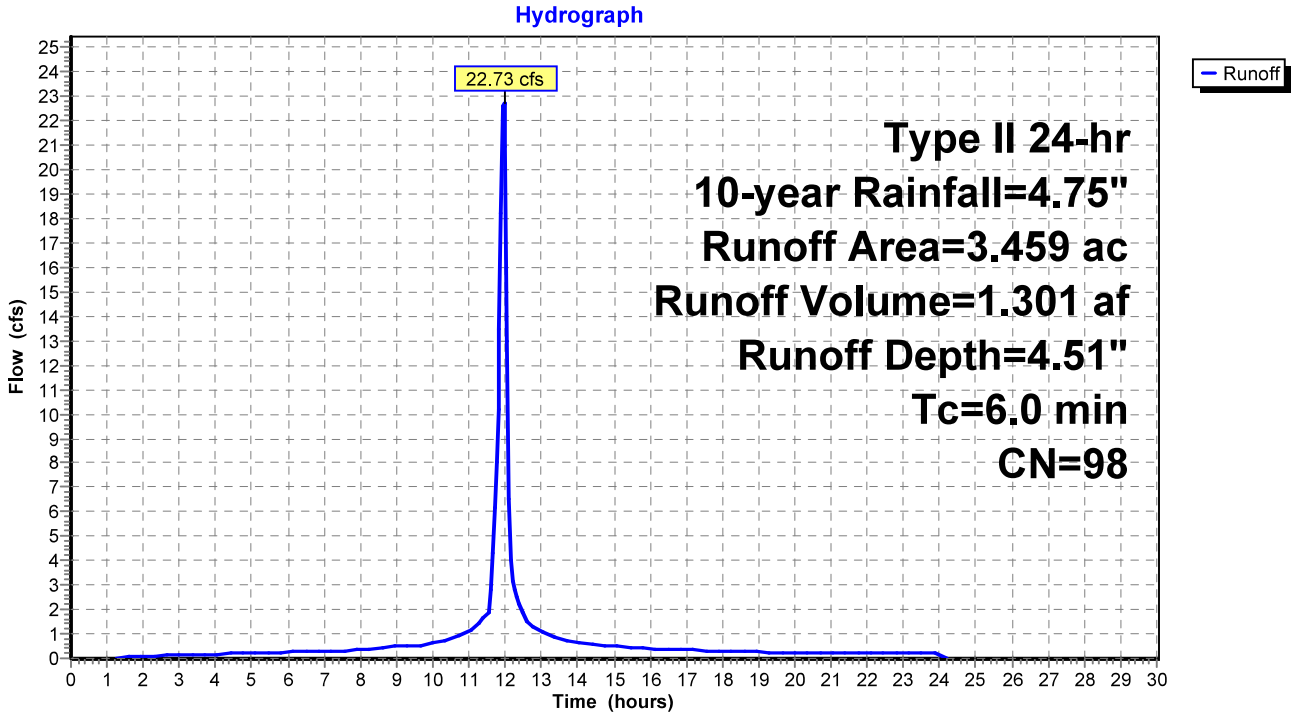
Runoff = 22.73 cfs @ 11.96 hrs, Volume= 1.301 af, Depth= 4.51"
Routed to Pond 1P : Alternative Cross Section w/ Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.75"

Area (ac)	CN	Description
3.187	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.001	80	>75% Grass cover, Good, HSG D
0.267	98	Paved parking, HSG D
3.459	98	Weighted Average
0.005		0.14% Pervious Area
3.454		99.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment P-5: Subcat P-5



Summary for Pond 1P: Alternative Cross Section w/ Infiltration

Inflow Area = 3.459 ac, 99.86% Impervious, Inflow Depth = 4.51" for 10-year event
Inflow = 22.73 cfs @ 11.96 hrs, Volume= 1.301 af
Outflow = 3.40 cfs @ 11.70 hrs, Volume= 1.301 af, Atten= 85%, Lag= 0.0 min
Discarded = 3.40 cfs @ 11.70 hrs, Volume= 1.301 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 2L : POA-2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 210.33' @ 12.19 hrs Surf.Area= 48,998 sf Storage= 16,587 cf

Plug-Flow detention time= 26.4 min calculated for 1.301 af (100% of inflow)
Center-of-Mass det. time= 26.4 min (771.2 - 744.8)

Volume	Invert	Avail.Storage	Storage Description
#1	209.48'	49,390 cf	**Alternative Cross Section (Prismatic)** Listed below (Recalc) 123,475 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.48	48,998	0	0
210.48	48,998	48,998	48,998
211.48	48,998	48,998	97,996
212.00	48,998	25,479	123,475

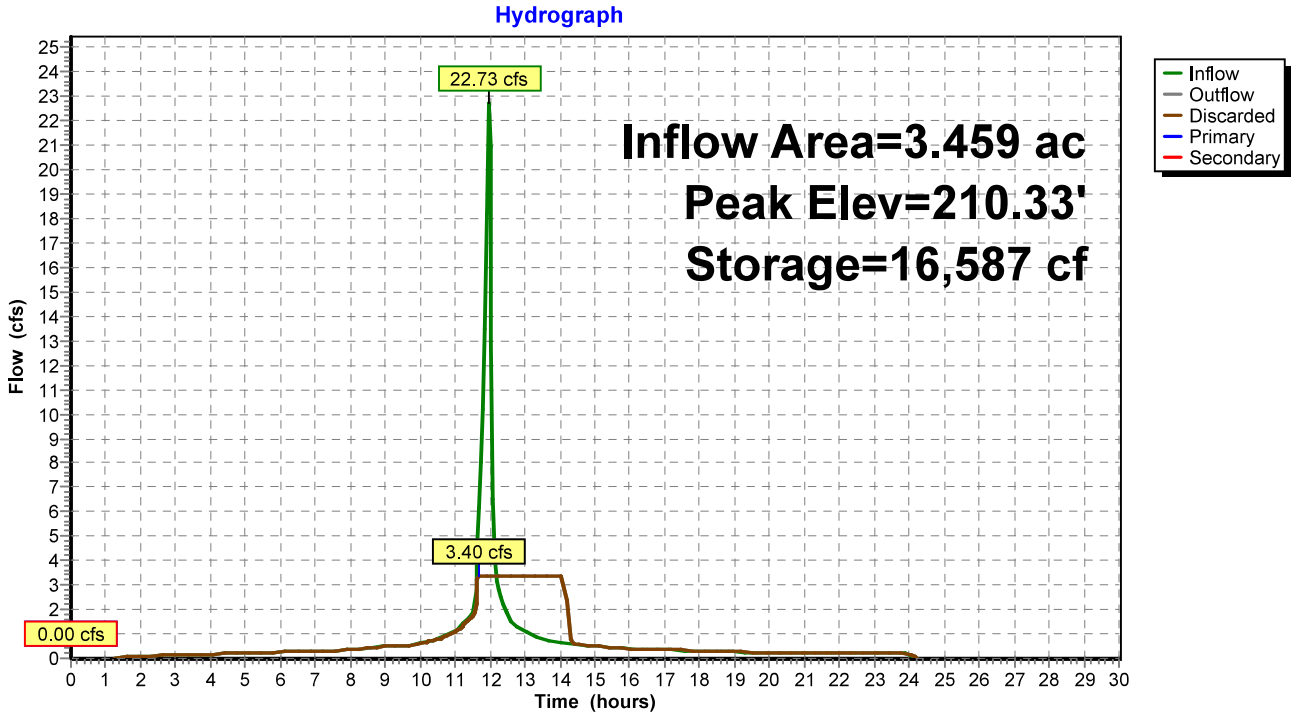
Device	Routing	Invert	Outlet Devices
#1	Discarded	209.48'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	211.48'	**357.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50
#3	Secondary	211.48'	**501.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50

Discarded OutFlow Max=3.40 cfs @ 11.70 hrs HW=209.52' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.40 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Alternative Cross Section w/ Infiltration

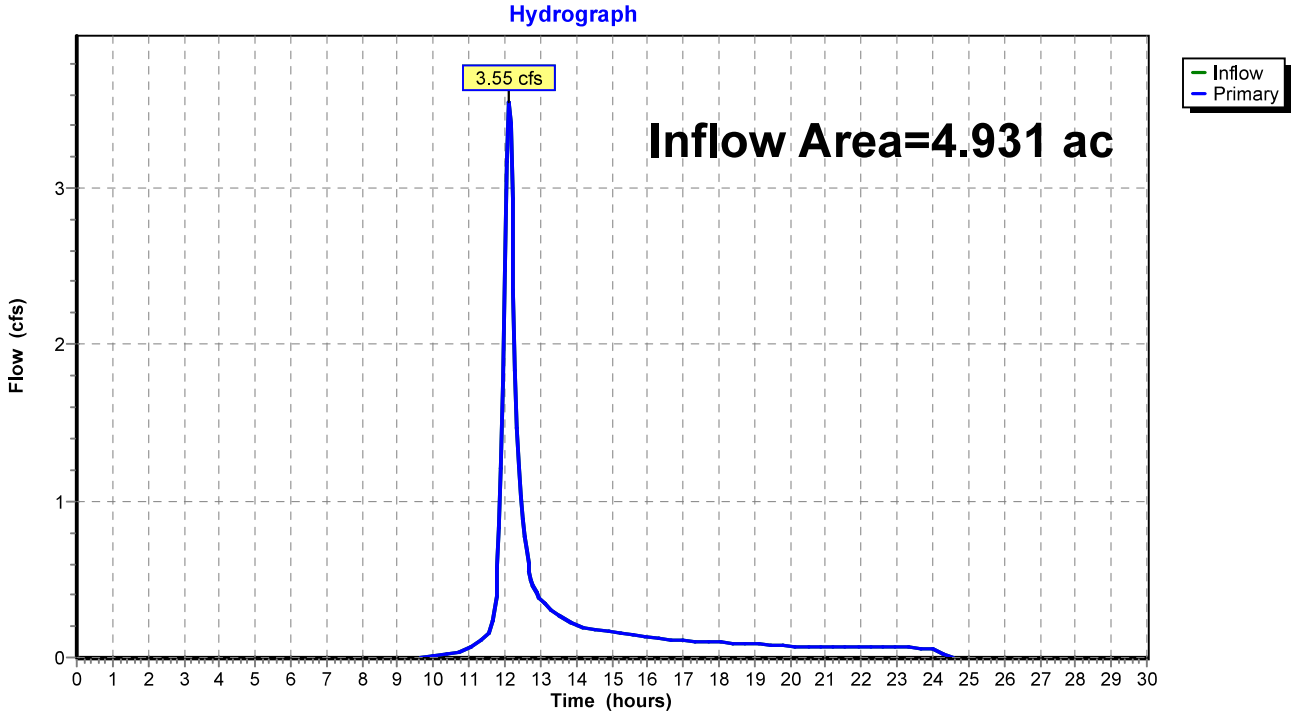


Summary for Link 1L: POA-1

Inflow Area = 4.931 ac, 70.57% Impervious, Inflow Depth = 0.62" for 10-year event
Inflow = 3.55 cfs @ 12.11 hrs, Volume= 0.256 af
Primary = 3.55 cfs @ 12.11 hrs, Volume= 0.256 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

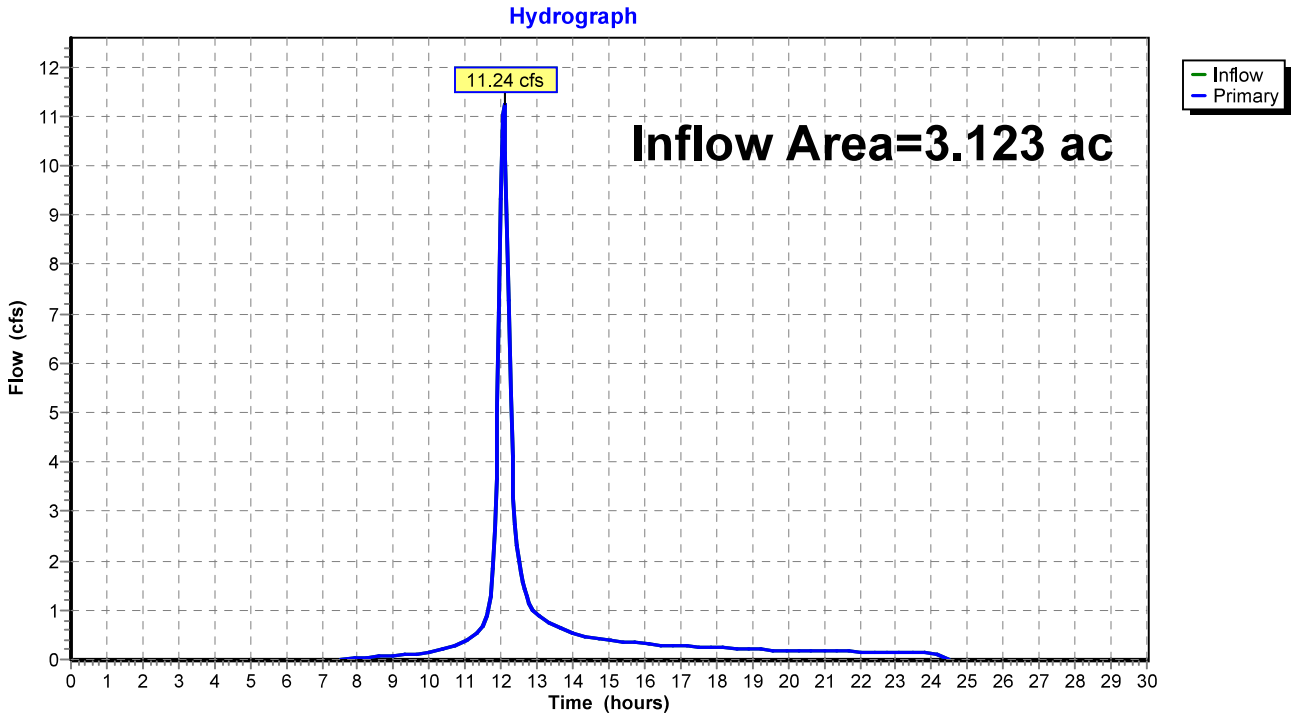


Summary for Link 2L: POA-2

Inflow Area = 3.123 ac, 18.83% Impervious, Inflow Depth = 2.86" for 10-year event
Inflow = 11.24 cfs @ 12.07 hrs, Volume= 0.743 af
Primary = 11.24 cfs @ 12.07 hrs, Volume= 0.743 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

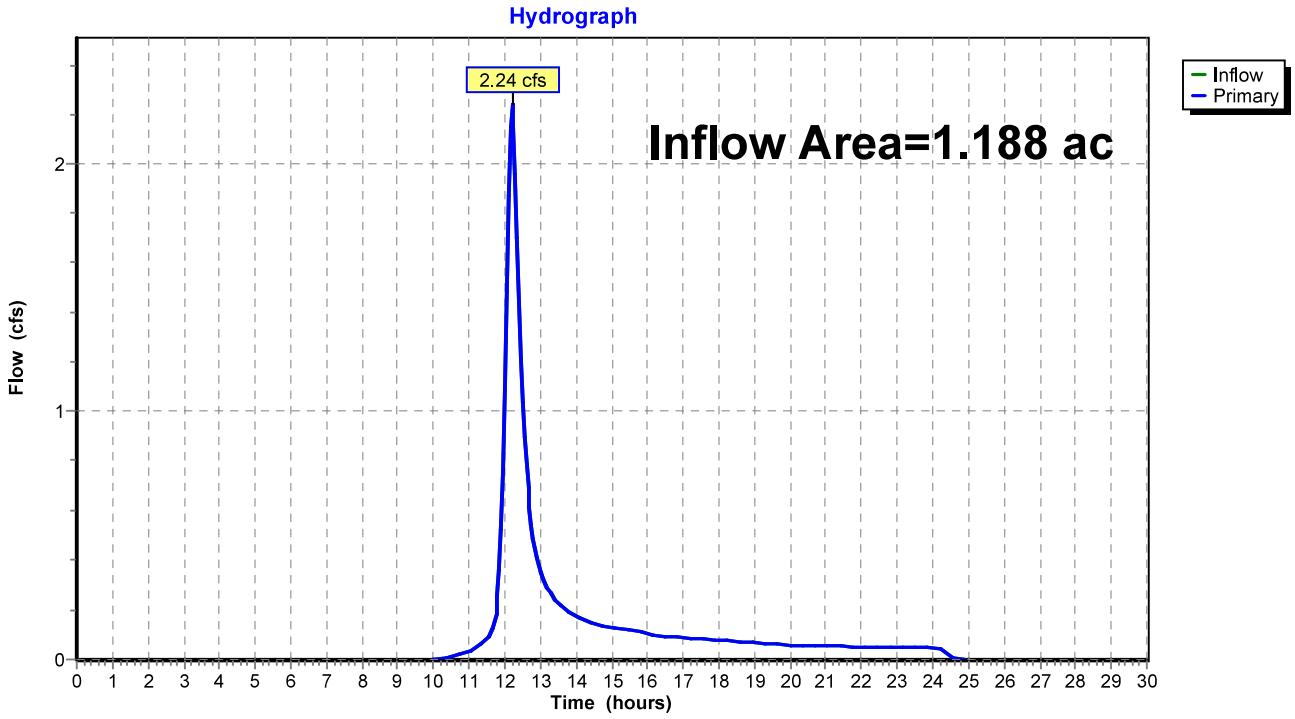


Summary for Link 3L: POA-3

Inflow Area = 1.188 ac, 0.05% Impervious, Inflow Depth = 2.01" for 10-year event
Inflow = 2.24 cfs @ 12.20 hrs, Volume= 0.199 af
Primary = 2.24 cfs @ 12.20 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

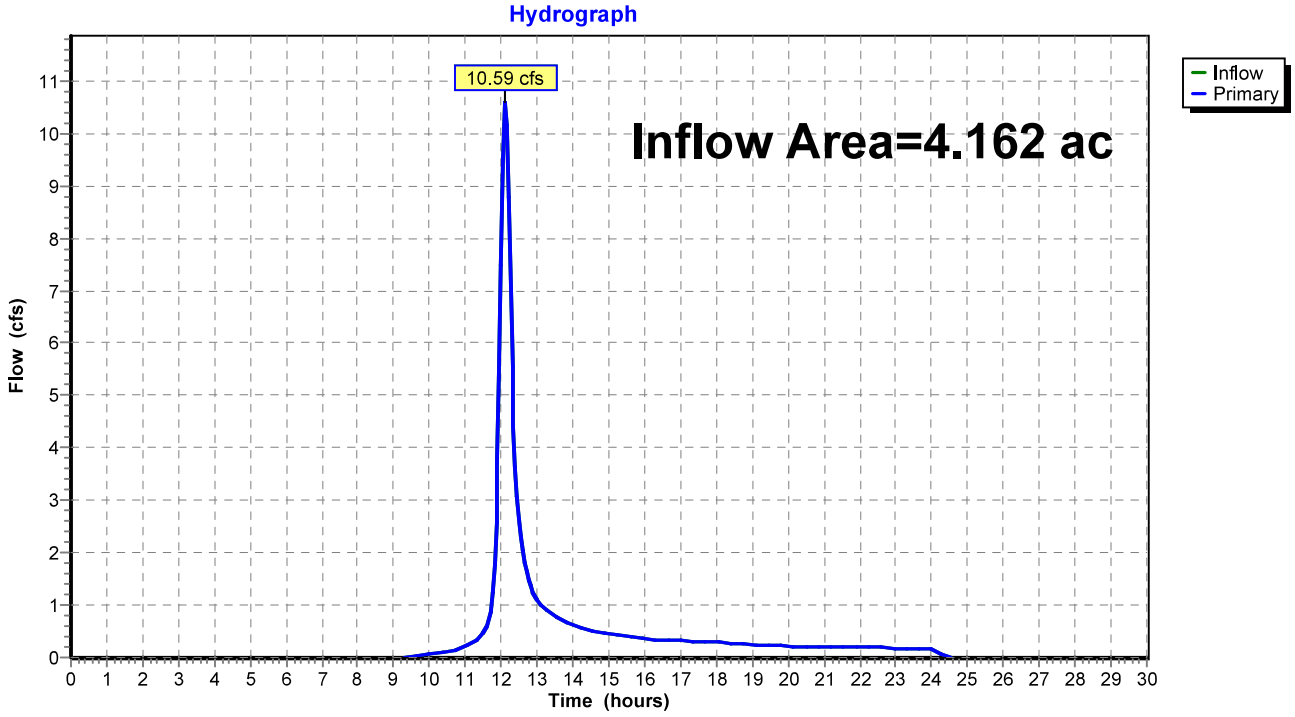


Summary for Link 4L: POA-4

Inflow Area = 4.162 ac, 0.00% Impervious, Inflow Depth = 2.21" for 10-year event
Inflow = 10.59 cfs @ 12.11 hrs, Volume= 0.766 af
Primary = 10.59 cfs @ 12.11 hrs, Volume= 0.766 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

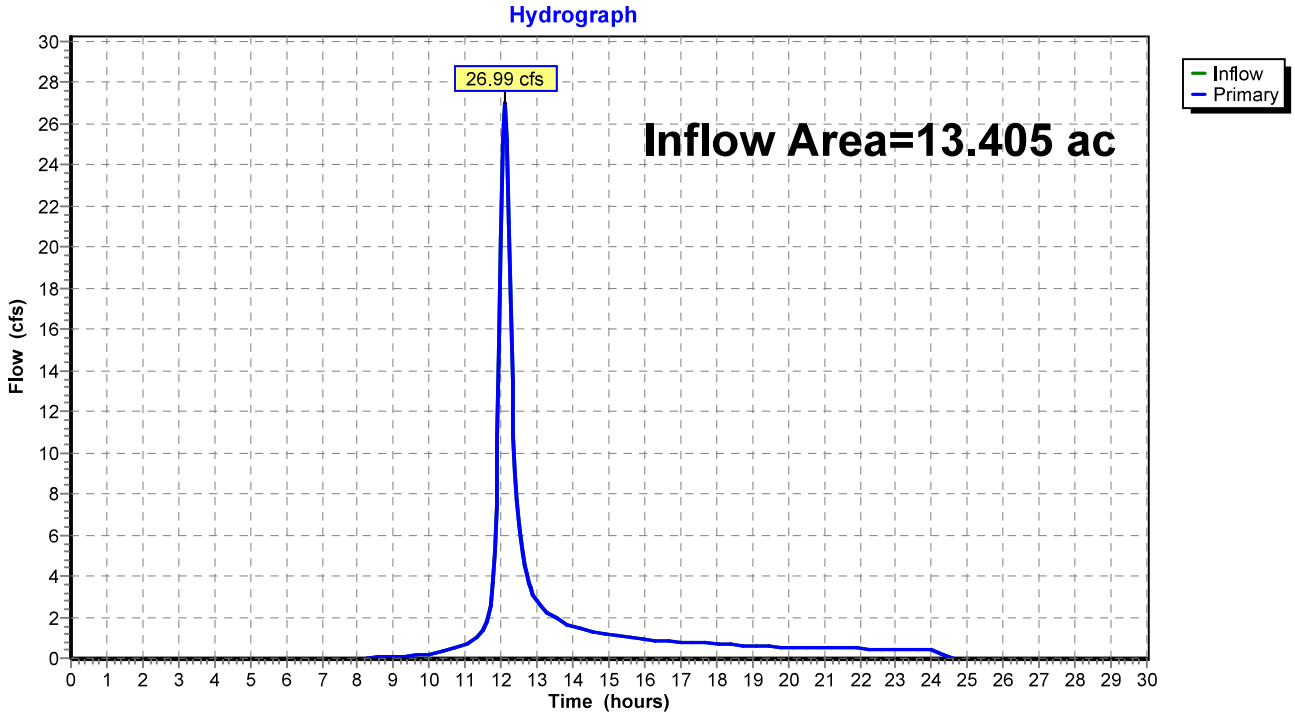


Summary for Link 5L: eNOI

Inflow Area = 13.405 ac, 30.35% Impervious, Inflow Depth = 1.76" for 10-year event
Inflow = 26.99 cfs @ 12.10 hrs, Volume= 1.964 af
Primary = 26.99 cfs @ 12.10 hrs, Volume= 1.964 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP-1: Subcat P-1 Runoff Area=1.472 ac 1.71% Impervious Runoff Depth=5.26"
Flow Length=454' Tc=18.2 min CN=73 Runoff=9.01 cfs 0.646 af

SubcatchmentP-2: Subcat P-2 Runoff Area=3.123 ac 18.83% Impervious Runoff Depth=6.35"
Flow Length=421' Tc=15.5 min CN=82 Runoff=24.31 cfs 1.652 af

SubcatchmentP-3: Subcat P-3 Runoff Area=1.188 ac 0.05% Impervious Runoff Depth=5.14"
Flow Length=575' Tc=25.6 min CN=72 Runoff=5.85 cfs 0.509 af

SubcatchmentP-4: Subcat P-4 Runoff Area=3.656 ac 0.00% Impervious Runoff Depth=5.50"
Flow Length=514' Tc=18.7 min CN=75 Runoff=22.99 cfs 1.677 af

SubcatchmentP-4.1: Subcat P-4.1 Runoff Area=0.507 ac 0.01% Impervious Runoff Depth=5.03"
Flow Length=304' Tc=15.4 min CN=71 Runoff=3.22 cfs 0.212 af

SubcatchmentP-5: Subcat P-5 Runoff Area=3.459 ac 99.86% Impervious Runoff Depth=8.27"
Tc=6.0 min CN=98 Runoff=40.89 cfs 2.384 af

Pond 1P: Alternative Cross Section w/ Peak Elev=211.34' Storage=36,550 cf Inflow=40.89 cfs 2.384 af
Discarded=3.40 cfs 2.384 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=3.40 cfs 2.384 af

Link 1L: POA-1 Inflow=9.01 cfs 0.646 af
Primary=9.01 cfs 0.646 af

Link 2L: POA-2 Inflow=24.31 cfs 1.652 af
Primary=24.31 cfs 1.652 af

Link 3L: POA-3 Inflow=5.85 cfs 0.509 af
Primary=5.85 cfs 0.509 af

Link 4L: POA-4 Inflow=26.11 cfs 1.889 af
Primary=26.11 cfs 1.889 af

Link 5L: eNOI Inflow=63.92 cfs 4.696 af
Primary=63.92 cfs 4.696 af

Total Runoff Area = 13.405 ac Runoff Volume = 7.079 af Average Runoff Depth = 6.34"
69.65% Pervious = 9.336 ac 30.35% Impervious = 4.068 ac

Summary for Subcatchment P-1: Subcat P-1

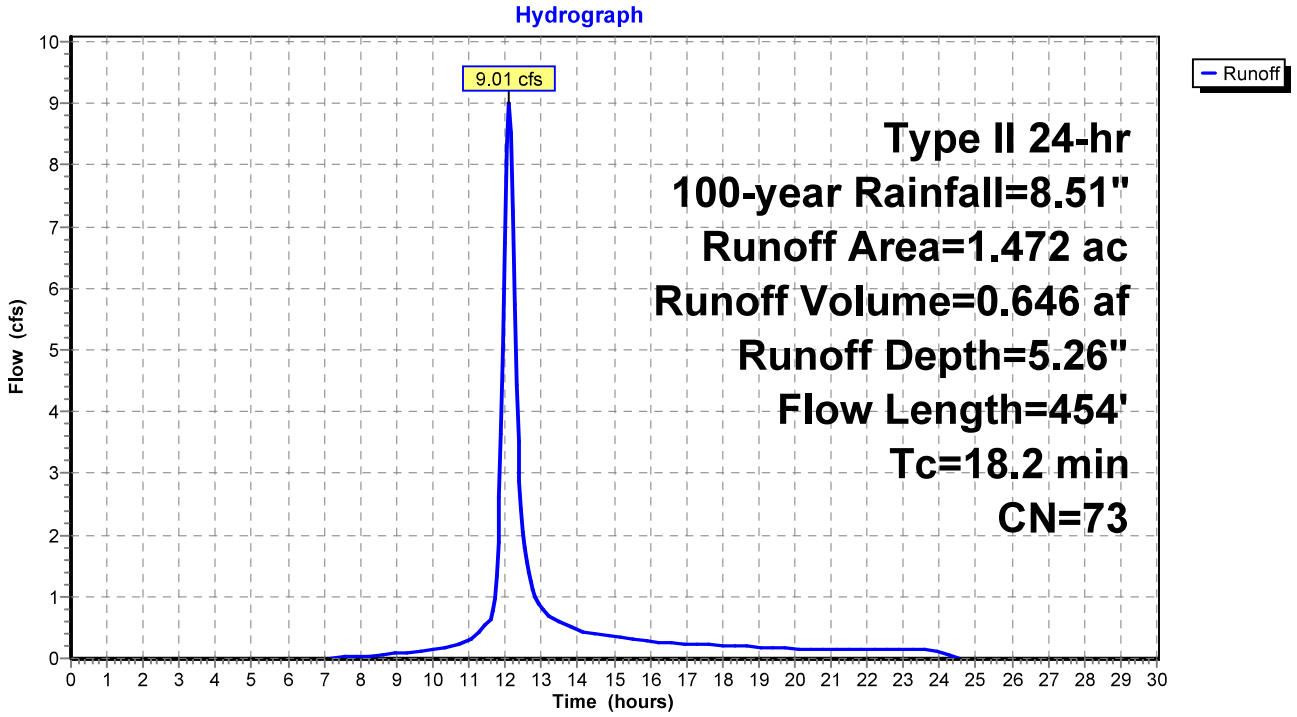
Runoff = 9.01 cfs @ 12.10 hrs, Volume= 0.646 af, Depth= 5.26"
Routed to Link 1L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.000	77	Woods, Good, HSG D
0.200	77	Woods, Good, HSG D
0.833	70	Woods, Good, HSG C
0.001	98	Paved parking, HSG C
0.387	74	>75% Grass cover, Good, HSG C
0.010	80	>75% Grass cover, Good, HSG D
0.016	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.025	98	Paved parking, HSG D
1.472	73	Weighted Average
1.446		98.29% Pervious Area
0.025		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0800	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.9	88	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.6	106	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.3	160	0.0560	1.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	454	Total			

Subcatchment P-1: Subcat P-1



Summary for Subcatchment P-2: Subcat P-2

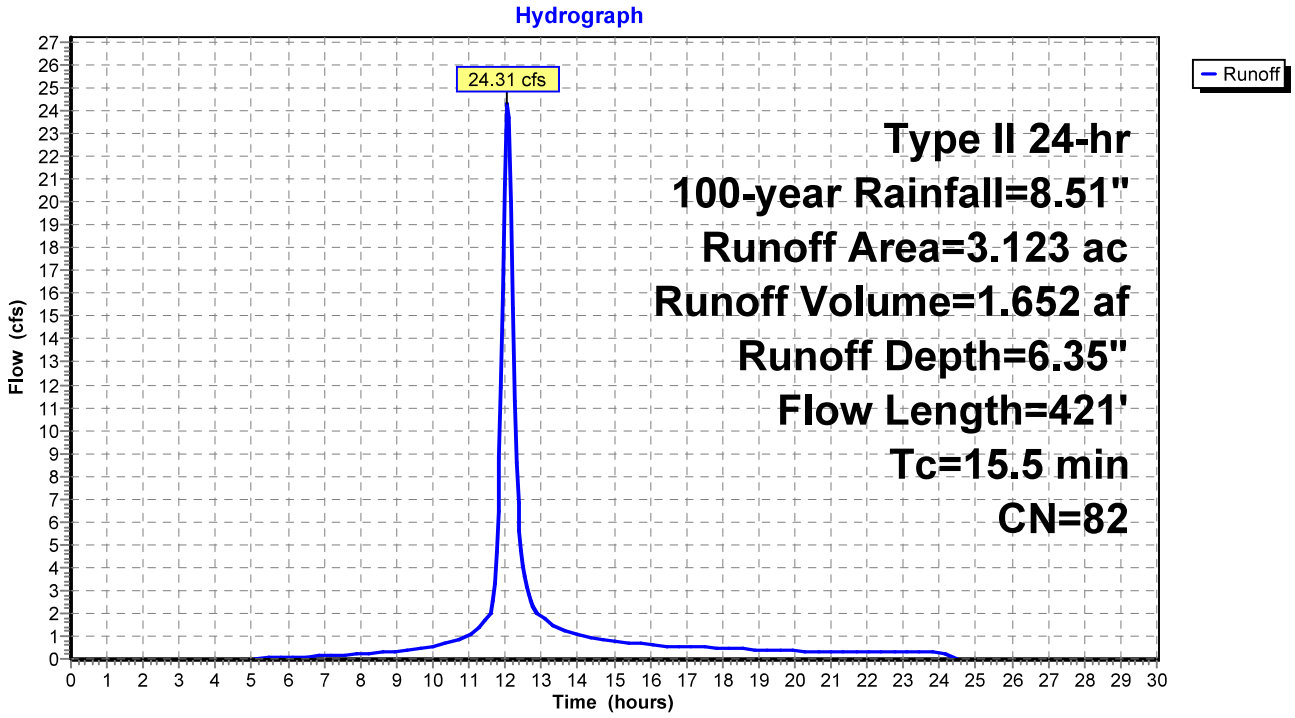
Runoff = 24.31 cfs @ 12.07 hrs, Volume= 1.652 af, Depth= 6.35"
Routed to Link 2L : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.579	98	Paved parking, HSG D
0.000	98	Paved parking, HSG D
0.009	98	Paved parking, HSG C
0.714	77	Woods, Good, HSG D
0.335	77	Woods, Good, HSG D
0.086	77	Woods, Good, HSG D
0.056	70	Woods, Good, HSG C
0.040	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	74	>75% Grass cover, Good, HSG C
0.048	74	>75% Grass cover, Good, HSG C
0.012	80	>75% Grass cover, Good, HSG D
0.463	80	>75% Grass cover, Good, HSG D
0.394	80	>75% Grass cover, Good, HSG D
0.031	80	>75% Grass cover, Good, HSG D
0.029	80	>75% Grass cover, Good, HSG D
0.088	80	>75% Grass cover, Good, HSG D
0.237	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
3.123	82	Weighted Average
2.535		81.17% Pervious Area
0.588		18.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0417	1.38		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.17"
1.8	15	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
10.7	60	0.0417	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	43	0.1429	2.65		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	82	0.0793	5.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	86	0.0233	1.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	69	0.3188	2.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	42	0.0476	1.53		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.5	421	Total			

Subcatchment P-2: Subcat P-2



Summary for Subcatchment P-3: Subcat P-3

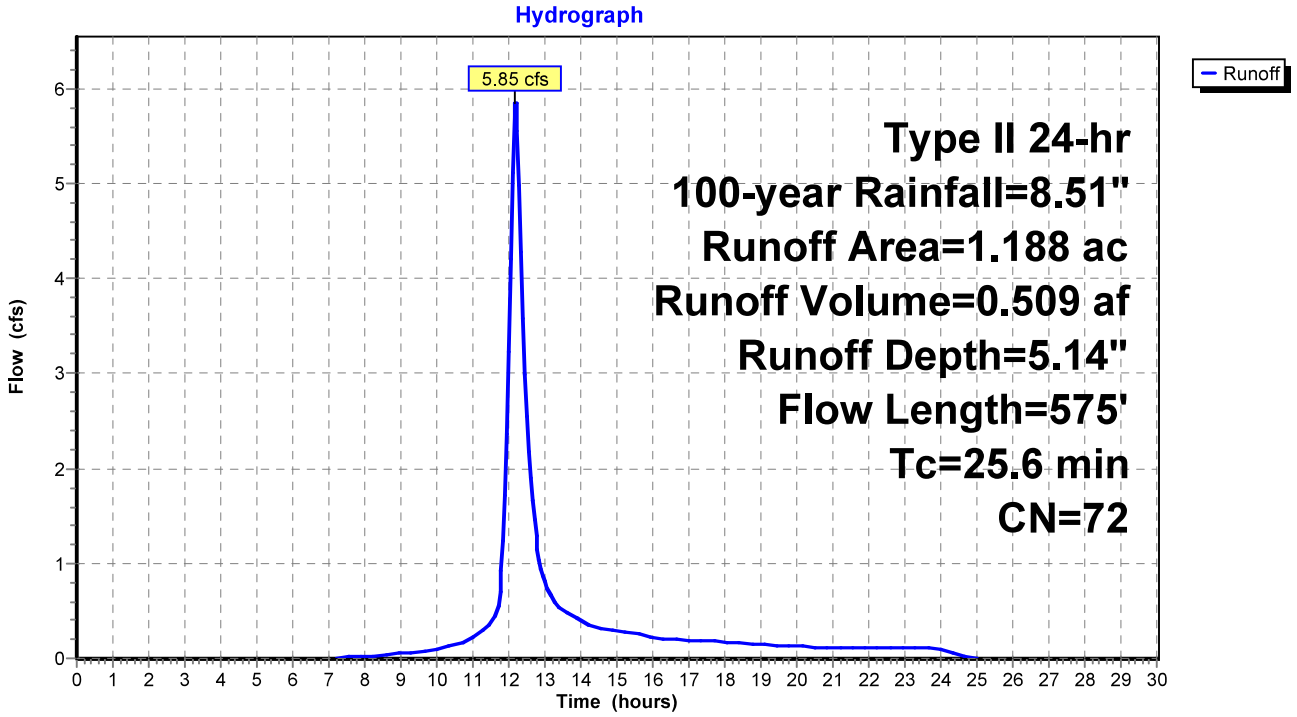
Runoff = 5.85 cfs @ 12.19 hrs, Volume= 0.509 af, Depth= 5.14"
Routed to Link 3L : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.539	74	>75% Grass cover, Good, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.000	98	Paved parking, HSG C
0.649	70	Woods, Good, HSG C
0.000	77	Woods, Good, HSG D
1.188	72	Weighted Average
1.188		99.95% Pervious Area
0.001		0.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
1.5	58	0.0172	0.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.9	392	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	25	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
25.6	575	Total			

Subcatchment P-3: Subcat P-3



Summary for Subcatchment P-4: Subcat P-4

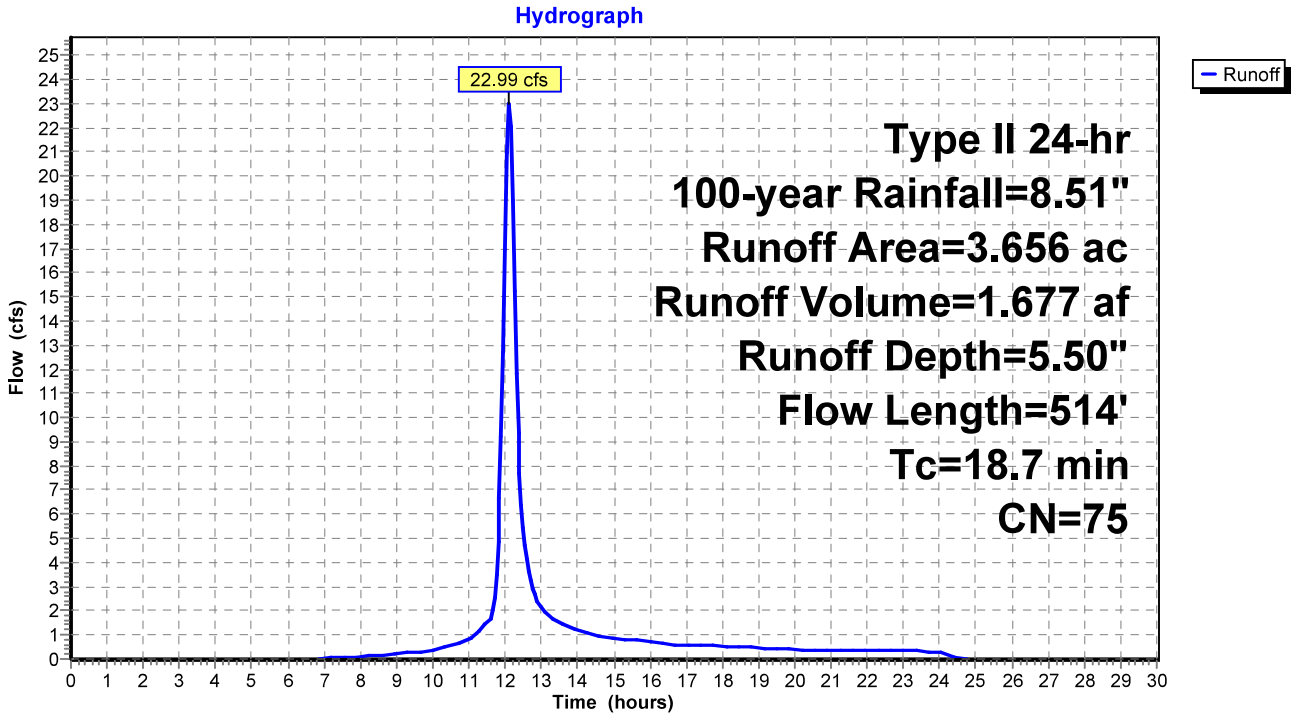
Runoff = 22.99 cfs @ 12.11 hrs, Volume= 1.677 af, Depth= 5.50"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.006	74	>75% Grass cover, Good, HSG C
0.976	70	Woods, Good, HSG C
2.674	77	Woods, Good, HSG D
3.656	75	Weighted Average
3.656		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
3.4	230	0.0522	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	101	0.2871	2.68		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	83	0.1325	1.82		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.7	514	Total			

Subcatchment P-4: Subcat P-4



Summary for Subcatchment P-4.1: Subcat P-4.1

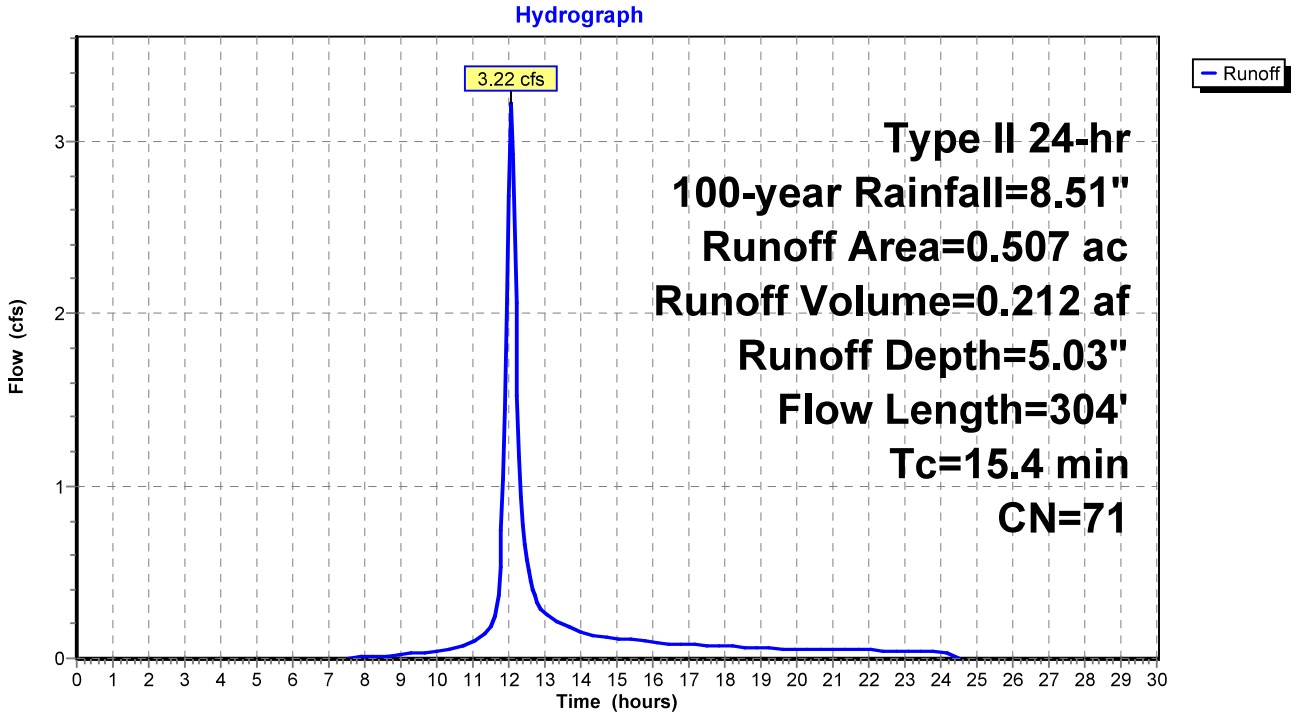
Runoff = 3.22 cfs @ 12.07 hrs, Volume= 0.212 af, Depth= 5.03"
Routed to Link 4L : POA-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
0.363	70	Woods, Good, HSG C
0.000	98	Paved parking, HSG C
0.104	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.040	77	Woods, Good, HSG D
0.507	71	Weighted Average
0.507		99.99% Pervious Area
0.000		0.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	71	0.0643	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.17"
2.2	29	0.0690	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.17"
1.2	80	0.0250	1.11		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.7	124	0.0564	1.19		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.4	304	Total			

Subcatchment P-4.1: Subcat P-4.1



Summary for Subcatchment P-5: Subcat P-5

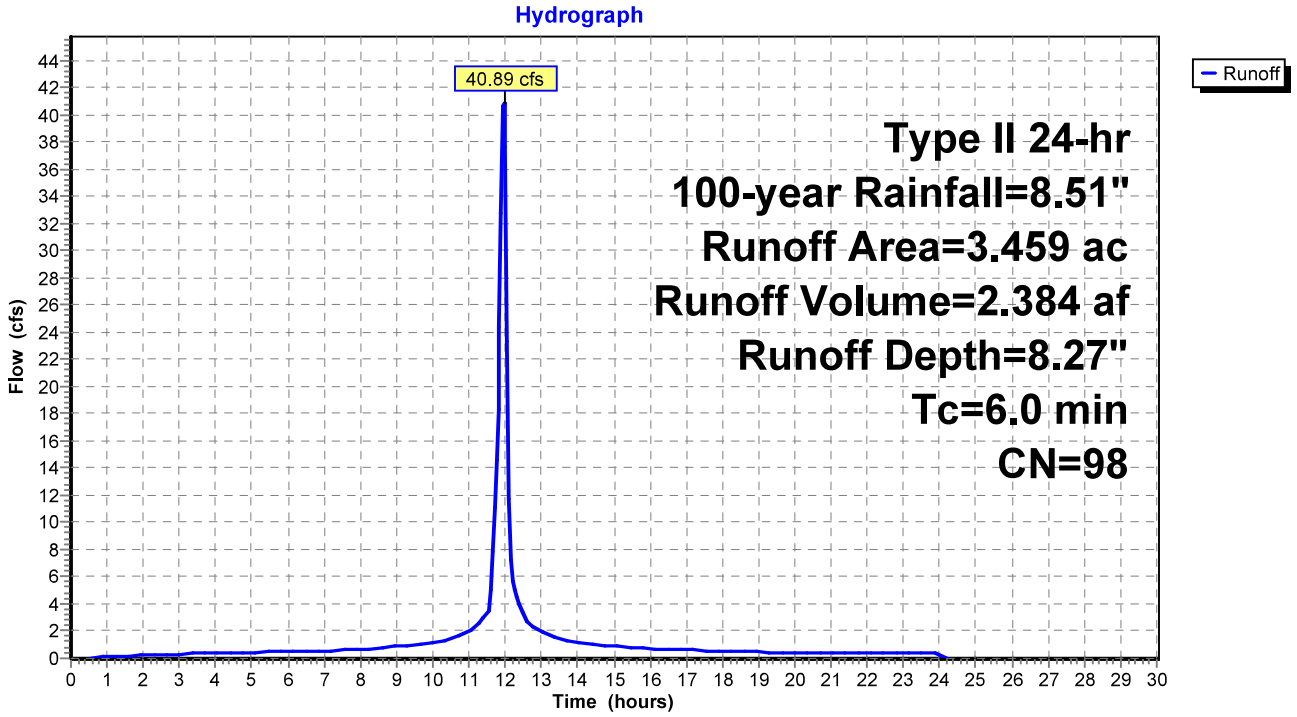
Runoff = 40.89 cfs @ 11.96 hrs, Volume= 2.384 af, Depth= 8.27"
Routed to Pond 1P : Alternative Cross Section w/ Infiltration

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=8.51"

Area (ac)	CN	Description
3.187	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.000	74	>75% Grass cover, Good, HSG C
0.001	74	>75% Grass cover, Good, HSG C
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.000	80	>75% Grass cover, Good, HSG D
0.001	80	>75% Grass cover, Good, HSG D
0.267	98	Paved parking, HSG D
3.459	98	Weighted Average
0.005		0.14% Pervious Area
3.454		99.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment P-5: Subcat P-5



Summary for Pond 1P: Alternative Cross Section w/ Infiltration

Inflow Area = 3.459 ac, 99.86% Impervious, Inflow Depth = 8.27" for 100-year event
Inflow = 40.89 cfs @ 11.96 hrs, Volume= 2.384 af
Outflow = 3.40 cfs @ 11.60 hrs, Volume= 2.384 af, Atten= 92%, Lag= 0.0 min
Discarded = 3.40 cfs @ 11.60 hrs, Volume= 2.384 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 1L : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 2L : POA-2

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 211.34' @ 12.47 hrs Surf.Area= 48,998 sf Storage= 36,550 cf

Plug-Flow detention time= 66.7 min calculated for 2.380 af (100% of inflow)
Center-of-Mass det. time= 66.6 min (802.8 - 736.2)

Volume	Invert	Avail.Storage	Storage Description
#1	209.48'	49,390 cf	**Alternative Cross Section (Prismatic)** Listed below (Recalc) 123,475 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
209.48	48,998	0	0
210.48	48,998	48,998	48,998
211.48	48,998	48,998	97,996
212.00	48,998	25,479	123,475

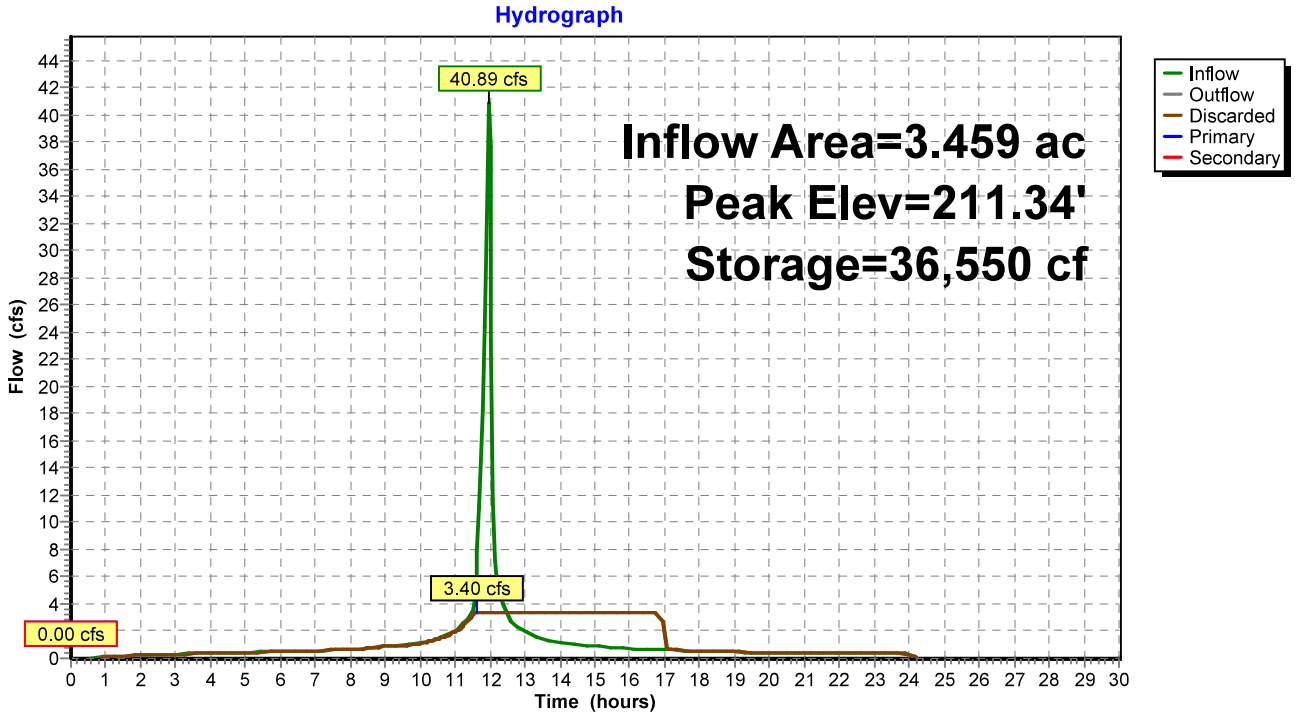
Device	Routing	Invert	Outlet Devices
#1	Discarded	209.48'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	211.48'	**357.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50
#3	Secondary	211.48'	**501.0' long (Profile 8) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.77 3.26 3.50

Discarded OutFlow Max=3.40 cfs @ 11.60 hrs HW=209.51' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.40 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=209.48' (Free Discharge)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Alternative Cross Section w/ Infiltration

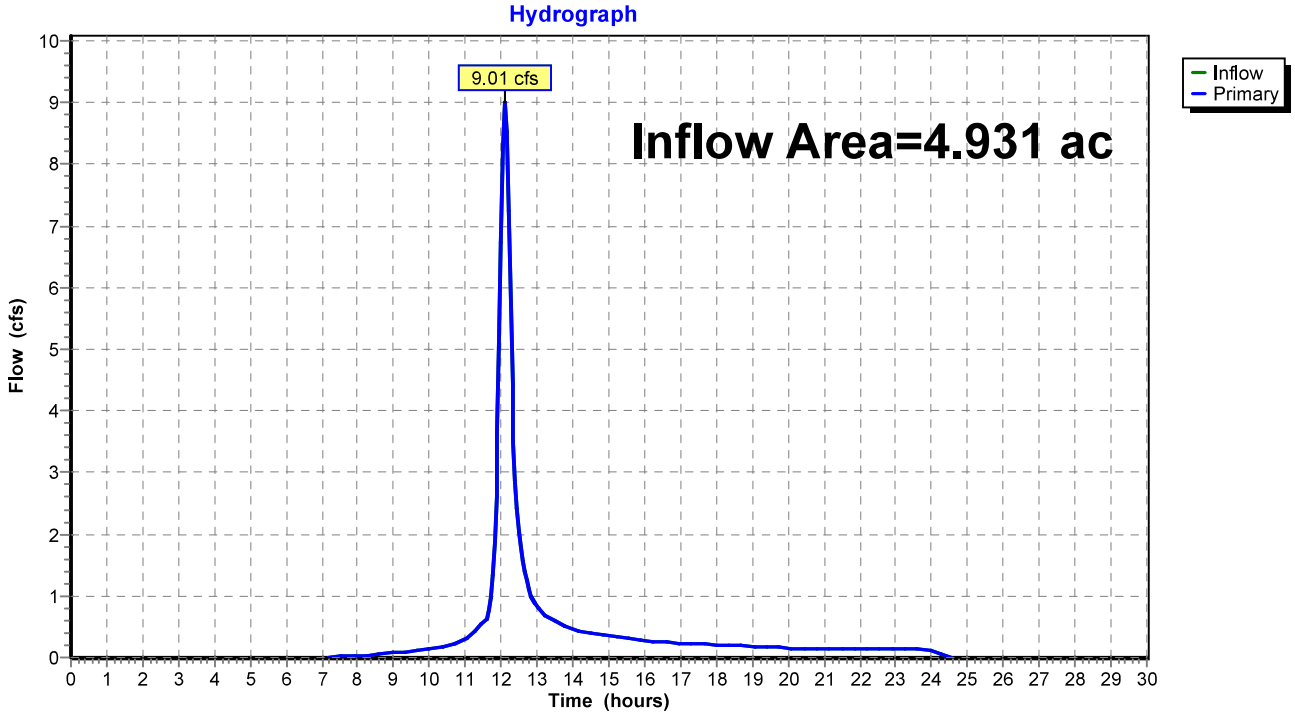


Summary for Link 1L: POA-1

Inflow Area = 4.931 ac, 70.57% Impervious, Inflow Depth = 1.57" for 100-year event
Inflow = 9.01 cfs @ 12.10 hrs, Volume= 0.646 af
Primary = 9.01 cfs @ 12.10 hrs, Volume= 0.646 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 1L: POA-1

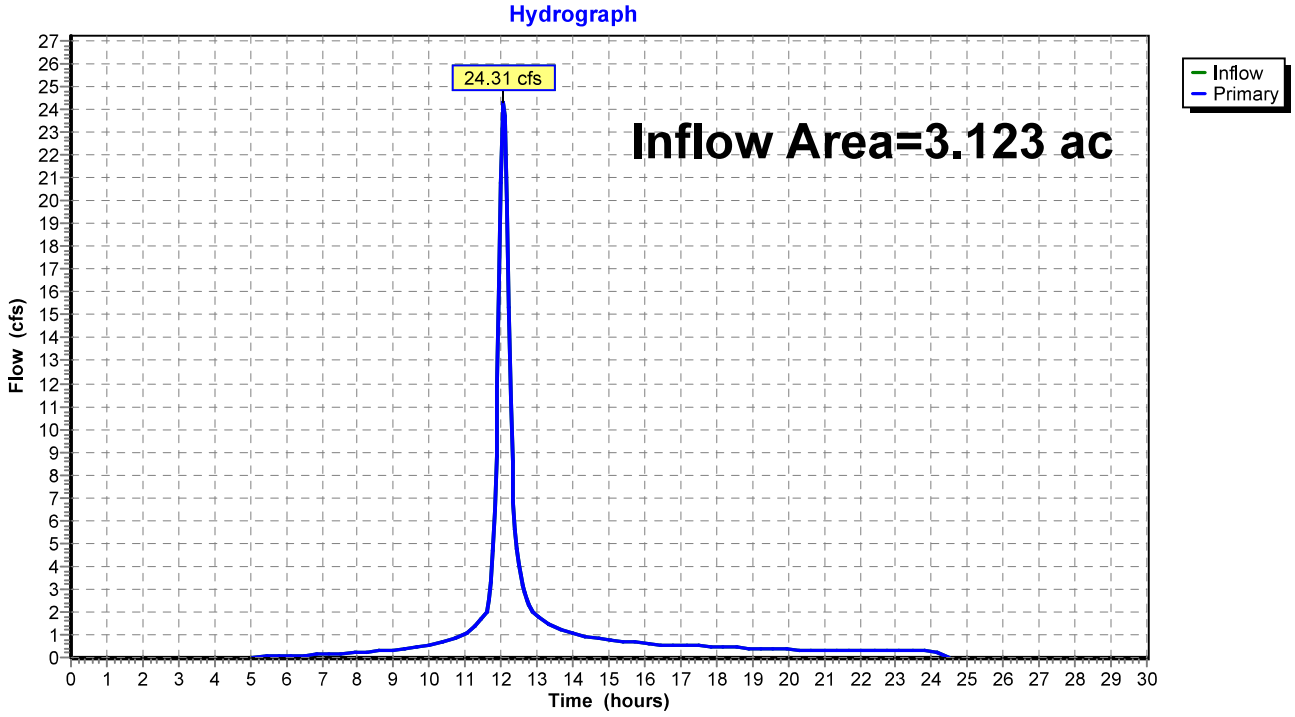


Summary for Link 2L: POA-2

Inflow Area = 3.123 ac, 18.83% Impervious, Inflow Depth = 6.35" for 100-year event
Inflow = 24.31 cfs @ 12.07 hrs, Volume= 1.652 af
Primary = 24.31 cfs @ 12.07 hrs, Volume= 1.652 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 2L: POA-2

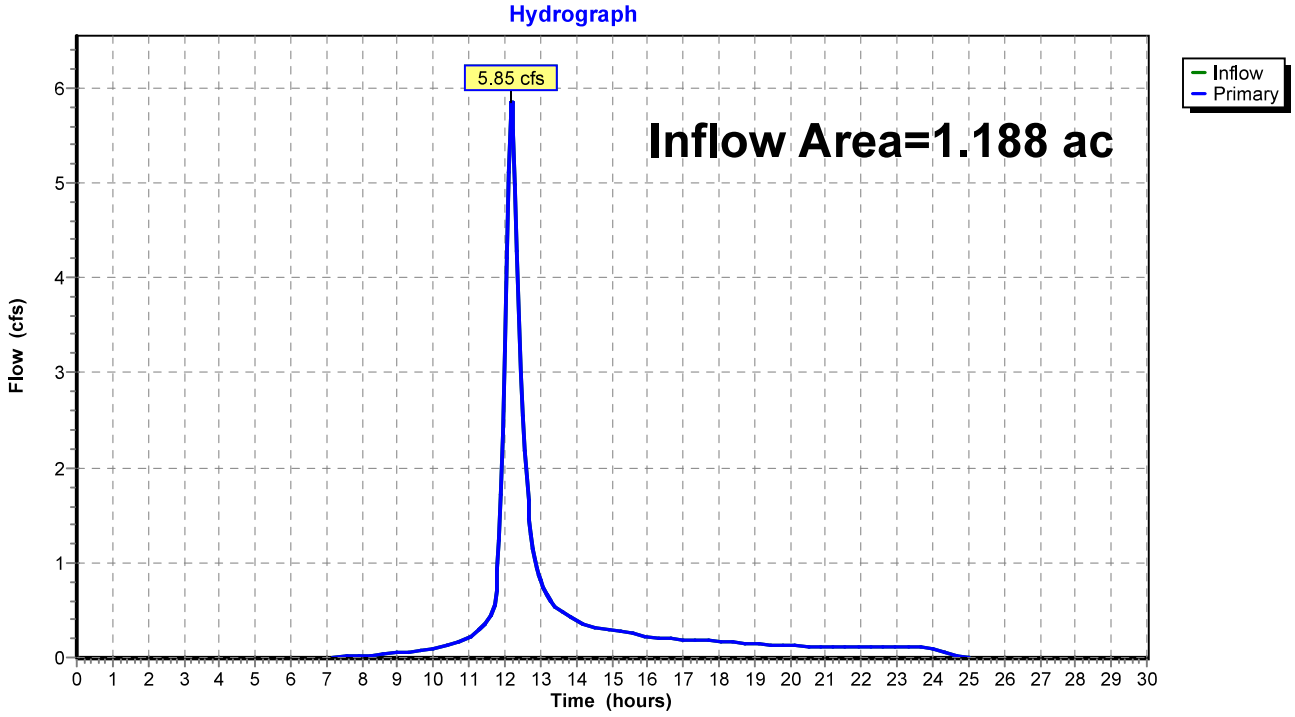


Summary for Link 3L: POA-3

Inflow Area = 1.188 ac, 0.05% Impervious, Inflow Depth = 5.14" for 100-year event
Inflow = 5.85 cfs @ 12.19 hrs, Volume= 0.509 af
Primary = 5.85 cfs @ 12.19 hrs, Volume= 0.509 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 3L: POA-3

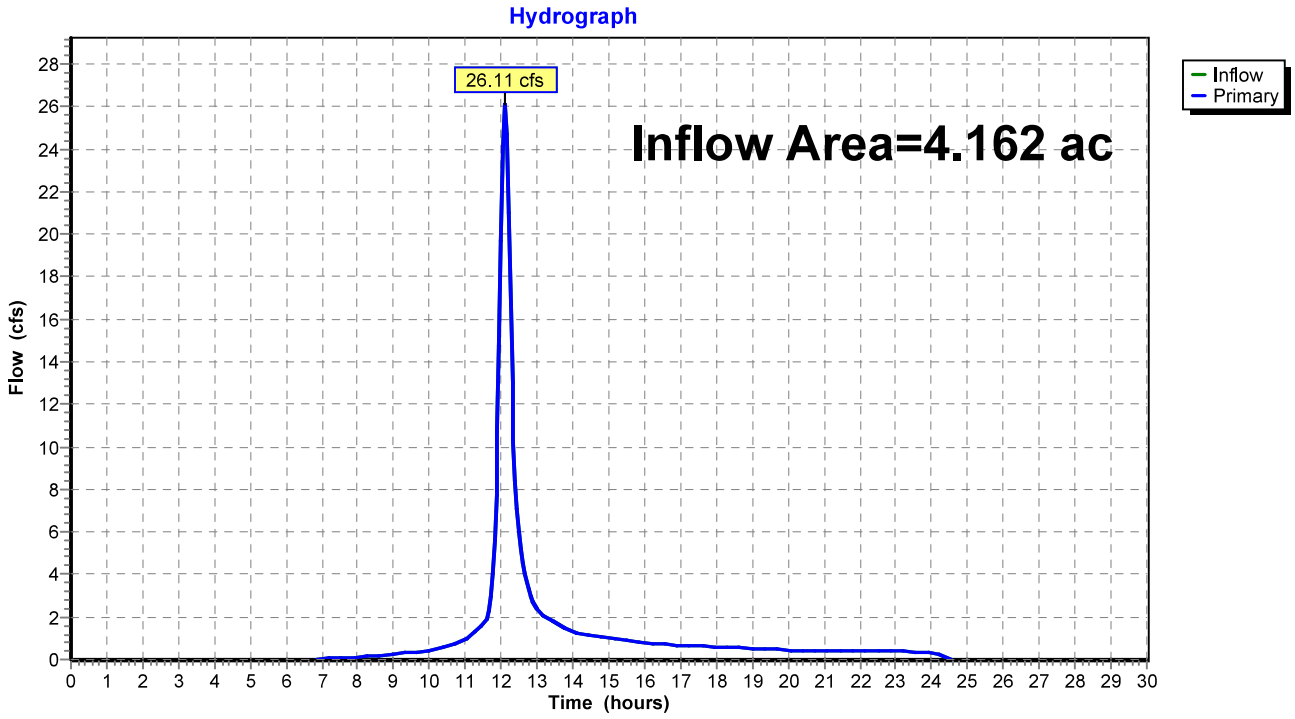


Summary for Link 4L: POA-4

Inflow Area = 4.162 ac, 0.00% Impervious, Inflow Depth = 5.45" for 100-year event
Inflow = 26.11 cfs @ 12.10 hrs, Volume= 1.889 af
Primary = 26.11 cfs @ 12.10 hrs, Volume= 1.889 af, Atten= 0%, Lag= 0.0 min
Routed to Link 5L : eNOI

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 4L: POA-4

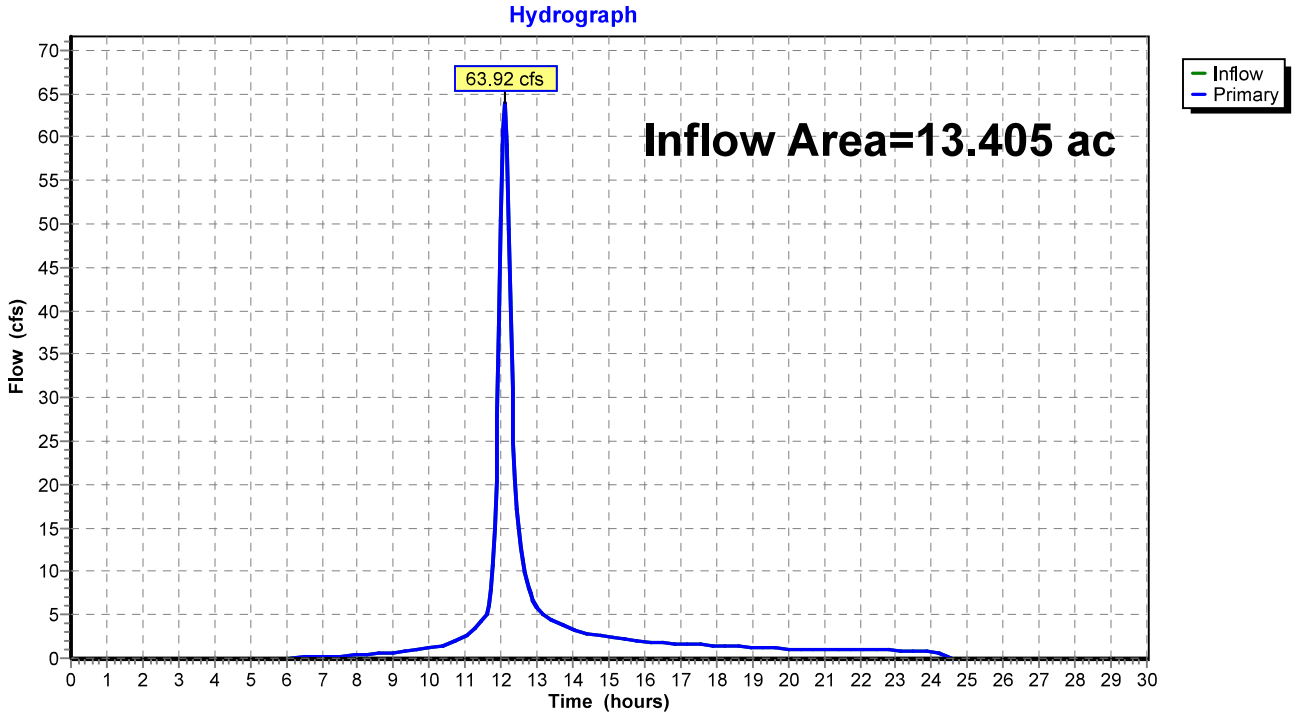


Summary for Link 5L: eNOI

Inflow Area = 13.405 ac, 30.35% Impervious, Inflow Depth = 4.20" for 100-year event
Inflow = 63.92 cfs @ 12.09 hrs, Volume= 4.696 af
Primary = 63.92 cfs @ 12.09 hrs, Volume= 4.696 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Link 5L: eNOI



Attachment 3

Water Quality Volume and Treatment Calculations and Sizings

Minimum Runoff Reduction and Required Water Quality Volume

P (90% Rainfall/1-Yr Storm) = 1.5 Inches

RRv - Goal - reduction of the total WQv by application of green infrastructure techniques and SMPs to replicate pre-construction hydrology.
Minimum RRv - The minimum WQv that must be reduced.
Minimum RRv = [(P)(Rv*)(Aic)]/12
Where:
P = 90% Rainfall Event Number or 1-Year Storm
Rv* = .95
Aic = Total area of new impervious cover x S
S = HSG Specific Reduction Factor, weighed to reflect watershed characteristics

WQv : Capture & treat 100% of the 90% or 1-year, 24 hour rainfall event stormwater runoff volume

WQv = [(P)(Rv*)(A)]/12

Where:
P= 90% Rainfall Event Number or 1-Year Storm
Rv* = .95
A = site area in acres, when using WQv required table, A = existing impervious area

Post-Construction Project Area	Specific Reduction Factor (S)	Disturbed Impervious Area	New Impervious Area	Aic	RRv min (ac-ft)	RRv min (cu-ft)	WQv min (ac-ft)	WQv min (cu-ft)
Entire Site	0.23	1.971	1.625	0.366	0.044	1,917	0.252	10977

Water Quality Volume

P (90% Rainfall OR 1-Yr Storm) = 1.5 Inches

WQv : Capture & treat 100% of the 90% rainfall event stormwater runoff volume

WQv = [(P)(Rv)(A)]/12

Where:
P= 90% Rainfall Event Number or 1-Year Storm
Rv = 0.05 + 0.009(I), where I is percent impervious cover
A = site area in acres, when using WQv required table, A = existing impervious area

WQv Required table

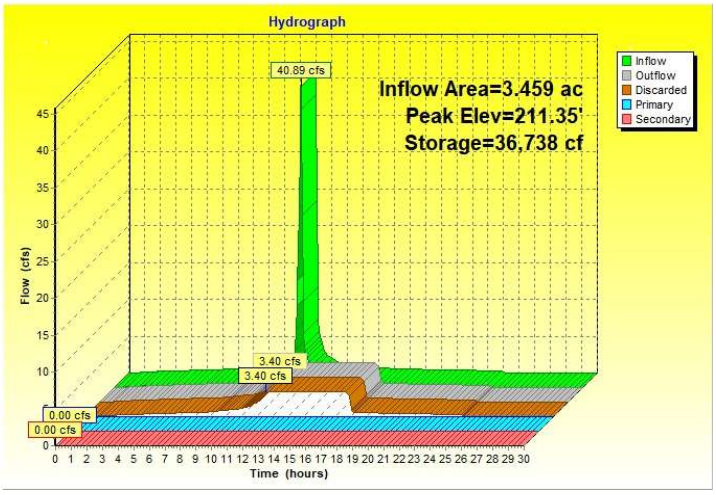
BMP to Filter Strip	Area to Treatment Practice (acres)	Impervious Area to Treatment Practice (acres)	I (%)	Rv	WQv to be treated (ac-ft)	WQv to be treated (cu-ft)
Entire Site - POA 1	*3.46*	3.46	**100.00**	**0.95**	0.411	17903
					Total WQv to be treated	17903

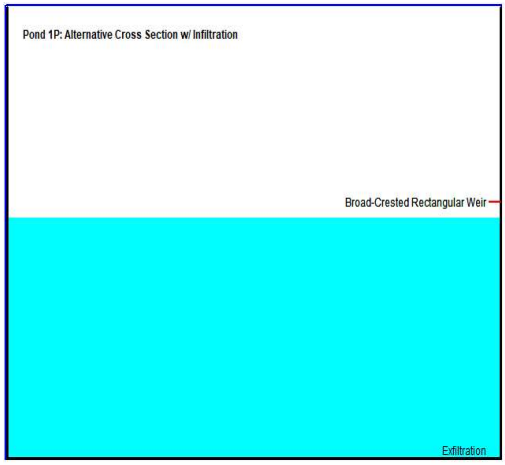
Sizing the Alternative Cross Section Area

Alternative Cross Section:			
Area of Alternative Cross Section	61280 SF	Alternative Cross Section Volum	122560 CF
Depth	2 Ft		

Items/volumes to exclude from Alternative Cross Section:			
mega packs area	156.5 SF	Mega Pack Volume	10955 CF
number of mega packs	35		
Depth	2 Ft		
Substation area	2369 SF	Substation Volume	4738 CF
Depth	2 Ft		
Transformer Foundation	115.5 SF	Transformer Foundation Volume	3696 CF
Number of Transformer Foundations	16		
Depth	2 Ft		
Area of Road	11290 SF	Road Volume	5174.583 CF
Depth	0.458 Ft		

Results:	
Total Cross Section Volume:	97996 CF
Storage Volume = Total Volume*0.4	39199 CF
Goal Volume to infiltrate the entire 100 year storm, based on the Model:	36738 CF





NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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1/20/2017

Michael McPeck, P.E.
Lead Civil/Structural Engineer
National Grid
300 Erie Boulevard West
Syracuse, NY 13202

Re: National Grid's Stormwater Management Practices for Substations – Final Design Report

Dear Mr. McPeck:

We have completed our review of Environmental Design & Research's (EDR's) final design report, dated February 25, 2016, for the post-construction stormwater management practices to be used at National Grid's substation pads and have determined that the two designs comply with the NYS Stormwater Management Design Manual (2015 version).

EDR's final report calls for the use of an "Infiltration" practice at sites with soils that have an infiltration rate greater than or equal to 0.5 in/hr; and "Sheetflow to Riparian Buffer or Filter Strip" practice at sites with soils that have an infiltration rate less than 0.5 in/hr. Please be reminded that the system designs must comply with all applicable criteria in Chapters 5 and 6 of the Design Manual (i.e. separation distance to groundwater/bedrock for infiltration practices, minimum width of the riparian buffer /filter strip is 50 feet, etc.).

If you have any questions or require additional information, please contact me at (518) 402-8114.

Sincerely,

David Gasper

David Gasper, P.E.

cc: Tom Dussing, EDR

Michael McPeck, P.E.
Lead Civil/Structural Engineer-
Substation Design & Engineering
National Grid

nationalgrid

February 25, 2016

Mr. David Gasper, P.E.
NYSDEC
Division of Water
625 Broadway, 4th Floor
Albany, NY 12233-3505

RE: Approval of National Grid's Alternative Stormwater Management Practices for Substations

Dear Mr. Gasper:

National Grid has been working with Environmental & Design and Research for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad cross-section and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the attached package Alternative Stormwater Management for National Grid Substations, dated February 12, 20116. The attached design memorandum provides a stormwater management system that is compliant with the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). The **systems** listed below include the following on-site infiltrations rate scenarios:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101, dated February 12, 2016
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102, dated February 12, 2016

National Grid requests official approval of these **systems,** as compliant stormwater management practices with the New York State Stormwater Management Design Manual (current version), and approval as a NYSDEC Stormwater Standard Stormwater Management Practice. Following the receipt of this approval, the projects utilizing this system will be subject to the standard of five or ten business day permit authorization, provided that the other portions of the project follow the standard General Permit and the Design Manual requirements.

National Grid also grants NYSDEC permission to distribute these **system** designs to other potential users with the understanding that the following disclaimer is to be added to all stormwater reports and contract drawings by the user:

> "National Grid (NG) together with the consulting firm, Environmental Design & Research (EDR), prepared a NYSDEC approved stormwater management prototype system (**system**), which may be applicable to substations projects. The user assumes the sole responsibility for the use of this system, its applicability to the project site, and the verification of appropriate use and compliance with village, town, city, county, state and federal stormwater requirements for this location."

Thank you for your continued support and consideration of this system.

Sincerely,

Michael McPeck, P.E.
Lead Civil/Structural Engineer

300 Erie Boulevard West, Syracuse, NY 13202
T: 315 428-5727 ■ Michael.McPeck@nationalgrid.com ■ www.nationalgrid.com

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000, Syracuse, New York 13202
P. 315.471.0688 • F. 315.471.1061 • www.edrcompanies.com

memorandum

To:	David Gasper, PE, NYSDEC	**EDR Project No:**	12073
From:	Carolyne Bean, EIT & Thomas Dussing, PE		
Date:	February 25, 2016		
Reference:	Alternate Stormwater Management for National Grid Substations		

Discussion

Environmental Design and Research (EDR) has worked with National Grid, the New York State Department of Environmental Conservation (NYSDEC), and the State University of New York, College of Environmental Science and Forestry (SUNY ESF) for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad construction and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the substation pad cross-section and provides a stormwater management compliant design that meets the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). Our combined efforts have produced two **systems** for the following on-site soil infiltrations rate scenarios, which include:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102

National Grid requests approval of these two **systems,** as compliant stormwater management practices with the New York State Stormwater Manual (current version), and that they be approved as standard stormwater management practices, as required by the current version of the NYSDEC Stormwater General Permit. If a project utilizing one of the cross sections is subject to review by a Municipal Separate Storm Sewer System (MS4), it would be responsibility of the MS4 to review and approve the Stormwater Pollution Prevention Plan (SWPPP) by signing the MS4 SWPPP Acceptance form. If the project is not subject to review by a MS4, the SWPPP would follow the normal approval process for a non-MS4 project that is in conformance with the current version of the NYSDEC Stormwater General Permit.

Based on the demonstration project results, we offer the following in support of this request:

- The proposed stormwater management **systems** are designed for 7 inches of rainfall. This represents the largest 100-year storm rainfall depth within National Grid's service area or greater than six back to back 90% storms (1.1 inches).
- The **systems** provide treatment and management of WQ_v, RRv, Cp_v, Q_p, and Q_f by providing storage and infiltration (as applicable), of all rain events, up to and including, the 100-year storm.
- The **systems** are self-contained which reduces the impact to the surrounding environment by eliminating additional site disturbance that would be necessary for green infrastructure and traditional stormwater practices.
- National Grid has provided testing at a demonstration area that is supported by laboratory tested infiltration rates and porosities. A portion of the construction and testing of the demonstration project was witnessed by a former NYSDEC representative, Ellen Hahn Kubek. The demonstration area testing results show that the **systems** can accept and hold the 100-year storm volume without ponding or surface runoff.

Demonstration Area Test Results

100-Year Storm Demonstration

Ellen Hahn Kubek, a former NYSDEC representative, was present for the 100-Year storm test on November 21, 2013. 1,800 gallons of water was applied uniformly with a hose over a 30-minute duration, or at rate of 9.2 inches per hour. (Note that according to the Natural Resource Conservation Service (NRCS) Type 2 Rainfall Distribution, the highest 30-minute precipitation intensity of a 24-hour storm is between 11.5 hours and 12 hours. During this 30-minute time frame, 35% of the storm rainfall depth occurs. For a 7 inch, 100-Year Storm this translates to 2.5 inches of rainfall, or a rate of 5.0 inches per hour. Therefore, the application rate used during the test was greater than the maximum intensity that would occur during an NRCS Type 2 rain event.) The November 21, 2013 demonstration showed that the proposed cross section does have an acceptable infiltration rate, with no surface runoff being created during the test even with the high application intensity. (Also, note that the compaction results for the demonstration area were greater than National Grid's requirement of 95% standard proctor for the filter course.)

Demonstration Area Volume Correction

Following the construction of the demonstration area, it was determined that an insufficient depth of the reservoir course had been placed. Measurements from the surface of the test area to the bottom of the observation wells determined that it had been constructed with 4 inches of reservoir course material rather than the 10 inches that is proposed in the attached drawings. Since the 100-Year storm is proposed to be stored within the reservoir and filter courses, EDR calculated the equivalent storage volume required for testing the 100-Year storm based on the cross section as constructed (4–inch reservoir course). Based on this calculation the volume of water used for the 100-Year storm test was 1,800 gallons rather than initially proposed 2,800 gallons.

NYSDEC Stormwater Requirements

Runoff Reduction and Water Quality Volume Management

The proposed **system** for sites with **infiltration rates greater than or equal to 0.5 inches per hour** provides 100% storage and infiltration of the 7-inch rainfall event. This exceeds minimum RRv and WQv requirements for any Hydrologic Soil Group (HSG).

The proposed **system** for sites with **infiltration rates less than 0.5 inches per hour** will meet the RRv and WQv requirements by using practices from the 2010 NYS Stormwater Management Design Manual (Design Manual): vegetated filter strip or riparian forest buffer. Per the Design Manual, a maximum of 75 feet of flow length over impervious area can discharge to these practices. According to the hydrologic modeling reports attached, a 50 feet-wide by 75 feet-long impervious area with CN of 98 creates a peak discharge rate of 114 gallons per minute and an average discharge rate of 57 gallons per minute. Per the Design Manual, this discharge rate can be directed to a 50 feet wide by 60 feet long filter strip or buffer with a slope of 0% to 8% on HSG D soils. A 1-acre substation was modeled using the average porosity provided by the **system** with a 4 inch underdrain outlet. This resulted in a peak discharge rate of 56 gallons per minute. The average discharge rate from the impervious area is similar to the peak discharge rate from the substation area; therefore, it is reasonable to consider the same stormwater management via sheet flow to a filter strip or buffer to be acceptable. National Grid proposes for their **system** to meet the RRv and WQv requirements for sites with an infiltration rate of less than 0.5 inches per hour by using the following design criteria:

- A filter strip or buffer 50 feet wide, with the necessary length per the Design Manual, will be provided for each acre of substation area.
- Per the Design Manual, the length of the filter strip or buffer would be based on the attainable or existing site slopes. Filter strips or buffers with slopes of 0% to 8% would be 50 feet long, 8% to 12% would be 75 feet long and 12% to 15% would be 100 feet long. In HSG C or D soils, the length will be increased by 15% or 20%, respectively.

National Grid proposes that in this site condition, the substation underdrain(s) discharge to a flow dissipater (to create sheet flow) then to a filter strip or buffer sized as described. An example layout for a 5-acre substation on HSG D soils is shown on drawing C-103.

Volume Management

The proposed **system** for sites with infiltration rates greater than or equal to 0.5 inches per hour provide storage of Cp_v, Q_p, and Q_f and discharged via infiltration. The proposed **system** for sites with infiltration rates less than 0.5 inches per hour will provide storage for volume management and will discharge via an underdrain system that will be appropriately sized to meet the Cp_v, Q_p, and Q_f requirements. The underdrains will discharge to a flow dissipater and sheet flow over a filter strip or buffer as previously discussed to meet RRv and WQv requirements. Supporting stormwater detention calculations are attached.

Stormwater Management System Summary

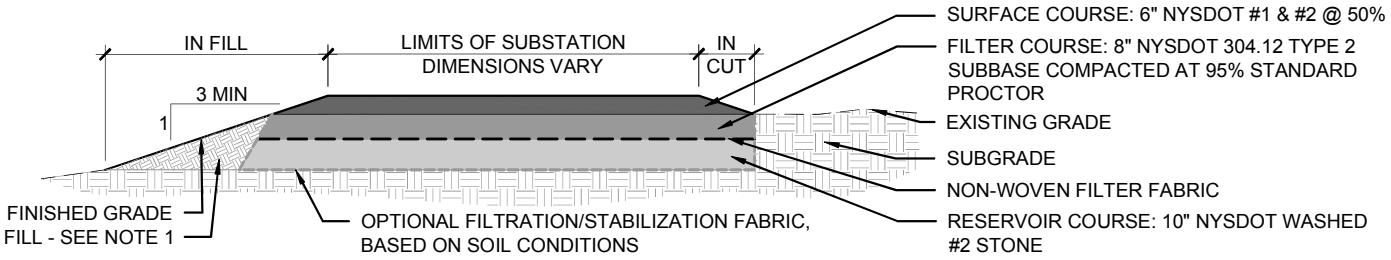
In summary, the **systems** proposed by National Grid would provide stormwater management as detailed in the table below.

Site Infiltration (in/hr)	RRv & WQv	Cp_v	Q_p	Q_f
≥ 0.5	100% Infiltration (2.5 hours or less)*	100% Infiltration	100% Infiltration	100% Infiltration (14 hours or less)**
< 0.5	100% Vegetated Filter or Riparian Forest Buffer	Attenuation	Attenuation	Attenuation

* Calculated based on the largest 90% storm rainfall depth within National Grid's service area – 1.1 inches.
** Calculated based on the largest 100-Year storm rainfall depth within National Grid's service area – 7.0 inches

Attachments: C-101 Proposed Substation Sections for Infiltration Rates of 0.5 in/hr and Greater
C-102 Proposed Substation Sections for Infiltration Rates Less Than 0.5 in/hr
C-103 Example Substation Filter Strip Layout for Infiltration Rates Less Than 0.5 in/hr
1 and 100 year Hydrologic Modeling Reports
National Grid Proposed Sections – Volume Storage Calculation
Photo of 11/22/20130 White Board Discussion with Ellen Hahn Kubek
12/27/2013 Email from Ellen Hahn Kubek

Copies To: Michael McPeck, National Grid
Carol Lamb-Lafay, NYSDEC
David Follansbee, NYSDEC
File



1
C-101

SUBSTATION SECTION - INFILTRATION RATE ≥ 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. INFILTRATION TESTING SHALL BE COMPLETED AS REQUIRED BY APPENDIX D OF THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, OR AS APPROVED BY THE NYS DEC REGIONAL OFFICE OR MS4 REPRESENTATIVE.
3. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES OF GREATER THAN OR EQUAL TO 0.5 INCHES PER HOUR.
4. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

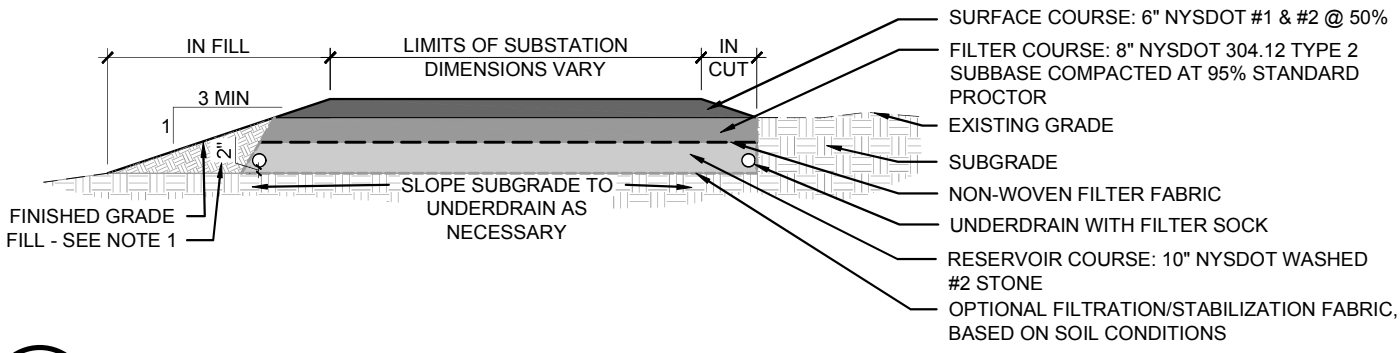
   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**		edr JOB NUMBER: **12073**	
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES OF 0.5 IN/HR AND GREATER**		DRAWING NUMBER: **C-101**	
DRAWN BY: **CB**	CHECKED BY: **TD**	SCALE: **NTS**	DATE: **2/25/2016**

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P. 315.471.0688

edr

J:\12073 National Grid Substation Surface Research\Cad\Working Drawings\12073-WORKING.dwg



1
C-102

SUBSTATION SECTION - INFILTRATION RATE < 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. UNDERDRAIN SIZE AND LAYOUT WILL VARY DEPENDING ON THE SIZE OF THE SUBSTATION.
3. UNDERDRAIN WILL DAYLIGHT AND DISCHARGE TO A LEVEL SPREADER THEN A VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER TO MEET RUNOFF REDUCTION VOLUME REQUIREMENTS.
4. LEVEL SPREADER SHALL BE DESIGNED PER THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO CREATE SHEET FLOW PRIOR TO DISCHARGE TO THE VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER.
6. VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER WIDTH SHALL BE 50 FEET PER ACRE OF SUBSTATION. LENGTH AND REMAINING DESIGN CRITERIA SHALL BE PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL.
7. UNDERDRAINS SHALL BE SIZED TO MEET CHANNEL PROTECTION VOLUME (Cpv), OVER BANK FLOOD CONTROL (Qp) AND EXTREME FLOOD CONTROL (Qf) DESIGN CRITERIA.
8. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES LESS THAN 0.5 INCHES PER HOUR.
9. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

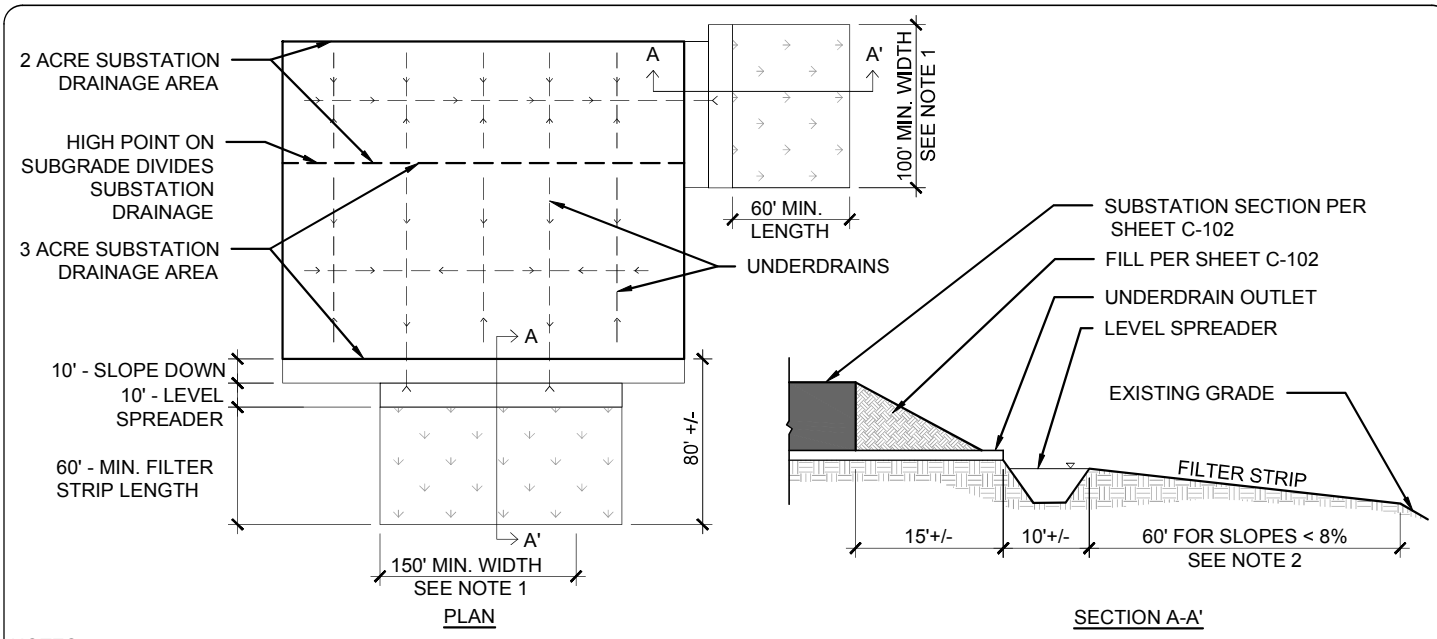
   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**		edr JOB NUMBER: **12073**	
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**		DRAWING NUMBER: **C-102**	
DRAWN BY: **CB**	CHECKED BY: **TD**	SCALE: **NTS**	DATE: **2/25/2016**

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P. 315.471.0688

edr

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NOTES:

1. FILTER STRIP WIDTH PER ACRE = 50'
   5 ACRES X 50' WIDTH = 250' TOTAL WIDTH
2. SEE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL FOR FILTER STRIP LENGTH REQUIREMENTS BASED ON SITE SLOPES AND HSG. EXAMPLE IS FOR HSG D.
3. FILTER STRIP LAYOUT/ORIENTATION IS AN EXAMPLE. FILTER STRIPS SHOULD BE LOCATED BASED ON SITE CHARACTERISTICS. UNDERDRAIN LAYOUTS MUST BE CONFIGURED TO DRAIN AN AREA THE SUBSTATION TO AN APPROPRIATELY SIZED FILTER STRIP.
4. SLOPE DOWN AND LEVEL SPREADER WIDTH ARE EXAMPLES AND REQUIRE PROJECT SPECIFIC DESIGN.
5. SEE NOTE 9, DRAWING NUMBER C-102.

1 / C-103

5 ACRE SUBSTATION EXAMPLE

Scale: NTS

nationalgrid

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**		edr JOB NUMBER: **12073**	
DRAWING TITLE: **EXAMPLE SUBSTATION FILTER STRIP LAYOUT FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**		DRAWING NUMBER: **C-103**	
DRAWN BY: **CB**	CHECKED BY: **TD**	SCALE: **NTS**	DATE: **2/25/2016**

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P. 315.471.0688

J:\12073 National Grid Substation Surface Research\Cad\Working Drawings\12073-WORKING.dwg

Attachment 4

Geotechnical Report

ATLANTIC TESTING LABORATORIES

Canton
6431 U.S. Highway 11
Canton, NY 13617
315-386-4578 (T)
315-386-1012 (F)

July 30, 2026

Environmental Design & Research
217 Montgomery Street
Syracuse, New York 13202

Attn: Amanda Stark
Project Manager, Environmental

Re: Subsurface Investigation and Geotechnical Evaluation Services
Proposed Battery Energy Storage Facility
Saugerties, Ulster County, New York
ATL Report No. CD11074E-01-12-25 Rev. 1

Ladies and Gentlemen:

Enclosed is one digital copy of the referenced report. ATL appreciates the opportunity to provide geotechnical services for your project.

Please note that upon completion of the subsurface investigation, the boreholes were backfilled with on-site soil. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of Environmental Design & Research and/or their Client. ATL assumes no liability for loss or damage resulting from borehole settlement.

The soil samples obtained during this investigation will be retained for a period of six months and subsequently discarded, unless otherwise instructed.

Please contact our office should you have any questions or comments on this information, or if we may be of further service. We look forward to our continued association to obtain a successful completion of this project.

Sincerely,
ATLANTIC TESTING LABORATORIES, Limited



Adam J. Schneider, PE
Senior Engineer

AJS/BTB/npm

Enclosures

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED BATTERY ENERGY STORAGE FACILITY
KCE NY 34
SAUGERTIES, ULSTER COUNTY, NEW YORK

ENVIRONMENTAL DESIGN & RESEARCH

PREPARED FOR: **Environmental Design & Research**
217 Montgomery Street
Syracuse, New York 13202

PREPARED BY: **Atlantic Testing Laboratories, Limited**
6431 U.S. Highway 11
Canton, New York 13617

ATL Report No. CD11074E-01-12-25 Rev. 1

July 30, 2026

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APPENDICES

A. Site Location Plan
B. Boring Location Plan
C. Subsurface Investigation Logs
D. Laboratory Test Results

SUBSURFACE INVESTIGATION
AND
GEOTECHNICAL EVALUATION

PROPOSED BATTERY ENERGY STORAGE FACILITY
KCE NY 34
SAUGERTIES, ULSTER COUNTY, NEW YORK

ENVIRONMENTAL DESIGN & RESEARCH

1.0 INTRODUCTION

At the request of Amanda Stank, representing Environmental Design & Research (EDR), and in accordance with our proposal (ATL File No. CD998-947X-04-25, dated April 16, 2025) Atlantic Testing Laboratories, Limited (ATL) performed a subsurface investigation and geotechnical evaluation for the referenced project.

The purpose of the investigation was to ascertain the general subsurface soil, bedrock and groundwater conditions at the project site, to evaluate the engineering significance of these findings, and to provide recommendations for the design and construction of foundations for the proposed battery energy storage facility.

The project site is located at an old Central Hudson Gas and Electric training yard along Tomsons Road in Saugerties, Ulster County, New York. The approximate project coordinates are N 42°5'14" latitude and W 73°57'52" longitude. A **Site Location Plan** is included in **Appendix A**. All dimensions and elevations referenced in this report are in units of feet, unless otherwise noted.

2.0 PROJECT DESCRIPTION

Primary access to the facility is from the south portion of the site, from Tomsons Road along a proposed gravel access road tying into an existing access road located along the west side of the existing warehouse at 1 Tomsons Road. Based on information provided by EDR, the proposed battery energy storage facility is planned to include a series of battery storage containers and transformers, a new electrical equipment substation, and gravel access roads and storage areas. The site plan provided by EDR also indicates that additional battery storage containers and transformers are planned for future expansion near the northeast corner of the site. The project will also include a new transmission line to tie the proposed facility to an existing, adjacent substation/transmission line.

EDR indicated the containers and medium voltage transformers are typically supported using drilled helical pile type foundations, however, alternative foundation support options such as soil supported mat / slab foundations, conventional spread footings with wall or column pedestals, or drilled shaft foundations may be considered depending on the soil/bedrock conditions present at the site. It is our understanding that the proposed access road need to meet an HS-20 loading.

3.0 SITE DESCRIPTION & GEOLOGY

The project site is located at an existing tract of land that was previously used as a Central Hudson Energy Group training yard. The site is located north of an existing warehouse located at 1 Tompsons Road, in Saugerties New York. The site is accessed from access roads that run along the west side of the existing warehouse. The site is an open gravel parking area and laydown yard surrounded by heavily wooded land to the north, east and west. The site plan provided by EDR indicates that ground elevations near the proposed battery energy storage facility range from approximately 210 to 220 feet, and generally slope downward from the northwest to the southeast.

The project area is located in the Hudson-Mohawk Lowlands Physiographic Region of New York State. Based on the Surficial Geologic Map of New York, Hudson-Mohawk Sheet, 1988, the site is mantled with lacustrine silt and clay deposits with some outcrops of bedrock noted toward the west. Based on the Geologic Map of New York, Hudson-Mohawk Sheet, the project area is underlain by Onondaga Formation Limestone.

4.0 SUBSURFACE INVESTIGATION & SAMPLING METHODOLOGY

Fourteen (14) boring locations were selected by EDR and staked in the field by representatives of ATL. Borings B-1 and B-2 were performed for proposed HDD bore pits and borings B-3 through B-10 were performed for the proposed battery storage facility and adjacent substation. Borings I-1 through I-4 were formed in conjunction with infiltration testing at these locations. A **Boring Location Plan,** prepared by EDR, is included in **Appendix B**.

Soil borings were performed with a Geoprobe Model 7822DT drill rig, advancing HW (4-inch) flush joint casing, a 3-7/8-inch roller bit, and water as a drilling fluid. Soil sampling and standard penetration testing was performed utilizing a 2-inch outside diameter split spoon sampler and automatic sampling hammer in accordance with ASTM D 1586. Soil sampling was performed continuously to a depth of 12 feet, to limestone bedrock, or to practical refusal on possible bedrock or cobbles/boulders in borings B-1 through B-10. Soil sampling was performed continuously to boring termination at a depth of 10 feet in borings I-1 through I-4. The following table summarizes the boring termination depths

Boring Number	Termination Depth (feet)	Termination Criteria
B-1	9.3	Cored Bedrock at 4.3 feet
B-2	14.0	Cored Bedrock at 9 feet
B-3	1.2	Practical Refusal
B-4	11.1	Practical Refusal
B-5	18	Cored Bedrock at 13 feet
B-6	10.6	Practical Refusal
B-7	22.0	Cored Bedrock at 17 feet
B-8	19.7	Practical Refusal
B-9	6.0	Cored Bedrock at 1 foot
B-10	4.0	Practical Refusal
I-1	10.0	Planned Boring Termination
I-2	0.5	Practical Refusal (4 attempts)
I-3	10.0	Planned Boring Termination
I-4	10.0	Planned Boring Termination

Bedrock was cored at borings B-1, B-2, B-5, B-7, and B-9 with an NX-size, double-tube core barrel for five feet upon encountering practical refusal. Rock coring was not performed at the remaining borings to verify the refusal material.

At infiltration testing locations IT-1, IT-3, and IT-4, PVC riser pipes (4-inch diameter) were installed to depths of 2.5, 3.5 and 4.5, respectively, to facilitate infiltration testing. A bentonite plug was installed around the base of the riser pipes and the remaining annular space was backfilled with on-site soils. Infiltration tests were performed in conjunction with borings I-1, I-3, and I-4. Infiltration testing was not performed at test location I-2, due to shallow bedrock encountered at a depth of approximately 6 inches below the surface at that location.

In March of 2026, nine (9) additional soil borings were advanced in support of the final stormwater management plan. The borings were advanced to a maximum depth of 10 feet and soils sampling was performed continuously in each boring to the surface of the bedrock or to boring termination.

In addition to the additional soil borings, twenty-three (23) additional infiltration test pipes were installed to depths ranging from 2 to 5 feet. Infiltration testing was performed in the pipes in accordance with NYSDEC guidelines.

The soil samples were visually classified in the laboratory by an engineering technician in general accordance with the Burmister Soil Classification System. The split spoon sampler does not recover material larger than 1⅜-inch in nominal dimension; therefore, the soil classifications may not be representative of the entire soil matrix. The visual classifications and the standard penetration test results are presented on the **Subsurface Investigation Logs** included in **Appendix C**.

The boreholes were backfilled with on-site soil. It is important that the backfilled borings be monitored for settlement or subsidence. This will be the responsibility of EDR and/or their client. ATL assumes no liability for loss or damage resulting from borehole settlement.

5.0 SITE SUBSURFACE CONDITIONS

The following general description of subsurface conditions is based on the subsurface soil, bedrock and groundwater conditions encountered during this subsurface investigation performed between the dates of September 3 and 9, 2025. The following is a general summary of the subsurface conditions encountered at the specific soil boring locations. Actual subsurface conditions will vary across the site in both the horizontal and vertical dimensions. Detailed subsurface descriptions are provided on the Subsurface Investigation Logs.

Based on the subsurface conditions encountered in the soil borings, the generalized subsurface soil profile at the site generally consists of alternating layers of granular sand/gravel soils and plastic silt/clay soils overlying limestone bedrock at varying depths below the surface.

Trace amounts of organic material consisting of root hairs and/or wood fragments were encountered to depths ranging from 2 to 4 feet in borings B-1, B-2, B-6, B-7, B-10, I-3, and I-4.

5.1 Soil Borings

5.1.1 HDD Bore Pit Borings (Borings B-1 and B-2)

Boring B-1 encountered sand with varying proportions of silt, clay and gravel that extended to a depth of 4.3 feet below the surface. The sand was very loose (SPT N-values less than 4) to a depth of 2 feet, and medium compact (SPT N-values 10 to 30) thereafter.

Split spoon refusal was encountered at 4.3 feet and the sand soils recovered sample contained possible weathered rock fragments. Rock coring was performed for five feet following split spoon refusal.

Boring B-2 generally encountered alternating layers of granular sand and gravel soils with trace amounts of silt/clay and plastic, sandy silt and clay soils that extended to bedrock at a depth of 8.9 feet below the surface. The granular sand and gravel soils were very compact (SPT N-values greater than 50) from the ground surface to a depth of 2 feet and loose between depths of 6 to 8 feet. The sandy silt and clay soils were medium stiff (SPT N-values 4 to 8) to very stiff (SPT N-values 15 to 30). Rock coring was performed for five feet beginning at a depth of 9 feet below the surface.

The following table summarizes the recovered rock cores in borings B-1 and B-2.

Recovered Rock Core Descriptions

Boring No./ Location	Rock Type	Run No.	Depth (ft.)	Recovery (%)	RQD (%)
B-1	Limestone	1	4.3 – 9.3	100	6.7
B-2	Limestone	1	9 - 14	93	37

Based on the rock core recovery and RQD values, the bedrock is considered very poor to poor quality limestone.

5.1.2 Battery Energy Storage Facility (Borings B-3 through B-10)

Borings B-3 through B-10 generally encountered alternating layers of granular sand and gravel soils with varying proportions of silt and clay, and plastic silt and clay soils with varying proportions of sand and gravel that extended to practical refusal or bedrock at depths ranging from 1.2 to 19.7 feet below the surface. The sand and gravel portions of the overburden soils were typically medium compact to very compact except for a layer of very loose (SPT N-values less than 4) sand encountered in boring B-8 at a depth of 4 to 6 feet below the surface. The plastic silt and clay soil portion of the overburden sols were typically medium stiff to very stiff except for a soft silt and clay layer encountered in boring B-8 at a depth of 6 to 8 feet below the surface. Bedrock was cored in borings B-5, B-7 and B-9 for five feet. The following table summarizes the recovered rock cores.

Recovered Rock Core Descriptions

Boring No./ Location	Rock Type	Run No.	Depth (ft.)	Recovery (%)	RQD (%)
B-5	Limestone	1	13 - 18	87	55
B-7	Limestone	1	17 - 22	92	50
B-9	Limestone	1	1 - 6	82	22

Based on the rock core recovery and RQD values, the bedrock is considered very poor to fair quality limestone.

5.1.3 Infiltration Test Borings (Borings I-1 through I-4)

Borings I-1, I-3, and I-4 generally encountered alternating layers of granular sand and gravel soils, and plastic silt and clay soils that extended to boring termination at a depth of 10 feet. SPT N-values ranged from 10 to 50 blows per foot to a depth of 4 feet indicating that the granular portion was medium compact to compact and the plastic silt and clay portion was stiff to hard. Below a depth of 4 feet, the SPT N-values ranged from 6 to 18 blows per foot indicating loose to medium compact granular soils and medium stiff to very stiff plastic silt and clay soils were encountered.

Boring I-2 encountered a thin layer of topsoil and organic material underlain by apparent bedrock at a depth of approximately 6 inches below the surface. Practical refusal was encountered in 4 boring offset locations (approximately 5 to 10 feet) at between 4 and 7 inches below the surface. Coring was not performed to confirm the refusal material at this location.

5.1.4 Additional Infiltration Test Borings (Borings B-11 through B-19)

Borings B-11 through B-19 generally encountered alternating layers of granular sand and gravel soils, and plastic silt and clay soils that extended to refusal or boring termination. Boring B-11 was terminated at a depth of 10 feet and the remaining borings encountered refusal at depths ranging from 2 to 7.8 feet below the surface. The bedrock was cored in borings B-13 from 2.5 to 7.5 feet below the surface with a recovery of 92 percent and an RQD of 48 percent.

5.2 Subsurface Water

Groundwater measurements were performed during the subsurface investigation through the cased and open boreholes. The soil samples were also visually classified for coloration and relative moisture conditions.

Freestanding water was observed in the drill casing and upon removal of the casing from the boreholes at depths ranging from 4.4 to 8.7 feet at the time of borehole advancement; however, since water was utilized as a drilling fluid, the groundwater readings recorded during borehole advancement are not considered a reliable indicator of the true groundwater depths. The borings were backfilled upon completion of advancement and removal of the drill casing; therefore, the water levels did not have sufficient time to stabilize in the open boreholes.

Fluctuations in water levels may occur due to seasonal and climatic variations, changes in surface runoff patterns, construction activity and subsequent development of the site along with other interrelated factors.

5.3 Infiltration Test Results

Infiltration testing was performed in October 2025 and March 2026, within the PVC riser pipes installed at infiltration test locations. Infiltration testing was not performed at location IT-2 due to the presence of bedrock encountered at approximately 6 inches below the surface. The testing was performed in general accordance with NYSDEC Best Management Practices (BMP) Appendix D guidelines. The infiltration test results are summarized in the following table:

Infiltration Test Results

Infiltration Test No.	Approximate Depth of Infiltration Pipe (ft.) [bgs][(1)]	Infiltration Rate (in/hr)
IT-1	3	7
IT-3	4	3
IT-4	5	12
IT-5	5	6
IT-6	1.5	2
IT-7	5	4
IT-8	2	3.5
IT-9	3	2
IT-10	2	2
IT-11	5	2
IT-12	3	2
IT-13	5	4
IT-14	5	1
IT-15	3	2
IT-16	2.5	5
IT-17	3	4
IT-18	5	1
IT-19	5	1.5
IT-20	5	2
IT-21	3	3
IT-22	4	3.5
IT-23	2	1.5
IT-24	2.5	3
IT-25	4	2
IT-26	5	1
IT-27	5	1
IT-28	5	1.5

[(1)]bgs = below ground surface

6.0 LABORATORY ANALYSES

Select soil samples were submitted to ATL's geotechnical laboratory for the following physical analyses:

- Twenty-Five (25) Water Content Determinations of Soil (ASTM D 2216)
- Five (5) Particle Size Analyses without Hydrometer (ASTM D 422)
- One (1) Thermal Resistivity (Dry-out Curve) (IEEE 442)

The test results are presented on the subsurface investigation logs included in Appendix C and in **Appendix D, Laboratory Test Reports**.

7.0 GEOTECHNICAL ENGINEERING DISCUSSION & RECOMMENDATIONS

The Geotechnical Engineering Discussion is based on information provided by EDR, and the subsurface conditions outlined in this report.

The following recommendations are presented as the minimum requirements for the design, planning, and construction of the foundation systems for the proposed battery energy storage facility. The concepts and geotechnical engineering considerations presented should be considered in project design and construction.

7.1 Proposed Battery Energy Storage Facility

The primary concern with respect to the design and construction of foundations for the proposed facility is the variability in the bedrock depth encountered in the soil borings. Bedrock or practical refusal due to possible bedrock was encountered at depths ranging from 1.2 to 19.2 feet below the surface within the footprint of the proposed facility. Bedrock was encountered at depths shallower than 5 feet below the ground surface in borings B-1, B-3, B-9, and B-10.

It is our understanding that foundations for the proposed battery energy storage facility are typically supported by helical piles. Based on the shallow depth at which bedrock was encountered during the investigation, helical piles may not achieve the required penetration depth for lateral and uplift resistance at some areas of the project site. Based on the subsurface conditions encountered in the borings, we believe that conventional spread footings, mat slab foundations and/or drilled pier foundations would be the most effective. Bedrock elevations in the soil borings were highly variable and bedrock should be anticipated to vary in elevation across the site.

7.1.1 Site Work

Site work will require removal of any existing structures including their foundations, existing topsoil, pavement and any deleterious fill material within the proposed structure footprints. A proposed site grading plan was not provided at the time of report preparation; however minor cuts and fills are anticipated to establish site grades.

After performing site stripping and prior to placing new fill, the exposed subgrade soil should be proof-compacted with a minimum of a 10-ton roller and proof rolled, where possible, under the direction of a Geotechnical Engineer. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment should not be used for proof rolling.

The proof rolling should be conducted under the observation of a Geotechnical Engineer. Subgrades noted to weave or deflect, or that contain deleterious fill or organic materials, should be over excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with compacted Structural Fill.

Fill required to raise site grades within the footprint of the proposed structures should consist of Structural Fill that is placed and compacted in accordance with report Section 7.4.

Due to the relatively high fines content of recovered soil samples, the in-situ subgrade soils are considered moisture sensitive and will have a tendency to rut and pump under the weight of repetitive construction traffic, especially in the presence of excessive moisture. Site work should be scheduled during the drier portions of the year, and exposed subgrade soils should be protected from disturbance to avoid possible delays and additional costs associated with

construction during the wet seasons. Haul roads designed to accommodate construction traffic should be utilized during construction to limit disturbance to the subgrade soils.

Site surface grading should be designed to convey surface water away from the site structures and open excavations during construction.

Construction equipment and foot traffic should be limited on exposed subgrades, especially during wetter periods of the year. The soils encountered in the soil borings will be susceptible to sidewall sloughing in open excavations, especially if groundwater seepage is encountered in the excavation sidewalls. Benching, sloping, shoring or other acceptable excavation stabilizing methods may be required to provide stable excavations.

7.1.2 Shallow Spread Footing Foundations

Based on the subsurface soil and groundwater conditions encountered during ATL's subsurface investigation, it is our opinion that the use of shallow, spread footing foundations is acceptable to support the proposed structures. The bedrock surface elevation is expected to vary in elevation within the proposed project area and possibly within the footprints of the individual structures. Based on the subsurface conditions encountered during the investigation, bedrock will likely be encountered in some areas prior to achieving the desired footing subgrade elevation. To limit the potential for differential settlement, spread footings should be founded on a uniform bearing subgrade consisting of either entirely native soils or limestone bedrock. Over-excavation and/or rock removal will be necessary to provide a uniform bearing surface and will be dependent on the final foundation subgrade elevation.

All foundation excavations should be continuously monitored by a Geotechnical Engineer to verify the stability and uniformity of the subgrade soil or bedrock, to identify the presence of deleterious fill, unsuitable soils, and to ensure that adequate soil bearing capacity is obtained.

Exposed subgrade soil should be proof-compacted with four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent. The proof-compaction should be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be over excavated to stable material and replaced, at the direction of the Geotechnical Engineer.

Subgrades that become saturated and unstable during construction due to surface or groundwater infiltration should be over excavated 6 inches and a 6-inch layer of NYSDOT Number 2, crushed stone should be placed and compacted on the exposed subgrade. The Number 2, crushed stone should be compacted with four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent, under the direction of a Geotechnical Engineer. The Number 2 crushed stone will provide a stable working surface and dewatering media if ground or surface water enters the foundation excavations.

The soils encountered in the soil borings will be susceptible to sidewall sloughing in open excavations, especially if groundwater seepage is encountered in the excavation sidewalls.

Shallow foundations supported on proof compacted native soils, compacted NYSDOT Number 2, crushed stone, and/or compacted Structural Fill that overlies stable, native soils may be designed using an allowable soil bearing pressure of 3000 psf, provided the recommendations presented in this report are followed.

Bearing surface irregularities or depressions resulting from rock removal or elevation differences should be replaced with lean concrete.

Bedrock encountered prior to achieving the proposed bottom of footing elevation should be removed using rock removal techniques to provide a relatively uniform, level bearing surface. Based on the RQD values of the recovered rock cores, rock removal techniques such as impact hammers, hydraulic splitters, rock saws, blasting and/or expansive compounds may be necessary for excavations that extend into competent bedrock. The contractor should be responsible for the means and methods of advancing the excavations to the design depths. If blasting is utilized for rock removal, the contractor should submit a blasting plan to the engineer and owner for review.

Shallow spread footings supported entirely on competent limestone bedrock and/or lean concrete placed over competent bedrock may be designed using an allowable rock bearing pressure of 20,000 psf, provided the recommendations presented in this report are followed.

Continuous strip footings should be a minimum 18 inches wide and individual spread footings a minimum 36 inches wide.

Total and differential post construction foundation settlements less than 1-inch and ½-inch, respectively, are estimated provided the recommendations presented in this report are followed.

7.1.3 Shallow Mat Foundations

Shallow mat foundation excavations should be advanced with methods that limit disturbance to the subgrade soils. To limit the potential for differential settlement, mat foundations should be founded on a 12-inch layer of subbase that overlies uniform bearing subgrades consisting of either competent bedrock or native on-site soils.

The bedrock surface elevation is expected to vary in elevation within the footprint of proposed facility and possibly within the footprint of individual structure footprints.

Bedrock encountered prior to achieving the proposed bottom of mat elevation should be removed using rock removal techniques to provide a relatively uniform, level bearing surface. Based on the RQD values of the recovered rock cores, rock removal techniques such as impact hammers, hydraulic splitters, rock saws, blasting and/or expansive compounds may be necessary for excavations that extend into competent bedrock. The contractor should be responsible for the means and methods of advancing the excavations to the design depths. If blasting is utilized for rock removal, the contractor should submit a blasting plan to the engineer and owner for review.

Native soils subgrades should be proof-compacted, in conditions of low moisture, with a minimum of four passes of a dual-drum walk-behind vibratory roller; a Wacker DPU 6055 vibrating plate tamper; or equivalent, under the direction of a Geotechnical Engineer. Wet subgrades should not be proof-compacted. Unstable subgrades should be over excavated to stable material and replaced, under the direction of the Geotechnical Engineer.

Mat foundations supported on 12 inches of compacted subbase that overlies stable native soil or bedrock placed over competent bedrock may be designed using an allowable bearing pressure of 3,000 psf, provided the recommendations presented in this report are followed.

7.1.4 Drilled Piers

Drilled pier foundations should be advanced to a sufficient depth to provide adequate axial, lateral, and uplift capacity, as determined by the design engineer. Drilled pier foundation installation should be continuously monitored by a Geotechnical Engineer.

The contractor should be responsible for the means and methods of advancing the excavations to the design depths. The contractor should submit a "Drilled Pier Installation Plan", describing the proposed means and methods for installation of the drilled piers.

Granular soils, plastic soils, and bedrock were encountered during the investigation and should be anticipated during drilled pier foundation excavations. Bedrock elevations are highly variable and will vary in elevation across the site. Bedrock was encountered during the investigation at depths ranging from 1.2 to 19.7 feet below the surface.

Drilled pier excavations should be advanced with temporary casing to prevent caving of the in-situ soils into the excavations. The granular soils encountered during the investigation are susceptible to caving.

It is recommended that soil skin friction be neglected when determining the total axial capacity of the drilled piers. Skin friction may be considered for uplift, if the structure weight is not sufficient.

Unless otherwise specified or approved, all excavations should be dewatered prior to placing concrete. A drilled pier excavation is considered dry if less than 3 inches of groundwater is present in the bottom of the excavation at the start of concrete placement and the groundwater infiltration rate is less than 0.25 inches rise per minute.

If dewatering drilled pier excavations is not practical, the concrete must be placed utilizing tremie methods. The tremie pipe must be maintained below the water level and at least five feet below the top of the concrete during concrete placement. The fresh concrete must be above the bottom of the casing at all times. Care should be taken in withdrawing the casing to prevent the concrete from mixing with drilling mud, cave-in of the borehole and/or formation of voids. Drilled pier concrete should be designed to minimize the risk of voids forming during concrete placement and casing removal.

Unless otherwise indicated, excavations for the drilled piers should be plumb to within a tolerance equal to 2% of the shaft length. Do not place the top of a drilled pier out of the indicated position by more than 1/24th of the shaft diameter or three inches, whichever is less.

Drilled piers designed to be founded on competent limestone bedrock may be designed for an allowable rock bearing pressure of 20,000 psf, provided the recommendations provided in this report are followed.

7.1.5 Slabs-on-Grade

Subgrades to receive concrete slabs should be prepared in accordance with Section 7.1.1 of this report. Slabs-on-grade should be supported on a minimum of 8 inches of Subbase placed and compacted in accordance with Section 7.4 of this report. Slabs-on-grade may be designed using a modulus of subgrade reaction of 150 pci.

7.1.6 Gravel Access Roads

Site work for the access roads designed to handle HS-20 loading will require removal of any surficial organic material within the proposed roadway structures. The roadway subgrade soils should be proof-compacted with a minimum 10-ton vibratory roller, under the direction of the Geotechnical Engineer. Areas to receive pavement structures should be proof rolled. Proof rolling should be conducted using a tandem axle truck with a minimum gross weight of 40,000 lbs. Rollers or low ground pressure construction equipment shall not be used for proof

rolling. The proof rolling must be conducted under the observation of the Geotechnical Engineer. Any areas noted to weave or deflect should be excavated to stable material, at the direction of the Geotechnical Engineer, and replaced with Structural Fill.

Site work should be scheduled during drier portions of the year to avoid possible delays and additional costs associated with construction during the wet seasons. Construction equipment and foot traffic should be limited on exposed subgrades, especially during wetter periods of the year. Site surface grading should be designed to convey surface water away from structures.

Gravel Roadway structures should consist of the following:

Thickness (in)	Course	NYSDOT Specifications
16	Granular Subbase(1)	Section 733-04, Type 2
--	Woven Geotextile	Mirafi HP 570 or equivalent

(1) The product of crushed ledge rock.

The Granular Subbase should be placed and compacted in accordance with section 7.4 of this report.

Proper subsurface drainage and control of surface water will be important to the longevity of the pavement structures. Failure to provide adequate drainage could result in premature pavement maintenance.

7.2 Frost Protection

Shallow foundations requiring frost protection should be founded a minimum of 4 feet below final exterior grade.

The soils encountered in the borings have a relatively high fines content and are frost susceptible. Shallow mat foundations that require frost protection should be founded on competent limestone bedrock or non-frost susceptible fill that extends a minimum of 4 feet below final, exterior grade and at least 2 feet beyond the perimeter of the mat. All new fill should be placed and compacted in accordance with Section 7.4 of this report.

Non-frost susceptible fill should consist of a screened, crushed gravel or crushed ledge rock conforming to the gradation of NYSDOT Item 703-04, Type 2 or 4 Subbase specifications and should have less than 7% passing the #200 sieve, or a 50/50 blend of NYSDOT Number 1 and 2, crushed stone. Crushed stone thickness greater than 6-inches should be wrapped in a nonwoven geotextile (Mirafi 160N, or equivalent)

7.3 Seismic

Based on the field standard penetration test results, a seismic site classification of B has been determined for foundations that will bear directly on limestone bedrock. A seismic site classification of C has been determined for foundations that will be founded in the overlying subgrade soils.

7.4 Backfill and Compaction Requirements

The on-site soils, excluding deleterious organics and oversize material (particles larger than 4 inches in diameter), may be used as general site (berms, landscapes, green areas) fill. Structural Fill should be utilized as fill within structure footprints and as foundation backfill.

All controlled fill and backfill should be placed and compacted in lifts not exceeding eight inches in loose thickness, at a moisture content of ± 2% of the Optimum Moisture Content, and to densities in excess of 95%, as determined by ASTM D1557, or as directed by the Geotechnical Engineer.

Compaction should be performed with vibratory rollers unless there is concern for damage to adjacent structures or underground utilities.

Structural Fill should consist of a clean, screened, crushed, or bank-run gravel conforming to the following gradation:

Sieve Size	Percent Passing
4”	100
¼”	35-65
#200	0-10

Granular Subbase should consist of crushed ledge rock conforming to NYSDOT Item 733-04, Type 2 Subbase.

The soil parameters presented in the following table may be used for the following backfill materials.

Table of Soil Properties

Soil Property	Structural Fill	Granular Subbase
Angle of Internal Friction (°)	32	34
Active Earth Coefficient (K_a)*	0.31	0.28
At Rest Earth Coefficient (K_o)*	0.47	0.44
Passive Earth Coefficient (K_p)*	3.25	3.54
Ultimate Coefficient of Sliding Friction	0.41	0.44
Wet Unit Weight (pcf)	130-140	135-145

*The Rankine earth pressure coefficients (ultimate values) are for level backfill placed in a fully drained condition.

7.5 Dewatering

Perched groundwater may be encountered in shallow foundation and utility excavations, especially during wetter periods of the year. It is anticipated that the perched groundwater encountered in shallow foundation excavations may be controlled by pumping from sumps installed around the perimeter of the excavations.

It will be the contractor’s responsibility to maintain adequate water control at all times. Project specifications should clearly indicate that standing water, and/or saturated, unstable soil

conditions will not be tolerated in areas to receive foundations or utilities. The project specifications should state that the contractor will not be reimbursed for extras related to the control of water.

All dewatering activities should comply with the New York State Department of Environmental Conservation (NYSDEC) storm water discharge requirements and/or applicable federal and local regulations for construction.

7.6 Testing and Inspection

The final site grading, foundation plans and project specifications should be reviewed by ATL, as the Geotechnical Engineer of Record, to verify that there has not been a misinterpretation of this report and/or ATL's understanding of the project.

We recommend that ATL, as the Geotechnical Engineer of Record, be retained to perform Special Inspections in accordance with the Building Code of New York State during site earthwork and foundation installations. An ATL geotechnical representative familiar with the findings and recommendations of this report will be able to assess the subsurface conditions encountered during construction, provide necessary remedial recommendations, and verify that adequate bearing pressures and proper foundation installation requirements are achieved.

All foundation construction and backfilling should be monitored and tested by an Independent Testing Agency, conforming to ASTM E-329, "Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection." ATL conforms to ASTM E-329 and can be retained to perform required construction phase monitoring and testing services, including applicable Special Inspections and Structural Tests in accordance with the Building Code of New York State.

8.0 LIMITATIONS

The subsurface investigation logs and this report in its entirety should be provided to the contractors for information and interpretation. The subsurface investigation logs may not be representative of the entire site subsurface condition, but only what was encountered at the individual test locations at the time of the investigation. The subsurface soil, bedrock and groundwater conditions may be different from those described on the subsurface investigation logs.

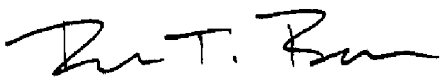
This report was prepared to present the findings of our subsurface investigation and engineering evaluation, and to outline concepts to be utilized in foundation design and construction. These concepts may require alterations to meet the specific design and economic considerations for this project.

Prepared by:



Nate Morehouse
Project Manager
NPM/BTB/npm

Reviewed by:



Brian T. Barnes, PE
Senior Engineer

APPENDIX A

SITE LOCATION PLAN



Site Location Map	Drawn by: NM	Scale: Not to scale	Project No.: CD11074	Date: October 2025

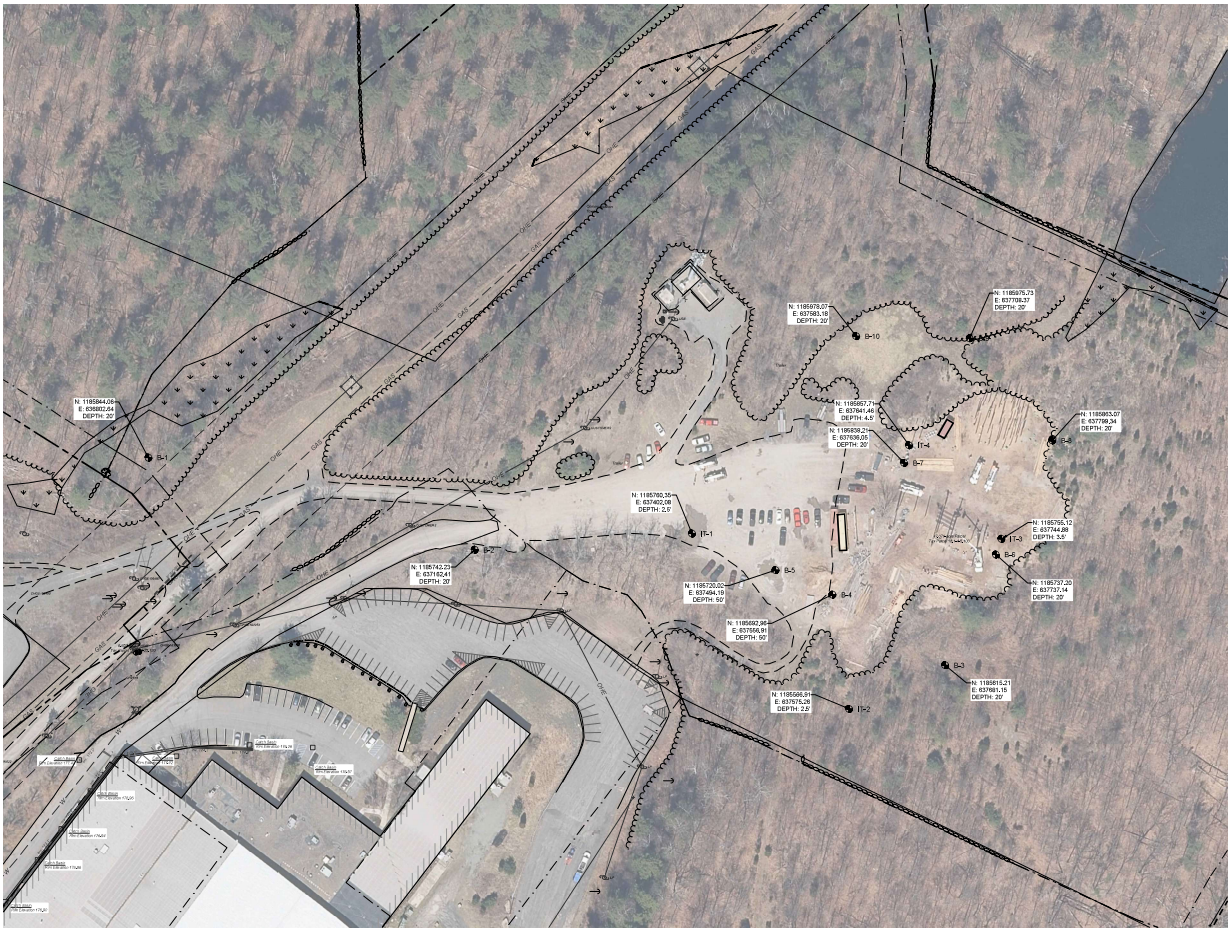
Proposed KCE NY 34 Battery Energy Storage Facility
Tompson Road, Saugerties, New York

***ATLANTIC TESTING LABORATORIES*, Limited**

Albany, NY	Binghamton, NY	Buffalo, NY	Canton, NY
Elmira, NY	Plattsburgh, NY	Poughkeepsie, NY	Syracuse, NY
Rochester, NY	Utica, NY	Watertown, NY	

APPENDIX B

BORING LOCATION PLAN



GEOTECH TESTING LEGEND	
SYMBOL	ITEM
B-1	BORING LOCATION
IT-1	INFILTRATION TEST LOCATION

PRELIMINARY

8/8/2025

NOT FOR CONSTRUCTION

N

50 0 25 50 100

GRAPHIC SCALE - (IN FEET)

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The following statement from the New York State Education Law, Article 145, Section 7209 and Section 7 Subdivision 2, applies to this drawing: "It is a violation of this law for any person, unless acting under the direction of a licensed professional engineer, architect, landscape architect or land surveyor, to alter in any way any item bearing such professional's seal. If this drawing is altered, then the altering engineer, architect, landscape architect or land surveyor shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration and a specific description of the alteration."

CLIENT:

KEY CAPTURE ENERGY

EDR a better environment

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
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P. 518.451.9150

PROJECT TITLE: **KCE NY 34**

PROJECT LOCATION: **TONSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**

CLIENT: **KEY CAPTURE ENERGY, LLC**

DRAWING TITLE: **GEOTECHNICAL BORING AND PRELIMINARY INFILTRTATION TESTING LOCATIONS**

DRAWING ISSUED FOR / REVISIONS					
NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1					
2					
3					
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5					
6					

EDR JOB#: **22055**

DATE: **AUGUST 8, 2025**

SCALE: **1" : 50'**

DRAWN BY: **ZR**

CHECKED BY:

DRAWING NUMBER: **C-001**



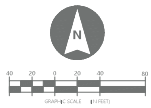
SITE PLAN LEGEND

SYMBOL	ITEM
	GRAVEL ACCESS ROAD
	SUBSTATION ALTERNATIVE CROSS SECTION
	SUBSTATION STANDARD CROSS SECTION
	FENCE
	ELECTRIC - OVERHEAD
	ELECTRIC - UNDERGROUND
	UTILITY POLE
	SITE LIGHT
	EDGE OF TREES / BRUSH

GRADING LEGEND

SYMBOL	ITEM
(123.45)	SPOT ELEVATION - FINISHED
(497)	CONTOUR - EXISTING
(490)	CONTOUR - EXISTING - INDEX
(497)	CONTOUR - FINISHED
(490)	CONTOUR - FINISHED - INDEX
B-1	TEST BORING LOCATION
IT-1	FEASIBILITY INFILTRATION TEST LOCATION
B-11	DESIGN TEST BORING LOCATION
IT-5	DESIGN INFILTRATION TEST LOCATION

NOTES:
1. ALL DESIGN TEST BORINGS SHALL BE COMPLETED TO AN ELEVATION OF 205.5 OR DEEPER.
2. ALL DESIGN INFILTRATION TESTS SHALL HAVE THE BOTTOM OF THE CASING SET AT ELEVATION 207.5



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The following is considered from the New York State Education Law Section 7209 Subdivision 2 and Section 7 Subdivision 2 which specifies in the opening "It is violation of this law for any person unless acting under the direction of a licensed professional engineer, architect, landscape architect or land surveyor to alter in any way an item bearing the seal of a licensed professional engineer, architect, landscape architect or land surveyor. The alteration regulated by this law includes any erasure, addition or modification of any kind to such item. Should this item be altered, the altering engineer, landscape architect or land surveyor shall affix to the item his or her seal and the notation "altered by" followed by his or her signature and a specific description of the alteration."

CLIENT: KEY CAPTURE ENERGY

EDR a better environment
Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
41 State Street, Suite 806
Albany, New York 12207
P. 518.451.9150

PROJECT TITLE: **KCE NY 34 - BATTERY ENERGY STORAGE FACILITY**
PROJECT LOCATION: **TONSONS ROAD, TOWN OF SAUGERTIES, ULSTER COUNTY, NY**
CLIENT: **KEY CAPTURE ENERGY, LLC**
DRAWING TITLE: **SITE GRADING, UTILITY, AND STORMWATER MANAGEMENT PLAN**

DRAWING ISSUED FOR / REVISIONS					
NO.	DATE	ISSUED FOR / REVISION	BY	CHK	APP
1	1/9/2026	REVISED STORMWATER MANAGEMENT	ZR		
2	2/25/2026	REVISED INFILTRATION TEST LOCATION	AB/SS		
3					
4					
5					
6					

EDR JOB#: **22055**
DATE: **FEBRUARY 25, 2026**
SCALE: **1" = 40'**
DRAWN BY:
CHECKED BY: **ZR/TD**
DRAWING NUMBER: **C-201**

APPENDIX C

SUBSURFACE INVESTIGATION LOGS

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/9/2025** Finish Date: **9/9/2025**

Boring No.: **B-1** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/9/2025		DRY	4.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	1 1 1 6		Brown cmf SAND; little Silt & Clay; little cf Gravel; trace Organic Material (roots); trace Debris (plastic fragments) (moist, low plasticity)	5
2							2.0		
3		2	2.0	4.0	SS	8 16 14 12		Brown cmf SAND; little f Gravel; trace Clayey Silt; trace Organic Material (roots, grass) (moist, slight plasticity)	4
4							4.3		
5	NX CORE (WET)	3	4.0 4.3	4.3 9.3	SS NX	50/4" RUN 1		Brown cmf SAND; and cf Gravel; trace Silt & Clay (wet, low plasticity) Possible WEATHERED ROCK Fragments	3 60
6								Greyish-Black LIMESTONE 60" or 100% Recovery 11 Pieces (30") - 50% Chips and Fragments 1 Pieces longer than 4" (4") - RQD = 6.7%	
7									
8									
9							9.3		
10								Boring terminated at 9.3 feet.	
11									
12								Notes: 1. Borehole backfilled with on-site soils.	
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/5/2025** Finish Date: **9/5/2025**

Boring No.: **B-10** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	2 10 11 9		Brown SILT & CLAY; some cf Gravel; trace cmf Sand (moist, low plasticity)	10
2									
3		2	2.0	3.8	SS	8 12 14 50/4"		Brown SILT & CLAY; and cmf Sand; little f Gravel; trace Organic Material (wood fragments) (moist, low plasticity)	5
4							4.0		
5		3	4.0	4.0	SS	50/0"		NO RECOVERY	0
6									
7								Boring terminated at 4.0 feet due to refusal on possible bedrock or boulders.	
8									
9								Notes:	
10								1. Borehole backfilled with on-site soils.	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/5/2025**

Boring No.: **B-2** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		6.8'	8.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	10 26 30 30		Brownish-Grey cf GRAVEL; and cmf Sand; trace Silt & Clay; trace Organic Material (root hairs) (moist, low plasticity)	10
2									
3		2	2.0	4.0	SS	17 16 10 14		Brown SILT & CLAY; some cmf Sand; some f Gravel; trace Organic Material (root hairs) (moist, low plasticity)	16
4							4.0		
5		3	4.0	6.0	SS	5 3 3 4		Grey CLAY & SILT; some cmf Sand; trace f Gravel (wet, medium plasticity)	10
6									
7		4	6.0	8.0	SS	3 3 4 5		Brownish-Grey cmf SAND; and Silt & Clay; little f Gravel (wet, low plasticity)	12
8							8.0		
9		5	8.0	8.9	SS	38 50/5"	9.0	Brown cf GRAVEL; little cmf Sand; trace Clayey Silt (wet, slight plasticity) Possible WEATHERED ROCK Fragments	4
10	NX CORE (WET)		9.0	14.0	NX	RUN 1		Advanced casing to 9.0 feet and began coring.	56
11								Greyish-Black LIMESTONE	
12								56" or 93% Recovery	
13								10 Pieces (34") - 39% Chips and Fragments	
14							14.0	4 Pieces longer than 4" (22") - RQD = 37%	
15									
16								Boring terminated at 14.0 feet.	
17									
18								Notes:	
19								1. Borehole backfilled with on-site soils.	
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/8/2025** Finish Date: **9/8/2025**

Boring No.: **B-3** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
2" Split Spoon

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	SPLIT SPOON	1	0.0	1.2	SS	3 7 50/2"	1.2	Brown cmf SAND; little cf Gravel; little Clayey Silt; trace Organic Material (topsoil) (moist, slight plasticity)	6
2									
3								Boring terminated at 1.2 feet due to refusal on possible bedrock or boulders.	
4									
5								Notes:	
6								1. Borehole backfilled with on-site soils.	
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-4** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		7.6'	10.0'

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	5 25 20 20		Brown cf GRAVEL; some cmf Sand; trace Silt (moist, non-plastic)	11
2									
3		2	2.0	4.0	SS	30 15 10 12		Brownish-Grey cf GRAVEL; little cmf Sand; little Silt & Clay (moist, low plasticity)	10
4									
5		3	4.0	6.0	SS	9 11 8 7		Brown cf GRAVEL; some cmf Sand; trace Silt & Clay (wet, low plasticity)	6
6									
7		4	6.0	8.0	SS	5 8 12 11		Brown cf GRAVEL; some cmf Sand; little Silt & Clay (moist, low plasticity)	8
8							8.0		
9		5	8.0	10.0	SS	3 3 9 15	9.5	Brown Silty CLAY; little f Gravel; little cmf Sand (wet, high plasticity)	6
10									
11		6	10.0	11.1	SS	15 20 50/1"	11.1	Brown cmf SAND; some cf Gravel; trace Silt & Clay (wet, low plasticity)	5
12								Boring terminated at 11.1 feet due to refusal on possible bedrock or boulders.	
13									
14								Notes:	
15								1. Borehole backfilled with on-site soils.	
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-5** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		4.4'	10.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **HW (4") Casing/NX Core**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	1.9	SS	20 20 28 50/5"	1.9	Brown cf GRAVEL; some Silt & Clay; little cmf Sand (moist, low plasticity)	10
2	CASING	2	2.0	2.5	SS	50/5" 5		NO RECOVERY	0
4		3	4.0	6.0	SS	11 5 5 10		Brown CLAY & SILT; some f Gravel; little cmf Sand (moist, medium plasticity)	7
6		4	6.0	8.0	SS	12 5 6 6		Brown CLAY & SILT; little cf Gravel; trace cmf Sand (moist, medium plasticity)	8
8		5	8.0	10.0	SS	3 1 3 2		Brown CLAY & SILT; some cmf Sand; trace f Gravel (wet, medium plasticity)	8
10		6	10.0	11.8	SS	5 4 7 50/4"		Brown SILT & CLAY; some cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, low plasticity)	10
11							11.5		
12							13.0	Encountered possible BEDROCK at 11.5 feet. Advanced 3 7/8" tri-cone roller bit to 13.0 feet and began coring.	
13	NX CORE (WET)		13.0	18.0	NX	RUN 1		Greyish-Black LIMESTONE 52" or 87% Recovery 9 Pieces (40") - 23% Chips and Fragments 5 Pieces longer than 4" (33") - RQD = 55%	52
18							18.0		
20								Boring terminated at 18.0 feet.	
21								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **B-6** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		5.1'	10.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	4 12 7 9		Brown cmf SAND; some cf Gravel; trace Clayey Silt (moist, slight plasticity)	12
2		2	2.0	4.0	SS	12 12 9 9		Brown cmf SAND; and cf Gravel; trace Clayey Silt (moist, slight plasticity)	13
3							4.0		
4		3	4.0	6.0	SS	1 1 2 1		Brown SILT & CLAY; trace f Gravel; trace cmf Sand; trace Organic Material (peat) (wet, low plasticity)	10
5									
6		4	6.0	8.0	SS	1 3 4 5		Brown SILT & CLAY; trace mf Sand (wet, low plasticity)	12
7									
8		5	8.0	10.0	SS	2 6 11 39		Brown SILT & CLAY; trace f Gravel; trace cmf Sand (wet, low plasticity)	8
9							9.0		
10		6	10.0	10.6	SS	32 50/1"	10.6	Brown cmf SAND; some Silt & Clay; little cf Gravel (wet, low plasticity)	5
11									
12								Boring terminated at 10.6 feet due to refusal on possible bedrock or boulders.	
13									
14								Notes:	
15								1. Borehole backfilled with on-site soils.	
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **B-7** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		8.7'	17.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing/NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	3 7 7 8	2.0	Brown SILT & CLAY; little f Gravel; little cmf Sand; trace Organic Material (roots) (moist, low plasticity)	12
2	CASING	2	2.0	4.0	SS	10 15 18 26	4.0	Brown cmf SAND; some cf Gravel; trace Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	7
4		3	4.0	6.0	SS	7 5 5 6		Brown CLAY & SILT; little cf Gravel; trace cmf Sand (moist, medium plasticity)	10
7		4	6.0	8.0	SS	7 7 6 9	8.0	Grey CLAY & SILT; little f Gravel; trace cmf Sand (moist, medium plasticity)	10
8		5	8.0	10.0	SS	4 6 7 7	10.0	Brownish-Grey cf GRAVEL; and cmf Sand; some Silt & Clay (wet, low plasticity)	7
10		6	10.0	12.0	SS	24 25 12 13	13.0	Dark Brown cmf SAND; trace Clayey Silt; trace Organic Material (peat) (wet, slight plasticity)	6
14		7	14.0	16.0	SS	4 6 8 11	17.0	Brownish-Grey SILT & CLAY; trace mf Sand (wet, low plasticity) Advanced casing to 17.0 feet and began coring.	13
17	NX CORE (WET)		17.0	22.0	NX	RUN 1	22.0	Greyish-Black LIMESTONE 55" or 92% Recovery 5 Pieces (33") - 40% Chips and Fragments 3 Pieces longer than 4" (30") - RQD = 50%	55
22								Boring terminated at 22.0 feet. Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/5/2025** Finish Date: **9/5/2025**

Boring No.: **B-8** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/5/2025		6.8'	19.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	4 6 6 10		Brown cmf SAND; and Silt & Clay; little f Gravel (moist, low plasticity)	10
2		2	2.0	4.0	SS	16 10 12 10	4.0	Brown cmf SAND; some Silt & Clay; little f Gravel (moist, low plasticity)	8
4		3	4.0	6.0	SS	1 1 1/12"	6.0	Greyish-Brown cf GRAVEL; and cmf Sand; little Silt & Clay (wet, low plasticity)	6
6		4	6.0	8.0	SS	1 1 2 3		Brownish-Grey SILT & CLAY; trace mf Sand (wet, low plasticity)	11
8		5	8.0	10.0	SS	3 3 2 9	9.5	Brown SILT & CLAY; trace f Sand (moist, low plasticity)	12
10		6	10.0	12.0	SS	9 11 14 14		Brownish-Grey SILT & CLAY; trace f Sand (moist, low plasticity)	15
14		7	14.0	16.0	SS	12 12 16 18		Similar Soil (moist, low plasticity)	13
19		8	19.0	19.7	SS	30 50/2"	19.7	Grey SILT & CLAY; some cf Gravel; little cmf Sand (moist, low plasticity)	7
								Boring terminated at 19.7 feet due to refusal on possible bedrock or boulders.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **B-9** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
NX Core

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	NX CORE (WET)		1.0	6.0	NX	RUN 1	1.0	Attempted the boring at 4 locations around the proposed location. Encountered refusal at 3 to 4 inches. Advanced tricone roller bit to 1 foot and started coring.	49
2								Greyish-Black LIMESTONE	
3								49" or 82% Recovery	
4								5 Pieces (22") - 55% Chips and Fragments	
5								2 Pieces longer than 4" (13") - RQD = 22%	
6							6.0		
7								Boring terminated at 6.0 feet.	
8									
9								Notes:	
10								1. Borehole backfilled with on-site soils.	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/11/2026** Finish Date: **3/11/2026**

Boring No.: **B-11** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/11/2026	AM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
2" Split Spoon

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	SPLIT SPOON	1	0.0	2.0	SS	8 10 22 50		Grey cf GRAVEL; and cmf Sand; trace Silt; trace Organic Material (roots) (moist, non-plastic)	7
2		2	2.0	4.0	SS	15 12 15 12		Brown cf GRAVEL; and cmf Sand; little Clayey Silt (moist, slight plasticity)	2
4		3	4.0	6.0	SS	15 18 27 43		Brown cf GRAVEL; and cmf Sand; little Silt & Clay (wet, low plasticity)	6
6		4	6.0	8.0	SS	19 12 11 8		Grey cf GRAVEL; some cmf Sand; trace Silt (wet, non-plastic) COBBLE Fragment in split spoon shoe	1
8		5	8.0	10.0	SS	9 8 7 7	8.0	Greyish-Brown cmf SAND; some Silt & Clay; little cf Gravel (moist, low plasticity)	6
10							10.0	Boring terminated at 10.0 feet.	
11								Notes: 1. Borehole backfilled with on-site soils.	
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/11/2026** Finish Date: **3/11/2026**

Boring No.: **B-12** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/11/2026	PM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	AUGER	1	0.0	0.8	SS	8 50/3"		Brown SILT; and cmf Sand; little cf Gravel (moist, non-plastic) Weathered ROCK Fragments	4
2							2.0		
3								Boring terminated at 2.0 feet due to auger refusal on possible bedrock or boulders.	
4								Notes: 1. Borehole backfilled with on-site soils.	
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

f - fine
m - medium
c - coarse

and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-13** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	AM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger/NX Core**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	1.4	SS	8 21 50/5"		Brown SILT; some cmf Sand; little f Gravel (moist, non-plastic)	10
2								Advanced augers to 2.5 feet and began coring.	
							2.5		
3	NX CORE (WET)		2.5	7.5	NX	RUN 1		Blackish-Grey LIMESTONE 55" or 92% Recovery 9 Pieces (38") - 31% Chips and Fragments 4 Pieces longer than 4" (29") - RQD = 48%	55
4									
5									
6									
7							7.5		
8								Boring terminated at 7.5 feet.	
9								Notes: 1. Borehole backfilled with on-site soils.	
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-14** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	PM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	5 6 6 8		Brown cf GRAVEL; some cmf Sand; little Clayey Silt (moist, slight plasticity)	8
2		2	2.0	4.0	SS	8 10 10 10		Brown cf GRAVEL; some cmf Sand; little Clayey Silt; trace Organic Material (root hairs) (moist, slight plasticity)	10
4		3	4.0	4.8	SS	14 50/4"	4.0	Brown SILT; some cmf Sand; little cf Gravel (moist, non-plastic)	6
							4.8	Boring terminated at 4.8 feet due to auger refusal on possible bedrock or boulders.	

Notes:
1. Borehole backfilled with on-site soils.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: CD11074E-01-07-26

Client: Environmental Design & Research

Boring Location: See Boring Location Plan

Project: Subsurface Investigation
Old CHGE Training Yard
Saugerties, New York

Start Date: 3/9/2026 Finish Date: 3/9/2026

Boring No.: B-15 Sheet 1 of 1

Groundwater Observations

Date	Time	Depth	Casing
3/9/2026	PM	DRY	OUT

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: 140 lbs.
Fall: 30 in.
Hammer Type: Automatic

Ground Elev.:

Boring Advance By: 4 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	2.0	SS	3 4 4 3		Brown cmf SAND; some cf Gravel; some Silt & Clay; trace Organic Material (grass) (wet, low plasticity)	5
2							2.0		
3		2	2.0	4.0	SS	3 4 5 5		Brown CLAY & SILT; some cmf Sand; little f Gravel (moist, medium plasticity)	8
4		3	4.0	6.0	SS	5 7 14 8		Brown CLAY & SILT; some cmf Sand; little cf Gravel; trace Organic Material (roots) (wet, medium plasticity)	10
6		4	6.0	7.8	SS	12 12 15 50/3"	6.0	Brown cf GRAVEL; and cmf Sand; little Clayey Silt (wet, slight plasticity)	6
8							7.8	Boring terminated at 7.8 feet due to auger refusal on possible bedrock or boulders.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: Brad Perry; Justin Hargett

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-16** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	AM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
4 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	6 8 8 9	2.0	Brown cmf SAND; some cf Gravel; little Silt (moist, non-plastic)	10
2		2	2.0	3.9	SS	12 8 10 50/5"	4.3	Brown cmf SAND; some cf Gravel; some Clayey Silt; trace Organic Material (roots) (moist, slight plasticity) Advanced augers to refusal at 4.3 feet.	5
3									
4									
5								Boring terminated at 4.3 feet due to auger refusal on possible bedrock or boulders.	
6									
7								Notes: 1. Borehole backfilled with on-site soils.	
8									
9									
10									
11									
12									
13									
14									
15									

f - fine
m - medium
c - coarse
and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-17** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	AM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	AUGER	1	0.0	1.3	SS	14 18 50/3"	1.0	Grey cf GRAVEL; and cmf Sand; little Silt (moist, non-plastic)	6
2		2	2.0	2.3	SS	50/3"		Brown cmf SAND; some cf Gravel; some Silt (moist, non-plastic)	2
3							3.4		
4								Boring terminated at 3.4 feet due to auger refusal on possible bedrock or boulders.	
5								Notes:	
6								1. Borehole backfilled with on-site soils.	
7									
8									
9									
10									
11									
12									
13									
14									
15									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-18** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	PM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
4 1/4" Auger

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	13 20 25 30		Grey cf GRAVEL; and cmf Sand; trace Silt (moist, non-plastic)	12
2		2	2.0	4.0	SS	33 16 22 26		Grey cf GRAVEL; and cmf Sand; little Clayey Silt (moist, slight plasticity)	10
4		3	4.0	5.8	SS	13 10 10 50/3"	4.0	Grey SILT & CLAY; some cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, low plasticity)	5
6		4	6.0	6.1	SS	50/1"	6.1	NO RECOVERY	0
7								Boring terminated at 6.1 feet due to auger refusal on possible bedrock or boulders.	
8								Notes: 1. Borehole backfilled with on-site soils.	

f - fine
m - medium
c - coarse
and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-07-26**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **3/10/2026** Finish Date: **3/10/2026**

Boring No.: **B-19** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
3/10/2026	PM	DRY	OUT

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By: **4 1/4" Auger**

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
1	AUGER	1	0.0	2.0	SS	5 8 13 16		Grey cf GRAVEL; and cmf Sand; trace Silt (moist, non-plastic)	8
2		2	2.0	4.0	SS	13 18 20 8		Grey cf GRAVEL; some cmf Sand; little Clayey Silt (wet, slight plasticity)	12
4		3	4.0	5.8	SS	6 8 15 50/3"	4.0	Grey cmf SAND; little f Gravel; trace Clayey Silt; trace Organic Material (roots) (wet, slight plasticity)	10
6							6.3		
7								Boring terminated at 6.3 feet due to auger refusal on possible bedrock or boulders.	
8								Notes: 1. Borehole backfilled with on-site soils.	
9									
10									
11									
12									
13									
14									
15									

f - fine
m - medium
c - coarse
and - 35-50%
some - 20-35%
little - 10-20%
trace - 0-10%

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Brad Perry; Justin Hargett**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 7/21/26

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/8/2025** Finish Date: **9/8/2025**

Boring No.: **I-1** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/8/2025		DRY	8.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL (f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%)	Recovery (Inches)
1	CASING	1	0.0	2.0	SS	10 8 24 32	2.0	Brown cmf SAND; and cf Gravel; trace Silt (moist, non-plastic)	8
2		2	2.0	4.0	SS	31 26 24 20	4.0	Brown SILT & CLAY; little cmf Sand; trace f Gravel (moist, low plasticity)	6
4		3	4.0	6.0	SS	15 14 4 3		Brown cf GRAVEL; some cmf Sand; trace Silt & Clay (moist, low plasticity)	7
7		4	6.0	8.0	SS	3 5 5 4	8.0	Brown cmf SAND; and Silt & Clay; little cf Gravel (moist, low plasticity)	7
8		5	8.0	10.0	SS	6 7 6 7	10.0	Brown SILT & CLAY; trace mf Sand (moist, low plasticity)	10
10								Boring terminated at 10.0 feet.	

Notes:
1. Borehole backfilled with on-site soils.

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **I-2** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
	CASING	1	0.0	0.6	SS	50/5"	0.6	TOPSOIL & ORGANIC MATERIAL	0
1									
2									
3								Boring terminated at 0.6 feet.	
4									
5								Notes:	
6								1. Attempted boring at 4 locations within 5 to 10 feet of original boring location.	
7								2. Borehole backfilled with on-site soils.	
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/3/2025** Finish Date: **9/3/2025**

Boring No.: **I-3** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/3/2025		DRY	8.0'

Coordinates
Latitude
Longitude

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.:

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	5 11 8 10	2.0	Brown CLAY & SILT; trace cmf Sand; trace f Gravel; trace Organic Material (roots) (moist, medium plasticity)	6
2		2	2.0	4.0	SS	10 9 12 14	4.0	Brown cmf SAND; and f Gravel; trace Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	6
4		3	4.0	6.0	SS	2 2 4 3		Brown SILT & CLAY; trace cmf Sand (wet, low plasticity)	6
6		4	6.0	8.0	SS	3 4 2 4	8.0	Similar Soil (wet, low plasticity)	10
8		5	8.0	10.0	SS	6 10 9 30	10.0	Brown SILT & CLAY; little cmf Sand (wet, low plasticity)	6
10								Boring terminated at 10.0 feet.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector:

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

ATLANTIC TESTING LABORATORIES, Limited

Subsurface Investigation

Report No.: **CD11074E-01-11-25**

Client: **Environmental Design & Research**

Boring Location: **See Boring Location Plan**

Project: **Subsurface Investigation**
Old CHGE Training Yard
Saugerties, New York

Start Date: **9/4/2025** Finish Date: **9/4/2025**

Boring No.: **I-4** Sheet **1** of **1**

Groundwater Observations

Date	Time	Depth	Casing
9/4/2025		DRY	8.0'

Coordinates
Latitude _____
Longitude _____

Sampler Hammer
Weight: **140** lbs.
Fall: **30** in.
Hammer Type: **Automatic**

Ground Elev.: _____

Boring Advance By:
HW (4") Casing

DEPTH	METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE From	DEPTH OF SAMPLE To	SAMPLE TYPE	BLOWS ON SAMPLER PER 6" 2" O.D. SAMPLER	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	Recovery (Inches)
								f - fine; m - medium; c - coarse; and - 35-50%; some - 20-35%; little - 10-20%; trace - 0-10%	
1	CASING	1	0.0	2.0	SS	4 6 4 7	2.0	Brown CLAY & SILT; trace cmf Sand; trace Organic Material (roots) (moist, medium plasticity)	5
2		2	2.0	4.0	SS	12 14 19 22	4.0	Brown cmf SAND; some f Gravel; little Clayey Silt; trace Organic Material (roots) (moist, slight plasticity)	3
4		3	4.0	6.0	SS	4 4 6 5		Brown CLAY & SILT; trace cmf Sand; trace f Gravel (moist, medium plasticity)	12
6		4	6.0	8.0	SS	5 6 7 7	8.0	Brown CLAY & SILT; trace f Gravel; trace cmf Sand (moist, medium plasticity)	6
8		5	8.0	10.0	SS	6 5 7 5	10.0	Brown cmf SAND; little f Gravel; little Silt & Clay (wet, low plasticity)	5
10								Boring terminated at 10.0 feet.	
								Notes: 1. Borehole backfilled with on-site soils.	

SS Split Spoon Sample
NX Rock Core
SH Undisturbed Sample (Shelby Tube)
Estimated Groundwater

Drillers: **Darryl Green; Jared Lottie**

Inspector: _____

ATL-LOG1 LL CD11074 ENVIORNMENTAL DESIGN & RESEARCH - SAUGERTIES.GPJ ATL4-08.GDT 11/22/25

APPENDIX D

LABORATORY TEST RESULTS

ATLANTIC TESTING LABORATORIES

WBE certified company

LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS

ASTM D 2216

PROJECT INFORMATION

Client: EDR
Project: Old CHGE Training Yard
ATL Report No.: CD11074CSL-01-10-25
Report Date: October 31, 2025

TEST DATA

Boring No.	Sample No.	Depth (ft)	Moisture Content (%)
B-4	S - 2	2.0 - 4.0	5
	S - 3	4.0 - 6.0	8
	S - 4	6.0 - 8.0	10
	S - 5	8.0 - 10.0	17
	S - 6	10.0 - 11.1	13
B-5	S - 3	4.0 - 6.0	21
	S - 4	6.0 - 8.0	24
	S - 5	8.0 - 10.0	28
	S - 6	10.0 - 11.8	21
B-6	S - 2	2.0 - 4.0	8
	S - 3	4.0 - 6.0	33
	S - 4	6.0 - 8.0	19
	S - 5	8.0 - 10.0	22
	S - 6	10.0 - 10.6	14
B-7	S - 2	2.0 - 4.0	4
	S - 3	4.0 - 6.0	20
	S - 4	6.0 - 8.0	16
	S - 5	8.0 - 10.0	14
	S - 6	10.0 - 12.0	22
B-8	S - 2	2.0 - 4.0	13
	S - 3	4.0 - 6.0	20
	S - 4	6.0 - 8.0	30
	S - 5	8.0 - 10.0	22
	S - 6	10.0 - 12.0	25
B-10	S - 2	2.0 - 3.8	13

Reviewed By: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

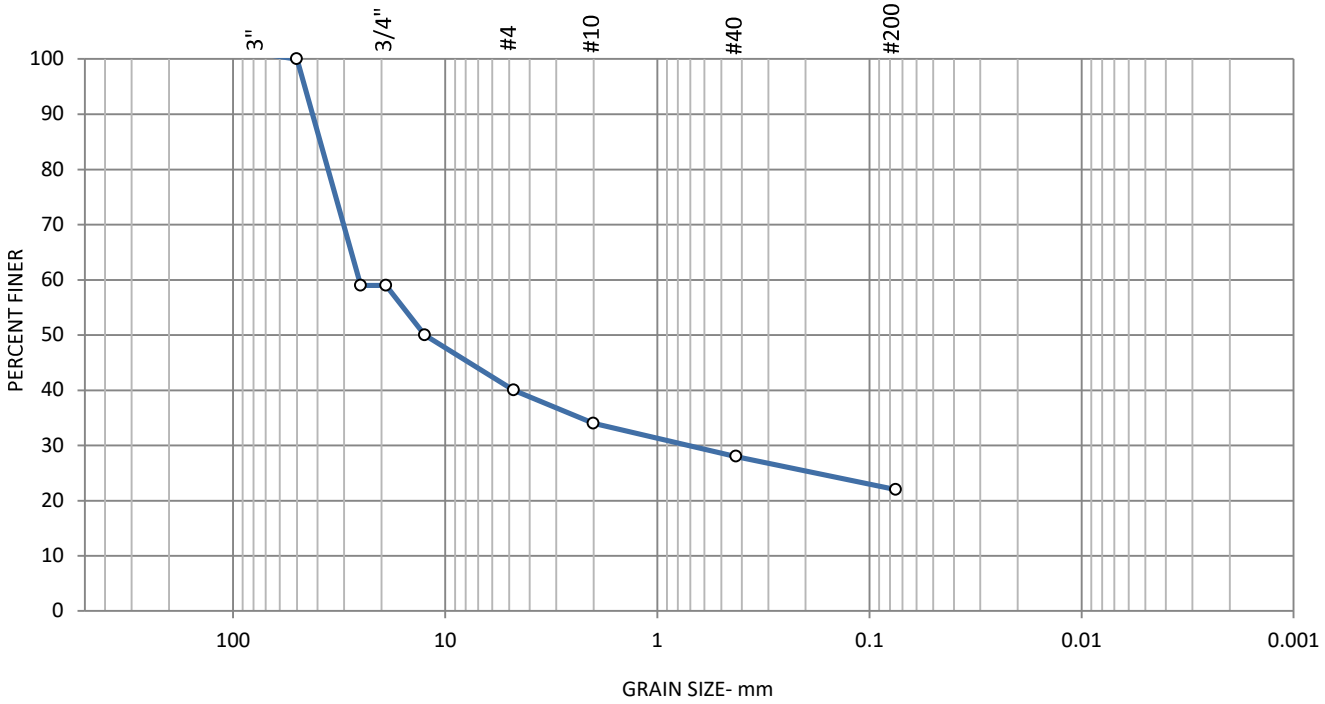
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-4, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-4.0'



% Cobbles	% Gravel		% Sand			% Fines	
						22	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	41	19	6	6	6		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	SPEC. (X)
4"			
3"			
2"	100		
1"	59		
3/4"	59		
1/2"	50		
#4	40		
#10	34		
#40	28		
#200	22		

Soil Description

Brownish-Grey cf GRAVEL; some Silt & Clay; little cmf Sand

Moisture Content = 5%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 25.43 D_{30}= 0.688 D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

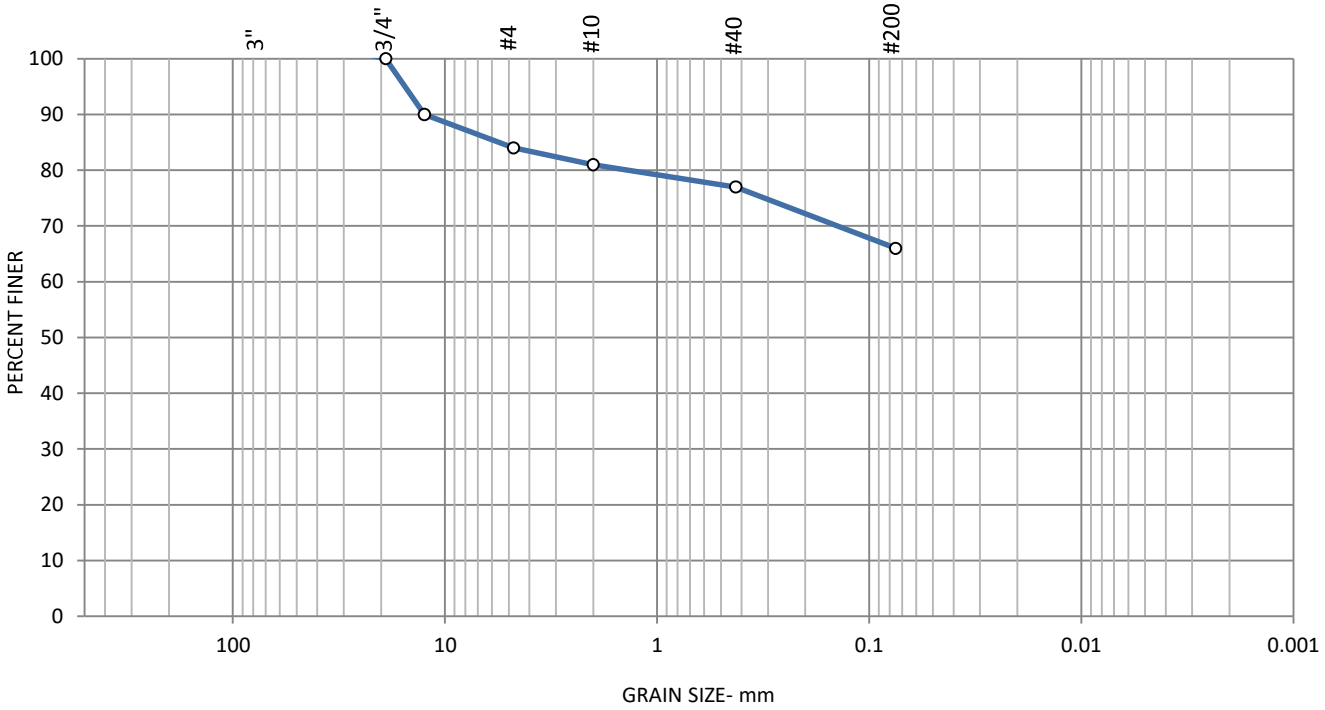
Particle Size Distribution Report
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-5, S-3 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 4.0-6.0'



% Cobbles	% Gravel		% Sand			% Fines	
						66	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		16	3	4	11		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"			
3/4"	100		
1/2"	90		
#4	84		
#10	81		
#40	77		
#200	66		

Soil Description

Brown CLAY & SILT; little cmf Sand; little f Gravel

Moisture Content = 21%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

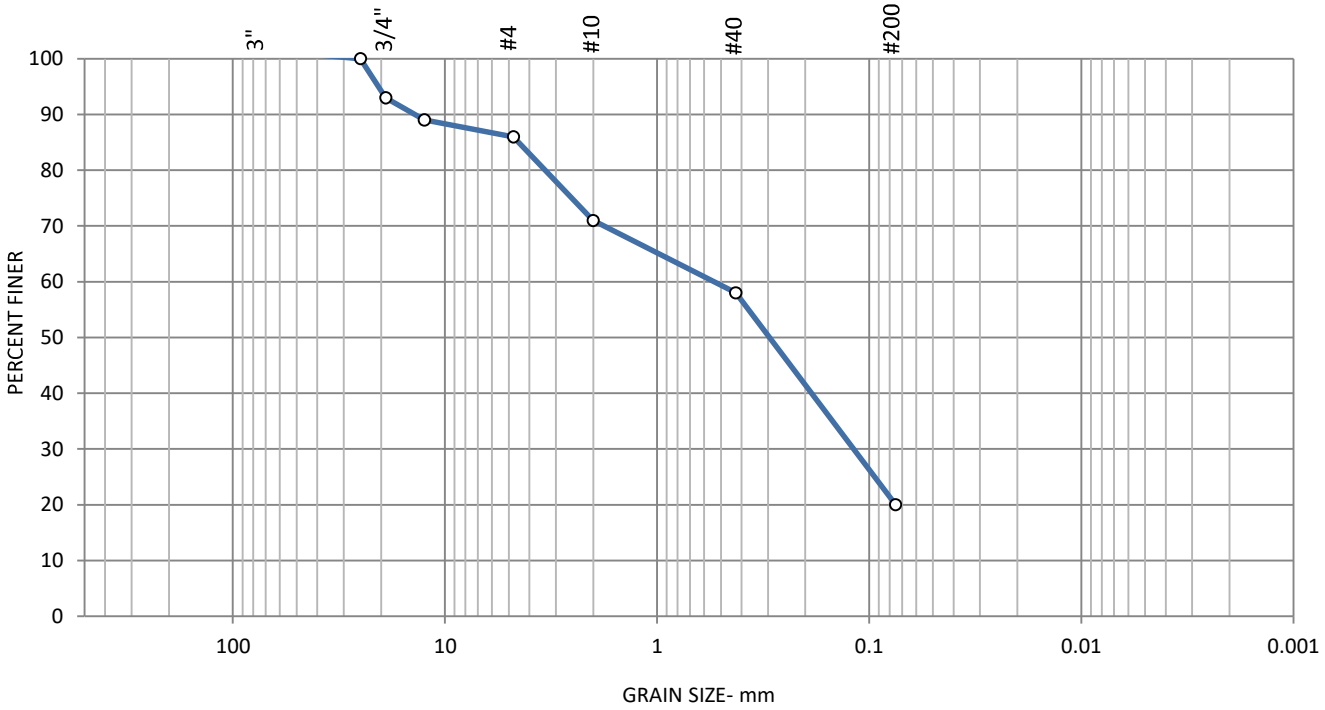
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-7, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-4.0'



% Cobbles	% Gravel		% Sand			% Fines	
						20	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	7	7	15	13	38		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"	100		
3/4"	93		
1/2"	89		
#4	86		
#10	71		
#40	58		
#200	20		

Soil Description

Brown cmf SAND; little Clayey Silt; little cf Gravel

Moisture Content = 4%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 0.633 D_{30}= 0.096 D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

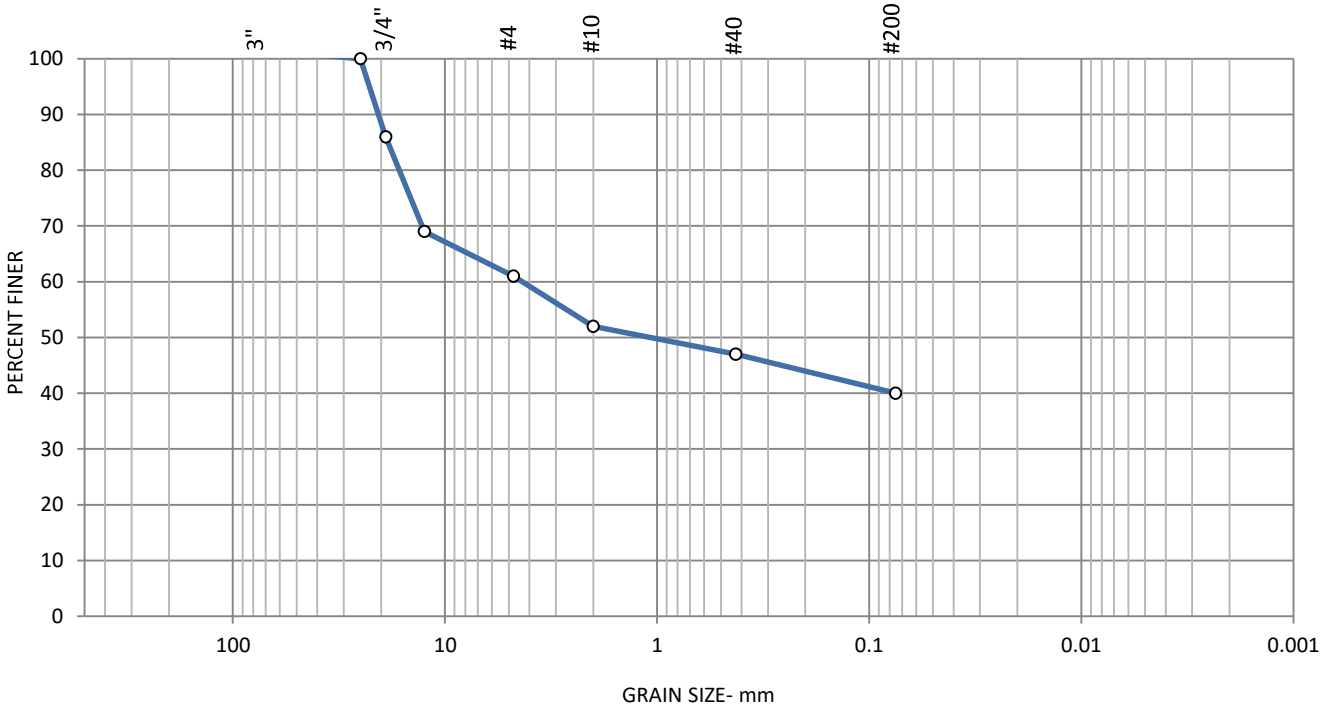
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-8, S-3 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 4.0-6.0'



% Cobbles	% Gravel		% Sand			% Fines	
						40	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
	14	25	9	5	7		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"	100		
3/4"	86		
1/2"	69		
#4	61		
#10	52		
#40	47		
#200	40		

Soil Description

Greyish-Brown SILT & CLAY; and cf GRAVEL; some cmf SAND

Moisture Content = 21%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= 4.327 D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Particle Size Distribution Report

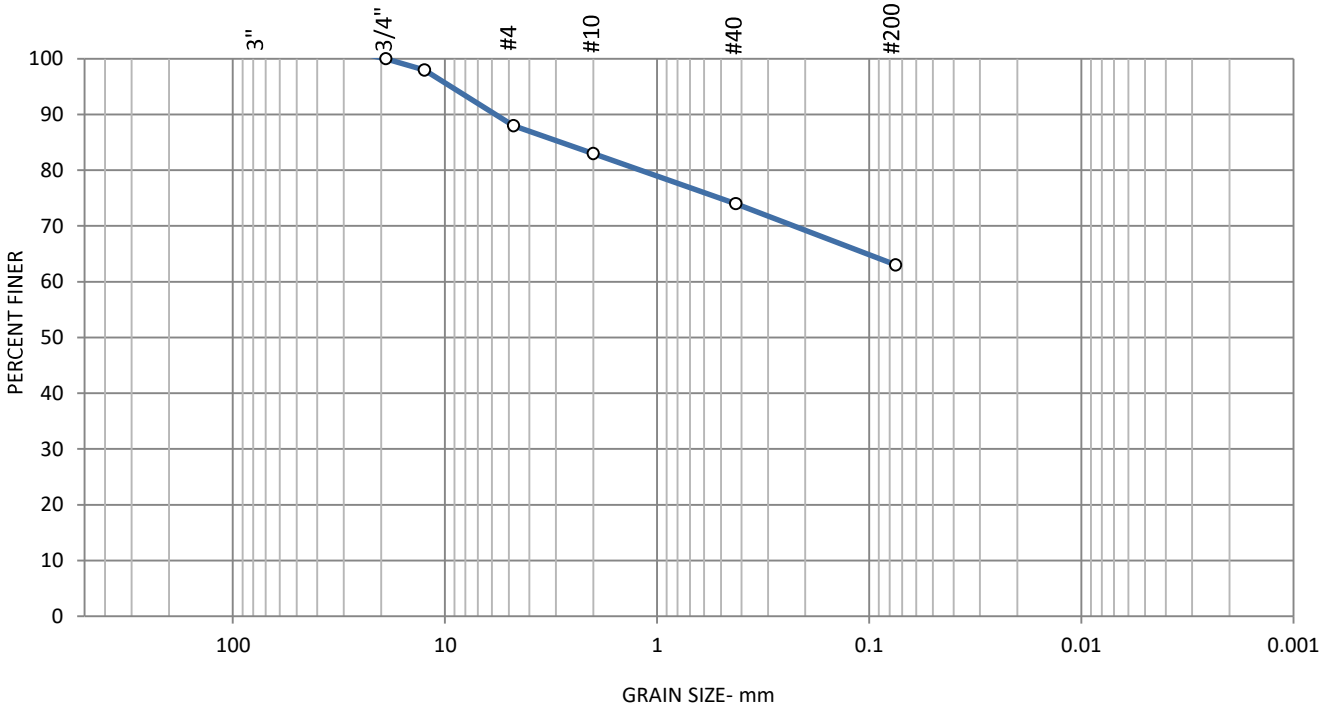
ASTM D 422

Project: Old CHGE Training Yard **Report No.:** CD11074CSL-01-10-25

Client: EDR **Test Date:** 10/20/2025

Sample No: B-10, S-2 **Source of Sample:** Boring Sample

Location: In-place **Elev./Depth (ft):** 2.0-3.8'



% Cobbles	% Gravel		% Sand			% Fines	
						63	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
		12	5	9	11		

SIEVE SIZE	PERCENT FINER	SPEC. PERCENT	OUT OF SPEC.
4"			
3"			
2"			
1"			
3/4"	100		
1/2"	98		
#4	88		
#10	83		
#40	74		
#200	63		

Soil Description

Brown SILT & CLAY; some cmf Sand; little f Gravel

Moisture Content = 13%

Atterburg Limits

PL= LL= PI=

Coefficients

D_{60}= D_{30}= D_{10}=

C_u= NA C_c= NA

Classification

USCS= AASHTO=

Remarks

ATLANTIC TESTING LABORITORIES, LIMITED

Reviewed by: _____ Date: 10/31/2025

ATLANTIC TESTING LABORATORIES

Rochester
3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE
IEEE 442

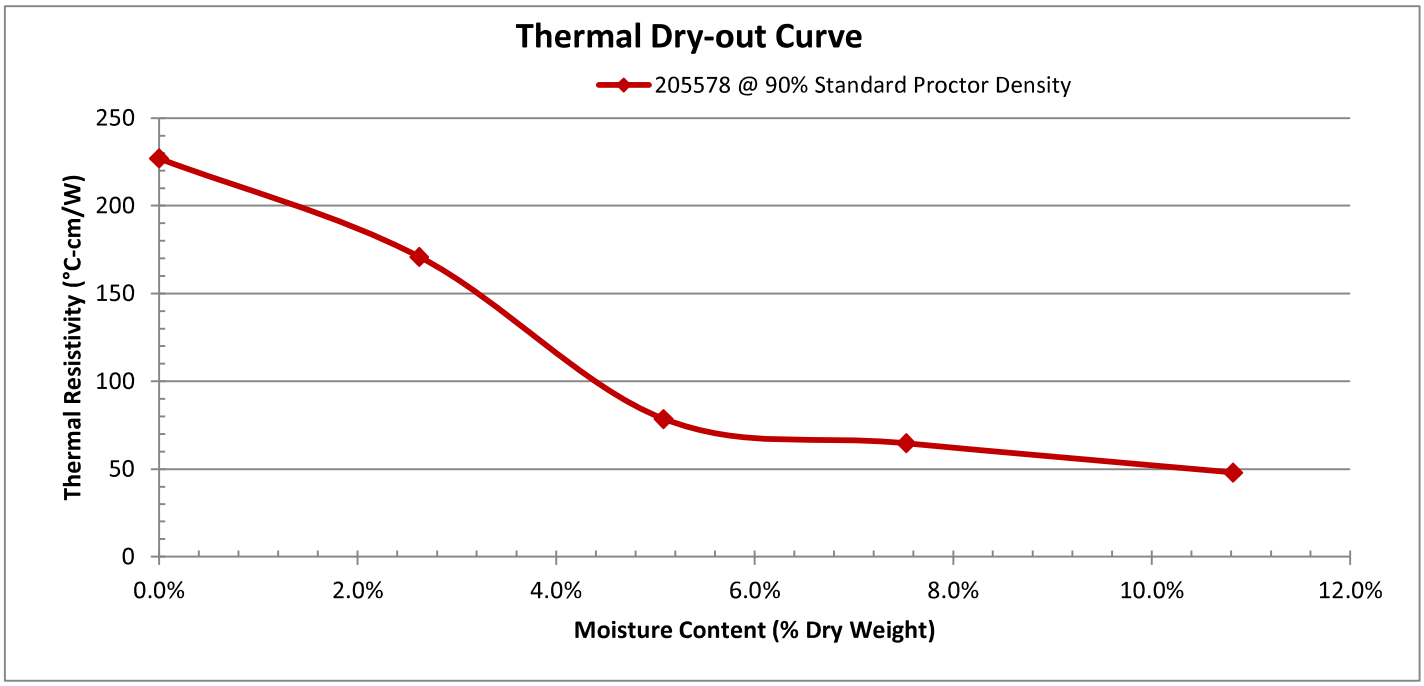
PROJECT INFORMATION

Client:	Environmental Design & Research	**ATL Report No.:**	CD11074TH-205578-08-26
Project:	Old CHGE Training Yard	**Report Date:**	August 3, 2026
		Date Received:	July 17, 2026
		Page:	1 of 1

SAMPLE INFORMATION

Source:	Saugerties, NY		
Boring Information:	Bulk Sample B-11	**Standard Proctor Values:**	129.6 lb/ft³ @ 8.6% M.C.
Sample Condition:	Bulk; Re-molded	**Remolded Dry Density:**	116.6 lb/ft³ (90%)
ATL Sample No.:	205578	**Received Moisture:**	14.1%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.0%	22.80	227
2.6%	23.10	171
5.1%	23.30	79
7.5%	23.30	65
10.8%	23.50	48



Reviewed By: _____ Date: 8/3/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000001

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:
Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

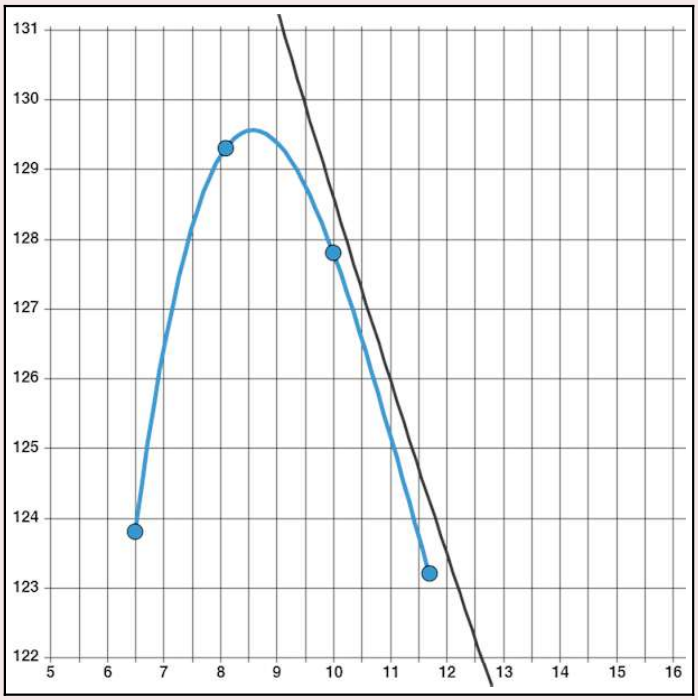
Project:
CD11074
Old CHGE Training Yard
123
Saugerties, NY

Sampling Information

Sample Number:	205578	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	07/27/2026
Sample From:	Not Given	**Color/Material Description:**	Gray Gravel and clayey silt
Location Details:	B-11		

Test Results

Test Completed By:	Reed, Michael	**Material Description:**	Gray Gravel and clayey silt
Test Completed Date:	07/30/2026	**Preparation Method:**	Moist
		Rammer Type:	Manual
		Percent Retained on 3/4 in.:	28
		Specific Gravity Determination:	Estimated
		Specific Gravity of Sample:	2.60
		Oversize Specific Gravity:	2.58
		Corrected Max Dry Density (lb/ft³):	129.6
		Corrected Optimum Moisture (%):	8.6



Test Specification: ASTM D698 Method C, ASTM D4718

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000001

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:	**Project:**
Environmental Design & Research 217 Montgomery Street Syracuse, NY 13202	CD11074 Old CHGE Training Yard 123 Saugerties, NY



Craig Innis, Director of Quality 08/03/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES

Rochester
3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE
IEEE 442

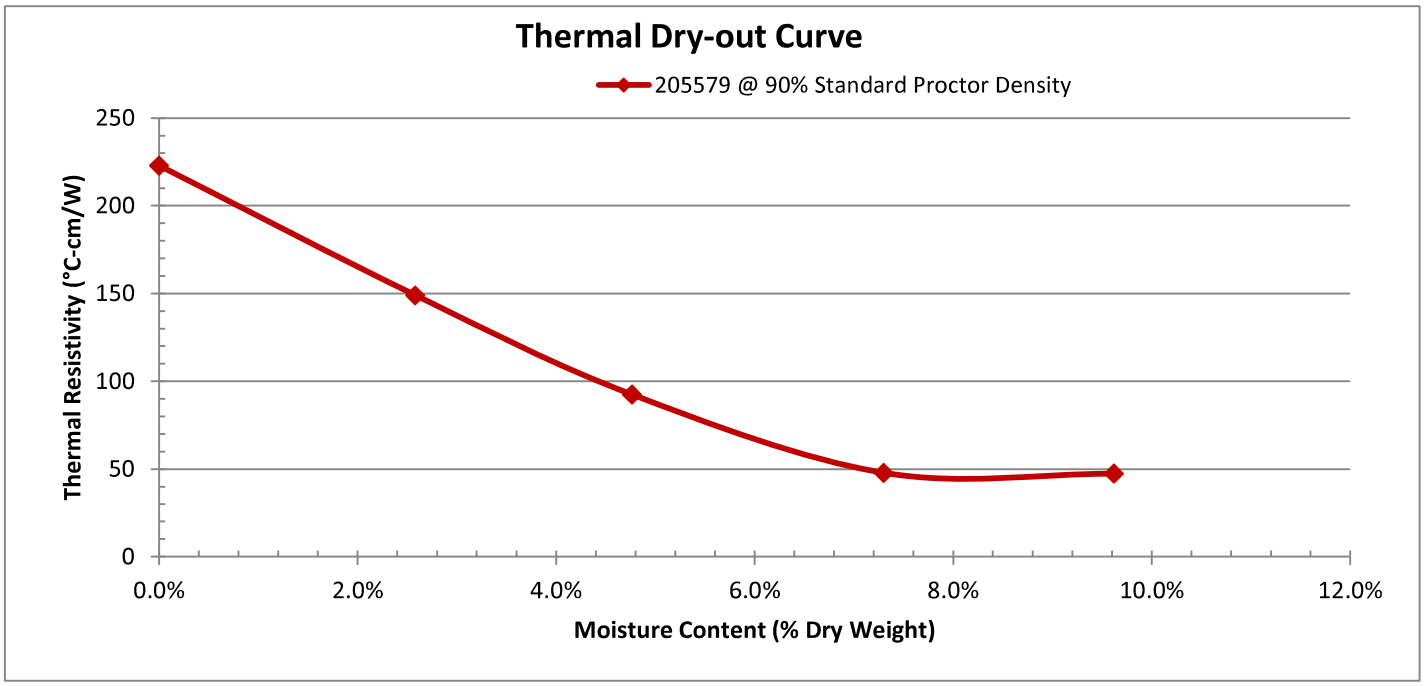
PROJECT INFORMATION

Client:	Environmental Design & Research	**ATL Report No.:**	CD11074TH-205579-08-26
Project:	Old CHGE Training Yard	**Report Date:**	August 3, 2026
		Date Received:	July 17, 2026
		Page:	1 of 1

SAMPLE INFORMATION

Source:	Saugerties, NY		
Boring Information:	Bulk Sample B-12	**Standard Proctor Values:**	132.1 lb/ft³ @ 7.8% M.C.
Sample Condition:	Bulk; Re-molded	**Remolded Dry Density:**	118.9 lb/ft³ (90%)
ATL Sample No.:	205579	**Received Moisture:**	8.4%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.0%	22.80	223
2.6%	23.40	149
4.8%	23.50	93
7.3%	24.00	48
9.6%	24.00	47



Reviewed By: _____ Date: 8/3/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000002

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:

Environmental Design & Research
217 Montgomery Street
Syracuse, NY 13202

Project:

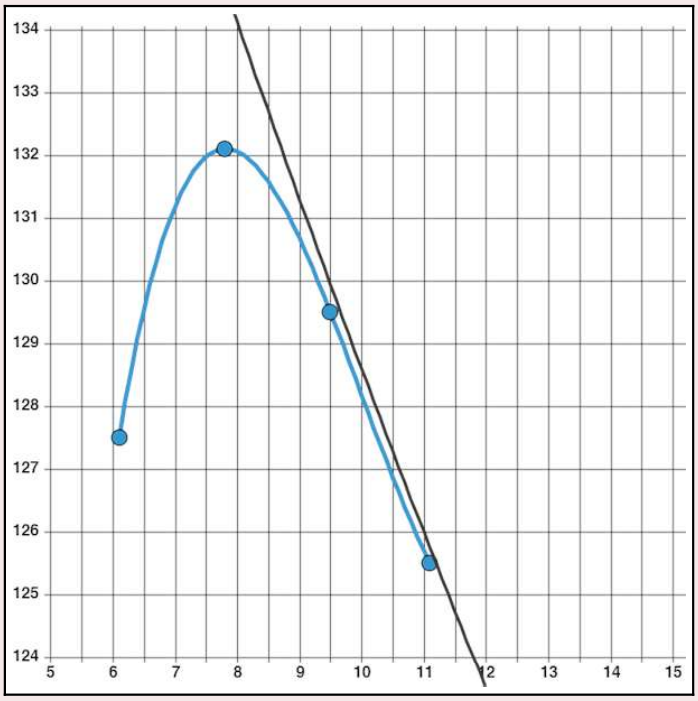
CD11074
Old CHGE Training Yard
123
Saugerties, NY

Sampling Information

Sample Number:	205579	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	07/27/2026
Sample From:	Not Given	**Color/Material Description:**	Gray Gravel and clayey silt
Location Details:	B-12		

Test Results

Test Completed By:	Reed, Michael	**Material Description:**	Gray Gravel and clayey silt
Test Completed Date:	07/30/2026	**Preparation Method:**	Moist
		Rammer Type:	Manual
		Percent Retained on 3/4 in.:	30
		Specific Gravity Determination:	Estimated
		Specific Gravity of Sample:	2.60
		Oversize Specific Gravity:	2.58
		Corrected Max Dry Density (lb/ft³):	132.1
		Corrected Optimum Moisture (%):	7.8



Test Specification: ASTM D698 Method C, ASTM D4718

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Laboratory Compaction Test Report

Report #: SL12-000002

Canton Drilling
6431 US Highway 11
Canton, NY 13617
Phone: 315.386.4578

Client:	**Project:**
Environmental Design & Research 217 Montgomery Street Syracuse, NY 13202	CD11074 Old CHGE Training Yard 123 Saugerties, NY



Craig Innis, Director of Quality 08/03/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

APPENDIX I

NYSDEC SPDES General Permit for Stormwater Discharge from Construction Activity, GP-0-25-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *stormwater discharges* from certain *construction activities* are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York State administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

C*onstruction activities* constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part I. How to Obtain Coverage and General Requirements 5
A. Eligibility Requirements 5
B. Types of *Discharges* Authorized 9
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Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

    a. one or more acres; or

    b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

    c. less than one acre where NYSDEC has determined that a SPDES permit is required for *stormwater discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of pollutants to *surface waters of the State*.

        i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

        ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

        iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

        iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

    a. already covered by a different SPDES permit; or

    b. covered under a different SPDES permit that was denied, terminated, or revoked; or

    c. identified in an expired individual SPDES permit that was not renewed; or

    d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

    a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

    b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

    a. documentation that the *construction activity* is not within an archeological buffer area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

        i. 1-5 acres of disturbance - 20 feet; or

        ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or

ii. documentation from OPRHP that the *construction activity* will result in No Impact; or

iii. documentation from OPRHP providing a determination of No Adverse Impact; or

iv. a Letter of Resolution signed by the *owner or operator*, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

    a. obtain all such necessary permits; or

    b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

    a. For linear transportation and linear utility project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb two or more acres of *steep slope*.

    b. For all other project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

   a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part II. and Part III.

   b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

      i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

      ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

      iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

      iv. *Stormwater* controls are implemented in accordance with Part II. and Part III. for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

   a. Non-*stormwater discharges* listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "*Discharges* from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; and

   b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

   c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part I.D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part II. have been met; demonstrate consideration of the future risks due to climate change in accordance with Part III.A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part III. have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

b. an entire *common plan of development or sale*; or

c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:

    i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and

    ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and

    iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or

d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:

    i. meets all other eligibility requirements of Part I.A.; and

    ii. will occur in NYSDEC's Regions 3-9; and

    iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and

    iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:

    a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and

    b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:

        i. for all eNOIs:

            1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and

ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:

1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:

a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or

b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or

c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 “Governmental Immunity from Zoning and Other Legislation”; and

2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:

a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does not have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do not have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

   a. all areas of disturbance have achieved *final stabilization;* and

   b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

   a. all documentation necessary to demonstrate eligibility with this permit; and

   b. this permit; and

   c. the *SWPPP*; and

   d. the signed SWPPP Preparer Certification Form; and

   e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

   f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

b. The written Request to Disturb Greater Than Five Acres must include:

i. The SPDES permit identification number (Permit ID); and

ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the

authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

    a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

    b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

    c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

    d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

    e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

    f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

        i. the revised area of disturbance and/or *impervious area(s)*; and

        ii. the revised SMP information, if applicable; and

        iii. a narrative description of what has changed; and

        iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

    Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any *discharge* to either cause or contribute to a violation of the following *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York:

1. There must be no increase in turbidity that will cause a substantial visible contrast to natural conditions; and

2. There must be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There must be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the *stormwater discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this permit, it is demonstrated that the *stormwater discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if NYSDEC determines that a modification of this permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

B. Effluent Limitations Applicable to *Discharges* from *Construction Activities*

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part II.B.1.a., b., c., d., and e. These limitations represent the

degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement, and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

    a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

        i. *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s; and

        ii. Control *stormwater discharge*s, including both peak flow rates and total *stormwater* volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points; and

        iii. *Minimize* the amount of soil exposed during *construction activity*; and

        iv. *Minimize* the disturbance of *steep slope*; and

        v. *Minimize* sediment *discharge*s from the site; and

        vi. Provide and maintain *natural buffers* around surface waters, direct *stormwater* to vegetated areas and maximize *stormwater* infiltration to reduce *pollutant discharge*s, unless *infeasible*; and

        vii. *Minimize* soil compaction. *Minimizing* soil compaction is not required

where the intended function of a specific area of the site dictates that it be compacted; and

viii. Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

ix. *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of *pollutants* that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar days from the date the current soil disturbance activity ceased. For *construction sites* that *directly discharge* to one of the 303(d) segments listed in Appendix D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity ceased.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Select, design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be selected, designed, installed, implemented, and maintained to:

i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

ii. *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation

and to *stormwater*. *Minimization* of exposure is not required in cases where the exposure to precipitation and to *stormwater* will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of *stormwater* contamination (such as final products and materials intended for outdoor use); and

iii. Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must be designed, constructed, and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-Construction Stormwater Management Practice (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, the *owner or operator* must include in the *SWPPP* the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity*, that requires SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

   In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

   1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

   2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

   3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24-hour design storm over the post-developed watershed and must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include

documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

c. *Sizing Criteria* for *Redevelopment Activity*

i. Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

1. Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

d. *Sizing Criteria* for Combination of *Redevelopment Activity* and *New Development*

Construction projects, that include both *new development* and *redevelopment activity*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. The *SWPPP* must document the selection, design, installation, implementation and maintenance of the control measures and

practices that will be used to meet the effluent limitations in Part II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

    a. The owner or operator must consider:

        i. the following physical risks due to climate change:

            (i) increasing temperature; and

            (ii) increasing precipitation; and

            (iii) increasing variability in precipitation, including chance of drought; and

            (iv) increasing frequency and severity of flooding; and

            (v) rising sea level; and

            (vi) increasing storm surge; and

            (vii) shifting ecology.

        ii. for each of the following:

            (i) overall site planning; and

            (ii) location, elevation, and sizing of:

                a. control measures and practices; and

                b. conveyance system(s); and

                c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC may notify the *owner or operator* at any time that the *SWPPP* does not meet one or more of the minimum requirements of this permit. The notification must be in writing and identify the provisions of the *SWPPP* that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4.

7. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices included in the *SWPPP* and the

contractor(s) and subcontractor(s) that will be responsible for constructing the SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements of the *SWPPP* and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the *SWPPP* that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for *SWPPP* implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* must attach the certification statement(s) to the copy of the *SWPPP* that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the *SWPPP* after the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component - The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

    a. Erosion and sediment control practices must be designed:

        i. in conformance with the BB; or

        ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

    b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

    c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

        i. Background information about the scope of the project, including the location, type and size of project; and

        ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the *stormwater discharge*(s) and receiving surface water(s); and

        iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

        iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*,

and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any

temporary sediment basins and structural practices that will be used to divert flows from exposed soils; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the *stormwater discharges*; and

x. A description and location of any *stormwater discharges* associated with industrial activity other than construction at the site, including, but not limited to, *stormwater discharges* from asphalt plants and concrete plants located on the *construction site*; and

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

   a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

   b. SMPs must be designed in conformance with the *performance criteria*:

      i. in the DM; or

      ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

      iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

    a. subject to governmental review and approval:

        i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

        ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

    b. not subject to governmental review and approval:

        i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

        ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

    i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

    ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

iii. A Stormwater Modeling and Analysis Report that includes:

(i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points; and

(ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

(iii) Results of *stormwater* modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre- and post-development runoff rates and volumes for the different storm events; and

(iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the DM.

iv. Soil testing results and locations (test pits, borings); and

v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity

that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

Owners or operators of *construction activities*, identified in Table 1 of Appendix B, are required to prepare a *SWPPP* that only includes erosion and sediment control practices designed in accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

Part IV. Inspection and Maintenance Requirements

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures), and all SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being

implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor must:

a. if the corrective action does not require engineering design:

    i. begin implementing corrective actions within one business day; and

    ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

    i. begin the engineering design process within five business days; and

    ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

2. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

    a. the construction of a single-family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than or equal to five (5) acres and is

not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to five (5) acres and is not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

a. For *construction sites* where soil disturbance activities are on-going, the *qualified inspector* must conduct a site inspection at least once every seven (7) calendar days; or

b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

c. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

   a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

   b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

   c. all areas of disturbance that have not achieved *final stabilization*; and

   d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

   e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

   c. Name and title of person(s) performing inspection; and

   d. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection; and

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; and

   i. Description and sketch (map) of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection; and

   j. Estimates, in square feet or acres, of the following areas:

i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

iii. Total area that has achieved *temporary stabilization*; and

iv. Total area that has achieved *final stabilization*; and

k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

l. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the SMP(s); and

m. Identification and status of all corrective actions that were required by previous inspection; and

n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* must also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* must attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

   i. all soil disturbance activities have ceased; and

   ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

   iii. all temporary, structural erosion and sediment control measures have been removed; and

   iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

   v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice(s)" certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the "MS4 Acceptance" statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

    a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

    b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

    c. for SMP(s) that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record; or

    d. for SMP(s) that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility, the *owner or operator* has policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

    a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each

violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

   i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

   ii. the size of the *discharge(s)*; and

   iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

   iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

    a. For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

        (ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

        Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

    b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

    1. the chief executive officer of the agency; or

    2. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part VII.J.1. or using the Duly Authorized Form, found on the DEC website; and

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

    c. The written authorization is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the *discharge*, upon the presentation of credentials and other documents as may be required by law, to:

1. enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
CPv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law
EPA – U.S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit. If a word is not italicized in the permit, use its common definition.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the *SWPPP*. See definition for "*Construction Activity(ies)*" also.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal.

Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – runoff flows from a *construction site* by overland flow and the first point of *discharge* is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of *discharge* from the separate storm sewer system is the specific surface waterbody.

Discharge(s)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization – all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other *equivalent* stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Historic Property – any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. owned or operated by a State, city, town, village, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, *stormwater*, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA, that *discharges* to *surface waters of the State*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – any land disturbance that does not meet the definition of *Redevelopment Activity* included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

Nonpoint Source(s) – any source of water pollution or *pollutants* which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be *discharged*.

Pollutant(s) – dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast *discharged* into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq.

Qualified Inspector – a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder or other NYSDEC endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – a person that is knowledgeable in the principles and practices of *stormwater* management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the *SWPPP* that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – the disturbance and reconstruction of existing *impervious area*, including *impervious areas* that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical *site limitations* include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of *site limitations* shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description is inclusive of slopes greater than 25%), or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – a project specific report, including construction drawings, that among other things: describes the *construction activity(ies)*, identifies the potential sources of pollution at the *construction site*; describes and shows the *stormwater* controls that will be used to control the *pollutants* (i.e. erosion and sediment controls; for many projects, includes SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements of the permit. See Part III of the permit for a complete description of the information that must be included in the *SWPPP*.

Surface Waters of the State – shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Load (TMDL) – the sum of the allowable loads of a single *pollutant* from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – a city, town, or village with land use control authority that is authorized to *discharge* under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training

in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.7., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities* that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single-family home not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions with 25% or less *impervious cover* at total site build-out and not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

The following *construction activities* that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

- All construction activities located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- Installation of underground linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path, or walking path.

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *alter hydrology from pre- to post-development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions
- Demolition where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions.
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary *impervious areas* that will be restored to pre-construction conditions once the *construction activity* is complete (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, and do not *alter hydrology from pre- to post-development* conditions, and are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Single-family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family home that disturbs five (5) or more acres of land
- Single-family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single-family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the “Agricultural Best Management Practice Systems Catalogue” (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- Athletic fields (natural grass) that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations, and well drilling pads, surfaced with *impervious cover,* and constructed as part of an overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- All other *construction activities* that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre- to post-development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of *construction activities* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- Entire New York City Watershed located east of the Hudson River – Figure 1
- Onondaga Lake Watershed – Figure 2
- Greenwood Lake Watershed – Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

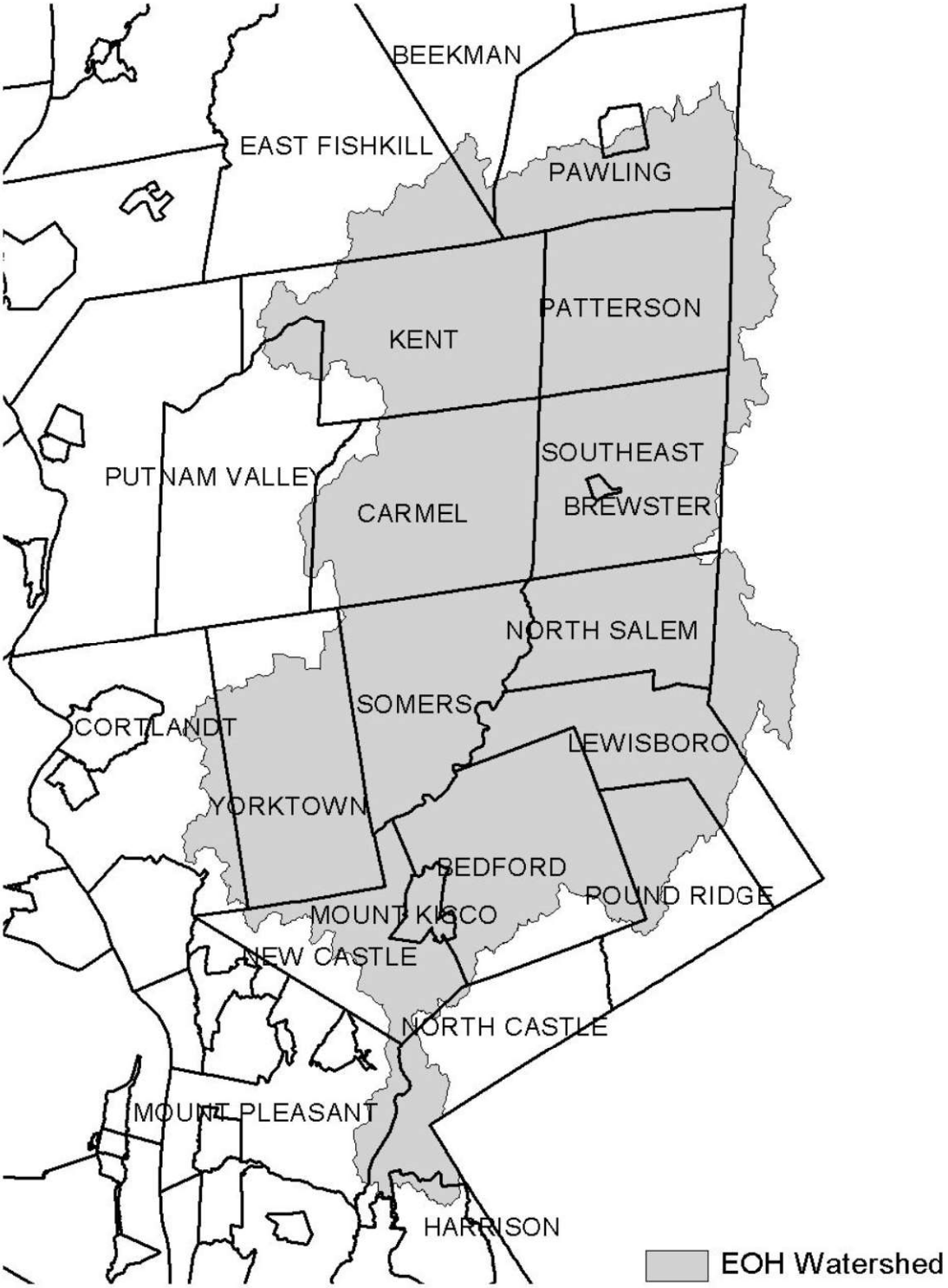


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

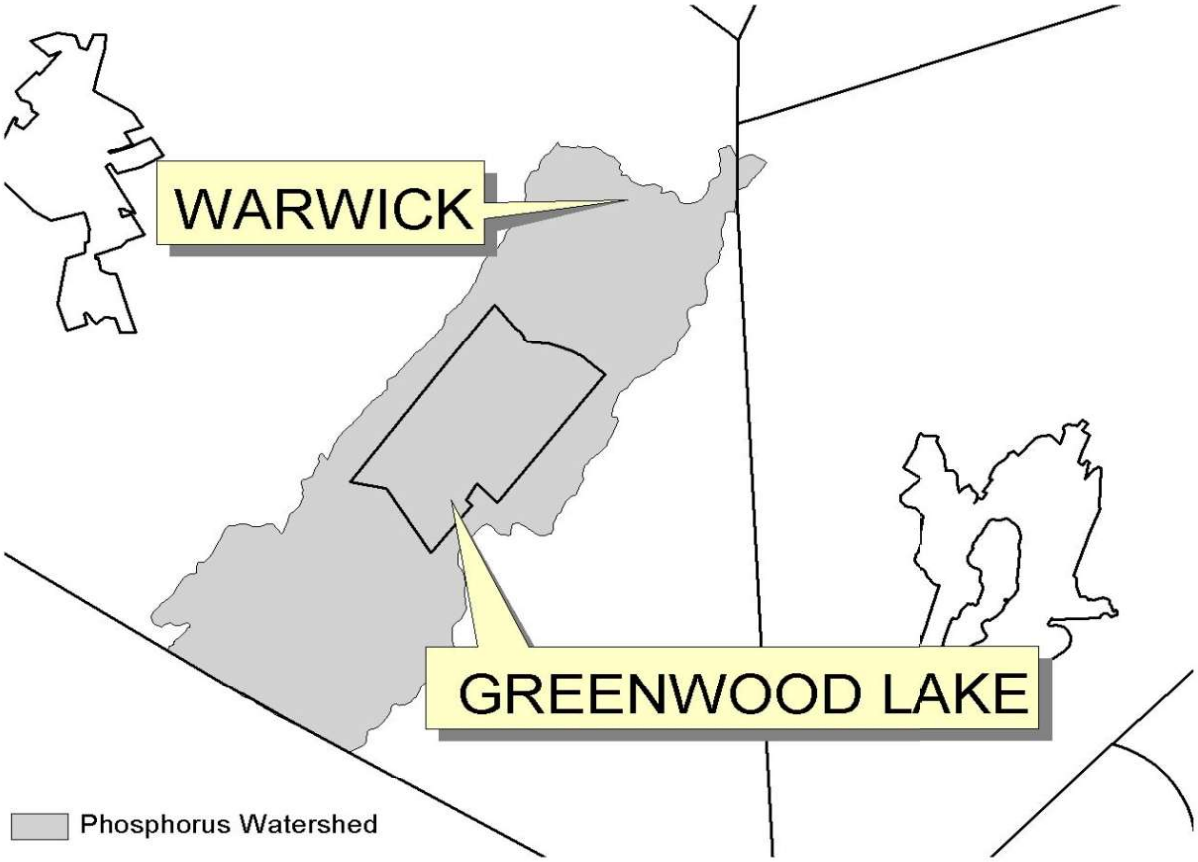


Figure 4 - Oscawana Lake Watershed

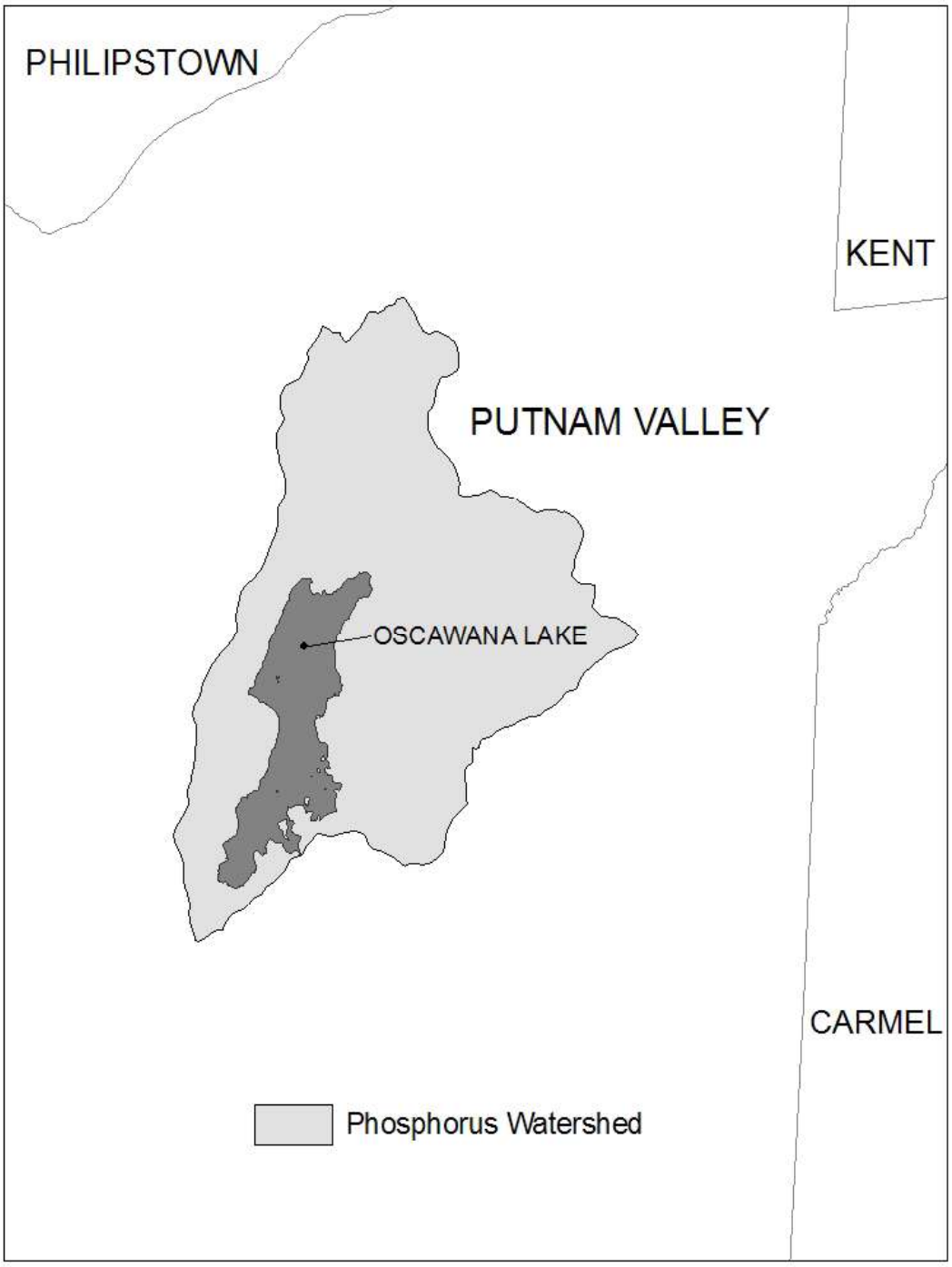
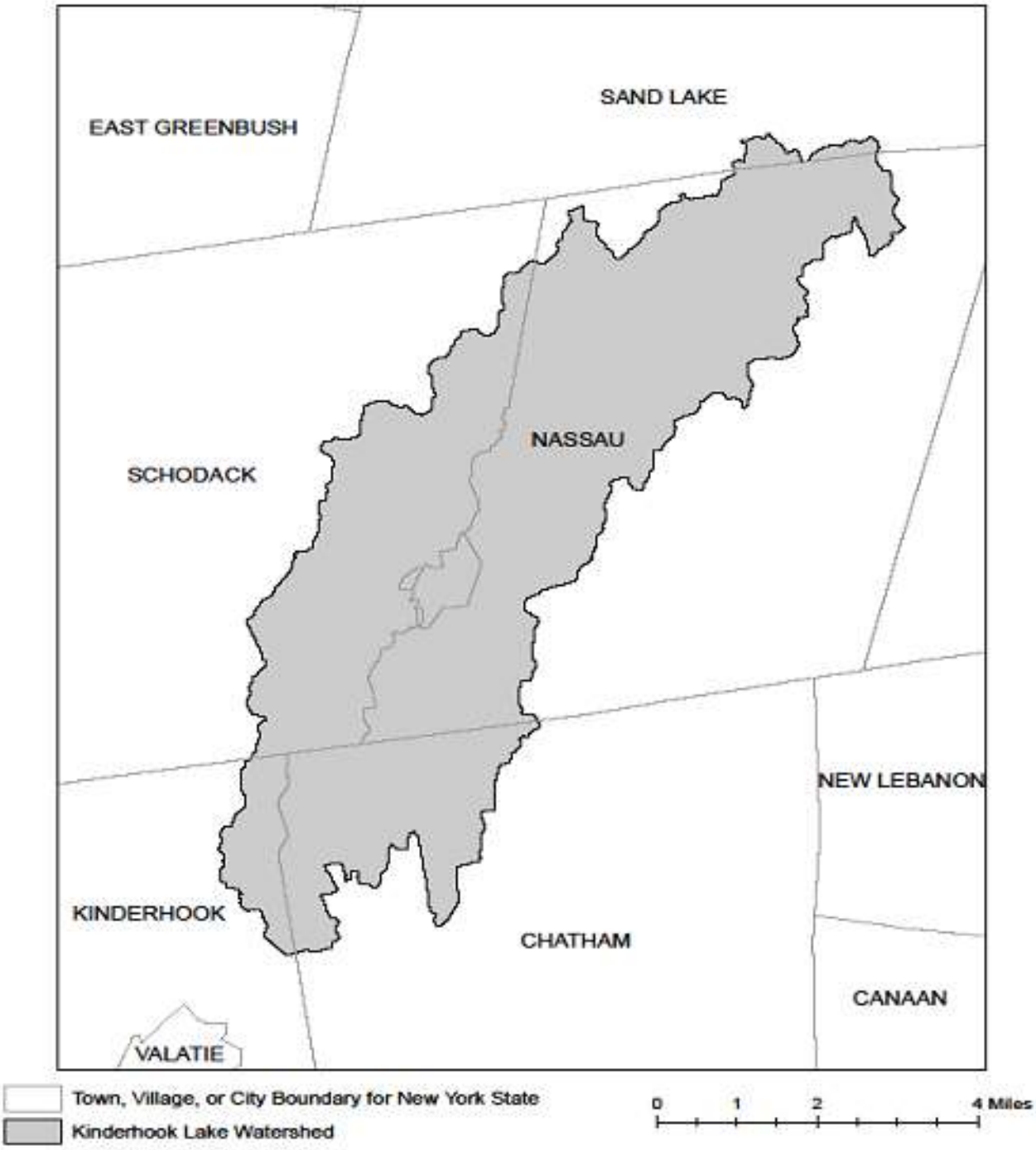


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX J

Amendments

Stormwater Control Maintenance Agreement

Whereas, KCE NY 34, LLC (the "Owner") is developing, and intends to construct and operate, a battery energy storage system facility (the "Project") on a portion of the parcel located at 7 Tomsons Road in the Town of Saugerties (the "Municipality"), County of Ulster, State of New York; and

Whereas, the Municipality and the Owner want to enter into an agreement to provide for the long-term maintenance and continuation of stormwater control measures approved by the Municipality for the Project; and

Whereas, the Municipality and the Owner desire that the stormwater control measures be built in accordance with the Approved Plans (as defined below) and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components. Therefore, the Municipality and the Owner agree as follows:

1. This agreement binds the Municipality and the Owner, its successors and assigns, to the maintenance provisions depicted in the approved Project plans which are attached as Schedule A of this agreement (the "Approved Plans").

2. The Owner shall maintain, clean, repair, replace and continue the stormwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: one (1) infiltration basin through the NYSDEC approved alternative cross section for BESS yards, including channel protection volume (CP_v), provided through the alternative cross section via complete infiltration.

3. The Owner shall be responsible for all expenses related to the maintenance of the stormwater control measures.

4. The Owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every five-year period, to determine the condition and integrity of the measures. Such inspection shall be performed by a professional engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Municipality, within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.

5. The Owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Municipality.

6. The Owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Municipality or in accordance with the recommendations of the inspecting engineer.

7. This agreement shall be recorded in the Office of the County Clerk, County of Ulster.[1]

8. If ever the Municipality determines that the Owner has failed to construct or maintain the stormwater control measures in accordance with the Approved Plans or has failed to undertake necessary corrective action specified by the Municipality or by the inspecting engineer, the Municipality is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures; however, such measures shall not interfere with the operation of the Project.

9. This agreement is effective upon the date last signed by each of the parties below and no in case prior to receipt of the Approved Plans.

KCE NY 34, LLC **as the "Owner"**	**TOWN OF SAUGERTIES** **as the "Municipality"**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

[1] Note to draft: please note that we removed the surety bond requirement from this version. This is not something that has been discussed; however, if this is required, we are open to discussing this further.

Schedule A

Approved Project Plans

[See attached]