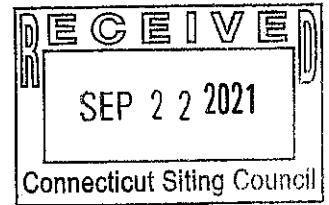


STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL



SR Litchfield, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 19.8-megawatt AC solar photovoltaic electric generating facility on 6 contiguous parcels located both east and west of Wilson Road south of the intersection with Litchfield Town Farm Road in Litchfield, Connecticut, and both east and west of Rossi Road, south of the intersection with Highland Avenue in Torrington, Connecticut, and associated electrical interconnection.

Petition No. 1442

ORIGINAL

September 19, 2021

**REQUEST FOR PARTY STATUS AND NOTICE OF CEPA INTERVENTION  
AND REQUEST FOR PUBLIC HEARING**

Erin McKenna (“McKenna”) is a Litchfield resident who lives in proximity to the solar generating facility proposed by SR Litchfield, LLC (“SR Litchfield”) on multiple parcels located in Litchfield and Torrington. McKenna seeks party status in this proceeding and also hereby intervenes in this proceeding under the Connecticut Environmental Protection Act, Conn. Gen. Stat. §§ 22a-16 *et seq.* (“CEPA”). While McKenna recognizes that to date, the Siting Council has not decided to hold a hearing on this petition, it has the authority, and indeed the obligation, to “add parties and intervenors at any time during the pendency of any proceeding,” even if a party or intervenor’s ability to participate is limited due to the timing of a party status or intervention request. (*See* R.C.S.A. § 16-50j-16(a)). McKenna also requests that the Siting Council hold a public hearing on this petition, for the reasons set forth below.

**Contact information for proposed party:**

Proposed party: Erin McKenna  
Mailing address: 38 Bigos Road, Litchfield, CT 06759  
Phone: (860) 307-8436  
Email: ecmckenna@gmail.com

**Contact information for representative of proposed party:**

Name: Emily Gianquinto  
Address: 363 Main Street, Hartford, CT 06106  
Phone: (860) 785-0545  
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**I. Manner in which proposed party claims to be substantially and specifically affected**

The proposed facility will substantially impact McKenna because of her proximity to the facility. McKenna lives just off of Town Farm Road, on Bigos Road. Her property line is approximately half a mile walking distance from the parcel located to the east of Wilson Road and south of Town Farm Road (the parcel depicted on Sheet PV-103 in the redesign submitted on May 14, 2021). Currently, the half mile between McKenna's property and Wilson Road is occupied by hay fields and wooded areas that are home to the Gulf Stream and associated wetlands. As a result, McKenna's property is home to a wide variety of birds, including redwing blackbirds, bluebirds, scarlet tanager and goldfinch, and multiple times a day, she observes several hawks using the fields to hunt.

Given McKenna's proximity to the proposed facility and the significant change the facility will make on the nature and character of the surrounding area, her rights will be substantially and specifically affected by the Siting Council's decision. McKenna is also concerned with the impact of the proposed facility on the environment, including with respect to stormwater issues, the protection of local wetlands and watercourses, and the protection of wildlife and other natural resources. The proposed facility is located on a site that includes a valuable wetlands system and to the Gulf Stream, a class A cold water stream that is home to a native trout population. The significant grading and steep slopes proposed for the site, the clearing of 15 acres of trees, and the installation of the panels themselves will dramatically change the nature of that habitat and the degree to which stormwater will leave the site. The creation of so many impervious surfaces will

increase the amount of and flow rate of runoff significantly, and the proposed orientation of the panels will cause runoff to run parallel to the panels, channelizing the flow. The facility will negatively impact undisturbed wetlands and two high-value vernal pools, as well as the water quality of the Gulf Stream. All of the above, described in more detail below, gives McKenna an interest in the proceeding, both as a party and as a CEPA intervenor.

## **II. Contention of the proposed party**

McKenna contends that the proposed solar facility will have a negative impact on the environment because SR Litchfield's site plans and the assumptions included in those and related plans do not comply with the water quality standards of the State of Connecticut and do not demonstrate that its facility will not have a substantial adverse impact on the environment. McKenna also contends that the proposed solar facility will have a negative impact on public health and safety, as well as the rights of residents in proximity to the facility to quietly enjoy their property. McKenna believes that installing this solar array as proposed is irresponsible development, particularly given the proximity of the Gulf Stream and its surrounding wetlands complex.

The proposed facility is located on 212 acres that encompass a significant portion of the Gulf Stream and its associated wetlands and tributaries – what is called a “massive wetlands complex” in Torrington's Plan of Conservation and Development (“PCOD”). The Gulf Stream is noted in the Torrington PCOD as a significant and sensitive resource. SR Litchfield's own surveys concede that the site hosts a “major riparian corridor” and two unnamed perennial tributaries as well as two Tier 1 vernal pools. Tier 1 pools are the most valuable vernal pools and are worthy of conservation planning. Gulf Stream is a Class A water per DEEP, meaning that it is an exceptionally high-quality cold water habitat, assessed as “Fully Supporting for Aquatic Life use

designation.” (See Petition Ex. U at 9.) The Class A designation means that the stream has the potential to meet the criteria for drinking water, as well as provide fish and wildlife habitat. SR Litchfield’s own consultant documented the stream as supporting a wild brook trout population. (*Id.*) Such habitats are now very uncommon in Connecticut because they are so easily impacted by effects such as runoff of sediments and thermal changes. The same consultant also found dusky salamanders present “in moderate abundance” on the site. (*Id.*) Dusky salamanders are only found in high-quality seepage fed watercourses and wetlands, which is further evidence of the pristine nature of this wetlands system. They are also an indicator species for the threatened spring salamander, as their presence indicates streams able to support spring salamanders and they serve as a major food source for the spring salamander.

SR Litchfield’s petition, and the facility as redesigned, put this valuable ecosystem at significant risk. The plans will not adequately control and treat the stormwater that will be running off of the impervious panels of the solar array. As set forth in the attached report by Steven Trinkaus, a Connecticut-licensed professional engineer, the erosion/sedimentation control plan, stormwater management plan, and overall site plans do not comply with the requirements of the 2004 Connecticut Stormwater Quality Manual (“2004 Manual”), the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (“2002 Guidelines”), the Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (“General Permit”), or the recently proposed updates to the General Permit, including Appendix I, which is specific to the installation of solar arrays, or with civil engineering standards of care for design work. (*See* Exhibit A.)

The most significant finding in Trinkaus’ technical review is that the runoff from most of the solar array is not occurring as overland sheet flow, which would be perpendicular to the rows

of solar panels, but as shallow concentrated flow parallel to the downhill edge of each panel row. Given the natural and regraded steep slopes on the site, the concentrated runoff will cause erosion and result in sedimentation at the end of the panel rows. The stormwater management practices proposed by SR Litchfield are not stormwater detention systems that can handle the volume of channelized runoff that will occur; nor will they actually treat the stormwater. The practices will be overwhelmed and will fail, resulting in erosion and sedimentation of the Gulf Stream, the two unnamed perennial tributaries that feed into it, and the surrounding wetlands and vernal pools. SR Litchfield has also (1) failed to use a proper soil class for its calculation, using a “half-class” down in soil classes where the applicable model does not permit consideration of a half step down in soil class; (2) run its calculations assuming that a hydrologic “good condition” of grass underneath and between the solar arrays, when the grass will not be nearly well-established enough to fairly meet that assumption; (3) failed to take into account the compaction of the soil that will occur during construction due to grading, cut and fill, tree clearing and driving vehicles; (4) failed to conduct proper infiltration testing at all, and failed to conduct any infiltration testing in many areas of the site, which likely means it has made unsupported optimistic design assumptions; and (5) failed to design stormwater basins that include any required design components addressing water quality. All of these issues mean that the facility does not comply with the water quality standards of the State of Connecticut and will cause sediment and warmer water to be discharged from the site into the environmentally sensitive watercourses on- and off-site, which will impact species including the native trout populations living in Gulf Stream and ultimately will harm the health of the entire wetlands systems.

McKenna has additional concerns about the site, including the overall small buffers from the site disturbances to wetlands and vernal pools; the absence of a final NDDB determination or a

final comment letter from DEEP; the failure of SR Litchfield to conduct any bat surveys despite being aware that both red and hoary bats are likely on site; SR Litchfield's cursory discussion about protected species that are its consultant found to be on site, including the bobolink, American kestrel and savannah sparrow; and SR Litchfield's cursory dismissal of the likelihood that the species listed on the initial NDDB review back in 2017 are actually present on the site. In the absence of comprehensive and up-to-date wildlife studies and a current NDDB review, it is impossible to reach an informed conclusion that the development of the site as proposed will not affect wildlife in the wetlands or wildlife in general.

McKenna is also aware that the proposed site abuts a development in Torrington known as Greenbriar Estates, which has been the subject of past enforcement action by the Army Corps of Engineers and has had years of documented non-compliance with water quality standards that has resulted in degradation of portions of this valuable wetland system and repeated flooding issues for adjacent residential properties and town roads. Dr. Michael Klemens, a well-known ecologist and former member of the Siting Council, has documented both the value of the Gulf Stream ecosystem and the challenges presented by developing in proximity to that system. he told the Torrington Planning and Zoning Commission last year, in its consideration of an application to build more residences in Greenbriar, that given the sensitivity and importance of the headwaters areas that collect surface runoff and the steep topography of the area:

a minimum of 150 feet undisturbed watercourse buffers that are intact (i.e., vegetated) [are required] to protect the downstream wetlands and watercourses from pollution by sedimentation (which is a significant risk because of the highly erosive nature of the soils on the site) as well as the byproducts of development ...

(See Exhibit B,<sup>1</sup> 2/19/20 letter, at 2.)

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<sup>1</sup> Exhibit B contains several letters authored by Dr. Klemens regarding the Greenbriar Estates development proposal. While McKenna recognizes that development is separate from the facility proposed by SR Litchfield, Dr.

McKenna also believes that it is environmentally irresponsible to clear cut acres of deciduous forest for the installation of a solar panel farm. The natural wooded, undisturbed environment provides the following environmental benefits which will be completely lost if this petition is approved and the facility constructed as proposed. Although SR Litchfield has reduced the clear cutting to 15 acres in its redesign, any loss of forest in this area is significant, as the wooded areas of the parcels on this site are part of a wooded wetlands system that feeds into Gulf Stream. Changing the forest cover and vegetation will result in a loss of habitat and other negative effects such as changes to topography, light regimes, hydrology, substrates, and the introduction and proliferation of non-native invasive species. Passage corridors for wildlife are also diminished. It is for these very reasons that the legislature enacted statutory changes to protect forests from large-scale solar array installations in 2017 – protections that unfortunately excluded facilities solicited by DEEP before its enactment, including this one. *See Public Act No. 17-218 (“An Act Concerning the Installation of Certain Solar Facilities on Productive Farmlands...”)*.

McKenna also believes the use of prime farmland and important farmland soils, and removing active hayfield production from the site, is irresponsible and bad public policy. The site was the first settled area in Torrington and has a long history of agriculture production; indeed, Silicon Ranch Corporation purchased the back acreage from the oldest standing house in Torrington, the Jacob Strong/Paolo Abbate House, built circa 1750. The site contains 23.5 acres of prime farmland and 27 acres of statewide important farmland soils, which are recognized as significant natural resources. As set forth in the Department of Agriculture’s letter in opposition to the petition, SR Litchfield did not even give consideration to strategies to minimize impacts on agriculture, such as purchasing conservation easements on or restoring other farmland in the

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Klemens’s analysis is highly relevant to the Council’s consideration as his opinions concern the same riparian corridor and wetlands system that will be directly impacted by SR Litchfield’s facility.

community. Again, although the protections afforded to prime farmlands in the statutory changes enacted in 2017 do not directly apply to this petition, the underlying considerations should not be ignored. The Torrington POCD noted the Rossi Farm specifically as an area that needs to be protected as part of an agricultural cluster and also noted the importance of hay lots in keeping hay sources close for local dairy farmers. A recent solar project at the other end of Torrington took advantage of a local farmer's expiring lease to farm a property owned by the local church. While that project might have only removed 11 acres of farmland from production in Torrington, the cumulative effect can be disastrous to local farmers, including farmers depending on leasing neighboring property in order to supplement their income.

McKenna also contends that SR Litchfield failed to provide evidence that would provide the Siting Council with the information necessary to fulfill its obligation of balancing the need for adequate and reliable public utility services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state and to minimize damage to the scenic, historic, and recreational values while also assuring the welfare and protection of the people of the state. SR Litchfield simply ignored significant components of the local environment and their biota (e.g., still no NDDB determination letter, no discussion of how water quality parameters of the Gulf Stream will be impacted). Some of the environmental studies submitted by SR Litchfield were cursory and lacked complete data. As set forth in Trinkaus's report, infiltration testing was conducted using an inappropriate testing protocol and was done only in limited locations on the site, the plans lack design details for the limited number of forebays that are shown on the plans, and SR Litchfield did no analysis of pollutant loads, despite the environmentally sensitive nature of the site and the presence of the Gulf Stream.



SR Litchfield has simply not presented any sound basis for its claim that its facility will cause no significant environmental effects is true, which should by itself prevent the Siting Council from granting its petition. The petition should be vetted at a public hearing and should ultimately be denied, whether or not a hearing is held.

### **III. Relief sought by the proposed party**

McKenna asks that the Siting Council reverse its planned action and hold a public hearing on this petition, and ultimately seeks to have the Siting Council deny the petition with prejudice. With respect to the hearing, McKenna notes that members of the general public have not had any chance to weigh in on this petition at any public forum, which is especially significant because the plan has been redesigned since the Siting Council's short 30-day public comment window. SR Litchfield did not hold any public information sessions due to COVID, as noted in its petition, and the plans submitted to the Siting Council vary significantly from the RFP originally submitted to DEEP, which included, among other things, a proposal to build a public park on one-third of the site that could be used by the community and would promote tourism.

McKenna also notes that although the petition was submitted with a letter of support from the Town of Litchfield, both the Litchfield Board of Selectmen and the Litchfield Planning and Zoning Commission subsequently submitted letters raising concerns about setbacks and disturbance in such proximity to property lines, preservation of farmland, protecting watercourses, wetlands and natural habitats in light of the long downhill slope, and presence in an A-rated watershed and adjacent to an AA-rated watershed, cumulative noise impact and the use of oils in the inverters on site. Given the proposed facility's location in a massive and valuable watershed feeding into a cold water stream and its tributaries, a public hearing process before the Siting Council is needed to permit the public to weigh in on this important proposed development. A

public hearing would also permit the Litchfield's concerns, as expressed in the two letters submitted by town officials, to be weighed and considered in a public forum where residents could also participate through their Town representatives.

As set forth above, a hearing would certainly be "helpful in determining any issue concerning" the petition. See R.C.S.A. § 16-50j-40(b). McKenna urges the Siting Council to hold a hearing on this proposal to ensure that Litchfield and Torrington residents have at least one opportunity to express their thoughts on the petition and have the opportunity to listen to the Siting Council's vetting of the developer's significantly changed plans.

#### **IV. Statutory or other authority therefore**

McKenna is entitled to party status pursuant to Sections 4-177a, 16-50n, and 22a-14 through 22a-20 of the Connecticut General Statutes and Sections 16-50j-13 through 17 and 16-50j-43 of the Regulations of the Siting Council. McKenna is also requesting party status as an intervenor under the Connecticut Environmental Protection Act ("CEPA"), which permits any person, including associations, to "intervene as a party upon the filing of a verified pleading asserting that the proceeding or action for judicial review involves conduct which has, or which is reasonably likely to have, the effect of unreasonably polluting, impairing or destroying the public trust in the air, water or other natural resources of the state." *See* Conn. Gen. Stat. §§ 22a-19, 22a-20.

#### **V. Nature of the evidence that the petitioner intends to present**

If granted party status, McKenna intends to present evidence (whether at a hearing or by submission of written reports) including, but not limited to:

- Testimony by McKenna about the impact this facility will have on herself and her property rights as well as her environmental concerns;

- Studies, surveys and expert opinion about the adverse impact of the solar facility on the vernal pools, wetlands, watercourses (including the Gulf Stream), prime farmland and important soils, forest, amphibians, bats, birds, and other natural resources located on and around the proposed site;
- Evidence, whether by testimony or otherwise, about other solar facility projects that contained the same flawed assumptions as are present in the plans presented by SR Litchfield and which led to the impairment and/or destruction of wetlands, watercourses and other natural resources both on and off the sites of the failed projects;
- Evidence, whether by testimony or otherwise, that the proposed solar facility will unreasonably impair and/or destroy the public trust in the waters of the state and in the natural resources of the state by clear cutting acres of forest and introducing impervious surfaces, thereby disturbing or destroying wetlands and watercourses and wildlife habitats, including a Class A cold water stream.


**ERIN MCKENNA**

By: /s/ Emily A. Gianquinto  
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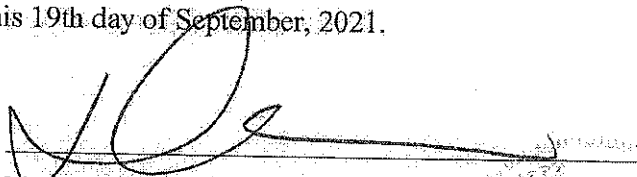
VERIFICATION

I, Erin McKenna, being duly sworn, depose and say that I have read the foregoing Request for Party Status and Notice of Intervention and Request for a Hearing, and that the allegations contained therein are true to the best of my knowledge.

By:

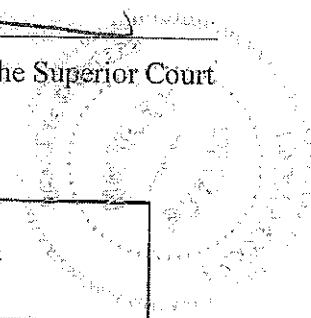
  
Erin McKenna

Subscribed and sworn to before me this 19th day of September, 2021.

  
Notary Public / Commissioner of the Superior Court

My Commission Expires:

*Leonida Catena*  
Notary Public-Connecticut  
My Commission Expires  
January 31, 2025



**CERTIFICATION**

I hereby certify that a copy of the foregoing document was delivered by e-mail to the following service list:

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*/s/ Emily A. Gianquinto*  
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Emily Gianquinto

# EXHIBIT A

## STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

PETITION NO. 1442 - SR Litchfield, LLC petition  
for declaratory ruling, pursuant to Connecticut General  
Statutes Section 4-176 and Section 16-50, for the proposed  
construction, maintenance, and operation of a 19.8-megawatt AC  
solar photovoltaic electric generating facility on 6 contiguous  
parcels located both east and west of Wilson Road south of the  
intersection with Litchfield Town Farm Road in Litchfield,  
Connecticut, and both east and west of Rossi Road, south of the  
intersection with Highland Avenue in Torrington, Connecticut,  
and associated electrical interconnection.

Petition No. 1442

July 25, 2021

### PRE-FILED TESTIMONY OF STEVEN D. TRINKAUS

**Question One:** Please state your name for the record.

**Answer:** My name is Steven D. Trinkaus. I am the owner of Trinkaus  
Engineering, LLC.

**Question Two:** What is your involvement with this project?

**Answer:** I was engaged by Erin McKenna of 38 Bigos Road in Litchfield "McKenna"  
to assess the plans and reports submitted by petitioner SR Litchfield, LLC "SRL" and have  
reviewed the submissions regarding stormwater discharge, erosion and sediment control and  
forestry and submitted my opinions about the inadequacy of those plans and the impacts of clear  
cutting a portion of core forest to the Council with McKenna's other concerns. I have reviewed  
the submitted site plans and technical reports by the SLR for compliance with the requirements of  
the 2004 Connecticut Stormwater Quality Manual ("2004 Manual"), the 2002 Connecticut  
Guidelines for Soil Erosion and Sediment Control ("2002 Guidelines"), the Connecticut General  
Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with  
Construction Activities ("General Permit"), or the recently proposed updates to the General  
Permit, including Appendix I, which is specific to the installation of solar arrays, as well as  
compliance with civil engineering standards of care for design work. My review of the plans and

reports were to determine if the plans comply with the water quality standards of the State of Connecticut and general standards of good practice for this type of site development, and to apply my knowledge of forestry as well. That review led to my submission of this testimony.

**Question Three:      What degrees and professional licenses do you hold?**

**Answer:**               I earned a B.S. in forest management from the University of New Hampshire. I am a professional engineer licensed in Connecticut since 1988 and Maryland since 2017.

**Question Four:        What professional affiliations do you have?**

**Answer:**               I am a member of the American Society of Civil Engineers, the Connecticut Society of Professional Engineers, the Soil and Water Conservation Society of America, and the International Erosion Control Association.

**Question Five:        Please briefly describe your experience as a civil engineer.**

**Answer:**               Prior to opening my civil engineering business in 1990, I worked for John W. Fuller, PELS from January 1981 to December 1987, performing land surveying, design of roads/driveways, grading plans, erosion control plans and stormwater designs. I also appeared before municipal land use agencies to obtain approvals of the projects. I then worked for Groundworks, Inc. for two years, designing roads/driveways, grading plans, erosion control plans, on-site sewage disposal system and appearing regularly before municipal land use commissions. Since 1990, I have been self-employed as the principal of Trinkaus Engineering, LLC. I perform the same work as I did at Groundworks, Inc. and I have also become an expert in the field of Low Impact Development, which focuses on water quality and volume of runoff from development projects. I have appeared in Superior Court in Danbury, Stamford, and New London as an expert witness in land use cases. My CV provides more detail on my experience and is attached to this testimony as an exhibit.

**Question Six:           What is the purpose of your testimony?**

**Answer:**               This testimony described my findings and opinions with respect to SRL's submissions to the Council.

**Question Seven:       Please summarize your findings and opinion.**

**Answer:**               Generally, I found that SRL's submissions, including all revisions it has made in this proceeding, do not satisfy the requirements of the 2002 Guidelines, the 2004 Manual, or the General Permit, including proposed Appendix I for Stormwater Management of Ground Mounted Solar Arrays. The proposed project therefore does not comply with the water quality standards of the State of Connecticut or with general professional standards applicable to professional engineers. SRL has misrepresented and minimized the impact this project will have on the site and the surrounding properties, which include the watercourse called the Gulf Stream.

**Question Eight:       What is your most significant finding?**

**Answer:**               My most significant finding is that runoff from most of the solar array is not occurring as overland flow which is perpendicular to the rows of solar panels. Runoff is predominately occurring as shallow concentrated flow parallel to the downhill edge of a given row of solar panels to the east or west. As the slopes (both natural and regraded) are up to 16% (per the site plan), this concentrated runoff will cause erosion of the soil surface and will result in sedimentation at the end of the panel rows. SRL has not accounted for the increased amount of runoff volume which will be generated by the solar array. SRL is proposing several stormwater management practices being implemented on this site. SRL proposes Wet Swales, Infiltration Trenches and what appears to be Dry Detention ponds. Wet Swales are not a stormwater management detention system, they are a conveyance system. Infiltration Trenches are a rectangular stone filled trench whose primary purpose is to



infiltration runoff directed to them. Dry Detention Ponds are considered a Secondary Stormwater Practice by the DEP 2004 Manual as they are poor at addressing water quality of the runoff. All the above cited stormwater management practices are not designed in accordance with the DEP 2004 Manual; thus, the project is not in compliance with the requirements found in the CT DEP General Permit. This means that all the stormwater control features designed by SRL to handle runoff will be overwhelmed and will fail, resulting in erosion and sedimentation of the brooks and tributaries that lead directly to the on-site wetlands and watercourses, including the Gulf Stream.

**Question Nine:           What is that finding based on?**

**Answer:**                   My finding is based on my review of SRL's submissions, my more than 40 years of experience in civil engineering in the land development field, and my specific experience reviewing and preparing reports on the stormwater design failure of the Antares solar field in East Lyme, Connecticut, which was proposed and constructed by GRE/Greenskies.

**Question Ten:           What happened at the Antares project?**

**Answer:**                   The Antares project was approved by the Council in May 2013 (Petition No. 1056). It was located on a site adjacent to an unnamed tributary to Cranberry Meadow Brook, a tributary to the Niantic River. During construction of that project, the stormwater protections failed to such a degree that DEEP issued a Notice of Violation and the East Lyme Inland Wetlands Agency (ELIWA) issued a Cease-and-Desist Order due to the pollution of offsite wetlands and watercourses. I was hired by the owner of a neighboring property in connection with a lawsuit he brought against GRE/Greenskies due to damage to his property caused by the discharge from the Antares project. In connection with that work, I reviewed the site plans and related stormwater and erosion control plans, visited the site, and

issued several reports. My review of that project revealed that the stormwater design failed because (1) the solar panels were not considered to be impervious in the design process; (2) a large portion of the site was regraded, and the Soil Class used for post-development conditions was not stepped down at all from pre-development conditions; (3) runoff did not occur as overland flow perpendicular to the panel rows on the majority of the site, but instead as concentrated flow parallel to the panel rows; (4) topsoil was removed from the site and not brought back to facilitate the establishment of grass; and (5) no soil testing of any kind was conducted on the site. All these errors resulted in stormwater controls that were overwhelmed by rain events and led to off-site pollution.

**Question Eleven:      How does the design of this project compare to the design of the Antares site?**

**Answer:**                      The design of this project is unfortunately very similar. (1) most of the runoff is not occurring as overland flow which is perpendicular to the rows of solar panels. The runoff is occurring in a flow path which is more or less parallel to the panel rows in an easternly or westerly direction, not southerly. It is stated on page 8 of the Stormwater Pollution Control Plan by SRL that "Orientation of panels was considered with respect to drainage pattern, flow concentration, drainage area and velocity (i.e. rows perpendicular to the contours may result in higher runoff and flow concentration" which clearly states that SRL is acknowledging that stormwater runoff will be a problem because of this condition; (2) SRL is considering the grass under and between the solar panel to be in a Good Condition within the hydrologic model. This assumption has the effect of underestimating the runoff which will be generated by these vegetated areas as it takes three to four years for newly planted grass to become established with deep root systems to be considered in a Good Condition under the TR-55 Model; (3) there are areas where significant regrading of the site will be done. Many of these areas are where

proposed ditches will be constructed to convey runoff to a stormwater management practice. This regraded of the soils will eliminate or greatly reduced the infiltrative capability of the disturbed soils; (4) SRL has adjusted to Soil Class for post-development conditions to a value between two defined classes in the TR-55 Model (Urban Hydrology) used by SRL. Under TR-55 there are only four classes; A, B, C, or D which can be used by a designer and there are no provisions in TR-55 to consider a reduction of half a soil class.

With respect to #1, at Antares there was clear evidence that runoff from the solar panels was not infiltrating at all, but occurring as concentrated flow, causing erosion and resultant sedimentation. (See Figures 1 and 2 below.) A review of the SRL plans show that most of the runoff from the array will not flow perpendicular to rows of solar panels, but instead will flow parallel to the panel rows which will lead to the same concentrated flow conditions and problems as shown in Figures 1 and 2 below.

Appendix I to the General Permit has standards which are entirely relevant here, SRL has not complied with many sections of Appendix I. Specifically, Section (I)(1)(b) which requires that the configuration of the array is constructed in such a manner as to maintain sheet flow across the entire site. SRL is not in compliance with Section (I)(1)(c)(ii) as no level spreaders, terraces, berms have been used on slopes between 5% and 10%. SRL has not complied with Section (I)(1)(c)(iii) as no erosion control blankets or equal are provided on slopes greater than 8%. Lastly, SRL is not in compliance with (I)(1)(c)(iv) as there are no measures to provide permanent stabilization and non-erosive conveyance of runoff.

With respect to #2, the established of a full vegetated cover takes many growing seasons to occur so that the root systems are well established into the soil which can improve the infiltration of rainfall on that surface. A Hydrologic "Good Condition" is one that requires full vegetative cover over a minimum of 75% of the disturbed area and has a root component that

prevents the grass from easily being pulled up by hand. Newly planted grass simply does not meet this criterion.

With respect to #3, much of the proposed array is located on agricultural soils which consist of Paxton and Montauk, and Woodbridge soils, all of which are Class C soils, which have high silt and/or clay content. These soils are highly susceptible to compaction of the upper organic soil layers by the simple movement of driving small vehicles back and forth over them which would occur with the installation of the solar panels. As the compaction of the soil occurs, the infiltration rate is significantly reduced or eliminated, which means more runoff will occur from rainfall falling on the ground surfaces alone. Soil compaction also reduces the ability to establish a proper vegetative ground cover as the roots are not able to penetrate the compacted soil layers.

However, based on my knowledge of soils from my forestry degree and from my observations in the field, particularly at the Antares site, that is not adequate for the areas of the site that are to be cleared, stumped, *and* graded. Areas where the grade is being changed by cutting or filling of 2 feet or more will have little to no infiltrative capacity because the soil porosity (void spaces within the soil profile) is eliminated by that grading, so that there is no ability for runoff to infiltrate the soil profile. When I visited the Antares site for a site walk, the ground was as hard as concrete, such that it would be considered a Class D soil. That site started with a Class B soils. There is every reason to expect that the same will be true of this site based on SRL's plans because of the dominant presence of Class C soils.

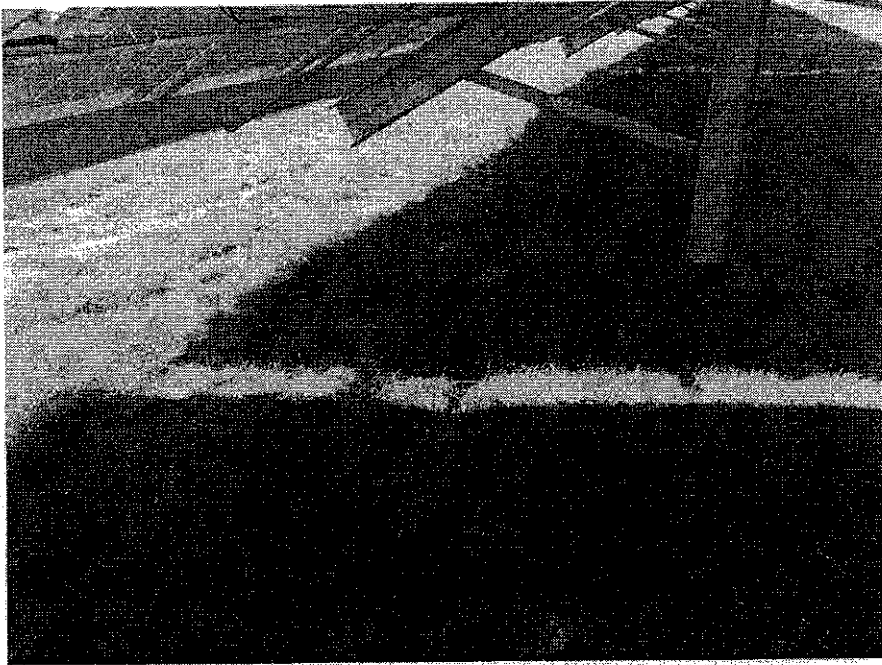


Figure 1 - Eroded path of concentrated Flow from runoff off solar panel (East Lyme)

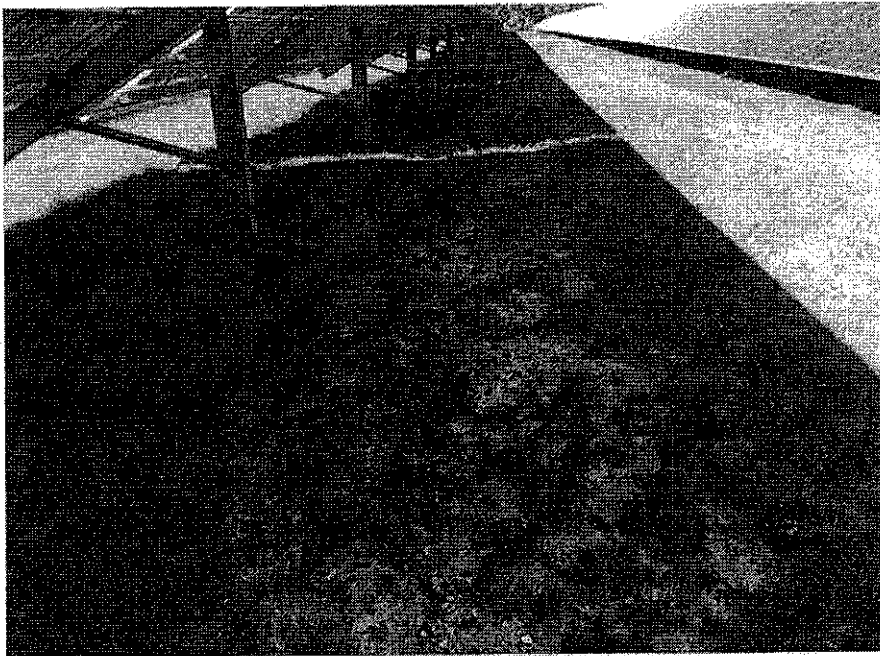


Figure 2 - Sedimentation of eroded material within area of array (East Lyme)

With respect to #4, no test holes have been conducted in the proposed array, especially those areas which will be regraded. The soil investigation conducted by Terracon was limited to infiltration testing for proposed infiltration trenches only is therefore inadequate for

understanding the geological conditions within the large areas of the solar panels. In addition, the locations of the soil testing are only shown on a reduced scale map of the site and are not shown on the actual site plans reflecting the locations of the stormwater basins and solar panels, making it difficult to relate the soil test locations to those of the stormwater basins and the solar array - which are the areas where soil investigation is most important.

**Question Twelve: Are there other aspects of the design concern you?**

**Answer:** Yes. The types of stormwater basins proposed by SRL are not in compliance with the design standards found in the 2004 Manual. None of the proposed stormwater basins contain the required components required by the 2004 Manual to address water quality. The missing components include forebays, long flow paths from inlet to outlet, micro-pools, and appropriate vegetation. This lack of compliance demonstrate that its plans do not comply with the water quality standards of the state or with good engineering practices. SRL also did no assessment of the pollutant loads to be generated by this project, which is especially important given the environmentally sensitive nature of the site.

**Question Thirteen: How are the stormwater basins not in compliance with state standards?**

**Answer:** They do not comply in many ways. SRL is using ponds, infiltration trenches and wet swales for stormwater detention. Wet swales are a conveyance practice per the DEP 2004 Manual, they are not a detention practice a proposed by SRL. Several shallow (less than 2' in depth) Infiltration Trenches are proposed by SRL on the site. SRL retained Terracon to perform infiltration testing in these practices. According to the Terracon report, the testing was done in compliance with Modified ASTM D6391. The primary purpose of the Modified ASTM D6391 standard is the following "*This test method is useful for measuring liquid flow through soil hydraulic barriers, such as compacted clay barriers used at waste containment facilities, for canal and*

reservoir liners, for seepage blankets, and for amended soil liners, such as those used for retention ponds or storage tanks". This is an inappropriate testing protocol being used on this site. Double Ring Infiltration testing (ASTM D3385 standard) is the appropriate protocol for determining infiltration rates for stormwater management practices. Additionally, it is a widely accepted engineering approach to use 50% of the slowest observed infiltration rate in the design of the practice. This was not done by SRL. The slowest observed rates for In-3 (0.02"/hr.) and IN-7 (0.02"/hr.) are below the minimum allowable infiltration rate (0.3"/hr.) found on page 11-P3-2 of the DEP 2004 Manual, thus Infiltration Trench 4 and Infiltration Trench 2b will not function as shown because of the extremely slow observed infiltration rate as noted above. It cannot be determined from the site plans if the four infiltration basins provide a three (3) foot vertical separation from the bottom of the infiltration practice to seasonal high groundwater as stated in the DEP 2004 Manual. Based upon my knowledge of Class C soils and the information provided by Terracon, this criterion will not be met as Class C soils have a seasonal high groundwater table between 18" and 24" below the ground surface. The site plans contain four infiltration trenches which appear to have forebays. But it cannot be determined by the plans or the reports if the forebays comply with the DEP 2004 Manual and provide a minimum of 25% of the Water Quality Volume.

None of the proposed stormwater basins (called ponds on the plans) have forebays that contain a minimum of 10% of the required Water Quality Volume, thus all the ponds are not in compliance with the DEP 2004 Manual. While all the ponds are proposed to have a permanent pool of variable depth, it cannot be determined what type of pond they are as provided for in the DEP 2004 Manual. The DEP 2004 Manual states that there are Wet Ponds (including Pocket Ponds), Micropool Extended Detention Ponds, Wet Extended Detention Ponds and Multiple Pond Systems, yet none of the ponds proposed by SRL provide the components required by these different types of ponds.

**Question Fourteen: Do you have any other comment on the stormwater basins proposed by SRL?**

**Answer:** According to the stormwater management report, it appears that SRL is considering the volume below the permanent pool water surface elevation as being available for storage. This is incorrect as the volume below the elevation of the lowest outlet will always be full of water and cannot provide any additional storage volume. This means that the reported reductions in peak rate are not correct.

Additionally, the pond designs by SRL do not provide a minimum 12" freeboard between the water surface elevation for the 100-year storm to the top of the pond embankment. This is a standard engineering requirement for the design of any type of pond to prevent possible overtopping and failure of the embankment.

Discharge points, where provided from proposed ponds, wet swale and infiltration trenches are located on moderate to steep slopes which currently do not receive runoff in a concentrated flow. The discharge of runoff from any of these stormwater management practices will cause erosion of the receiving upland slope and will result in the deposition of the eroded material in the downgradient wetlands and watercourses.

**Question Fifteen: What is your concern with respect to pollutants?**

**Answer:** Atmospheric deposition of pollutants on impervious surfaces is a substantial component of the discharge of non-point source pollutants. According to published literature, anywhere between 27% and 40% of nitrogen in non-point source runoff is from atmospheric deposition. Atmospheric deposition will occur on the solar panels themselves and be discharged in the runoff from a rainfall event. The proposed stormwater management practices proposed by SRL do not provide any type of water quality treatment which will



reduce non-point source pollutant loads, thus increased non-point source pollutant loads will be discharged to receiving wetlands and watercourses.

**Question Sixteen: Do you have any other comments on SRL's stormwater management report?**

**Answer:** Yes. The report states on in Section 2 (methodology) that rainfall amounts were taken from the CT DEP 2004 Manual. Rainfall amounts for design storms are to be taken from the NOAA 14 dataset. In this case, rainfall amounts from NOAA are substantially higher than the values used by SRL. The effect of this is that peak rates and runoff volumes will be higher than stated and the proposed basins will not function as intended. Appendix D to that report, which provides the hydrologic computations for the complete design of the temporary and permanent stormwater basins, raises several issues.

With respect to the ditches, SRL design data show that the flow velocities in all ditches will be higher than 3 feet per second (fps) which is the maximum velocity allowable to prevent erosion within the ditch itself, thus the ditches will be highly prone to erosion and failure.

**Question Seventeen: What is your opinion with respect to SRL's claims of complete compliance with state water quality standards?**

**Answer:** My opinion is that those claims cannot be true so long as SRL continues to make the same faulty underlying assumptions that resulted in failures of other solar array projects. I have reviewed the stormwater designs for solar arrays in East Lyme, Old Lyme, Pomfret, and Waterford, and in each case, the developer did not design the stormwater management practices being in compliance with the DEP 2004 Manual.

All the stormwater management designs for these solar arrays provide only the bare minimum protections to address the runoff. The bare minimum does not comply with the water quality standards of this state or with good civil engineering practices. The bare minimum

results in failures like that at the East Lyme Antares site, with cease-and-desist orders issued, and at the Woods Hill Solar, LLC site in Pomfret, with orders that eventually resulted in a 2018 consent decree with DEEP for violation of the General Permit that included a civil penalty of \$575,000 and a requirement to fund a supplemental environmental project for another \$287,500. Many of the stormwater designs are based upon incorrect assumptions that the runoff will flow occur in a certain manner as overland flow or will simply infiltrate into the ground. Infiltration is minimal if at all and runoff is flowing as concentrated flow. The “underlying assumptions” made by solar developers include the following: (1) runoff will always occur as overland flow and not become concentrated; (3) grading has no effect on the porosity of the soil and thereby, the infiltrative capacity of the soil; (4) the post-development vegetative cover under and between the rows of solar panels is in good hydrologic condition.

Design engineers also have the responsibility to design sites to meet the civil engineering standard of care under their professional license. A professional engineer in Connecticut must perform his or her work in accordance with Section 20-300-12 of Title 20 – Professional and Occupational Licensing, Certification, which states the following:

- (1) The engineer or land surveyor shall at all times recognize his or her primary obligation to protect safety, health, and welfare of the public in the performance of his or her professional duties. If his or her professional judgment is overruled under circumstances where the safety, health and welfare of the public are endangered, he or she shall inform his or her employer of the possible consequences and notify such other proper authority of the situation, as may be appropriate.

This section obligates the professional engineer to design systems that protect public health, safety, and welfare, which means that a minimal compliance with state water quality standards, and with Appendix I in whatever form it is eventually adopted, is not the sole concern of a design engineer, and should not be the sole concern of this Council.

**Question Eighteen: What is your opinion with respect to forestry issues?**

Answer: It is environmentally irresponsible to clear cut any area of deciduous forest for the installation of a solar panel farm. The natural wooded, undisturbed environment provides the following environmental benefits which will be completely lost if this project is approved and constructed as proposed. (1) Deciduous and evergreen trees provide interception of rainfall via branches and leaves, thus reducing the amount of rainfall which directly hits the ground surface. Some of the intercepted rainfall is absorbed by the leaves for use in photosynthesis. Other intercepted rainfall runs the branches and trunk to the ground surface, where it will infiltrate into the forest litter layer found on the ground surface. This environmental benefit will be fully lost by this project. (2) The velocity of the falling raindrops is greatly reduced by the interception of rainfall by the branches and leaves, and thus when the raindrops reach the ground, they do not cause erosion of the forest litter layer. This environmental benefit will also be fully lost by this project. (3) All growing vegetation (trees, shrubs, and herbaceous groundcover species) found in the forest absorb carbon dioxide from the air and release oxygen. Carbon from the carbon dioxide is stored in all woody vegetation and sequestered from being released. This function on wooded areas of the site will be fully lost because of this project. (4) As all trees and brush will be removed from wooded portion of the site, so will the stumps and then the soil surface will be disturbed.

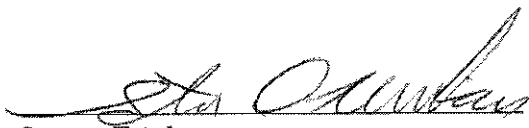
Additionally, the submitted plans show that portions of the site will be regraded to varying degrees. This grading disturbs and changes the natural soil properties which exist on the site. The soft forest litter layer will be removed, and the underlying soils will be compacted to varying degrees. This disturbance and regrading of the native soils causes two adverse environmental impacts. First, is the loss of the natural soils ability to absorb and sequester carbon. Second is the significant elimination of the soil to absorb and infiltrate rainfall.

Disturbance of the soils significantly reduces or eliminates the porosity (void spaces within the soil) of the soil. As the porosity is decreased or eliminated, the ability of the soil to infiltrate runoff is also reduced or eliminated. (5) The clear cutting of 75 acres will eliminate significant forest habitat for terrestrial and aquatic species which reside in these areas as well as those who use the wetland and watercourses on the site.

**Question Nineteen: What are your conclusions regarding SRL's proposed project?**

Answer: SRL's plans fail to comply with Connecticut water quality standards. The stormwater management plan does not meet Connecticut's water quality standards, as reflected in the 2004 Manual, the 2002 Guidelines, and the General Permit. Nor does it comply with the General Permit specifically Appendix I. As currently designed, this project will, within a reasonable degree of engineering certainty, lead to pollution of the waters of the state, and will harm the health of the Gulf Stream. The problems with this petition are so fundamental that they impact every aspect of the design, so that they cannot be fixed in a later development and management plan.

The statements above are true and accurate to the best of my knowledge.

  
Steven Trinkaus

7/25/21  
Date

**ATTACHMENT**

Exhibit A - CV of Steven Trinkaus

# EXHIBIT B

Michael W. Klemens, LLC  
Ecological Land Use Planning  
105 Main Street/POB 432  
Falls Village, CT 06031  
January 8<sup>th</sup> 2020

Chair Christine Altman  
Torrington Conservation Commission  
140 Main Street Room 324  
Torrington, CT 06790

Dear Chair Altman and Members of the Torrington Conservation Commission:

On behalf of The Association at Greenbrier, Inc. I have been asked to review the proposed application of TDF Enterprises' Notting Hill Gate as to its compliance with accepted practices for conducting a conservation analysis of a site proposed for development. I have consulted materials in the public record, the Torrington POCD amended August 14, 2019 (Effective August 27, 2019), and my own research conducted in the extensive Gulf Stream wetland on the east side of Rte. 202 as well as research I conducted 0.5 mi. SW of the site in similar habitat on the west side of Rte. 202.

Let me begin with questions about the land-use status of this site which I find confusing. The map on page 5.3 of the POCD indicates that this area is immediately adjacent to or within "committed open space." The map on page 6.3 of the POCD characterizes the same area as "dedicated open space." To be clear, this is not the small sliver of land that abuts the Litchfield town line, but within the large central area of the site where development is proposed. The Applicant's plans submitted in the wetlands record are at a much finer resolution than the maps in the POCD and illustrate a mosaic of developed parcels, intermingled with parcels of open space.

From an ecological viewpoint, the layout of the proposed development interspersed with patches of proposed open space, constitutes a classic example of habitat fragmentation. These proposed patches of open space will over time will be dominated by edge species commensal with human activities, and the overall ecosystem that includes these Class A head waters areas will be greatly reduced in ecological value and resiliency.

In summary, the proposed development in, near, or between parcels of dedicated and/or committed open space referred to in your recent POCD is very troubling. *This is a threshold question that demands your attention.*

Further important considerations for your analyses include following statements from the POCD:

Chapter 6 (Community Character):

6.2 The Gulf Stream wetland that extends on a large portion of the property that lies west of Rte. 202 is characterized as a potential scenic area that contains a "massive wetland complex" that includes the Gulf Stream and its "associated wetlands and upper reach tributaries." Note that both part of the "massive wetland complex" and its "associated wetland and upper reach tributaries" encompasses large portions of the proposed Notting Hill Gate development site.

Chapter 4 (Natural Resources):

4.7 The map that accompanies the natural resources discussion illustrates that a large portion of the proposed development site lies within the 100-year FEMA floodplain, contains multiple interconnected and disjunct areas of wetland soils, and has significant areas of steep slopes 15% or greater.

4.5 This discussion cautions as the "easy" development lands are not readily available, there will be increased pressure placed on sloping and/or rocky land, warranting increased attention "to the development of these sites to assure stabilized site drainage and water quality and to access downstream watershed impacts." This description is especially relevant to this site that contains tributary watercourses (requiring a minimum of 100-foot undisturbed setback) as well as potential vernal pools.

This site has not been adequately addressed as to its biodiversity. The record contains a study from 2007, which was updated by a single site visit outside the biodiversity activity season on November 19, 2012. As a rule of thumb, studies that are more than a decade old are considered to be outdated and need to be repeated. This is especially crucial at this site which is in various stages of early to mid-succession, where thirteen years can radically change the canopy structure, cover and species composition.

There has been an inadequate evaluation of the potential use of the site by vernal pool species. A full analysis of the site's potential to serve as habitat for vernal pool obligate and facultative species is required, including not only the disjunct wetlands described in Pawlak's 2007 report, but the presence of cryptic vernal pools within the swamp system on site. Two vernal pool indicator species occur in abundance within the Gulf Stream wetland on the east side of Rte. 202. These are the spotted salamander (*Ambystoma maculatum*) and wood frog (*Rana sylvatica*) as well as the diminutive four-toed salamander (*Hemidactylium scutatum*), the latter is considered a vernal pool facultative species. In addition, spotted salamanders have been found proximal to the subject parcel just over the town line in Litchfield, and both wood frogs and spotted salamanders were found in similar habitats on the Gagarin Place proposed development—approximately 0.5 mi SW of this site on the west side of Rte. 202.

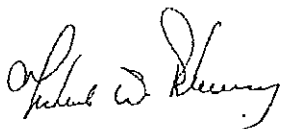
The site appears very similar in its geology and scarified gravelly soils with multiple seepages as the Gagarin Place proposed development. At the Gagarin Place development site, the combination of scarified gravelly glacial soils laced with multiple seepages contained the State's largest occurrence of the listed pale green orchid (*Platanthera flava*). This type of habitat appears to occur on the subject property, and like Gagarin Place, is the result of anthropogenic activities. Given the proximity of the two sites, and ecological similarity, it would not be unreasonable to anticipate that the pale green orchid occurs on the subject property, and therefore a botanical survey focused on this and other species that use gravelly, open seepage slopes should be conducted.

Chapters 7 and 9:

Finally, although beyond your specific purview, I want to make note of the following inconsistencies with the recent POCD. 7.6 that focuses on the need to provide housing density and diversity downtown, including housing for seniors that is walkable and accessible to public transportation and 9.6 and 9.7 speak to preserving the existing character of single-family residential zones and discouraging infill development in suburban and rural areas.

This proposed senior housing project is located at the very edge of Torrington, in an ecologically sensitive headwaters area, has been inadequately studied from a natural resource perspective as to its biodiversity, and to its potential to adversely impact the wetlands on site and downstream. The application is relying on an outdated (2007) Natural Diversity Data Base determination and the development of this site appears to contradict its status as dedicate/committed open space as shown on several maps presented in your recent 2019 POCD.

Sincerely,



Michael W. Klemens, PhD

Cc: Dawn McKay, CT-NDDDB

Attachment: CV

Michael W. Klemens, LLC  
Environmental Land Use Planning  
105 Main Street/POB 432  
Falls Village, CT 06031

February 19, 2020

Gregory Mele  
Chair, Planning & Zoning Commission of the City of Torrington  
140 Main Street  
Torrington, CT 06790

Dear Mr. Mele:

I have been engaged by The Association at Greenbriar, Inc. and Catherine D. Mollica to review the proposed development and its impact on important environmental resources on and in the vicinity of the Property. Unfortunately a previous engagement on the opposite side of the State has precluded me from attending your meeting tonight and I look forward to a subsequent opportunity to expand upon these points in person before your Commission.

Attached hereto is my letter to Christine Altman, Chair of the Torrington Conservation Commission, dated January 8, 2020, together with my *curriculum vitae* and bibliography of publications. That letter discusses many of the proposed development's conflicts with the recently approved (2019) Torrington Plan of Conservation and Development ("POCD").

As the current Chairman of Salisbury's Planning and Zoning Commission, I recognize the importance of reaching a consistency determination with the POCD as part of the deliberative process of issuing a special permit/special exception by any municipal agency. Torrington's POCD is a document that speaks directly to the issues presented by the proposed development, and that POCD guidance is encapsulated in part in the decision-making criteria for the issuance of a special exception/special permit as follows.

8.2.2 B 1 + 5 + 6: The proposed development does not create a harmonious relationship between the abutting single family residential neighborhoods, including Greenbriar, and the multifamily, multistory apartment buildings proposed. The relationship in terms of scale and proportion of the proposed buildings is out of character and disharmonious when compared to the adjacent single family residential developments that abut the site both in Torrington and Litchfield.

8.2.2 B 3: The Applicant has not demonstrated and cannot demonstrate that the proposed "driveways" into the site can safely accommodate the volume of traffic proposed and that these increased traffic volumes will not be hazardous and detrimental



to the character and the zone of the neighborhood (i.e., the existing residential Greenbriar neighborhood). Will the current roadway structure of this existing residential subdivision safely accommodate the egress and ingress of the residents of these proposed apartment buildings? Can the safety of the future apartment residents be assured with the internal roadways being built to driveway standards? The current layout of the existing residential development is that each single family house has its own short driveway that connects directly to the internal roads that were built to Torrington standards. The creation of a shared driveway serving multiple residences is disharmonious with the pattern of the existing residential neighborhood and will significantly alter the volumes of traffic in and out of the existing residential neighborhood. Will these existing roadways and proposed multifamily "driveways" safely accommodate buses and similar pooled transportation vehicles that are generally associated with senior housing?

8.2.2 B 7 (b+c) + 10 + 12. As both a planner and an ecologist, I can attest as previously stated (see letter to Christine Altman, January 8<sup>th</sup> 2020) that I have serious concerns about the maintaining the ecological integrity of the headwaters to the Gulf Stream which encompass the site. Apart from the mapped un-named tributaries, the entire site is a bowl that collects water and feeds into the tributaries that in turn feed directly into the Gulf Stream, a locally significant "massive wetland complex" as described in the Torrington POCD. I understand that at the Conservation Commission's site walk on January 19<sup>th</sup> the participants observed surface water coalescing into streams and rivulets flowing down gradient toward the two mapped tributary streams. This is evidence of the sensitivity and importance of headwaters areas that collect surface runoff. Given the friable nature of the gravelly glacial soils that compose the site, there are also significant volumes of sub-surface waters flowing into those tributaries. Headwaters areas are usually associated with more steeply graded topography as is the case on the proposed development site. Such areas require a minimum of 150 feet undisturbed watercourse buffers that are intact (i.e., vegetated) to protect the downstream wetlands and watercourses from pollution by sedimentation (which is a significant risk because of the highly erosive nature of the soils on the site) as well as the byproducts of development including herbicides, pesticides, fertilizers, gasoline and oil spills, as well as floatables.

Map 3438: I have reviewed the conservation easements set forth on Map 3438. In my professional opinion, the proposed development violates the terms of the easements because it proposes activities which will disturb the natural habitat of wildlife in the wetlands for the following reasons:

A: It will fragment the habitat into isolated patches, rendering reduction in species diversity and facilitating the establishment of invasive species that will out-compete native species and lead to the establishment of disturbance tolerant species at the expense of the more ecologically sensitive species.

B: It will degrade the integrity of the wetlands and watercourses by locating development much too close to these sensitive features, with inadequate buffering. The

20-foot buffer harkens back to a time when we knew little about the need for robust buffers, especially in steeply graded headwaters areas. In fact, the 20-foot buffer is in direct conflict with the requirement to not disturb the natural habitat of the wildlife in the wetlands.

C: If any of these wetlands are vernal pools (which has not been disproven through field work) all disturbances within 750 feet of these pools could reasonably be anticipated to disturb the wildlife breeding within the wetlands, as well as the critical nutrient cycling that occurs within vernal pools.

The letter of Joseph F. Risoli, PE (January 16<sup>th</sup> 2020) outlines many of the problems in evaluating the impacts of the proposed development as it pertains to storm water management. From my perspective as an ecologist, the placement of the roadways and the development is much too close to the streams, there are cuts and fills associated with driveways that criss-cross wetlands and watercourses, and the proposed creation of storm water detention basins and other aspects of the treatment train within wetlands or even within wetland/watercourse buffers will not adequately protect the integrity of the downstream wetlands and watercourses. Excavating within wetlands should be considered an impact at the local level, and certainly is considered an impact of disturbance and filling of wetlands by the Army Corps of Engineers (ACOE). As the entire site consists of braided channels and watercourses that feed directly into the Gulf Stream, the hydrology of site is considered waters of the United States for regulatory purposes. There is no evidence in the record that the Applicant has initiated parallel discussions with the ACOE concerning this project, which is especially troubling as the ACOE has had a long history of attempting to cure violations of the Clean Water Act that have previously occurred on this site.

For the reasons stated above this proposal (at minimum) triggers the following evaluative factors contained under 8.2.2 C:

2+3 directly speaks to the compatibility of the proposed action with the neighborhood and the long term impacts to the neighborhood that the proposed action would cause.

4 speaks directly to the capacity of the surrounding streets to accommodate traffic, especially as the traffic would exit off of Route 202 and use streets that are located within a residential neighborhood to access the proposed multi-family apartment complex. These residential streets serve only the neighborhood. They have no through-street function at present.

6 speaks directly to the natural environment. As the application made to the Inland Wetland Commission and the referral to the Conservation Commission are based on outdated and deficient studies as to the site's natural environment, absent up-to-date comprehensive studies, none of these agencies, including Torrington's Planning and Zoning Commission, can reach a determination on this issue.

8 speaks to storm water management. Absent a storm water report as noted in Mr. Risoli's letter, one cannot evaluate properly the storm water management systems. As an ecologist I can tell you without equivocation that the development is placed much too closely to the watercourses of the site, there are cuts and fills in and near wetlands, and as such, even lacking the storm water report, based on geographic placement of these structures, the proposed development is reasonably likely to create unreasonable harm to the downstream wetlands of the Gulf Stream.

I also note that the Commission (top of page 132) may deny a special exception based on any of the above factors and 8.2.7 that "failure of the applicant to provide necessary information shall be grounds for denial of the special exception."

The preponderance of missing data alone should be reason to deny, but as stated above, absent that information the spatial layout alone of the proposed development will be reasonably likely to create unreasonable harm to the headwaters of the Gulf Stream. The highest and best use of this land is protect the headwaters that feed into the Gulf Stream by strictly adhering to the conservation easements that are illustrated on Map 3438 and buffering those wetlands with terrestrial buffers that are based on contemporary scientific knowledge.

Sincerely,



Michael W. Klemens, PhD

Attachments (2):

Letter to Christine Altman 1/8/2020  
CV

Michael W. Klemens, LLC  
Ecological Land Use Planning  
105 Main Street/POB 432  
Falls Village, CT 06031

July 12, 2020

Mr. Gregory Mele  
Chair, Planning & Zoning Commission  
City of Torrington  
140 Main Street  
Torrington, CT 06790

Dear Mr. Mele:

I have reviewed the recent submissions of the Applicant (revised plans) and the two letters submitted Mr. George Logan of REMA on behalf of the Applicant. The arrangement of my responses should not be construed as providing an implied ordination of priority.

The Army Corps of Engineers (ACOE) has an unresolved violation that encompasses the entire Greenbriar project (Phases 1, 2, 3, and 4) encompassing 154 acres. This violation included acreage of wetland fill and disturbance located on Phases 1 and 2. I refer you to your regulations 7.1.1.A which states that development must not unduly hinder or be hindered by the adjacent properties.

Mr. Logan's response to allegation 11c of the intervention provides the first formal confirmation in the record that the Applicant is in discussion with the ACOE concerning remediation work that has not been completed. It is procedurally troubling to even contemplate that the Applicant and the ACOE are unilaterally negotiating the closure of an open violation that involves not only their property but the property of others (i.e., Phases 1 and 2). By allowing Phases 3 and 4 to be developed separately, and negotiate a settlement agreement without the participation of Phases 1 and 2, precludes Greenbriar Association's ability to remediate wetlands losses on Phase 1 and 2 on those lands **and to be a party in a settlement that involves violations on their property**, including areas that are within a conservation easement held by the Greenbriar Association.

Therefore, in my reading of 7.1.1.A the use of Phase 3 and 4 for a separate un-related development **unduly hinders** Phases 1 and 2 (aka the Greenbriar Association) from using those lands to comply with what the ACOE may require of Phases 1 and 2 for their portion of the violation. Representative(s) of Phases 1 and 2 have *de facto* been excluded from the negotiations to "resolve any outstanding issues" of the violation that encompassed 154 acres (Phases 1-4). Apart from the inappropriateness of these negotiations from the aspect of fundamental fairness, Phases 1 and 2 are being **unduly**

**hindered** by the development of Phases 3 and 4. The appropriate and transparent manner in which to handle this matter is to first close out the violations on Phases 1-4 before considering a *de novo* permit for the proposed TDF development.

There are repeated references in the application to the "fact" that this application is superior to that proposed in 2012 in terms of potential impacts to stormwater runoff into the Gulf Stream. This is a red herring. Both of these developments were and are reasonably likely to cause unreasonable harm to the Gulf Stream wetlands that lie immediately downstream of the site. This massive wetland complex is deemed a significant and sensitive resource in your POCD (see my earlier correspondence appended to this letter). Mr. Logan's assertion in his response to Allegation 12 mis-states the jurisdiction of the Planning and Zoning Commission. In matters of stormwater management and its impact to adjacent and downstream resources the authority of the Planning and Zoning Commission is quite clear, and is so stated in the criteria for a special exception which is sought by the Applicant. The nexus between these issues and the granting of a special exception are stated in my previous correspondence attached to this letter.

The engineering on this site concerning storm-water appears very basic consisting of detention basins with overflow outlets. There appears to be no attempt to infiltrate stormwater, to use a stepped treatment train, or to use LID techniques. It's a rudimentary and inadequate approach to stormwater management given the proximity to the wetlands. In my opinion, if one wishes to use such simple and non-redundant stormwater controls, one needs to increase the separation of the development 100-150 feet from these watercourses. Proximal development as proposed requires state of the art engineering. I was recently involved in a matter in the Town of Mansfield where a portion of a multi-family development was proposed close to, within 20 feet, of headwater wetlands. In that application, storm water detention basins were but step one of the treatment train, followed by leaky berms and level spreaders with infiltration the primary goal to protect the headwater wetlands. In order to assure the agency that these highly engineered treatment trains would effectively protect the downstream wetland resources extensive soil tests (borings) were conducted and three public hearings were required. A significant part of each of these public hearings was devoted to the ability of the soil's hydraulic capacity, and the efficacy of leaky berms and level spreaders--including diagrams and photographs --to assure the agency that they would work properly and result in no adverse impact to the downstream receiving wetlands.

This matter in Mansfield was contested, both by an intervener (the University of Connecticut) as well as several abutters. The review agency hired an independent third-party reviewer to opine on the applicant's and intervener's claims and data. Why hasn't the City of Torrington taken this step? The Northwest Connecticut Conservation District could conduct such a peer review as could many other firms that specialize in third party reviews (e.g., LandTech).

Mr. Logan's arguments about degraded site conditions and being former pasture land makes a strong case for greater separation from the watercourses, not an excuse for proximal development. He confirms that the sites watercourses are on erodible soils and there are already sediment deposits in the streams. The circular argument that because there is degradation to the site and its watercourses, development should be allowed to proceed contiguous to these wetlands is flawed. The opportunity for restoration of these areas to improve the water quality and control sediment inputs to the Gulf Stream is not addressed and were not addressed in either the 2012 plan nor in the current plan you are considering. Mr. Logan proceeds with a statement that only 150-foot buffers might be necessary for "exceptional, pristine hillside seeps and headwater wetlands and watercourses, but are far from necessary at this site." He states that the proposed buffers are more than sufficient to protect the "existing ecological integrity" of the site's wetlands and watercourses, which by his own admission are moderately eroded and sediment laden.

However, based on the presence of dusky salamanders (*Desmognathus fuscus*) reported both by Mr. Pawlak (2007, 2012) and Mr. Logan (2019, 2020), I find it difficult to support Mr. Logan's conclusions concerning the greatly degraded state of these on-site wetlands and watercourses. Mr. Logan overstates this point as his conclusions are based on sediment, some stream scouring, and invasive plants, not any data as to water quality and temperature or macroinvertebrates. The presence of dusky salamanders indicates high quality seepage fed watercourses and wetlands. Klemens, 1993:56-57 The Amphibians and Reptiles of Connecticut and Adjacent Regions, Bulletin 112 CT Geol. and Natural History Survey) reported that dusky salamanders have disappeared from many sites in the State due to alterations in stream hydrology. This species is dependent upon high quality, thermally stable, groundwater-fed seepage wetlands. These habitats are especially vulnerable to scouring, thermal alteration, and flashiness resulting from the placement of impervious surfaces (building, roads, parking lots) adjacent to the watercourses and small seepage wetlands inhabited by this species. Understanding the quality of these wetlands from a biological perspective supports my position that this site is a bowl, where water moves through glacial till and breaks out into seepages (Wetlands 2 and 3 as well as seasonal breakouts noted in the January 2020 site walk) and that these all coalesce into Wetland 1 which is the primary headwaters of the Gulf Stream.

I bring these inconsistencies to your attention to support my request that the City of Torrington engage an appropriately-qualified independent third party reviewer to advise you in this matter where there are such divergent claims between experts as to the reasonable likelihood of unreasonable harm to the Gulf Stream wetlands of which this site is the headwaters.

I mentioned earlier that there are already conservation restrictions on portions of Phase 3 and 4 which prohibit the disturbance of natural habitat and wildlife in the wetlands in any manner. The conservation restrictions on Map 3438 which has been submitted into

the record are quite explicit, in particularly prohibiting "[disturbing] the natural habitat of wildlife in the wetlands in any manner."

1. Previous studies conducted by Mr. Pawlak in 2007 and "refreshed" by a single site visit in November 2012 are inadequate to fully assess the range wildlife species on the site. It would have been useful to have Mr. Pawlak (who still maintains an active practice) to address my comments concerning the adequacy of his report, as opposed to Mr. Logan who has been brought into this matter recently.
2. Mr. Logan is the consultant for a proposed solar project contiguous to this site encompassing similar habitat. He has received a letter from Connecticut's Natural Diversity Data Base (NDDB) that requests studies on that site for various listed species, including wood turtles and the pale green orchid. I also point out for the record that this application is relying on an outdated (i.e., expired) determination by NDDB from 2007. There is no current NDDB review of this project.
3. In the absence of comprehensive and up-to-date wildlife studies, nor a current NDDB review, it is impossible to reach an informed conclusion that the development of the site as proposed, including the removing of large amounts of invasive vegetation, will not affect wildlife in the wetlands, or wildlife in general.
4. Mr. Logan states that the site "is already much infested with invasive species" ignoring the fact that these plants are stabilizing the highly erosive soils and have valuable habitat function. While there is a desire to convince regulators to remove "invasives" and thereby return the land to a state of pre-Columbian purity, such thinking is seriously flawed. While invasive plants are ecologically destructive in certain instances, they also provide habitat and cover for many species, including State-listed species. For example, a wood turtle doesn't make a distinction between cover provided by multiflora rose (invasive) or bayberry or steplebush (natives). What the wood turtle "knows" is that wholesale removal of invasive ground cover leaves them vulnerable to a host of impacts, including altered thermal regimes and heightened vulnerability to predation and collection.
5. The vernal pool study submitted by Mr. Logan is largely focused on Wetland 4. It pays scant attention to the potential for embedded (i.e., cryptic) vernal pools in the lower portions of Wetland 1. A total of seven hours (over two seasons) in the field (much of the time focused on a single disjunct wetland) is inadequate to assess the potential for imbedded vernal pools in Wetland 1, which will be receiving most of the run off and impacts from the proposed development. As vernal pool species have been documented adjacent to the lower portions of Wetland 1 in the Town of Litchfield, and as I have personally observed and documented large populations of vernal pool species in the nearby and contiguous Gulf Stream wetlands, it is critical that a more comprehensive survey of Wetland 1 be conducted. Mr. Logan first visited the site on April 13, 2019 and again on May 17,

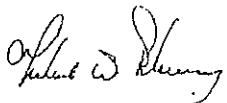
2020. Based on my field notes and those of other herpetologists, wood frog breeding has generally been completed a month earlier. By mid-April the choruses of wood frogs would have been long silenced, and the egg masses hard to discern as they would have hatched and the gelatinous material that defines the egg masses would have dissolved. It was for this reason that Greenbriar Association (at the February 2020 public hearing) requested that the Commission conduct a site walk open to the public. That request was not granted. Greenbriar Association also gave notice to the Applicant that it intended to conduct an inspection of the property pursuant to its conservation easements, and was threatened by counsel with criminal trespass complaints. Therefore, the Planning and Zoning Commission is hampered in its decision-making, as neither an independent third-party reviewer nor the Intervener has had the opportunity to gather data to corroborate or dispute the conclusions of the Applicant.

6. Why does this matter? Simply because if there are as of yet unmapped embedded vernal pools within Wetland 1, one cannot determine if the buildings as placed will lie within the 750-foot critical terrestrial habitat that surrounds each of those pools as per Calhoun and Klemens (2002): Best Development Practices for Conserving Vernal Pool Amphibians in the Northeastern United States. In short, one cannot, based on Mr. Logan's report assess terrestrial impacts to vernal pool species, which will affect the ability of these species to reproduce in pre-development numbers in these wetlands, therefore contravening the conservation restrictions on Map 3438.

Section 5.16 of your regulations requires the identification of specimen trees. There are no specimen trees indicated on the plans, nor any reference that the site has been surveyed for specimen trees.

In conclusion, this is a complex application on many different fronts. While my focus is on the ecology of the site and those areas downstream of the proposed development, these issues directly intersect with legal and permitting issues concerning the existing conservation restrictions on the site as well as the ACOE and CT-DEEP permitting processes. I would again strongly urge the Torrington Planning and Zoning Commission to retain a third-party independent reviewer to assist them in sorting through these complex issues and the divergence of expert opinion.

Sincerely,



Michael W. Klemens, PhD

Attachments: 3