



CONNECTICUT DEPARTMENT OF AGRICULTURE

450 Columbus Blvd, Suite 701 | Hartford, Connecticut 06103 | 860.713.2500
Office of the Commissioner
An Equal Opportunity Employer



February 9, 2024

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Greenskies Clean Energy, LLC – Spencer Hill Road in Winchester, proposed 3.7-Megawatt AC Solar Generating Facility – Revised No Material Affect Letter from the Department of Agriculture

Dear Executive Director Bachman:

On October 3, 2023, DOAG issued a letter of no material affect for this project based on the information submitted as set forth in that letter. The applicant has modified their application to add stormwater drainage work which will disturb the soil on the project site. They have requested the Agency's approval of the modification and that the letter previously issued be revised to reflect the modifications.

Accordingly, and pursuant to 16-50k(a) of the Connecticut General Statutes, we have reviewed the above cited project with respect to agricultural impacts, specifically, to determine whether "...such project will not materially affect the status of such land as prime farmland..."

This project will be located on Spencer Hill Road in Winchester, on land owned by Frank Ahern and Karen Merete. The entire 190.38-acre parcel contains approximately 21.5 acres of prime farmland soils. The proposed solar facility would occupy approximately 13 acres, of which 6.62 acres are classified as prime farmland soils.

In a letter to the Department of Agriculture, dated April 14, 2023, and follow up letters dated August 14, 2023 and January 23, 2024, the Petitioner (Greenskies Clean Energy LLC) has agreed to design and manage commercial herb farming, a pollinator habitat and a honeybee apiary on approximately 12 acres within the Project Site. The Petitioner has also proposed to facilitate the use of one (1) acre within the Project Site for long term agrivoltaics research including crop and variety trials in conjunction with the Connecticut Agricultural Experiment Station.

Based on preliminary information provided to the Agency (enclosed), and the successful implementation of the co-uses described above, the Department of Agriculture concludes this project **will not** materially affect the status of project land as prime farmland.

This letter is conditioned upon all dual use plans being fully implemented and operational for the duration of the solar installation, as well as the submission of monthly Fill Management Update Reports during project construction, as proposed in the Fill Management Plan (enclosed) prepared by Vanasse Hangen & Brustlin, Inc. on behalf of the Petitioner. If the Petitioner sells the solar

project to another entity, dual use programing and decommissioning responsibilities must carry over to the new owner.

Should any project changes raise concerns to the Agency, we reserve the right to modify our position on this project, including opposing it, as detailed plans are provided by the Petitioner. Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, please feel free to contact Eileen Underwood of my staff. Eileen can be reached at eileen.underwood@ct.gov.

Sincerely,



Bryan P. Hurlburt
Commissioner

Enc.

Cc: Katie Dykes, Commissioner, Department of Energy and Environmental Protection
Dennis Hicks, Greenskies Clean Energy LLC
Jean-Paul LaMarche, Greenskies Clean Energy LLC

VIA ELECTRONIC MAIL

January 23 2024

Eileen Underwood
Holly Lalime
State of Connecticut Department of Agriculture
450 Columbus Blvd., Suite 701
Hartford, CT 06103

Re: Solar + Farming Project Considerations, Spencer Hill Road Winchester, CT

Dear Ms. Underwood and Ms. Lalime:

Thank you for taking the time to talk with us about our proposed project in Winchester, Connecticut. As previously discussed, we are working with the landowner of Spencer Hill Road in Winchester in connection with the development of a Solar + Farming Project on a portion of the property. I am writing this letter to describe the project in better detail and ask that the Department evaluate this proposal as the project begins its permitting process before the Connecticut Siting Council.

Additionally this letter is an update to the letter provided to you on August 14th of 2023 and includes a request to adjust the conditions of approval from the Dept of Agriculture that were provided on October 3rd 2023. Previously you had communicated the process to get a revision of the letter of No Material Impact for the solar project on Spencer Hill Road in Winchester. As part of that you indicated that we would need a Fill Management Plan as part of the revision. The main issue in question is whether Stormwater Basins are exempt from the clause in 4.d. We feel that this line either needs to be revised to allow for regrading to abide by the CT DEEP Stormwater General Permit, or clarification is required to understand the Department's position. In the section of your letter about the conditions of approval item 4.d states:

That there will be no grading, cutting or filling, topsoil removal, or other actions associated with the project's installation and ultimate deconstruction after 20 or 30 years

Greenskies has no intention of doing large scale regrading or cutting and filling. However, to be in compliance with the CT DEEP Stormwater General Permit we will be required to excavate stormwater basins. These stormwater basins will be required to protect the existing wetlands. Additionally, the site has been designed to limit the amount of runoff caused by stormwater. We request clarification on the matter of regrading and cutting or filling. Here is our proposed language:

That there will be no grading, cutting or filling, topsoil removal, or other actions associated with the project's installation and ultimate deconstruction after 20 or 30 years except for work related to the submission of or compliance with a CT DEEP Stormwater General Permit.

Attached to this letter is our Fill Management Plan and the map of our stormwater basins overlaid on top of soil types.

As you know, section 16-50k(a) of the Connecticut General Statutes requires that for a solar photovoltaic facility with a capacity of two or more megawatts to pursue such a petition, the Department of Agriculture must represent, in writing, to the Connecticut Siting Council that such project will not materially affect the status of such land as prime farmland. It is our hope that once the Department has reviewed the information contained in our prior submission, as well as this letter, it will agree that the project will not materially affect the current status of land as prime farmland.

For ease of review, we are enclosing a map depicting the overall property itself as well as the site/footprint of the solar facility. We are providing this information in accordance with the CT Department of Agriculture's Solar Energy Project Considerations guidance, dated January 16, 2020. Our answers to the Department's request for information are provided in the responses below.

1) **Farm/Property Information** - Provide a description of the farm property, including but not limited to the following (include appropriate maps and surveys to allow evaluation):

a. Farm owner(s), farm name and location:

The property is located at Spencer Hill Road, Winchester, Connecticut. The landowners are Frank Ahern and Karen Merete.

b. Total acreage, identification of prime, statewide and/or locally important farmland soils & acreage:

The parcel is 190.38 acres, of which 21.5 acres are considered prime farmland soils and 13 acres are considered statewide important farmland soils. The project area is approximately 13 acres which is all classified as prime farmland soils. The scope of the prime farmland soils is shown on the enclosed document Farmland Soils Map Exhibit A.

- c. Current production agriculture on the farm and the approximate location of crops, farm buildings, etc. used to support the farming operation:

The project area is a hay field and is currently being harvested by a tenant farmer. It has been a hayfield for three decades, since approximately 1993, when the current landowners purchased the property. Based on 2-foot contours, the slope is 8% average and 10 to 12% in some areas, with greater slope on the field edges. Grazing by cattle, pigs or horses is not possible because of the use intensity associated with those livestock would be anticipated to increase erosion potential on the land. Sheep grazing, however, would be possible.

Energy Project Information

- a. Describe the energy project, including but not limited to, the size of the project in megawatts (MW), the footprint being proposed as it relates to prime farmland on the property, # of panels (if known), and a description of infrastructure needed to support the project.

The overall, proposed system size of the energy project is 3.7 megawatt alternating current (AC). As shown in Exhibit A, the project footprint is 13 acres and will be built on prime farmland soils. The solar project consists of approximately 8,232 modules. Required infrastructure includes stormwater management features, and one concrete equipment pad. The access to the solar project will be from a gravel access road from Spencer Hill Road.

- b. Describe what the energy will be used for and how it will benefit the farming operation.

This project is a zero-emissions renewable energy project. The energy will be used by the City of New London Board of Education through the Buy All Non-Residential Renewable Energy Solutions Program. As mentioned above, lease payments will be made to the landowners as a result of the solar project being placed on their land.

- c. Are there future plans to increase energy capacity beyond what is proposed? If so, please describe these future plans, and any impacts the increase may have on prime farmland or the overall farming operation

No.

2) Agricultural Resource Impacts

- a. Describe any production agriculture currently being conducted within the footprint of the solar project.

The project area is a hay field and is currently being harvested by a tenant farmer. It has been a hayfield for three decades, since approximately when the current landowners purchased the property. The ability to have vegetable production on this site is limited due to the slope grade and potential for soil loss, however, Greenskies is hopeful that its Solar + Farming approach will allow for some crops to be grown at the project site.

It does not appear that the current use of the property (tenant hay farming) will be sustainable for the long term. The landowners have informed Greenskies that the payments made by the tenant farmer are insufficient to cover expenses associated with the farm. Over time, the haying of the site also has potential to deplete the soils. The combination of these two possibilities creates real risk that without the proposed project, the land will not stay farmland and may revert to residential development.

Thus, the Solar + Farming approach being proposed by Greenskies is anticipated to have benefits to the future farm's operations.

- b. Describe overall how the project will impact production agriculture currently being conducted on the farm.

There will be no negative impact to production agriculture from the proposed project. The new use, the creation of a solar project with regenerative herb farming, will be a change in use but will not reduce the amount of acreage in service of agriculture and will not harm soils in any way. Soil health will actually be improved by the regenerative practices employed on the solar site.

Greenskies contacted the USDA Natural Resource Conservation Service Torrington Field Office for recommendations for a dual-use solar project. Exhibit B presents the recommendations provided by USDA Torrington Field Office. They provided two recommendations: 1. Rotational Grazing with Sheep and 2. Keeping Beehives. For the second option, after the solar panels were installed, the field could be seeded into a mix of native perennial wildflowers and grasses beneficial to pollinators. USDA explained that the pollinator habitat would increase biodiversity, create a deep root system, mitigate soil erosion, and provide an excellent pollen source. Based on those recommendations Greenskies created the proposed project.

In terms of USDA option #1; Grazing by cattle, pigs or horses is not possible because of the use intensity associated with those systems which would increase erosion potential on the land. Sheep grazing is a possibility, however, as discussed in greater detail below, Greenskies would prefer another agricultural activity to this one. If, however, Greenskies cannot successfully complete this proposal, sheep could be grazed at the project site.

The proposed option for the agricultural use is ideal to prevent soil erosion because the slope is on average 8% and up to 10 to 12% in some areas.

- c. Provide a description of any plans by the farm owner(s) to foster production agriculture within or as a result of the development (e.g., grazing animals in and around the solar project, providing pollinator habitat).

Greenskies, in agreement with the landowner, has started working with USDA NRCS Litchfield County Conservation District to develop the selected agriculture use, land-based regeneration within the proposed project fence line of solar project.

Greenskies Clean Energy proposes regenerative land management of a Solar + Farming project through 1) planting of perennial herbs and botanical plants that would be harvested and sold, 2) planting of perennial cold season grasses, and 3) planting of pollinator friendly flowers and management of a honeybee apiary for honey sales. At a very high level, maintenance would include the following:

- *Delayed mowing, which would ensure that the selected plants can reach harvest stage and flowering stage and provide nutritional value to the pollinators*
- *Harvesting of agricultural products of plants and honey*
- *Overseeding as needed to maintain sufficient land coverage of plants*
- *Removal of invasive plants as needed*
- *General monitoring and upkeep of the soil, plant, and bee health*

A mix of herbs, botanicals, pollinator friendly flowers, nitrogen fixing plants, and grasses is proposed within the project boundary fence line. This use will protect the soils and replenish them for future agricultural use once the solar project components are removed.

Potential herbaceous plants being considered are: mint, dandelion, mullien, oregano, purslane, red clover, rosemary, thyme, yarrow and lavender. In addition to the herbs that will be used for agricultural production, Greenskies will also review the Xeces Society guidance Pollinator Plants for Northeast Region and Pollinator Habitat Installation Guide to select supplemental plants for the project. The planting mix will also perform well for stormwater controls. Allowing these plants to grow for years will improve soil health and maintain prime farmland soils. The deep roots of the perennial plants will improve water infiltration to the soils. Assuming the Agricultural Experiment Station can obtain funding to assist Greenskies in this endeavor, Greenskies will work with the Agricultural Experiment Station to study

exactly which herbaceous crops are best suited to a Solar + Farming approach.

In addition to the farming aspect of this project, the solar electric facility will be designed in such a way that it will enable the successful implementation of the proposed farming activities. The project is being designed to accomplish this goal through three specific attributes:

- 1) The lowest point of the solar modules will be raised higher than is needed for solar only to allow for increased sunlight to the area below the modules as well as increased accessibility for farmers. The leading edge of the modules will be a minimum of 3.5 feet, but at places will be higher depending on topography. This minimum clearance was established based on prior experience with seeing improved sunlight for ground crops at that higher height, needing to balance the required strength of the racking system, and in connection to the row spacing and required production level for the solar project.*
- 2) The spacing in between rows is being designed to allow for sufficient acreage to grow plants, provide sufficient area of high sunlight levels, and provide workability for farmers while again balancing needs of required solar capacity. The current design has a relatively high row to row spacing of 19.5 feet.*
- 3) The site is being designed with farmer’s safety in mind. All electrical feeders will be either secured to the modules/racking directly or be underground. There will be increased signage and fencing to ensure that farm workers are never exposed to unsafe conditions.*

In order to accomplish this undertaking, Greenskies has continued to build relationships with prospective farmers and have discussed this site with several potential partners as follows:

Potential Farmer	Date	Email
Hasseeb Khan	7/31/23	hasseebkh69@gmail.com
Mary Claire Whelan, New Farmer Alliance	6/23/23	newctfarmers@gmail.com
Member of New Farmer Alliance, “Laura”	7/6/23	Called from 4433622034
Terri Fassio	3/23/23	info@winchestergrange.org

As we discussed at our meeting, developing this type of agricultural use is a somewhat iterative process, and this is earlier than Greenskies has ever gotten involved in this level of detail for potential agricultural uses. Usually, at this stage of development, Greenskies has not yet selected an engineering, procurement, and construction (EPC) contractor, nor has Greenskies finalized its site design. Both of these activities would ordinarily take place in a project’s development cycle after the initial round of permitting is completed. Nonetheless, Greenskies is developing this

project with farming as a long term integral aspect of the project and is committed to having the farming use be parallel with the solar for the life of the project.

Greenskies does, however, understand the Department's concern that if Greenskies' proposal to conduct herb farming and work with the Agricultural Experiment Station as discussed in greater detail in Greenskies' previous submittal to the Department were to fail, the Department needs assurances that agriculture will remain integrated with this project's design, development, construction, and operation throughout the life of the project. To further provide confidence that an established agriculture use will take place, Greenskies has a backup plan in the case that the primary plan is no longer able to function for any reason. The secondary farming use of the site is sheep grazing.

*In the event that herb farming is not a viable option for this project, Greenskies will, instead, provide for sheep grazing at the project site. The project design aspects that enable the regenerative herb farming use will also enable the project to accommodate sheep grazing. Not every detail of the grazing requirements will be listed in this letter, but the sheep grazing will generally be performed within the previously provided for in the April of 2023 guidance from the Department of Agriculture: **Requirements for Solar Grazing Properties**. Sheep grazing will be rotational to ensure that the carrying capacity of the site is not exceeded and that soil health is maintained or improved by the existence of sheep on the site. The key points to the proposed grazing activities are as follows:*

- 1. Proper site preparation will be completed*
- 2. Proper soil preparation will take place*
- 3. Disclosure of any herbicides/pesticides used on site will be made*
- 4. Site will be securely fenced*
- 5. Interior areas will be fenced appropriately*
- 6. Proper protection of livestock will be required of farmer*
- 7. Site will have proper signage*
- 8. Livestock health and wellness will be a priority and ensured by both farmer and solar project owner*
- 9. Employees that access the site will have education on grazing and animals*

Greenskies has and will continue to develop relationships with sheep farmers and shepherds that can be deployed to this proposed project in the event that the original Solar + Farming proposal is found to be untenable.

Soil health is improved by using regenerative methods and perennial plants. Use of perennial plants reduces negative impact to soils, keeps living roots in the ground, provides year round ground cover, and increases the absorption of water into soils. This approach also increases the micro and fungal biodiversity of the soil which improves its quality and the ability to nourish plants grown in the soil.

As discussed above, Greenskies will earmark a section of the project area in the range of 1 acre for long term research projects to better understand how agriculture can co-exist with solar projects. Research on the production of crops under PV Solar system is still relatively new. Greenskies is in early coordination with Connecticut Agricultural Experiment Station to determine how to best pursue such a research project. A CAES research study could likely encompass crop and variety trials, in which specific varieties of a selection of crops would be tested for production under the solar panels. The specific crops and varieties to be tested would be selected after a review of what crops have already been evaluated in similar field trials in New England, and from a list of crops and varieties are suited for more traditional agricultural production in New England. CAES suggested that the production of each crop variety would take place for a minimum of three growing seasons and various production metrics. As far as Greenskies knows, a study of this scope and breadth has not yet been completed anywhere in New England.

Soil testing would be performed, and local weather conditions would be monitored throughout the study. After the first three years of the study, variety trials could be completed on a new set of crops. The results of the study would provide crop recommendations for production under solar panels in Connecticut and may also result in some additional recommendations for best practices in the long term.

Research funding would be sought by CAES under programs that include specialty crops, agrivoltaics, and urban and emerging agriculture priorities. Although there are a variety of current programs that could fund this research study both at the state and national levels, the specific grants that are sought will depend on programmatic priority areas that match this research and the amount of funding available through a specific call for proposals. Funding for research would likely be sought in the 2024 or 2025 cycles, so that the research study could begin after the solar project has been built.

A potential option that is being considered for research is to work with a USDA NRCS conservation planner to use their new practice for soil health testing called CEMA 216. The goal of the practice is to evaluate and monitor soil health related to a specific goal. The goal of the soil health testing will be improving soil health for growth of perennial crop species within the fence line of the project.

Prior to the earmarked land being used for the research study, it will be farmed in the same way described for the balance of land.

3) Alternatives to Locating the Energy Project on Prime Farmland

- a. Provide a description of any alternatives considered by the farm owner(s) to developing the project on prime farmland soils (e.g., the option of selling agricultural development rights for the farm instead of developing for solar, or as a mitigation measure to reduce the size of the solar development).

The current owners of the property have no desire to sell their development rights for the property. The land on the property not being proposed for development with Solar + Farming, that is not prime farmland/statewide important farmland soil, is instead Forestland Habitat designated by Connecticut DEEP Division of Forestry and currently being used as a wood lot and classified PA490 land. The landowner intends to maintain the forestland in its current state.

Previously, the owners of the property pursued the option of developing the farmland area for residential development. After this agrivoltaic approach was presented to them, they decided that Solar + Farming is a more viable path. If this path is denied to the landowners, it is possible that they will revisit their decision with respect to residential development.

- b. Describe any alternatives examined which might enable placement of some or all of the solar panels in locations other than on prime farmland (e.g., elsewhere on the property or on farm buildings).

GCE and the landowner examined the entire project site. Due to other site constraints (e.g. wetlands high groundwater table, forestland habitat), there are currently no other viable on-site alternatives for the solar energy facility. The site constraints are detailed in the attached map of the proposed project site Exhibit C Forestland Habitat map.

- c. Provide a description of any other form of mitigation considered by the farm owner(s) (e.g., farmland restoration, or a future commitment to preserve the farm)

The current landowner does not wish to undertake a farmland restoration program. In addition, at the time that the project is decommissioned, Greenskies is of the opinion that the soil quality will be better at the end of the life of the project than it would be if the site is to remain in its current state.

Greenskies is putting forward this project because it believes that it represents one of the best ways that solar and agriculture can co-exist. Sheep grazing is a valuable approach, to be sure, but there are other alternatives to grazing of livestock that should be considered. Traditional row cropped agriculture is one option, but is not the right approach for many sites, including this one. A more natural form of agriculture, such as the one being proposed here, is, we believe, one of the best approaches to allowing agricultural activities to exist with renewable energy projects.

Based on the foregoing, Greenskies would reiterate its request to the Department that it provide a letter to the Siting Council indicating that if Greenskies proceeds with its project in the fashion outlined above, it will not have an adverse impact on the prime farmland soils of the site.



We look forward to working with the Department on this matter. Should you have any questions, please contact me at your convenience. Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Jean-Paul La Marche".

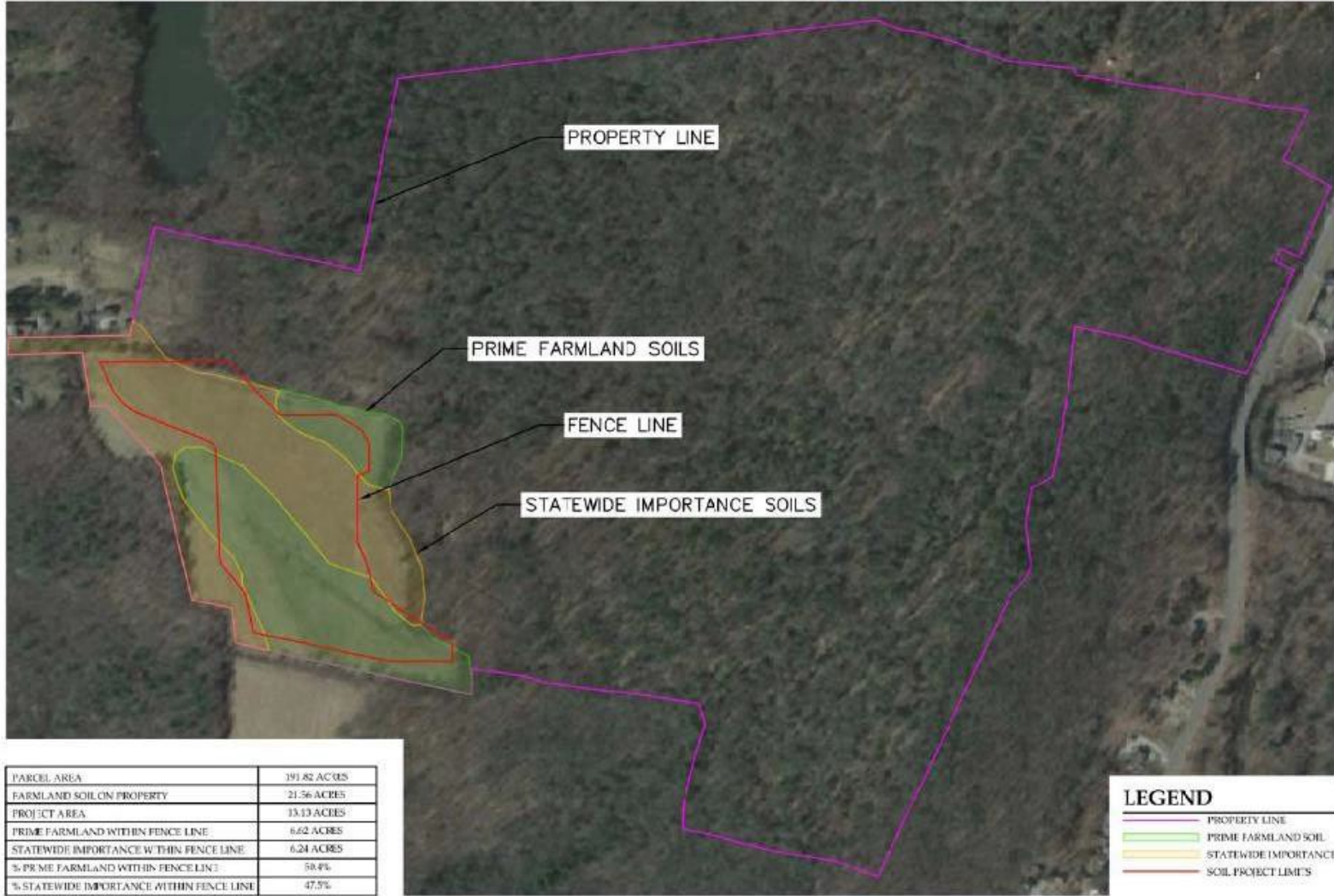
Jean-Paul La Marche
VP of Development
Greenskies Clean Energy
Jean-paul.lamarche@greenskies.com
(720)638-6553

EXHIBITS

- A. Prime Farmland Soil Map
- B. USDA Recommendation Letter Regarding Agricultural Uses



EXHIBIT A
Prime Farmland Soil Map



PARCEL AREA	391.82 ACRES
FARMLAND SOIL ON PROPERTY	21.56 ACRES
PROJECT AREA	13.13 ACRES
PRIME FARMLAND WITHIN FENCE LINE	6.62 ACRES
STATEWIDE IMPORTANCE WITHIN FENCE LINE	6.24 ACRES
% PRIME FARMLAND WITHIN FENCE LINE	50.4%
% STATEWIDE IMPORTANCE WITHIN FENCE LINE	47.5%



FARMLAND SOILS MAP
SPENCER HILL ROAD
WINCHESTER, CT

LEGEND

	PROPERTY LINE
	PRIME FARMLAND SOIL
	STATEWIDE IMPORTANCE
	SOIL PROJECT LIMITS



EXHIBIT B
USDA Recommendation Letter Regarding Agricultural Uses

Technical Assistance Recommendations

For: Green Skies Solar, Bonnie Potocki, Dennis Hicks

Recommendations By:

Sarah Ammirato, Soil Conservationist
sarah.ammirato@usda.gov or 860-618-4535

USDA Natural Resource Conservation Service
 Torrington Field Office
 1185 New Litchfield Street Torrington, CT 06790

Background Information:

After a discussion with Bonnie Potocki and Dennis Hicks, I reviewed contour maps, soils maps and site pictures to make recommendations for a dual-use solar project.

The site for the planned solar field is a hay field with a plant community of cool season grass. The soils description is approximately 88.2% prime farmland soils and farmland of Statewide importance, Paxton and Montauk fine sandy loam.

Characteristics of the Paxton soil is typically well-drained in the medium runoff class. Runoff class is determined by permeability of the soil type as well as field slope which estimates the potential for surface runoff to occur during a rain event.

Using a 2 ft contour map, I estimate the slope is 8% average and 10-12% in some areas, with less slope in the center and greater slope on the field edges. After reviewing topography and soils maps, I would suggest against farming annually tilled vegetables. I also recommend not grazing cattle, pigs, or horses because of the level of intensity associated with those systems.

Recommendations for the Green Skies Solar Project:

Alternative 1: Rotational Grazing with Sheep

A tenant farmer will be identified and allowed to pasture sheep during the grazing season, May 1st – October 31st.

Once a tenant farmer is identified, it is recommended they work with USDA NRCS to develop a Grazing Plan. This is a comprehensive document that analyzes forage supply and livestock demand. A Grazing Plan includes recommendations for rest periods, number and size of paddocks and contingency plans in the case of drought, mud, etc.

If this alternative is selected, infrastructure will need to be installed to facilitate rotational grazing. Perimeter fencing, to keep predators out and livestock in the grazing area is needed.

Temporary electric fencing (polywire netting, see above photo) is recommended within the solar field to create smaller paddocks that will move every day. Temporary electric fence can be charged using a small solar charger (see below photo).



A water source for the sheep is required. Quality, clean water is necessary for any livestock species. A water trough with a float valve is needed to ensure there is always water available.

According to North Dakota Extension, "livestock water requirements vary significantly depending on the species. Water consumption is influenced by several factors, including age, rate of gain, pregnancy, lactation, activity, type of diet, feed intake and environmental temperature".



Technical Assistance Recommendations

See Table 4 below for estimates of water intake for sheep. These estimates should be increased during peak summer months.

Table 4. from literature published from North Dakota State University Extension.

Sheep

Table 4 lists water requirements for different categories of sheep. Sheep are able to obtain most of their water requirements from forage consumption. In addition to weight and level of production, water intake also increases in response to increases in environmental temperature.

Table 4. Water intake (gallons per head per day) for sheep.

Table 4. Water intake (gallons per head per day) for sheep.		
Class	Weight (lbs)	Water intake
Lambs	5 to 20	0.1 to 0.3
Feeder lambs	60 to 100	1.0 to 1.5
Pregnant ewes	175 +	1.0 to 2.0
Lactating ewes	175 +	2.0 to 3.0
Rams	175 +	1.0 to 2.0

Alternatives for adequate water quantity and quality include

1. Drilled well with pump and hydrant to attached above ground hose and trough. This option provides a clean, reliable water source throughout the entire grazing season. This is a preferred alternative.
2. Rainwater from stormwater basins. Water is filtered and pumped into a cistern for storage and distributed to troughs with above ground water line. This option may require water testing/treatment and is not reliable during drought. Water stored in above ground cisterns for extended periods of time can lead to concerns of bacteria growth, and if exposed to sunlight, temperature concerns. This is not a preferred alternative.
3. Water transported from off site location. Farmer would need alternate water source (from home farm) to fill water tanks and transport daily to fill troughs. This provides a reliable source, but additional labor and management of the tenant farmer.

This alternative will require a high level of management and education of the tenant farmer. Given the topography and slope, daily animal moves are recommended. The flock will not graze an area for more than 24 hours. This grazing strategy will reduce soil compaction and degradation as much as possible.

Rest periods are required to allow the forage adequate time to recover. At minimum, a 30-day rest period should be followed before returning to the same paddock. Rest periods may change throughout the grazing season and is dependent on forage regrowth. This information will be outlined in an NRCS Grazing Plan.

The forage height will need to be monitored and should not be grazed below 4 inches minimum. Sensitive areas will also be identified after a more in-depth site review. These include areas of the field that are seasonally wet or saturated. These areas will be identified in a Grazing Plan and will require different management.

Technical Assistance Recommendations

Alternative 2: Keeping Beehives

After the solar panels are installed, the field could be seeded into a mix of native perennial wildflowers and grasses beneficial to pollinators. This would increase biodiversity, create a deep root system, mitigate against soil erosion, and provide an excellent pollen source. Once seeded, the pollinator plot will take about 2 years to establish.

A list of native wildflowers suitable for this project can be found on Connecticut Botanical Society website.

A farmer/beekeeper would bring their hives to the property and collect honey as it is produced throughout the year.



Required infrastructure would include perimeter fencing to keep predators out, a small square of polywire fencing surrounding the hives and a solar charger. Maintenance would include a delayed mowing, once a year after September 1st, not to disrupt grassland nesting birds. A delayed mowing ensures that the selected plants can reach flowering stage and provide the most nutritional value to pollinators. Reseeding may be necessary after 5-10 years. No pesticides or herbicides should be used.

Overall management and infrastructure are minimal while having great benefits for wildlife, soil, and the land.

For additional information regarding above recommendations, please reference the following resources.

Xerces Society – Pollinator Planting Installation Guide for Pennsylvania and New England
[15-025_02_XercesSoc_HabitatInstallGuide_Pennsylvania_ConservationCover327_web.pdf](#)

NRCS – Pollinator Initiative
[The Importance of Pollinators | Natural Resources Conservation Service \(usda.gov\)](#)

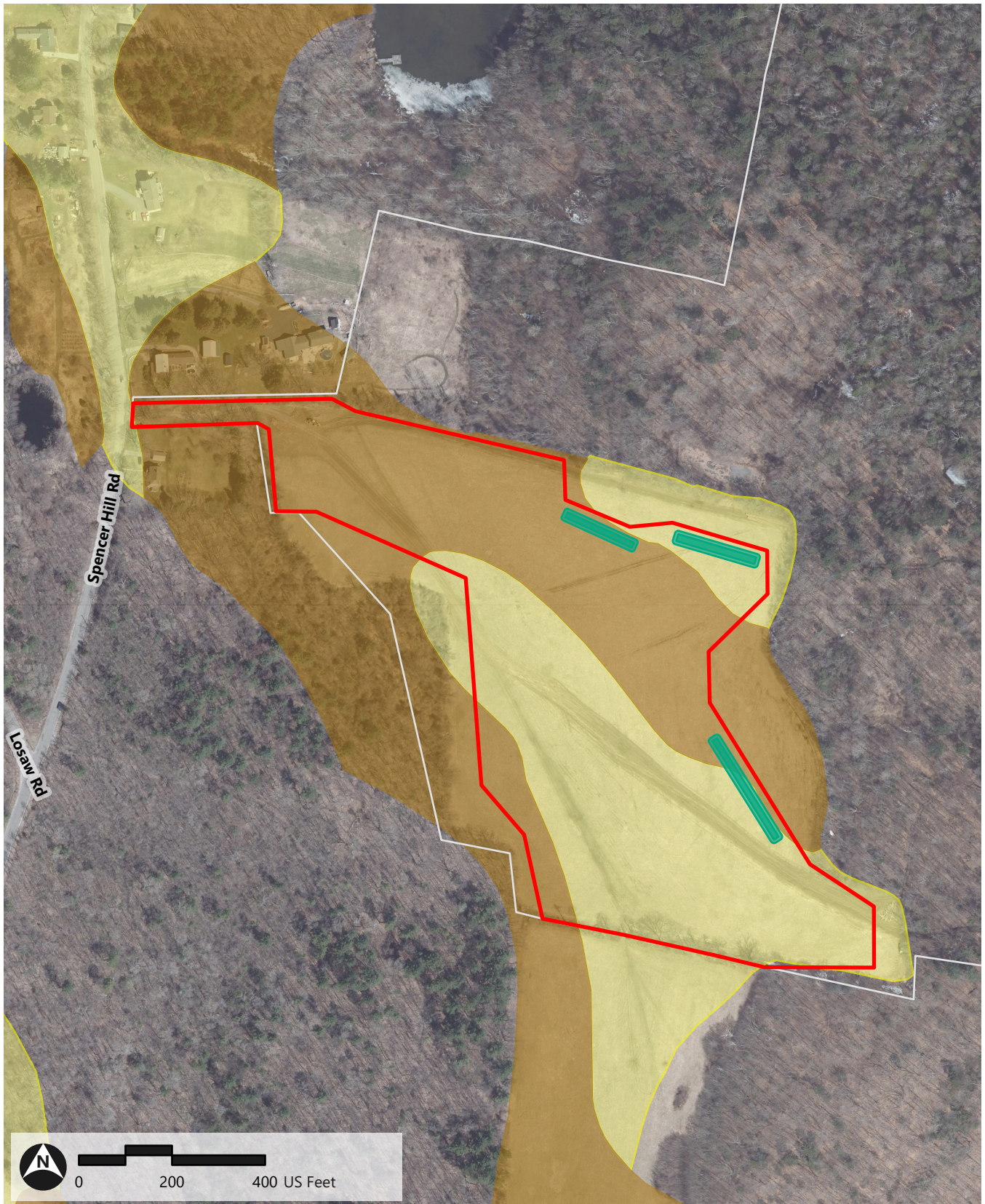
Connecticut Botanical Society – List of Native Wildflowers
[Wildflowers \(ct-botanical-society.org\)](#)

Penn State Extension - Sheep Grazing to Maintain Solar Energy Sites
[Sheep Grazing to Maintain Solar Energy Sites in Pennsylvania \(psu.edu\)](#)

North Dakota State University – Livestock Water Requirements
[Livestock Water Requirements — Publications \(ndsu.edu\)](#)

Oregon State Extension – What is Rotational Grazing?
[Rotational Grazing \(oregonstate.edu\)](#)

Figure 1: Farmland Soils Map
GCE Winchester Solar | Winchester, CT



Path: \\vhb.com\gis\proj\Wethersfield\43183.00\Project\GCE Winchester.aprx (kfrench, 1/23/2024)

- Project Limits
- Project Boundaries
- Stormwater Basin
- Prime Farmland Soils
- Statewide Important Farmland Soils

1/23/2024

Site Plans

Issued for	Application
Date Issued	September 19, 2023
Latest Issue	September 19, 2023

GCE Winchester Solar

Spencer Hill Road
Winchester, Connecticut



100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300

Applicant

Greenskies Clean Energy LLC
127 Washington Avenue, West Building, Lower Level
North Haven, CT 06473

Map / Block / Lot:

017 / 150 / 066

Owner

Ahern Frank L & Karen Merete
PO Box 310
Lake City, FL 32056

Sheet Index

No.	Drawing Title	Latest Issue
C-1.0	Legend and General Notes	September 19, 2023
C-2.0	Layout and Materials Plan	September 19, 2023
C-3.0	Grading, Drainage, and Utilities Plan	September 19, 2023
C-4.0	Erosion and Sediment Control Plan	September 19, 2023
C-5.1-5.2	Site Details	September 19, 2023

Reference Drawings

No.	Drawing Title	Latest Issue
1 of 1	Boundary Survey & LiDAR Contours	January 31, 2023

Licensed Land Surveyor

Northeast Survey Consultants
116 Pleasant St. Suite 302
PO Box 109
Easthampton, MA 01027
413-203-5144



100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300

Legend

Legend table with columns: Exist., Prop., and descriptions for various site features like PROPERTY LINE, CONCRETE, BUILDING, etc.

Abbreviations

Abbreviations table with columns: General, and descriptions for terms like ABANDON, ACCESSIBLE CURB RAMP, ADJUST, etc.

Notes

Notes table with columns: General, Erosion Control, Existing Conditions Information, Document Use, Layout and Materials, Demolition, and detailed numbered notes.

GCE Winchester Solar
Spencer Hill Road
Winchester, Connecticut

Table with columns: No., Revision, Date, Apprd. for project tracking.

Designed by TJM Checked by SJK
Issued for Date

Application September 19, 2023

Not Approved for Construction

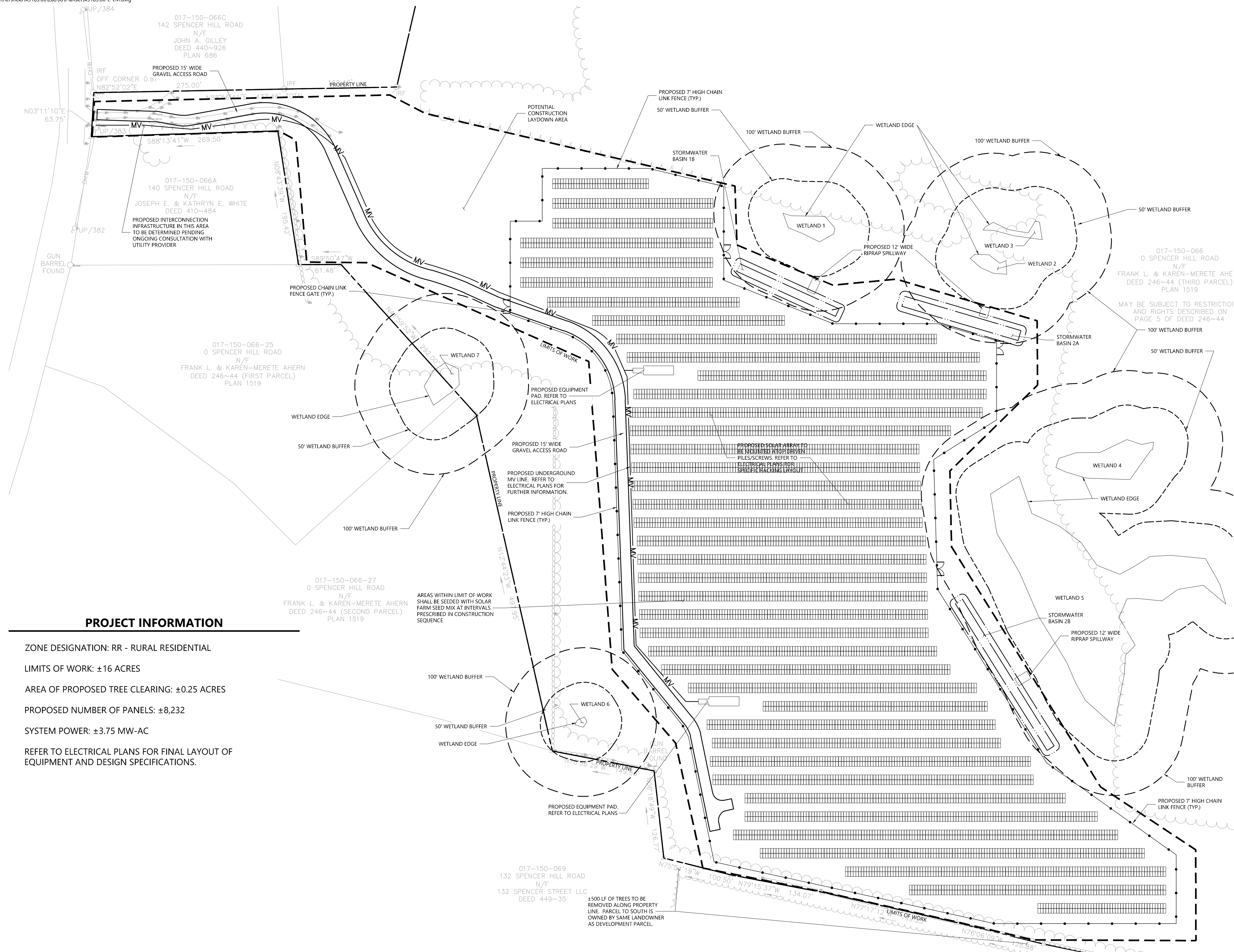
Legend and General Notes section with drawing title and sheet information.

Drawing Number

C-1.0

Sheet 1 of 6

Project Number 43183.00



PROJECT INFORMATION

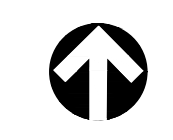
- ZONE DESIGNATION: RR - RURAL RESIDENTIAL
- LIMITS OF WORK: ±16 ACRES
- AREA OF PROPOSED TREE CLEARING: ±0.25 ACRES
- PROPOSED NUMBER OF PANELS: ±8,232
- SYSTEM POWER: ±3.75 MW-AC
- REFER TO ELECTRICAL PLANS FOR FINAL LAYOUT OF EQUIPMENT AND DESIGN SPECIFICATIONS.

017-150-066-27
0 SPENCER HILL ROAD
N/F
FRANK L. & KAREN-MERETE AHERN
DEED 246~44 (SECOND PARCEL)
PLAN 1519

AREAS WITHIN LIMIT OF WORK
SHALL BE SEEDED WITH SOLAR
FARM SEED MIX AT INTERVALS
PRESCRIBED IN CONSTRUCTION
SEQUENCE

017-150-069
132 SPENCER HILL ROAD
N/F
132 SPENCER STREET LLC
DEED 449~35

±500 LF OF TREES TO BE
REMOVED ALONG PROPERTY
LINE. PARCEL TO SOUTH IS
OWNED BY SAME LANDOWNER
AS DEVELOPMENT PARCEL.



GCE Winchester Solar Spencer Hill Road Winchester, Connecticut

No.	Revision	Date	App'd.

Designed by **TJM** Checked by **SJK**
Issued for _____ Date _____
Application September 19, 2023

Not Approved for Construction

Drawing Title
**Layout and
Materials Plan**

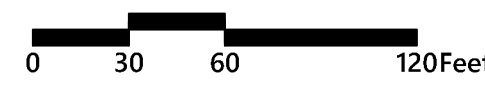
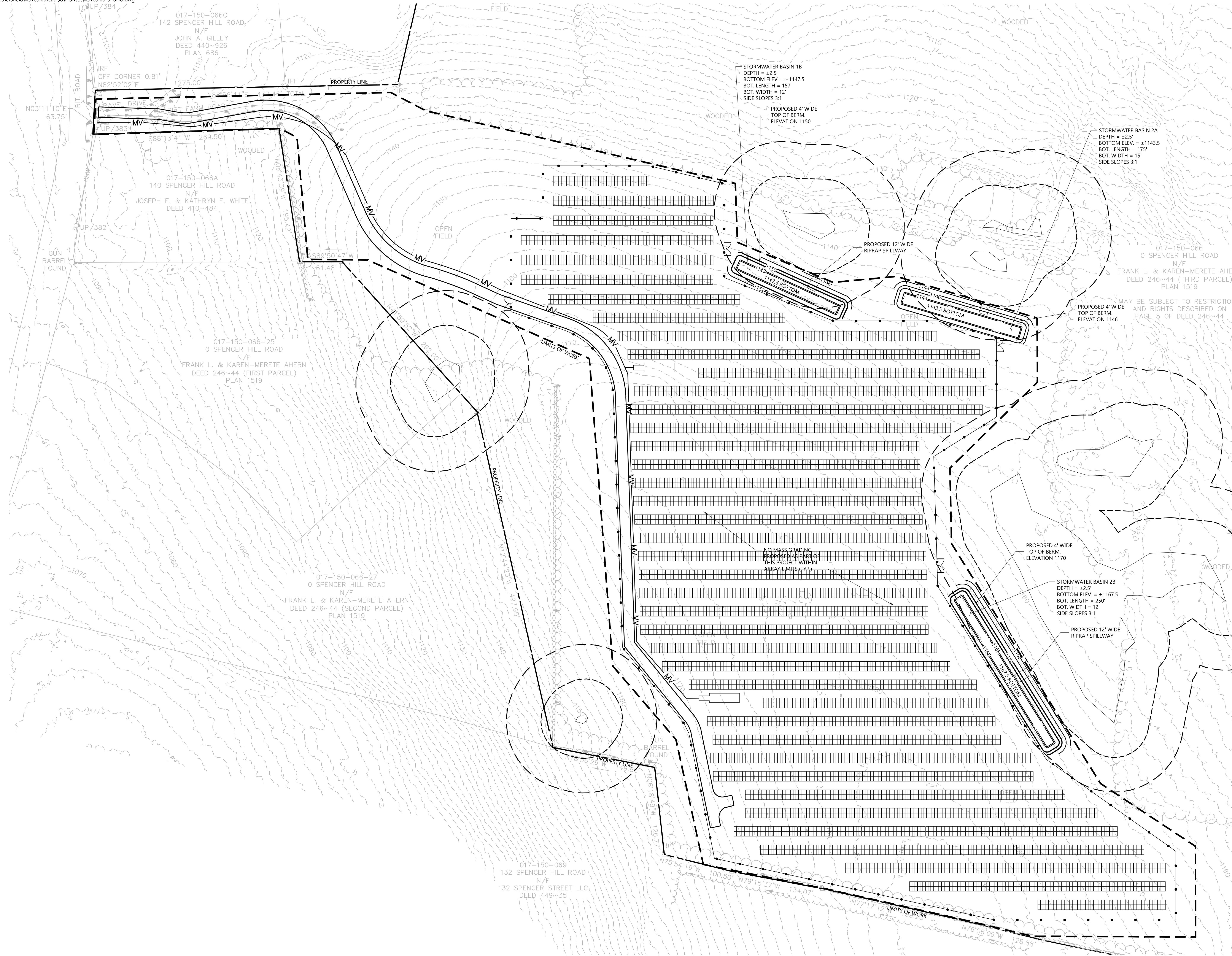
Drawing Number

C-2.0

Sheet **2** of **6**



100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300



GCE Winchester Solar

Spencer Hill Road
Winchester, Connecticut

No.	Revision	Date	App'd.

Designed by: **TJM** Checked by: **SJK**
 Issued for: **Application** Date: **September 19, 2023**

Not Approved for Construction

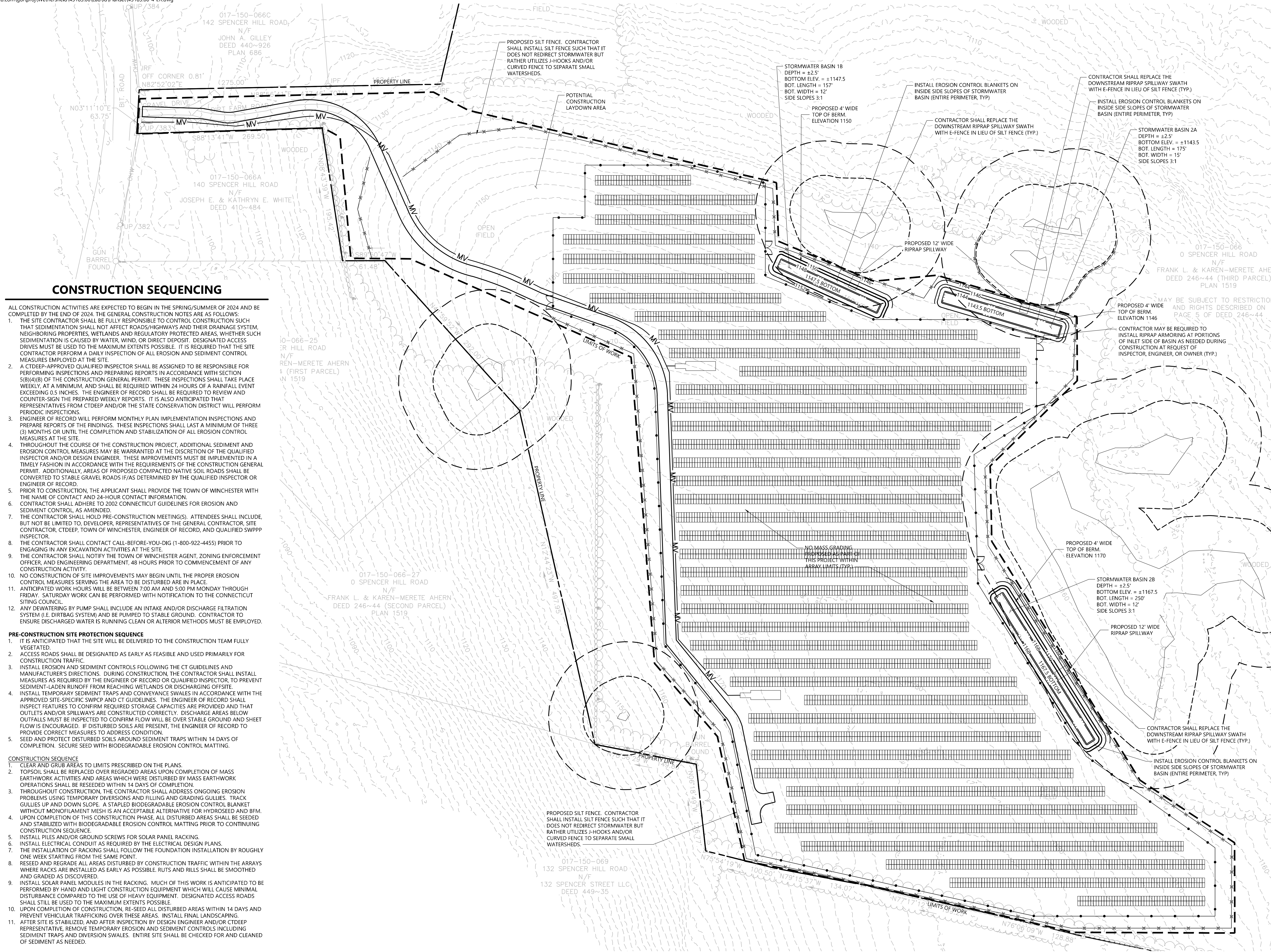
Grading, Drainage, and Utilities Plan

Drawing Number

C-3.0

Sheet **3** of **6**

Project Number
43183.00



CONSTRUCTION SEQUENCING

ALL CONSTRUCTION ACTIVITIES ARE EXPECTED TO BEGIN IN THE SPRING/SUMMER OF 2024 AND BE COMPLETED BY THE END OF 2024. THE GENERAL CONSTRUCTION NOTES ARE AS FOLLOWS:

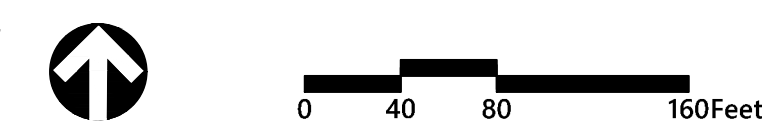
- THE SITE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT ROADS/HIGHWAYS AND THEIR DRAINAGE SYSTEM, NEIGHBORING PROPERTIES, WETLANDS AND REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT. DESIGNATED ACCESS DRIVES MUST BE USED TO THE MAXIMUM EXTENTS POSSIBLE. IT IS REQUIRED THAT THE SITE CONTRACTOR PERFORM A DAILY INSPECTION OF ALL EROSION AND SEDIMENT CONTROL MEASURES EMPLOYED AT THE SITE.
- A CTDEEP-APPROVED QUALIFIED INSPECTOR SHALL BE ASSIGNED TO BE RESPONSIBLE FOR PERFORMING INSPECTIONS AND PREPARING REPORTS IN ACCORDANCE WITH SECTION 5(B)(4)(B) OF THE CONSTRUCTION GENERAL PERMIT. THESE INSPECTIONS SHALL TAKE PLACE WEEKLY, AT A MINIMUM, AND SHALL BE REQUIRED WITHIN 24 HOURS OF A RAINFALL EVENT EXCEEDING 0.5 INCHES. THE ENGINEER OF RECORD SHALL BE REQUIRED TO REVIEW AND COUNTER-SIGN THE PREPARED WEEKLY REPORTS. IT IS ALSO ANTICIPATED THAT REPRESENTATIVES FROM CTDEEP AND/OR THE STATE CONSERVATION DISTRICT WILL PERFORM PERIODIC INSPECTIONS.
- ENGINEER OF RECORD WILL PERFORM MONTHLY PLAN IMPLEMENTATION INSPECTIONS AND PREPARE REPORTS OF THE FINDINGS. THESE INSPECTIONS SHALL LAST A MINIMUM OF THREE (3) MONTHS OR UNTIL THE COMPLETION AND STABILIZATION OF ALL EROSION CONTROL MEASURES AT THE SITE.
- THROUGHOUT THE COURSE OF THE CONSTRUCTION PROJECT, ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE WARRANTED AT THE DISCRETION OF THE QUALIFIED INSPECTOR AND/OR DESIGN ENGINEER. THESE IMPROVEMENTS MUST BE IMPLEMENTED IN A TIMELY FASHION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT. ADDITIONALLY, AREAS OF PROPOSED COMPACTED NATIVE SOIL ROADS SHALL BE CONVERTED TO STABLE GRAVEL ROADS IF/AS DETERMINED BY THE QUALIFIED INSPECTOR OR ENGINEER OF RECORD.
- PRIOR TO CONSTRUCTION, THE APPLICANT SHALL PROVIDE THE TOWN OF WINCHESTER WITH THE NAME OF CONTACT AND 24-HOUR CONTACT INFORMATION.
- CONTRACTOR SHALL ADHERE TO 2002 CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL, AS AMENDED.
- THE CONTRACTOR SHALL HOLD PRE-CONSTRUCTION MEETING(S). ATTENDEES SHALL INCLUDE, BUT NOT BE LIMITED TO, DEVELOPER, REPRESENTATIVES OF THE GENERAL CONTRACTOR, SITE CONTRACTOR, CTDEEP, TOWN OF WINCHESTER, ENGINEER OF RECORD, AND QUALIFIED SWPPP INSPECTOR.
- THE CONTRACTOR SHALL CONTACT CALL-BEFORE-YOU-DIG (1-800-922-4455) PRIOR TO ENGAGING IN ANY EXCAVATION ACTIVITIES AT THE SITE.
- THE CONTRACTOR SHALL NOTIFY THE TOWN OF WINCHESTER AGENT, ZONING ENFORCEMENT OFFICER, AND ENGINEERING DEPARTMENT, 48 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
- NO CONSTRUCTION OF SITE IMPROVEMENTS MAY BEGIN UNTIL THE PROPER EROSION CONTROL MEASURES SERVING THE AREA TO BE DISTURBED ARE IN PLACE.
- ANTICIPATED WORK HOURS WILL BE BETWEEN 7:00 AM AND 5:00 PM MONDAY THROUGH FRIDAY. SATURDAY WORK CAN BE PERFORMED WITH NOTIFICATION TO THE CONNECTICUT SITING COUNCIL.
- ANY DEWATERING BY PUMP SHALL INCLUDE AN INTAKE AND/OR DISCHARGE FILTRATION SYSTEM (I.E. DIRTBAG SYSTEM) AND BE PUMPED TO STABLE GROUND. CONTRACTOR TO ENSURE DISCHARGED WATER IS RUNNING CLEAN OR ALTERNIOR METHODS MUST BE EMPLOYED.

PRE-CONSTRUCTION SITE PROTECTION SEQUENCE

- IT IS ANTICIPATED THAT THE SITE WILL BE DELIVERED TO THE CONSTRUCTION TEAM FULLY VEGETATED.
- ACCESS ROADS SHALL BE DESIGNATED AS EARLY AS FEASIBLE AND USED PRIMARILY FOR CONSTRUCTION TRAFFIC.
- INSTALL EROSION AND SEDIMENT CONTROLS FOLLOWING THE CT GUIDELINES AND MANUFACTURER'S DIRECTIONS. DURING CONSTRUCTION, THE CONTRACTOR SHALL INSTALL MEASURES AS REQUIRED BY THE ENGINEER OF RECORD OR QUALIFIED INSPECTOR, TO PREVENT SEDIMENT-LADEN RUNOFF FROM REACHING WETLANDS OR DISCHARGING OFFSITE.
- INSTALL TEMPORARY SEDIMENT TRAPS AND CONVEYANCE SWALES IN ACCORDANCE WITH THE APPROVED SITE-SPECIFIC SWPPP AND CT GUIDELINES. THE ENGINEER OF RECORD SHALL INSPECT FEATURES TO CONFIRM REQUIRED STORAGE CAPACITIES ARE PROVIDED AND THAT OUTLETS AND/OR SPILLWAYS ARE CONSTRUCTED CORRECTLY. DISCHARGE AREAS BELOW OUTFALLS MUST BE INSPECTED TO CONFIRM FLOW WILL BE OVER STABLE GROUND AND SHEET FLOW IS ENCOURAGED. IF DISTURBED SOILS ARE PRESENT, THE ENGINEER OF RECORD TO PROVIDE CORRECT MEASURES TO ADDRESS CONDITION.
- SEED AND PROTECT DISTURBED SOILS AROUND SEDIMENT TRAPS WITHIN 14 DAYS OF COMPLETION. SECURE SEED WITH BIODEGRADABLE EROSION CONTROL MATTING.

CONSTRUCTION SEQUENCE

- CLEAR AND GRUB AREAS TO LIMITS PRESCRIBED ON THE PLANS.
- TOPSOIL SHALL BE REPLACED OVER REGRADED AREAS UPON COMPLETION OF MASS EARTHWORK ACTIVITIES AND AREAS WHICH WERE DISTURBED BY MASS EARTHWORK OPERATIONS SHALL BE RESEED WITHIN 14 DAYS OF COMPLETION.
- THROUGHOUT CONSTRUCTION, THE CONTRACTOR SHALL ADDRESS ONGOING EROSION PROBLEMS USING TEMPORARY DIVERSIONS AND FILLING AND GRADING GULLIES. TRACK GULLIES UP AND DOWN SLOPE. A STAPLED BIODEGRADABLE EROSION CONTROL BLANKET WITHOUT MONOFILAMENT MESH IS AN ACCEPTABLE ALTERNATIVE FOR HYDROSEED AND BFM. UPON COMPLETION OF THIS CONSTRUCTION PHASE, ALL DISTURBED AREAS SHALL BE SEEDED AND STABILIZED WITH BIODEGRADABLE EROSION CONTROL MATTING PRIOR TO CONTINUING CONSTRUCTION SEQUENCE.
- INSTALL PILES AND/OR GROUND SCREWS FOR SOLAR PANEL RACKING.
- INSTALL ELECTRICAL CONDUIT AS REQUIRED BY THE ELECTRICAL DESIGN PLANS.
- THE INSTALLATION OF RACKING SHALL FOLLOW THE FOUNDATION INSTALLATION BY ROUGHLY ONE WEEK STARTING FROM THE SAME POINT.
- RESEED AND REGRADE ALL AREAS DISTURBED BY CONSTRUCTION TRAFFIC WITHIN THE ARRAYS WHERE RACKS ARE INSTALLED AS EARLY AS POSSIBLE. RUTS AND RILLS SHALL BE SMOOTHED AND GRADED AS DISCOVERED.
- INSTALL SOLAR PANEL MODULES IN THE RACKING. MUCH OF THIS WORK IS ANTICIPATED TO BE PERFORMED BY HAND AND LIGHT CONSTRUCTION EQUIPMENT WHICH WILL CAUSE MINIMAL DISTURBANCE COMPARED TO THE USE OF HEAVY EQUIPMENT. DESIGNATED ACCESS ROADS SHALL STILL BE USED TO THE MAXIMUM EXTENTS POSSIBLE.
- UPON COMPLETION OF CONSTRUCTION, RE-SEED ALL DISTURBED AREAS WITHIN 14 DAYS AND PREVENT VEHICULAR TRAFFICKING OVER THESE AREAS. INSTALL FINAL LANDSCAPING.
- AFTER SITE IS STABILIZED, AND AFTER INSPECTION BY DESIGN ENGINEER AND/OR CTDEEP REPRESENTATIVE, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROLS INCLUDING SEDIMENT TRAPS AND DIVERSION SWALES. ENTIRE SITE SHALL BE CHECKED FOR AND CLEANED OF SEDIMENT AS NEEDED.



GCE Winchester Solar Spencer Hill Road Winchester, Connecticut

No.	Revision	Date	Appr.

Designed by: **TJM** Checked by: **SJK**
 Issued for: **Application** Date: **September 19, 2023**

Not Approved for Construction
 Drawing Title: **Erosion and Sediment Control Plan**

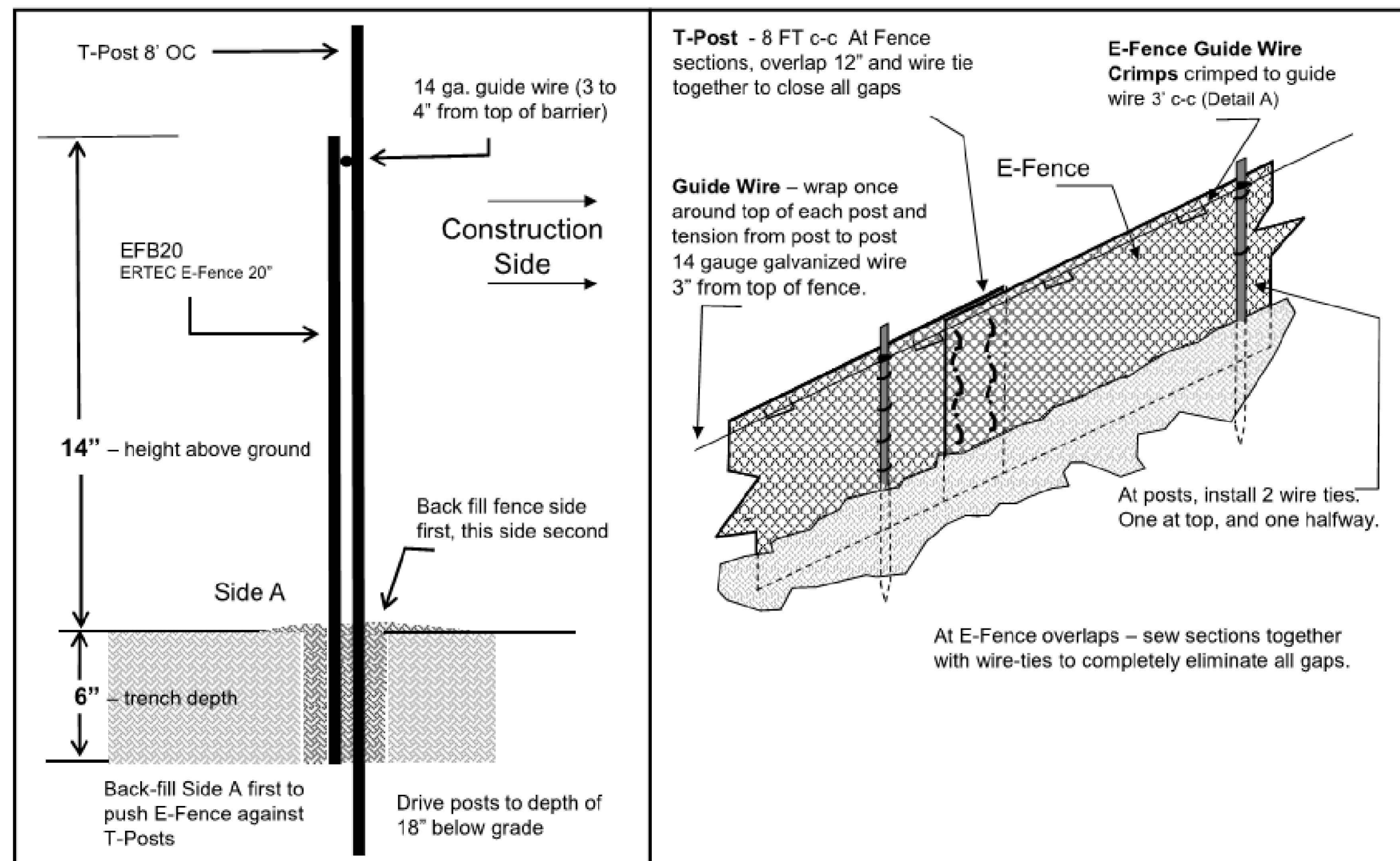
Drawing Number: **C-4.0**
 Sheet **4** of **6**
 Project Number: **43183.00**



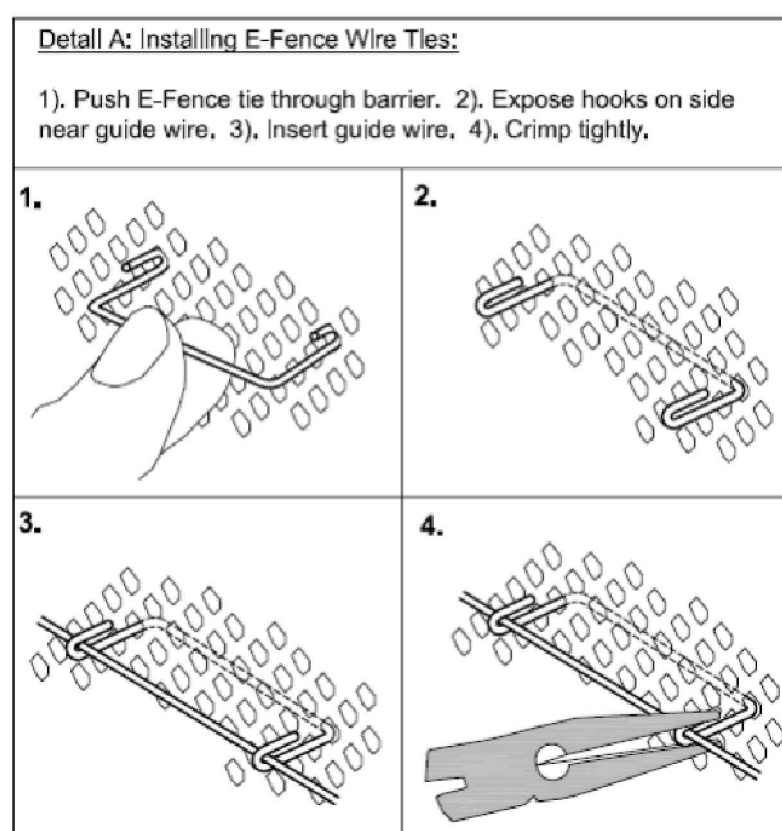
100 Great Meadow Road
Suite 200
Wethersfield, CT 06109
860.807.4300

E-Fence DETAILS – Wildlife Exclusion - WPT

E-Fence™ (Patent #US8402630, other patents pending)



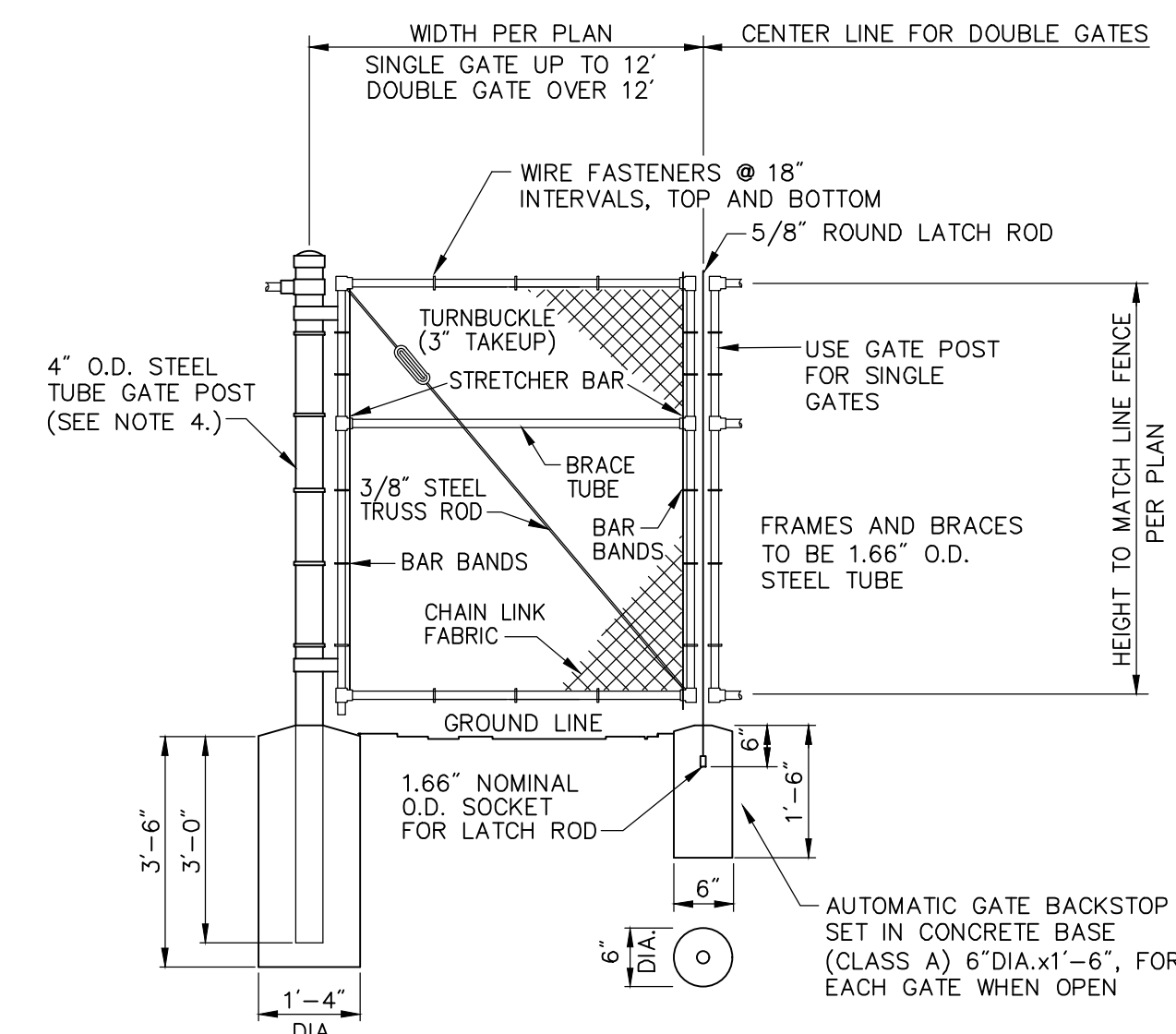
E-Fence DETAILS – Guidewire Crimp



E-Fence™ DETAILS – Wildlife Exclusion

Installation Notes:

- Excavate a trench a minimum of 4" wide and a minimum of 5" deep.
- T-posts shall be a minimum of 0.95 lbs/ft. T-posts shall be driven a minimum 18" deep into the ground 8' centers.
- Insert barrier material into trench and attach to post in two places: 1) at 3" below top of fence and at 2) mid-height.
- At 3 inches from top of fence (above wire tie), wrap 14 gauge galvanized wire once around each T-post and pull the guide wire from post to post, wrap, secure and pull wire tight between each post.
- At segment overlaps (roll length 100 or 150 LF), overlap segments a minimum of 12". Eliminate all gaps by tying sections together with tie wire in two vertical rows, as shown.
- Push E-Fence Guide Wire Crimps through the E-Fence and crimp the ties to the guide wire on the other side of the fence (two crimps per tie) at 3' intervals, as illustrated in Detail A of the installation guidelines. Crimp to the guide-wire securely.
- E-Fence must be installed in continuous lengths (100 or 150 feet rolls). Do not cut segments into shorter lengths unless necessary due to sudden changes in elevation.
- Backfill trench with trench spoils. Backfill from E-Fence side of posts first so that E-Fence is pushed up against T-posts. Back fill other side to complete backfill.



Notes:

- CHAIN LINK FABRIC FOR GATES TO BE THE SAME AS REQUIRED FOR FENCE.
- GATE POST BASE—PORTLAND CEMENT CONCRETE (3000 PSI).
- FENCE FABRIC, POSTS, FRAMEWORKS, AND HARDWARE SHALL BE GALVANIZED STEEL OR BLACK VINYL (AS INDICATED ON PLANS) PER SPECIFICATIONS.
- GATE POSTS TO BE USED ON EACH SIDE OF SINGLE AND DOUBLE GATE OPENINGS.

E-Fence Installation Details

N.T.S.

Source: Ertec Environmental Systems

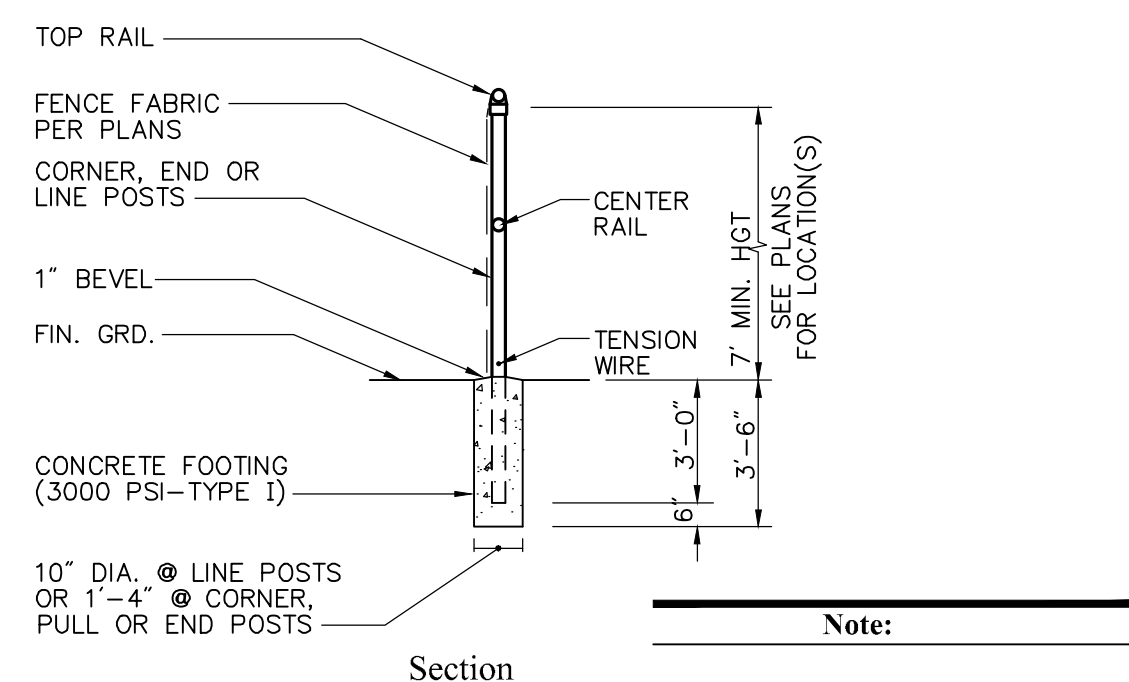
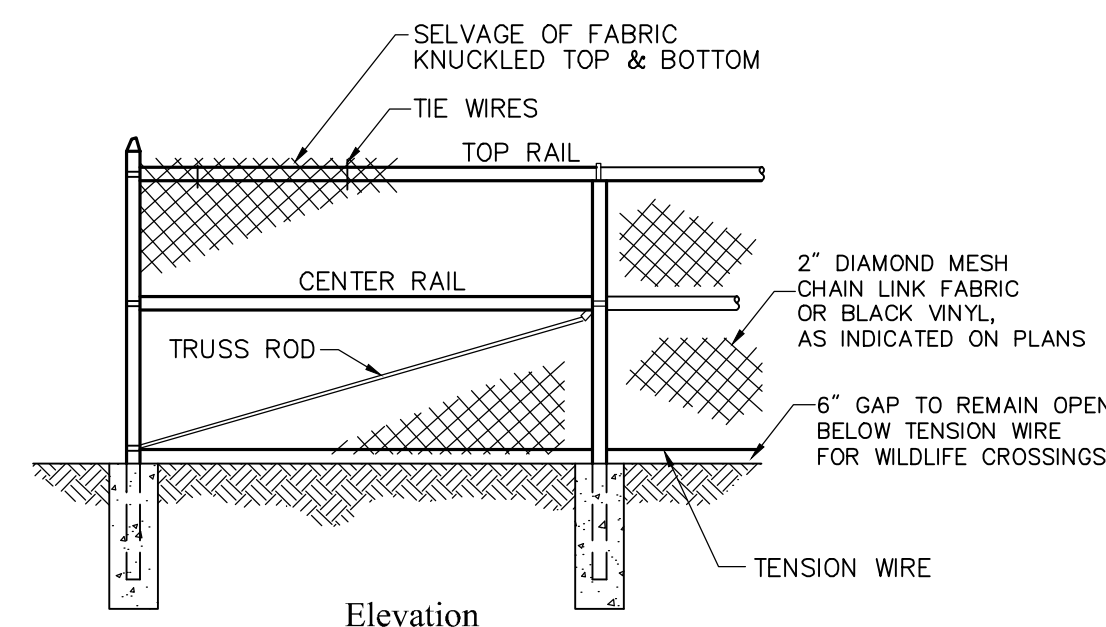
Chain Link Fence Gate

N.T.S.

Source: VHB

6/08

LD_482



- Note:**
- MATERIALS TO BE SUPPLIED AND INSTALLED IN CONFORMANCE WITH "CHAIN LINK MANUFACTURER'S INSTITUTE" PRODUCT MANUAL.

7' Chain Link Fence

N.T.S.

Source: VHB

REV

LD_480

6/08

Danger and Site Facility Signs

N.T.S.

Source: VHB

1/16



PHOTOVOLTAIC INSTALLATION
Site Location: Spencer Hill Road, Winchester, CT
Owner: Greenskies Clean Energy

**IN CASE OF EMERGENCY CALL 911
WINCHESTER POLICE DEPARTMENT - (860) 379-2721**

Notes:

- THE SITE FACILITY SIGN IS A DRAFT SHOWING THE MINIMUM AMOUNT OF INFORMATION THAT WILL BE PROVIDED. SIGN WILL BE 18" X 24".
- ALL SIGNS WILL BE MOUNTED ONTO THE CHAIN LINK FENCE.

GCE Winchester Solar

Spencer Hill Road
Winchester, Connecticut

No. Revision Date Appd.

Designed by TJM Checked by SJK

Application September 19, 2023

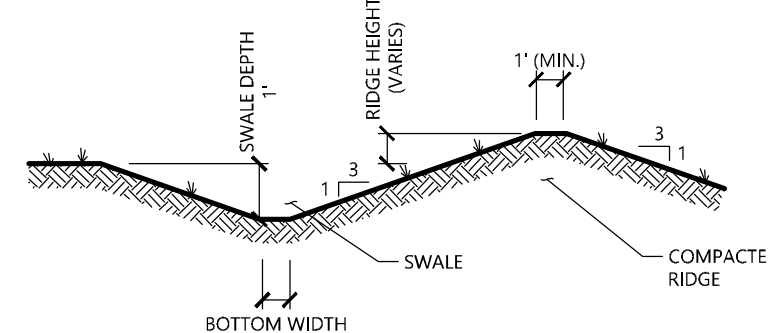
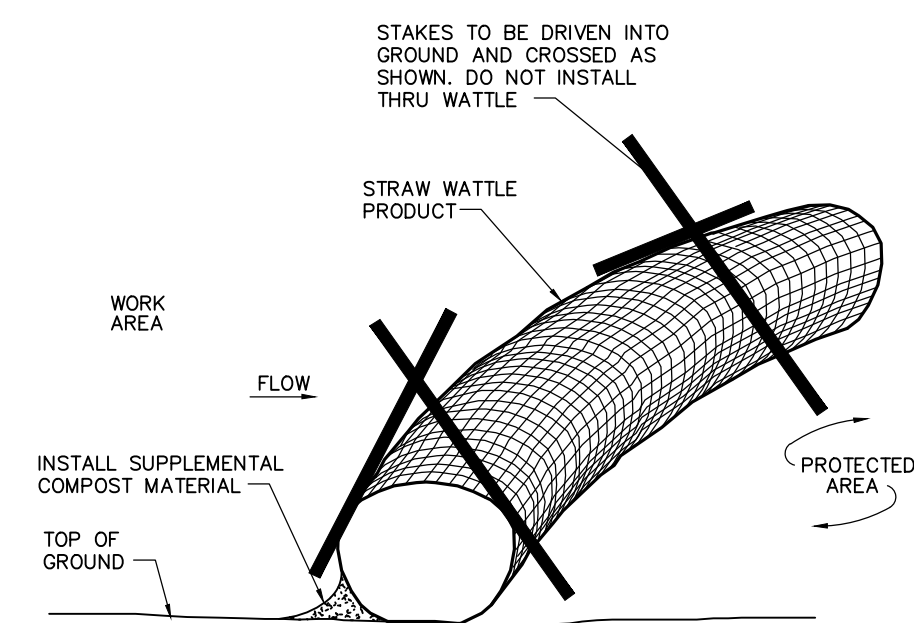
Not Approved for Construction
Site Details 1

Drawing Number

C-5.1

Sheet of 5 6

Project Number
43183.00



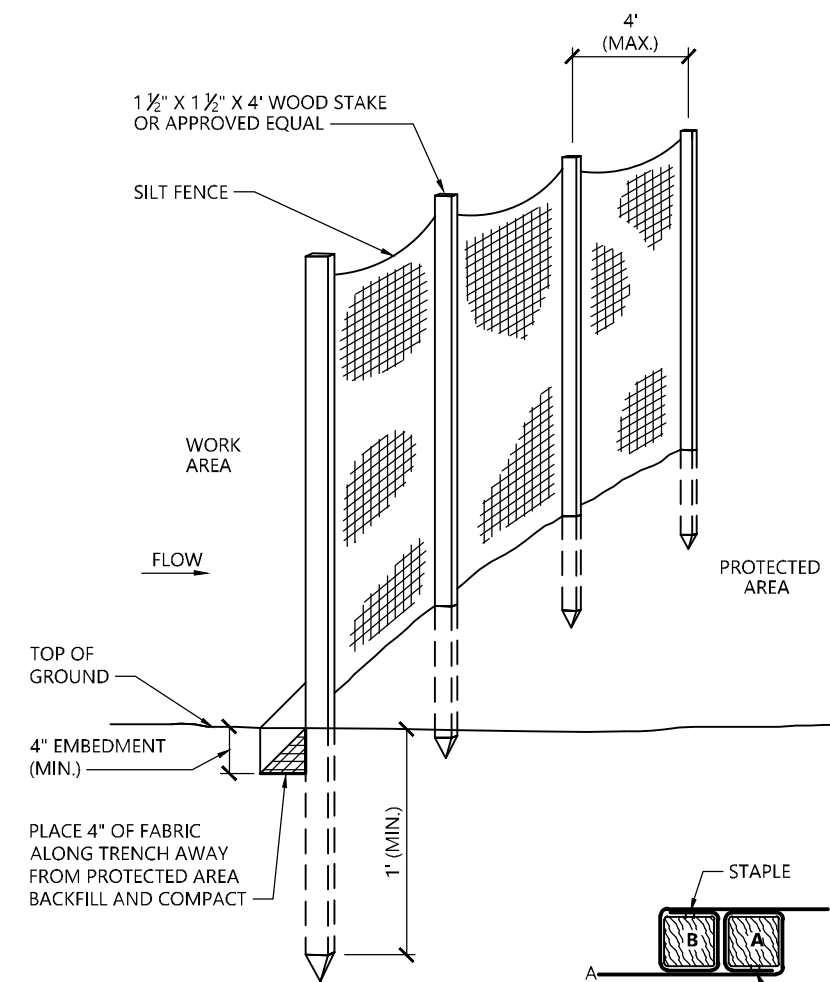
NOTE:
1. ALL SIDE SLOPES SHALL NOT EXCEED 3:1
2. THE INTENT IS TO USE THE MATERIAL EXCAVATED FROM THE SWALE TO CONSTRUCT THE RIDGE.
3. BOTTOM OF SWALE SHALL BE LINED WITH EROSION CONTROL BLANKET.

Straw Wattle Installation

N.T.S. Source: VHB 8/12 LD_658

Diverson Swale

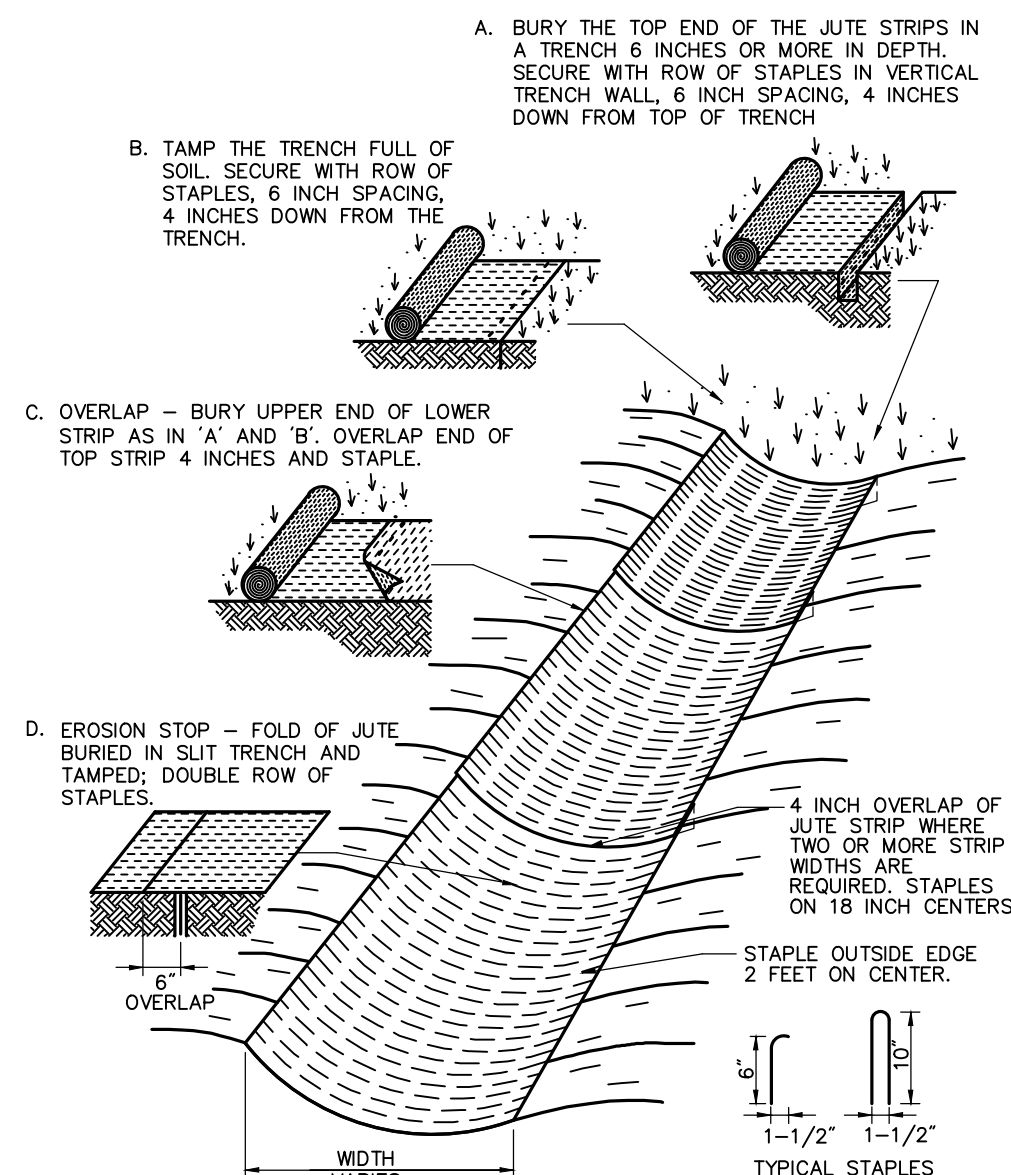
N.T.S. Source: VHB



WOOD STAKE JOINT DETAIL

Silt Fence Barrier

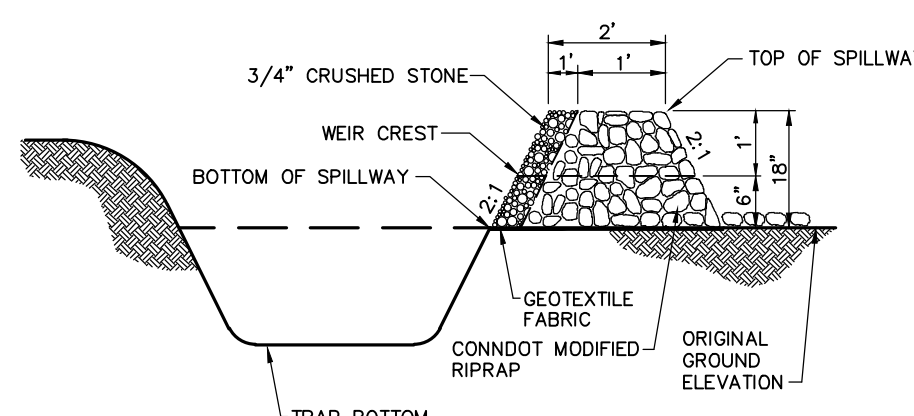
N.T.S. Source: VHB 1/16 LD_650



INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS
MATERIAL MUST BE APPROVED BY DESIGN ENGINEER

Erosion Control Blanket (ECB) Swale Installation

N.T.S. Source: VHB 6/08 LD_681

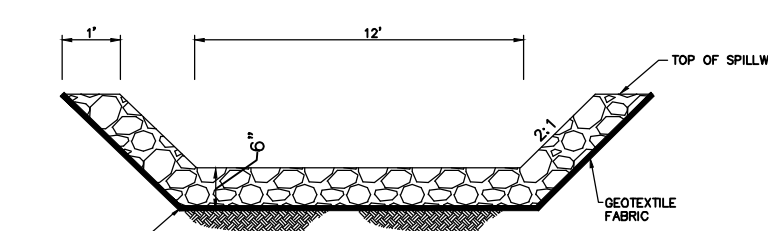


Trap Cross Section

NOTE:
1. ALL SIDE SLOPES SHALL NOT EXCEED 3:1
2. SIDE SLOPES OF EMBANKMENT SHALL BE STABILIZED BY EROSION CONTROL BLANKETS OR AS DIRECTED BY THE ENGINEER.
3. TRAP SHALL BE DRAINED AND CLEANED OF SEDIMENT ONCE SEDIMENT IS 1\"/>

Sediment Trap (TST)

N.T.S. Source: VHB

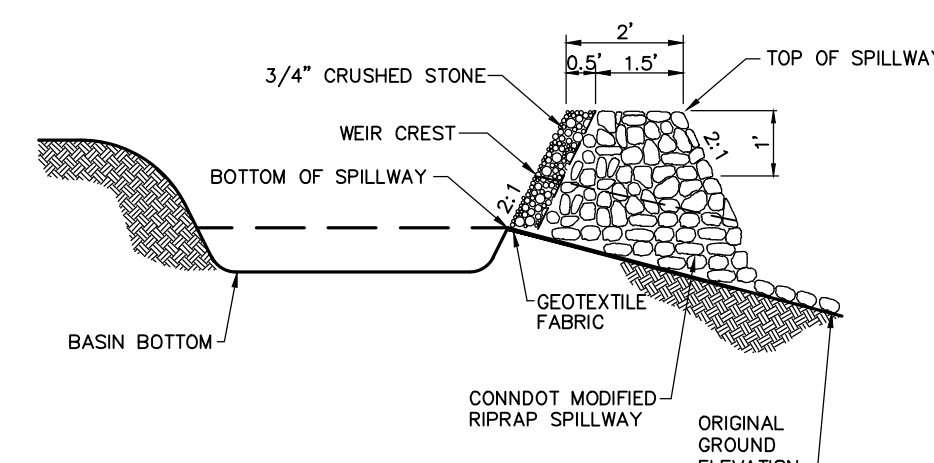


Spillway Cross Section

NOTE:
1. ALL SIDE SLOPES SHALL NOT EXCEED 3:1
2. STONE FOR SPILLWAY LINING SHALL BE CONDOT MODIFIED RIPRAP.
3. TOP OF EMBANKMENT SHALL BE 4\"/>

Stormwater Basin Spillway

N.T.S. Source: VHB

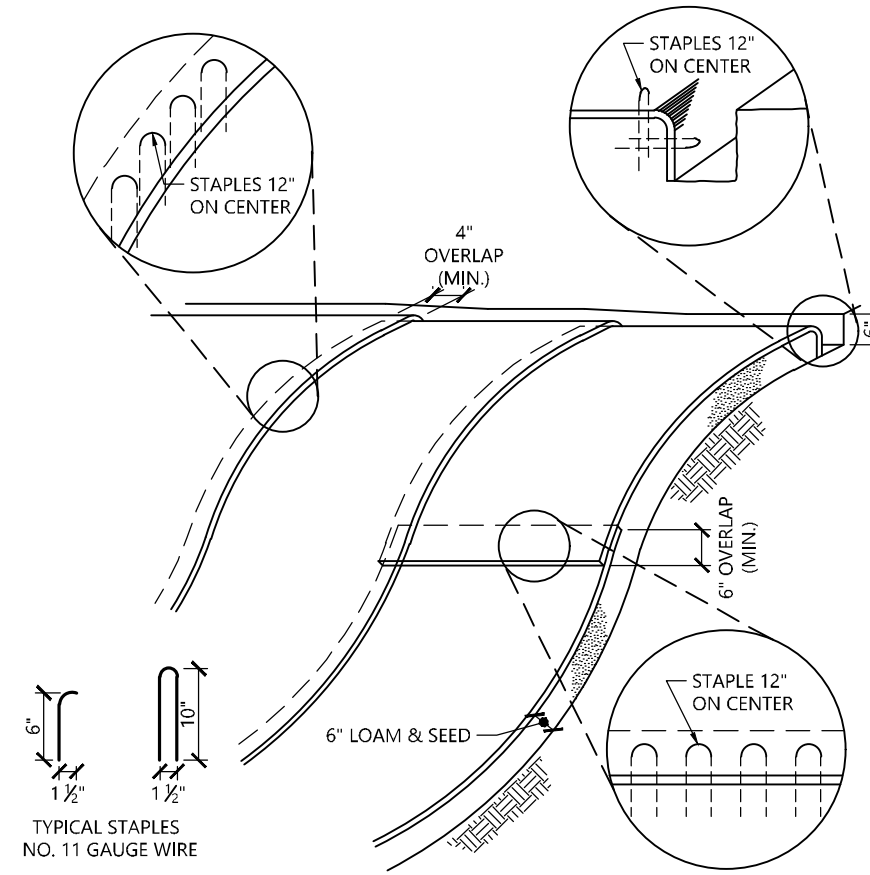


Basin Cross Section

NOTE:
1. ALL SIDE SLOPES SHALL NOT EXCEED 3:1
2. TOP OF EMBANKMENT SHALL BE 4\"/>

Permanent Stormwater Basin

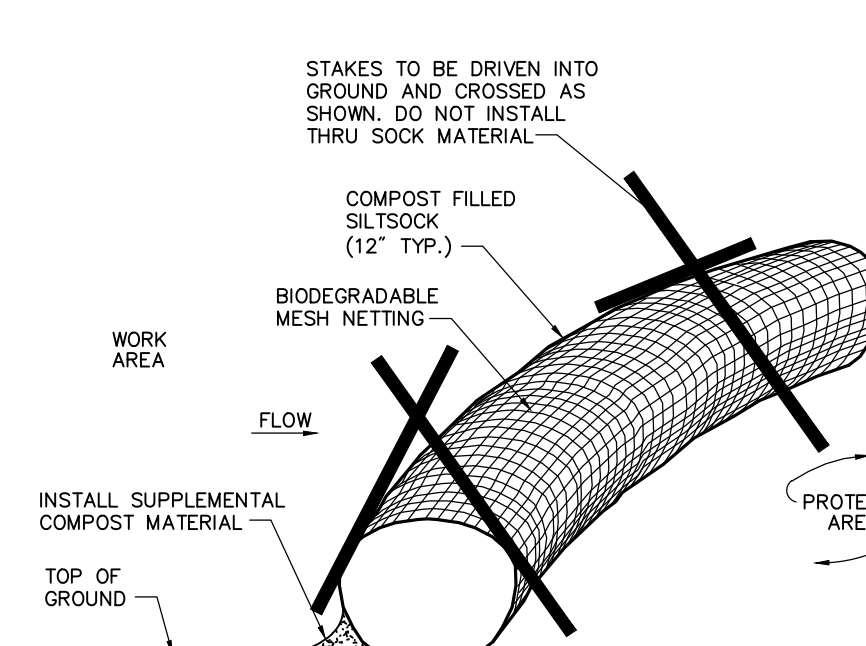
N.T.S. Source: VHB



NOTES:
1. BEGIN AT THE TOP OF BLANKET INSTALLATION AREA BY ANCHORING BLANKET IN A 6\"/>

Erosion Control Blanket Slope Installation

N.T.S. Source: VHB REV 1/16 LD_680



Notes:

- SILT SOCK SHALL BE 12\"/>
- SILT SOCKS SHALL OVERLAP A MINIMUM OF 12 INCHES.
- SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
- COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
- IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Compost Filter Sock (CFS)

N.T.S. Source: VHB 8/12 LD_658

GCE Winchester Solar

Spencer Hill Road
Winchester, Connecticut

No.	Revision	Date	Appd.

Designed by TJM Checked by SJK
Issued for _____ Date _____

Application September 19, 2023

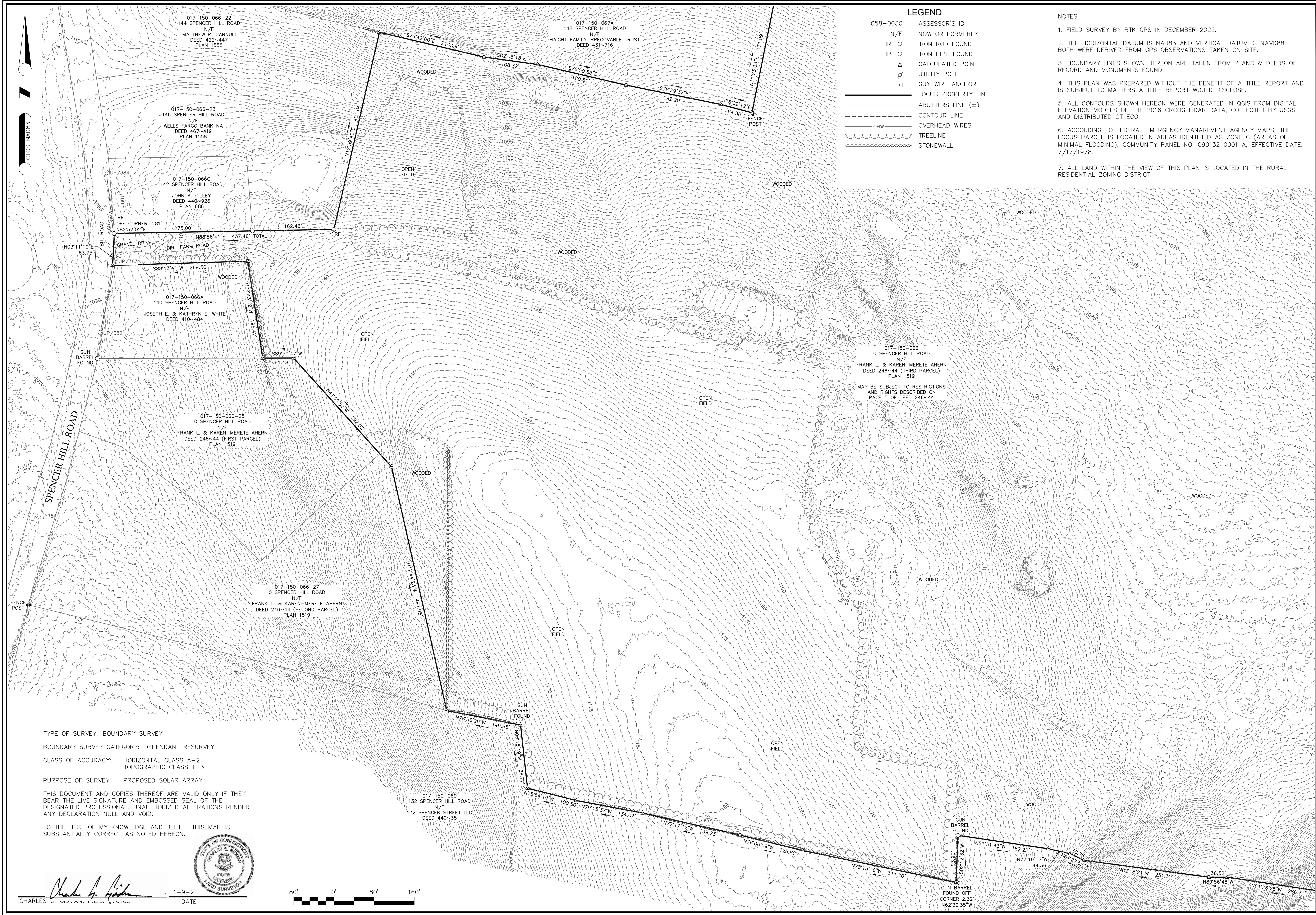
Not Approved for Construction
Drawing Title
Site Details 2

Drawing Number

C-5.2

Sheet 6 of 6

Project Number
43183.00



LEGEND

058-0030	ASSESSOR'S ID
N/F	NOW OR FORMERLY
IRF O	IRON ROD FOUND
IPF O	IRON PIPE FOUND
△	CALCULATED POINT
⊗	UTILITY POLE
⊠	GUY WIRE ANCHOR
—	LOCUS PROPERTY LINE
— (+)	ABUTTERS LINE (+)
---	CONTOUR LINE
— OHW	OVERHEAD WIRES
~	TREELINE
⊘	STONEWALL

- NOTES:**
1. FIELD SURVEY BY RTK GPS IN DECEMBER 2022.
 2. THE HORIZONTAL DATUM IS NAD83 AND VERTICAL DATUM IS NAVD88. BOTH WERE DERIVED FROM GPS OBSERVATIONS TAKEN ON SITE.
 3. BOUNDARY LINES SHOWN HEREON ARE TAKEN FROM PLANS & DEEDS OF RECORD AND MONUMENTS FOUND.
 4. THIS PLAN WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO MATTERS A TITLE REPORT WOULD DISCLOSE.
 5. ALL CONTOURS SHOWN HEREON WERE GENERATED IN QGIS FROM DIGITAL ELEVATION MODELS OF THE 2016 CRCOG LIDAR DATA, COLLECTED BY USGS AND DISTRIBUTED CT ECO.
 6. ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY MAPS, THE LOCUS PARCEL IS LOCATED IN AREAS IDENTIFIED AS ZONE C (AREAS OF MINIMAL FLOODING), COMMUNITY PANEL NO. 090132 0001 A, EFFECTIVE DATE: 7/17/1978.
 7. ALL LAND WITHIN THE VIEW OF THIS PLAN IS LOCATED IN THE RURAL RESIDENTIAL ZONING DISTRICT.

NORTHEAST SURVEY CONSULTANTS
 3 FERRY STREET
 STUDIO 1 EAST
 EASTHAMPTON, MA 01027
 (413) 203-5144

BOUNDARY & SURVEY LIDAR CONTOURS

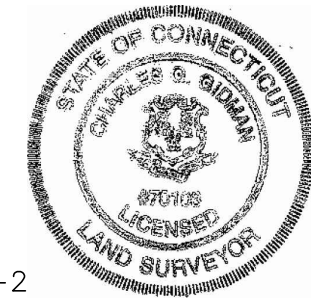
SURVEYOR:	CGG	ENGINEER:	—
DRAFTING:	JDG	DESIGN:	—
FIELD WORK:	MAK	HORZ. SCALE:	1"=80'
PROJECT NUMBER:	22-260	VERT. SCALE:	—
DRAWING NAME:	22-260.DWG	DATE:	1-9-2023

PLAN OF LAND IN WINCHESTER, CT
 PREPARED FOR
GREENSKIES RENEWABLE ENERGY

TYPE OF SURVEY: BOUNDARY SURVEY
 BOUNDARY SURVEY CATEGORY: DEPENDANT RESURVEY
 CLASS OF ACCURACY: HORIZONTAL CLASS A-2
 TOPOGRAPHIC CLASS T-3
 PURPOSE OF SURVEY: PROPOSED SOLAR ARRAY

THIS DOCUMENT AND COPIES THEREOF ARE VALID ONLY IF THEY BEAR THE LIVE SIGNATURE AND EMBOSSED SEAL OF THE DESIGNATED PROFESSIONAL. UNAUTHORIZED ALTERATIONS RENDER ANY DECLARATION NULL AND VOID.

TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.



Charles S. Jordan
 CHARLES S. JORDAN, P.E.S., L.S. 470103

1-9-2
 DATE





January 22, 2024

Ref: 43183.00

Jean-Paul La Marche
Vice President of Development
Greenskies Clean Energy
127 Washington Avenue, West Building, Garden Level
North Haven, CT 06473

Re: Fill Management Plan – Spencer Hill Road, Winchester, Connecticut

Dear Greenskies Clean Energy:

Vanasse Hangen & Brustlin, Inc. (VHB) has prepared this Fill Management Plan (FMP) on behalf of Greenskies Clean Energy, LLC (GCE) to summarize procedures for the management of fill in association with the proposed construction of the Winchester Solar project, a \pm 4 MW-AC photovoltaic solar energy facility, on a portion of the property located at Spencer Hill Road in the Town of Winchester, Connecticut, hereinafter referred to as the "Site." This FMP has been developed in general accordance with the Connecticut Department of Agriculture *Fill Management Plan* document dated October 31, 2023, as guidance.

Project Summary

The project will consist of ground-based solar racks, panels, combiner boxes, power conditioning systems (i.e. inverters), and buried conduit. The project will also include the construction of access roads and perimeter security fencing. The project Site is comprised of approximately 16 acres total, which consists of active farmland as well as seven delineated on-site wetland systems, in close proximity to the construction site, however, located beyond the perimeter of the construction area.

The Site has been designed to maintain existing topography and mimic existing drainage patterns to the maximum extents feasible. Across the majority of the proposed development areas, the Project proposes to install permanent turf-forming grasses to help stabilize the topsoil from erosion, sequester nutrients and pollutants, and lower runoff rates from the facility to the surrounding discharge points. Mature vegetation will be preserved to the maximum extents practicable however a small amount of tree clearing along the parcel boundary to the south is proposed for shading purposes. In all, the Project will have minimal impact to surrounding ecologically sensitive areas.

The only impervious surfaces proposed to be constructed are access roads and small concrete pads for utility equipment. Once operational, vehicular access to the project will be limited to infrequent maintenance visits. The vegetated buffers and proposed stormwater basins will provide peak rate attenuation and water quality treatment for the Project.



Project Planning

In accordance with the United States Department of Agriculture (USDA) National Engineering Handbook, Chapter 3 – Engineering Classification of Earth Materials and Chapter 8 – Earthfill and Rockfill, the following definitions were utilized:

- > Rock – a compact, semi-hard to hard, semi-indurated to indurated, consolidated mass of natural materials composed of one or more minerals;
- > Soil – unconsolidated, unindurated, or slightly indurated, loosely compacted products of disintegration and decomposition processes of weathering;
- > Earth Materials – Soil or rock;
- > Earthfill – composed of natural earth materials that can be placed and compacted by construction equipment operated in a conventional manner;
- > Rockfill – generally natural materials that are hard, durable, and larger than gravel size.

Based on these definitions, all earth materials transported to the site will be classified as fill.

Based on Site Plans dated September 19, 2023, completed by VHB, and provided in [Attachment 1](#), there are anticipated to be several proposed areas of imported fill. These areas and fill materials include:

- > 15' wide gravel access road – fill material proposed is gravel;
- > Construction laydown area – fill material proposed is gravel;
- > Stormwater spillways (3) – fill material proposed is riprap;
- > Underground utility trenches – fill material proposed is bedding sand.

These fill materials are as prescribed within the Site Plans and within supporting construction documentation.

For the duration of the construction phase of this project, it is proposed to prepare monthly Fill Management Update Reports. These reports should include:

- > Records of imported fill materials including location of where the earth material came from and company who hauled it;
- > Photo documentation of all site earthwork that is performed;
- > Photo documentation of stockpiles and notes including length of storage, material in stockpile, and approximate stockpile size.

Soil Management – Storage, Grading, and Incorporation

During construction activities, the handling of soil is an important aspect of the job and best management practices will be utilized. It is known that soil is more vulnerable to compaction when saturated therefore soil handling activities will be performed during dry conditions, when possible.



Soil stockpile timelines will be recorded in the monthly Fill Management Update Report. Stockpiles will be segregated by fill type. It is anticipated that one stockpile will be composed of topsoil, which is generally found within the first 12" of the ground surface, known to be within the O and A horizons, and will contain materials such as leaves, sticks, roots, worms, and other organic materials/organisms. Stockpiled topsoil will have uses that include re-establishing vegetation areas. These stockpiles will not be stockpiled for more than 60 days and if possible, should be stockpiled as shallow stockpiles no more than 6 feet high, which ensures better soil health via less compactions and continued microbial habitation.

It is anticipated that the second stockpile will be of subsoils, which are generally found at depth greater than 12" and are within the B and C horizons. No stockpile timeline will be applied to these soils. In general, these soils will be used for grade alterations and constructions activities.

Identified on the site plans in **Attachment 1**, drawing C-4 and C-5.2, various erosion protection measures are planned to ensure proper maintenance of the soils at the site and to protect ecological features. Erosion protection measures identified on C-5.2 include straw wattle installation(s), diversion swale(s), silt fence barrier(s), and erosion control blanket (ECB) swale installation(s). On drawing C-4: Erosion and Sediment Control Plan, locations of the various erosion protection measures can be viewed. Additionally, construction sequencing is outlined and identifies the controls and responsibilities that the general contractor must follow. These are the plans that GCE have developed for their site construction activities.

No soils designated as prime farmland shall be hauled offsite and instead shall be kept on the project site in perpetuity.

Soil Importation

As discussed above, the imported earth material that GCE plans to import will predominantly be utilized for the gravel roadway, construction laydown area, stormwater catch basins, and utility trenches. When the first shipment of a type of earth materials are imported to the site, a soil scientist should assess the material to ensure that it is what the bidding specifications called for and it meets its intended use. The shipment shall also be visually inspected by the soil scientist to ensure that the fill material does not contain any concrete, asphalt, demolition debris, rubbish, garbage, or other deleterious material.

The monthly Fill Management Update Reports should be coordinated with the construction manager to note the number of truckloads delivered as well as the total quantity of materials imported to the site.

Conclusions

VHB is pleased to present this Fill Management Report with site specific information regarding project planning, soil management, inspection, and soil implantation. Monthly Fill Management Update Reports will be provided to ensure best management practices are maintained.

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January 22, 2024
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If you have any questions, please feel free to contact Pamela Lind at Plind@vhb.com or at 860-807-4303.

Sincerely,

Neal Hulstein
Environmental Scientist

Pamela Lind, LEP
Sr. Environmental Scientist / Project Manager

Reviewed By:

Sara Berryman, CSS
Wetland Scientist

Attachments:
Appendix 1: GCE Winchester Solar Site Plans



The Connecticut Agricultural Experiment Station

Putting Science to Work for Society since 1875

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May 19, 2023

Holly Lalime

State of Connecticut Department of Agriculture

450 Columbus Blvd., Suite 701

Hartford, CT 06103

Re: Solar & Agricultural Research Considerations for Spencer Hill Road Winchester, Connecticut

Dear Ms. Lalime:

Greenskies Clean Energy, LLC (“Greenskies”) notified me that the Department of Agriculture would like for me to send a letter on behalf of the Connecticut Agricultural Experiment Station to confirm our interest in conducting research on agricultural possibilities at the solar site located at Spencer Hill Road in Winchester, Connecticut (the “Property”).

In February of this year, Bonnie Potocki of Greenskies contacted me about my potential interest in conducting a field research project on the Property. Greenskies indicated that it would like to explore how agricultural production can co-exist with solar projects in Connecticut. As you are aware, research on the production of crops under photovoltaic panels is still relatively new. Such research would not only enable us to utilize solar farms for more purposes but could be applicable in other agricultural systems where shade can be prevalent, such as urban agriculture. My research specialty is in urban agriculture and vegetable production in unconventional production systems. Enabling the use of shady spaces for food production in both urban and rural agriculture will contribute to increasing the resilience of the food system and increase food security in vulnerable populations.

My research at this site would likely encompass crop and variety trials, in which the production of specific varieties of a selection of crops positioned underneath solar photovoltaic panels would be tested. These specific crops would be selected from a list of crops suitable for more traditional agricultural production in New England and the selection process would include a review of which would have the greatest likelihood of success growing on a solar development.

Production would be for a minimum of three growing seasons and would include data collection on various metrics, including total yield, crop quality based on USDA standards, with marketable yield and plant biomass production measured and compared to traditional agriculture in the region. Soil testing would be performed annually, as is best practice in agriculture, and local weather conditions would be monitored

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throughout the study. After the first three years of the study, variety trials could be performed on a new set of crops. Further research beyond the first three years could also be undertaken to seek answers to production questions that arise during the first three years of the project. Ultimately such research would result in recommendations for best practices in agrovoltaic systems.

Pursuing this research would be contingent on securing funding, which would be sought under programs that include specialty crops, agrovoltaics, and urban and emerging agriculture priorities. Although there are several grant programs that could support this research both at the state and national levels, the specific grants that will be pursued will depend on programmatic priority areas that match this research and the amount of funding available through specific calls for proposals. Funding for research would likely be sought in the 2024 or 2025 program years, so that the research start date would take place after the solar panels have been installed. Requested funding will include a budget for technical assistance, including a postdoctoral scholar who will be compensated approximately \$386,000 for three years of salary and fringe benefits, in addition to materials, supplies, travel to the project site, and publication costs. This budget may constrain which funding opportunities will be pursued or may require a combination of several smaller funding opportunities to cover costs.

I would be happy to discuss this further, should you so desire. My research often keeps me away from the office, so e-mail is best, but I can also be reached by phone.

Sincerely,



Leigh Whittinghill, Assistant Agriculture Scientist
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Connecticut Agricultural Experiment Station
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