

**PETITION NO. 1056** - GRE 314 East Lyme, LLC petition for a } Connecticut  
declaratory ruling that no Certificate of Environmental }  
Compatibility and Public Need is required for the proposed } Siting  
construction and operation of a 5.0 MW Solar Photovoltaic }  
Renewable Energy Generating Project located on Grassy Hill } Council  
Road and Walnut Hill Road, East Lyme, Connecticut.

May 16, 2013

## Findings of Fact

### Introduction

1. GRE 314 East Lyme, LLC (GRE), in accordance with provisions of Connecticut General Statutes (C.G.S.) § 16-50k and § 4-176(a), submitted a petition (Petition) to the Connecticut Siting Council (Council) on December 17, 2012 for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction and operation of a 5.0 megawatt (MW) Solar Photovoltaic Generating facility located on Grassy Hill Road and Walnut Hill Road in East Lyme, Connecticut. (GRE 1, p. 1)
2. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on March 14, 2013, beginning at 3:00 p.m. and continuing at 7:00 p.m. at the East Lyme Town Hall, 108 Pennsylvania Avenue, East Lyme, Connecticut. (Transcript 1 – March 14, 2013 at 3:00 p.m. [Tr. 1], p. 2; Transcript 2 – March 14, 2013, at 7:00 p.m. [Tr. 2], p. 2)
3. The Council and its staff conducted an inspection of the proposed site on March 14, 2013, beginning at 2:00 p.m. (Council Petition 1056 Field Review Notice dated March 4, 2013)
4. GRE is the party in this proceeding. (Tr. 1, p. 3)
5. GRE is part of Greenskies, a Middletown Connecticut company founded in 2008. Greenskies has developed solar projects in Connecticut, Massachusetts, and New Jersey, mostly rooftop installations associated with commercial properties. (GRE 1, p. 2, Tab A)
6. GRE's project was submitted to the Department of Energy and Environmental Protection (DEEP) in December of 2011 in response to a Request for Proposal (RFP) for zero emission Class I renewable energy source generation facilities. DEEP's RFP was issued in accordance with the requirements of Section 127 of Public Act 11-80, *An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future*. GRE's proposal was one of two projects selected out of 21 proposals through DEEP's RFP process. (GRE 1, pp. 2-3, Tab A)
7. GRE has a 20 year contract to provide electricity generated from the solar field to The Connecticut Light and Power Company (CL&P). (Tr. 1, p. 59)
8. The project would be a "grid-side distributed resources" facility, as defined in C.G.S. § 16-1(a)(43), as it involves "the generation of electricity from a unit with a rating of not more than sixty-five megawatts that is connected to the transmission or distribution system. . . ." (GRE 1, p. 20)
9. The project would generate 6,400 megawatt hours of electricity per year, assuming a capacity factor of 13 percent. (GRE 1, p. 10; Tr. 2, pp. 44-45)

10. The Council, in accordance with C.G.S. § 16-50k(a), can approve the project by declaratory ruling, as long as such project meets DEEP air and water quality standards. (GRE 1, p. 1)
11. GRE provided notice of its intent to file a petition with the Council to abutting property owners. (GRE 1, p. 20; GRE 2, R. 1)
12. GRE provided notice of its application to all state and local officials and agencies identified in C.G.S. § 16-50l (b). (GRE 2, R. 1)
13. On March 1, 2013, GRE installed a sign at the entrance driveway to the property along Walnut Hill Road in East Lyme. The sign measured four feet by six feet and gave the date of the public hearing and contact information for the Council. (GRE 4)
14. Public notice of the petition filing to the Council was published in The Day on February 22, 2013. (GRE 3)

#### State Agency Comments

15. Pursuant to C.G.S. § 16-50j(h) and R.C.S.A. 16-50j-12, the Council solicited written comments and consultations from all the state agencies identified therein. (Council Correspondence dated January 25, 2013)
16. In response to the Council's solicitation, the Department of Transportation (ConnDOT) submitted a letter indicating they had no comment. (ConnDOT letter dated March 1, 2013)
17. In response to the Council's solicitation, DEEP submitted written comments on March 13, 2013. In its comments, DEEP reviewed the project's potential for impacts to wetlands, wildlife and water quality. It also raised questions about the project's visibility and possible environmental impacts from maintenance procedures. DEEP provided further comment on April 10, 2013. (DEEP Letter dated March 13, 2013, DEEP letter dated April 4, 2013.)
18. The Council did not receive comments from any other state agencies. (Record)

#### Municipal Consultation

19. Prior to filing its petition with the Council, GRE conducted numerous meetings with local officials to inform them of its plans. (GRE 1, p. 5)
20. A public information meeting was held in East Lyme on December 5, 2012. (GRE 1, p. 5)
21. Copies of the petition were provided to the Town of East Lyme and the Town of Montville, as Montville is within 2,500 feet of the proposed site. The Town of Montville requested additional plans which GRE subsequently provided. (GRE 1, p. 5; GRE 2, R. 2)

#### Property Description

22. The proposed project is located on five contiguous properties totaling 75.6 acres at 40 and 44 Grassy Hill Road, 89 Walnut Hill Road, Walnut Hill Road Rear, and the Ader parcel in East Lyme, Connecticut (refer to Figure 1). (GRE 1, pp. 3-4)

23. The original DEEP RFP depicted the site as encompassing only the 44 Grassy Hill Road and Walnut Hill Road Rear properties. The other properties, already under contract, were purchased by GRE and included as part of the project when it became known more space would be needed to accommodate the proposed solar field. (GRE 1, Tab B; GRE 2, Q. 13; Tr. 1, pp. 52-54)
24. Elevations range from 190 feet above mean sea level (amsl) at the southwest portion of the property to 333 feet amsl at the north end of the property. Existing slopes range from 2 to 25 percent. (GRE 1, Tab E, p. 2)
25. The property consists of a mix of woodlands, wetlands, and old field areas and has not been used since 2008. (GRE 1, pp. 4, 7)
26. A wide forested wetland corridor traverses the center of the property in a north-south direction. Old field areas are located east and west of this wetland corridor. (GRE 1, Tab d, GRE 2, R. 8)
27. Woodland is primarily located on the southern portion of the property, known as the Ader parcel. Several abandoned structures located on this parcel would be removed to develop the solar field. (GRE 1, Tab d, GRE 2, R. 8; Tr. 1, p. 17-21; DEEP comments of March 13, 2013)
28. An occupied residence is located at the north end of the 40 Grassy Hill Road parcel. An existing 1,300-foot long driveway accesses this residence and extends to the abandoned fields where the project is proposed. (GRE 1, Tab C; Tr. 1, pp. 17-21)
29. The property has two sections of frontage on Walnut Hill Road. One is at 89 Walnut Hill Road that contains an abandoned residence, known as the "Tinker House". The other is a 160-foot wide area adjacent to 65 Walnut Hill Road that contains an existing 1,200 foot long dirt road that access the Ader Parcel (refer to Figure 1). (GRE 1, Tab C; GRE 2, R. 8)
30. Existing access to the property is the driveway serving the residence at 40 Grassy Hill Road, the driveway at 89 Grassy Hill Road, and from the dirt access road adjacent to 65 Walnut Hill Road that enters the southern portion of the property. (GRE 1, Tab C - Sheets EC-2, EC-3)
31. The property is within the Town of East Lyme rural district zone. (GRE 1, p. 7)
32. Land use to the north, south and east is a mix of fields and woodlands. Developed residential properties are predominately west of the site. (GRE 1, p. 7)
33. The property was selected for the project due to its large size, the ability to avoid wetlands and other environmentally sensitive areas during development, favorable topography and proximity to electrical infrastructure and roadways. (GRE 1, p. 7)

#### Solar Field Equipment

34. GRE proposes to install 17,500 photovoltaic (PV) modules at the site. GRE refers to the solar installation as the "Antares Solar Field". (GRE 1, pp. 1, 3)
35. The proposed PV modules are rated at 220-240 watts. (GRE 1, Tab B)

36. The PV modules, or solar panels, would utilize mono- or polycrystalline technology and are rated at 17-20 percent efficient. The solar panels are projected to have a degradation rate of 0.5 percent per year although some studies have shown a much lower rate. The solar panels are projected to produce 80 percent of their rated capacity at year 25. (GRE 1, Tab B; GRE 2, R. 14; Tr. 1, pp. 69-72)
37. Approximately 80 percent of the electricity produced at the solar facility would be produced during peak demand hours, generally between 12:00 p.m. and 8:00 p.m. during the summer. Peak demand would be greatest during hot summer days. (GRE 2; p. 5)
38. Although the solar field has an anticipated service life of 25 years, GRE would seek to continue generating electricity if the solar panels were still operating efficiently. (GRE 1, p. 9; Tr. 1, pp. 69-72)
39. The solar panels would be removed and recycled at the end of their useful life. Associated equipment would also be removed, leaving the property open to other uses. (GRE 2, R. 19)
40. If new PV technology is developed during operation of the project that allows for greater PV efficiency, and thus more power from the site, GRE would examine whether investing in such technology, and revising power production agreements, is economical. (Tr. 1, pp. 70-73)
41. The solar panels would be installed on fixed-position, steel mounting equipment and angled to the south. (GRE 1, Tab B; GRE 9)
42. Eight inverters would be installed throughout the solar field, mostly on the west end of the solar field. Bollards would be installed to protect the inverters from vehicle collision. (GRE 1, Tab C, Sheet SE; Tr. 2, p. 57)
43. The inverters would be capable of remotely monitoring system performance. Any problems with the electrical system would trigger an electronic alarm to GRE personnel. (Tr. 1, pp. 86, 90-91)
44. The inverters would be connected to a distribution switchgear cabinet mounted on a concrete pad on the Tinker House portion of the property. (GRE 1, Tab C, Sheet SE)
45. The project would interconnect the distribution switchgear cabinet with CL&P's 23-kilovolt distribution system on Walnut Hill Road via overhead lines mounted on three wood poles. GRE is currently preparing an interconnection feasibility study to determine the exact interconnection point. The interconnection would be made in accordance with CL&P technical standards and the requirements of the State of Connecticut, ISO-New England, and the Federal Energy Regulatory Commission. (GRE 1, p. 9, Tab C, Sheet SE; Tr. 1, pp. 36, 45-46)
46. At the point where the distribution switchgear is connected with the distribution network, there would be a utility class circuit breaker equipped with a multifunctional relay to serve as an Interconnection Interruption Device. Additional monitoring equipment would be installed to protect the solar generating system during an outage. (GRE 1, p. 8)

### Solar Field Site Description

47. The project area would be located on 35 acres west of the wetland corridor on the property, primarily on the 44 Grassy Hill Road, Walnut Hill Road Rear, and Ader parcels. The solar panels would cover an area of 27 acres (refer to Figure 2). (GRE 1, Tab C; Tr. 1, p. 51)
48. The limit of construction abuts a majority of the west property line. GRE would clear all vegetation up to the property line. The abutting parcels west of the property are developed with residences. (GRE 1, Tab C, Sheet GU; Tr. 1, p 25)
49. The solar field would be enclosed by a six-foot high chain link fence on the north, south and east sides. A six-foot high stockade fence would be installed on the west side. The nearest residences to the stockade fence are approximately 50 feet to the west at 95 Walnut Hill Road and 11 Mountain View Road. No residences are proximate to the chain-link fence. (GRE 1, Tab C, Sheet SP)
50. The solar panels would be angled, with the bottom edge approximately three feet from the ground and the top edge approximately 9 feet from the ground. (GRE 1, Tab C, Sheet DN-1)
51. The distance between the solar panel rows would be 12 to 15 feet depending on the ground slope. (GRE 1, Tab C, Sheet DN-1)
52. A 50-foot by 34-foot wood frame building would be constructed at the southern edge of the solar field. The two-story building would serve as office, maintenance and possibly educational space. (GRE 1, Tab C, Sheet SP-3; GRE 7g; Tr. 1, pp. 86-87)
53. The maintenance building would be serviced by a well and septic system. (Tr. 1, pp. 78-79)
54. GRE may install two additional wells on-site to provide water for maintenance activities. The wells would be used infrequently, a few times per year. (GRE 1, Tab C, Sheet GU-1; Tr. 1, pp. 30-31, 79)
55. Natural rain wash is expected to keep the solar panels free of dirt and debris. GRE would clean the PV panels on an as-needed basis, using only water drawn from the on-site wells or trucked in by tanker. (Tr. 1, pp. 30-31)
56. Snow is expected to slide off the panels or melt. GRE would not manually remove snow. (Tr. 1, p. 94)
57. The composition of the solar panels and associated mounting equipment are resistant to fire. The wood frame building would not have fire protection installed. (Tr. 1, pp. 79-81)
58. GRE proposes to establish a new 850-foot long construction access road across the Tinker House portion of the property to access the solar field area (refer to Figure 4). The grade of the road at its steepest point is approximately nine percent. (GRE 1, Tab C, Sheet EC-2; GRE 7c; Tr. 1, p. 20)

59. Once construction is completed, the Petitioner proposes to permanently access the solar field from the existing dirt road adjacent to 65 Walnut Hill Road (refer to Figure 4). The road traverses a narrow property access corridor 80 to 160 feet in width. The road is approximately 95 feet to the residence at #65 Walnut Hill Road. The property to the east of the road is not developed and does not have an identified street address. (GRE 1, p. 4; GRE 7b; Tr. 1, pp. 15-17)
60. The existing dirt road, adjacent to 65 Walnut Hill Road, rises sharply to the east at a grade of 12-14 percent before descending sharply, turning north, gradually rising along the south property line to the solar field. The road would need some grading improvements and brush clearing along the edges as it has not been regularly used since the property was abandoned in 2008. The road is passable in its current state. (GRE 1, p. 4; GRE 7b; Tr. 1, pp. 15-17)
61. The solar field access road would be gated at the entrance on Walnut Hill Road. (Tr. 2, p. 41)
62. An eight-foot wide gravel perimeter road would be installed around the solar field. A few connecting service roads would access interior portions of the solar field. (GRE 1, p. 8, Tab C, Sheet SP)
63. The estimated cost of the proposed project is \$15.5 million. (GRE 2, R. 7)
64. GRE would begin construction in July 2013, finishing by the end of the year. (Tr. 1, pp. 38, 85)

#### Environmental Considerations

65. Approximately 20 acres of the solar field site consist of old field areas, mainly on the 44 Grassy Hill Road and Walnut Hill Road Rear portions of the property. The remaining 15 acres consists of woodland on the Ader parcel. The wooded portion contains few significant trees, an indication that it was once cleared for agriculture. (GRE 1, Tab B, p. 24, Tab C, Sheet EX; GRE 7c; Tr. 1, p. 88)
66. There are no Connecticut Department of Agriculture restrictions on the property. (Tr. 1, pp. 36-37)
67. GRE donated approximately 22 acres of the property to the East Lyme Land Trust in 2007 (refer to Figure 1). The donated land includes land east of the wetland corridor as well as the east half of the wetland corridor. An easement across the 44 Grassy Hill Road parcel allows the public access to the land trust property. (GRE 2, R. 20; Tr. 1, pp. 11-14)
68. No wetlands or watercourses would be directly affected by construction of the solar field. (GRE 1, p. 17)
69. The project limits of construction would maintain a 100-foot buffer to the wetlands located east of the solar field (refer to Figure 3). (GRE 7d; DEEP comments of March 13, 2013)
70. GRE developed a preliminary grading plan that seeks to establish a constant grade for installation of the solar panels, using on-site soil. The preliminary plan includes two embankments on the west side. One embankment on the Tinker House parcel reaches 24 feet in height. The other embankment in the southwest corner of the parcel reaches a height of 20 feet. This embankment is adjacent to two residences on Mountain View Drive. GRE would examine the grading and proposed solar panel installation in this area to create a buffer to the adjacent residences. (GRE 1, Tab C, Sheet GU; GRE 9; Tr. 1, pp. 28, 41-45)

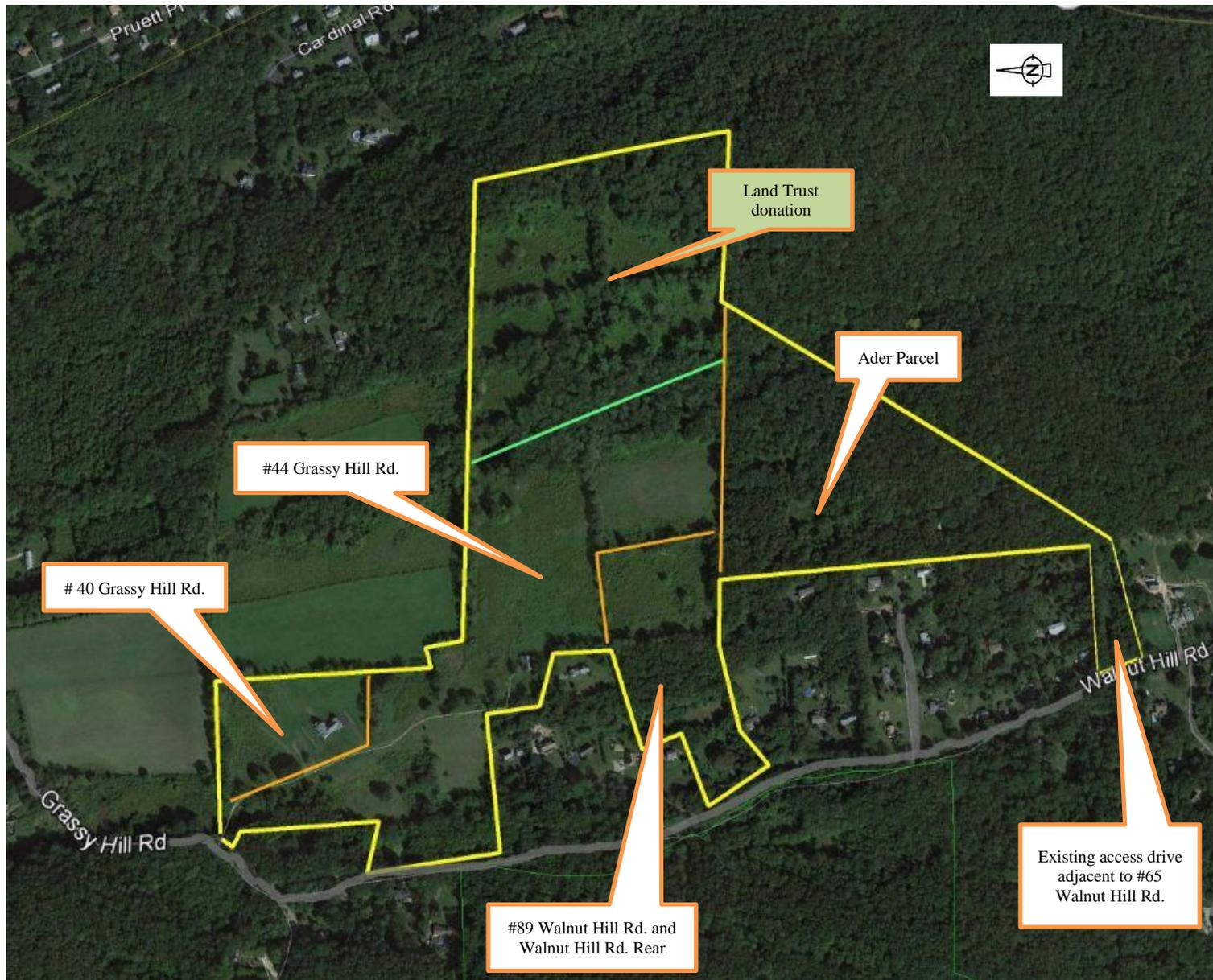
71. GRE does not intend to import or export any fill to complete site grading. Final grading would be determined in the field based on what changes are necessary to accommodate the solar panel racks. A representative preliminary cross-section grading plan is included as Figure 4. (GRE 9; Tr. 1, p. 42)
72. Wood chipped from the clearing of the Ader parcel would be used as ground cover in the solar field. This would lessen the number of trucks leaving the site to haul away wood and would reduce the amount of short-term ground maintenance. (Tr. 1, pp. 7-8)
73. Areas not covered with wood chips would be planted with no-mow grass. This variety of grass is shade and drought tolerant and would only grow to a height of nine to twelve inches. If it grows higher, GRE would mow it to prevent interference with the solar panels. (GRE 1, Tab C, Sheet LL; Tr. 1, pp. 31-32, 73-74)
74. Disturbed areas beyond the solar field perimeter road would be planted with either a wetland, wildlife or erosion control seed mix, depending on the specific application. (GRE 1, Tab C, Sheet LL)
75. GRE would not use herbicides on-site except to eliminate unwanted vegetation that might interfere with solar field operations. For example, the old field areas contain multiflora rose, an invasive shrub-like plant. Once the old fields are cleared and graded, any remaining multiflora rose root stock can regenerate. GRE would treat each plant that does grow back with herbicide applied by a licensed applicator. (GRE 1, Tab D, p. 6; Tr. 1, pp. 33- 34, 69-70)
76. Development of the site would not affect any state or federal endangered or threatened species, or species of special concern. DEEP noted that records of a federally endangered perennial herb, American Chaffseed, listed as occurring in the region, date from the early 1900's. GRE did not identify this plant on site. DEEP also noted the site is near locations where Henry's Elfin, a butterfly listed as a State special concern species, has been recorded. GRE conducted a survey and did not identify any breeding habitat for the butterfly at the project site. DEEP provided comment concurring that the proposed project would not impact the Henry's Elfin. (GRE 1, p. 17; GRE 2, R. 11; DEEP comments dated March 13, 2013; DEEP comments dated April 4, 2013.)
77. The wooded Ader parcel contains habitat suitable for tree roosting bats, such as the Silver-haired Bat and Red Bat. Restricting tree-clearing of the Ader parcel from March to November would prevent the direct loss of individual bats that could be present. GRE would perform a site survey to determine if bats are using the Ader parcel woodland prior to clearing. (GRE 1, Tab D, p. 25; Tr. 1, pp. 37-38).
78. GRE's proposed project is not located near any Important Bird Areas designated by the Connecticut Audubon Society. (Council Administrative Notice 35)
79. The chain-link fencing along the north, south and east sides would feature a six-inch gap between the bottom of the fence and the ground to allow for small mammal passage. (GRE 1, Tab C Sheet DN-1)

80. During operation, the project would not produce any air emissions, including greenhouse gas emissions. Operation of the project would reduce generated air emissions from other fossil-fuel power sources, including approximately 3,532 lbs/year of nitrogen oxides, 7,190 lbs/year of sulfur oxides, and 6,332 tons/year of carbon dioxide. (GRE 1, pp. 10-11)
81. The project would not generate any appreciable noise during operation except for grass mowing once or twice per year, if necessary, and a low hum produced by each inverter. GRE would examine installing the inverters in more central locations within the solar field, rather than along the west edge, to reduce any possible noise issue at adjacent properties. (Tr. 1, pp. 35-36, 91)
82. The solar field is not within a 100-year or 500-year flood zone. (GRE 1, Tab E, p. 3)
83. GRE proposes to manage stormwater from the completed solar field by constructing three detention basins and associated connecting swales on the east side of the project area. The grade of the solar field would direct runoff towards these features. Catch basins in the detention basins would discharge water to rip-rap outfalls, directing water to the east. (GRE 1, Tab E, p. 2; GRE 7f; Tr. 1, pp. 29-30; 75-76)
84. A “leaky berm” would also be installed along the east side of the solar field, between two of the detention basins. The berm is a non-structural stormwater Best Management Practice consisting of a crushed stone base covered with soil. The berm features three low points to discharge captured water at a set rate, maintaining even flows into the discharge areas. (GRE 1, Tab E, p. 5)
85. The stormwater management system would be inspected at least twice per year to ensure effectiveness. Tr. 1, pp. 75-76)
86. DEEP has reviewed the stormwater drainage system and found it reasonable as it reduces peak stormwater discharges from current conditions. DEEP recommends that the Council order GRE to follow the stormwater drainage system inspection schedule set forth in GRE’s Operations and Maintenance Plan with corresponding inspection reports sent to the Council. (DEEP Comments of March 13, 2013)
87. None of the existing wetlands or watercourses on the property would be used as part of the stormwater management system. (Tr. 1, p. 74)
88. The project would require a general permit and stormwater pollution control plan as part of its permit process, as more than 10 acres of the site would be disturbed during construction. (DEEP comments of March 13, 2013)
89. No increase of run-off is anticipated from the solar panels. A crushed stone drip line would be installed beneath the edge of each solar panel to facilitate water percolation into the soil. Well-drained soils are within the solar field, further enhancing percolation. (GRE 1, Tab C, Sheet DN-1; Tr. 93)
90. GRE would establish and maintain appropriate soil erosion and sedimentation control measures in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control throughout the construction period of the proposed project. (GRE 1, p. 18)

91. The project would not affect any historic properties, including the Tinker House, a 19<sup>th</sup> Century home adjacent to the proposed construction access road. (GRE 6; Tr. 1, pp. 19-20, 90-91; Tr. 2, pp. 37-39)
92. The State Historic Preservation Office (SHPO) commented that the Ader parcel has a moderate potential of containing significant archeological resources from use by Native American groups, the SHPO recommended an archeological survey of this portion of the project area. GRE is currently conducting the recommended survey. (GRE 6; Tr. 1, pp. 21-22)

#### Visibility

93. Residences abut the site to the west. GRE would install a six-foot high wood stockade fence to shield views of the solar field. (GRE 1, Tab C, Sheet SP)
94. GRE would install plantings in select areas along the fence line to further mitigate views of the solar field and associated fencing. (GRE 1, p. 15; Tr. 1, p. 16)
95. GRE would examine re-positioning some of the solar panels and the proposed fence line to increase the setback to abutting properties. (Tr. 1, pp. 25-29)
96. Sun glare is not expected to be an issue as the solar panels are oriented to the south and the modules are composed of non-reflective materials. (Tr. 40-41)



**Figure 1:** Property location off Grassy Hill Road and Walnut Hill Road, East Lyme. Approximate location of internal property boundaries shown. (GRE 7)

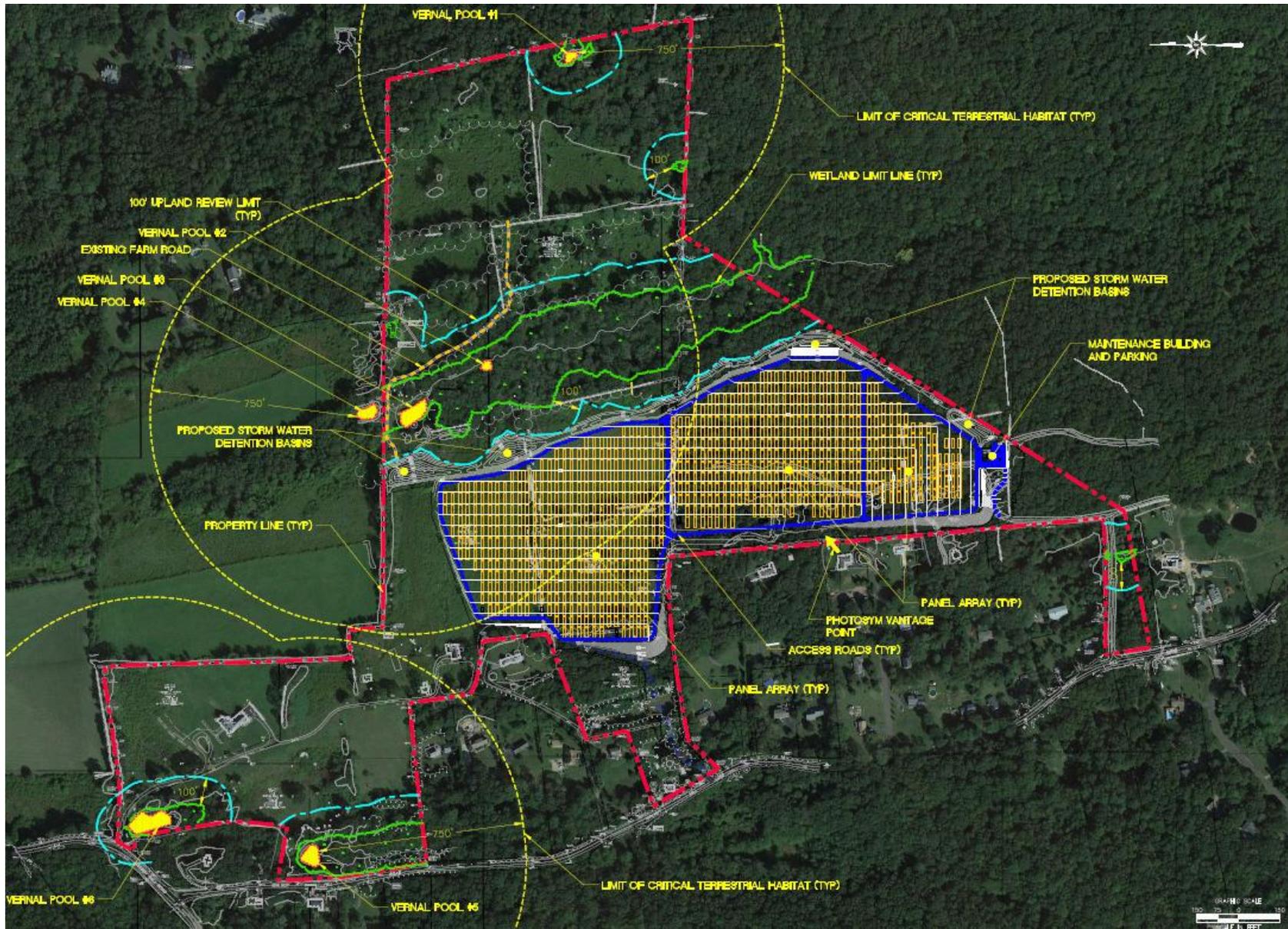


Figure 2: Existing Site Conditions and Proposed Solar Field. (GRE 7).

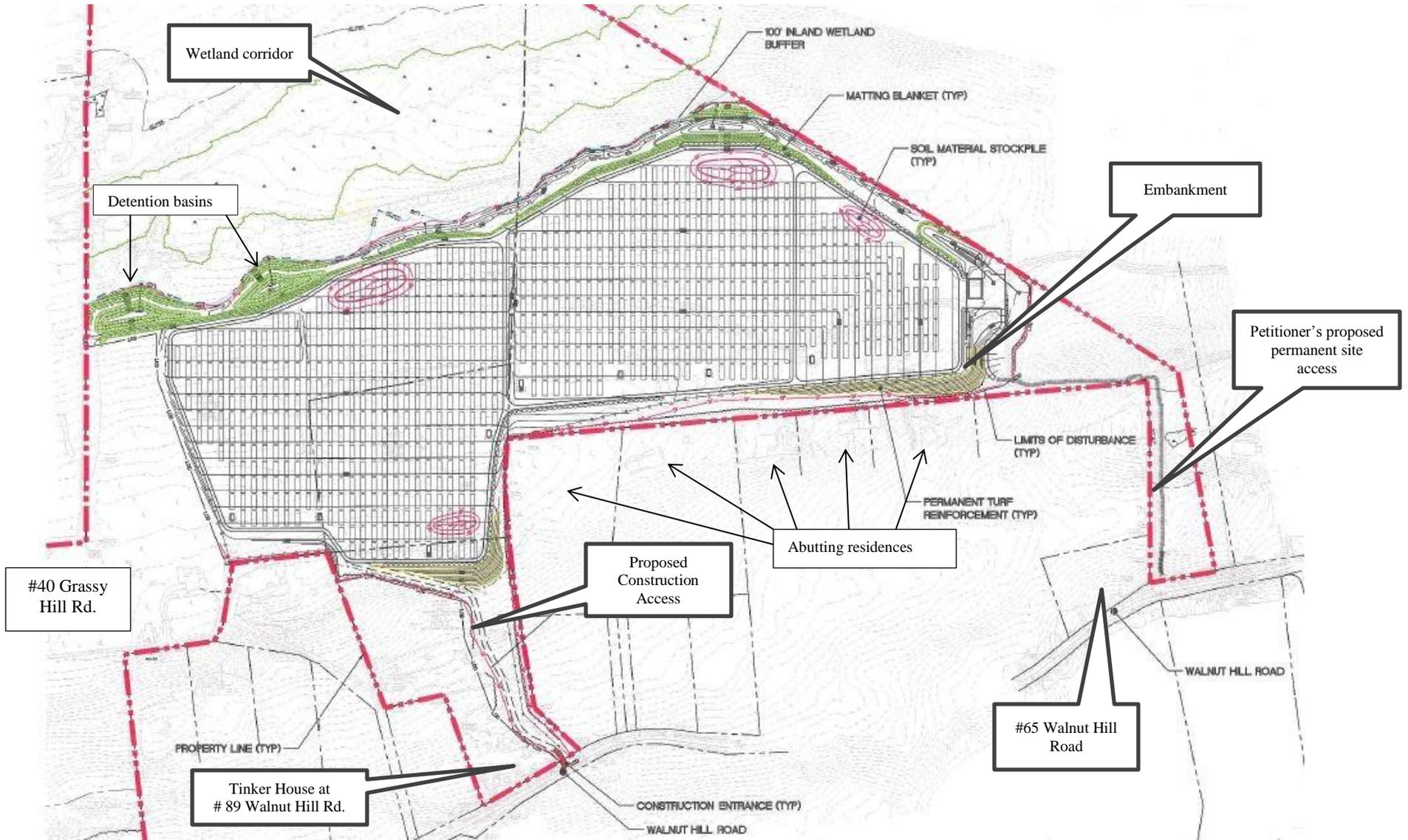
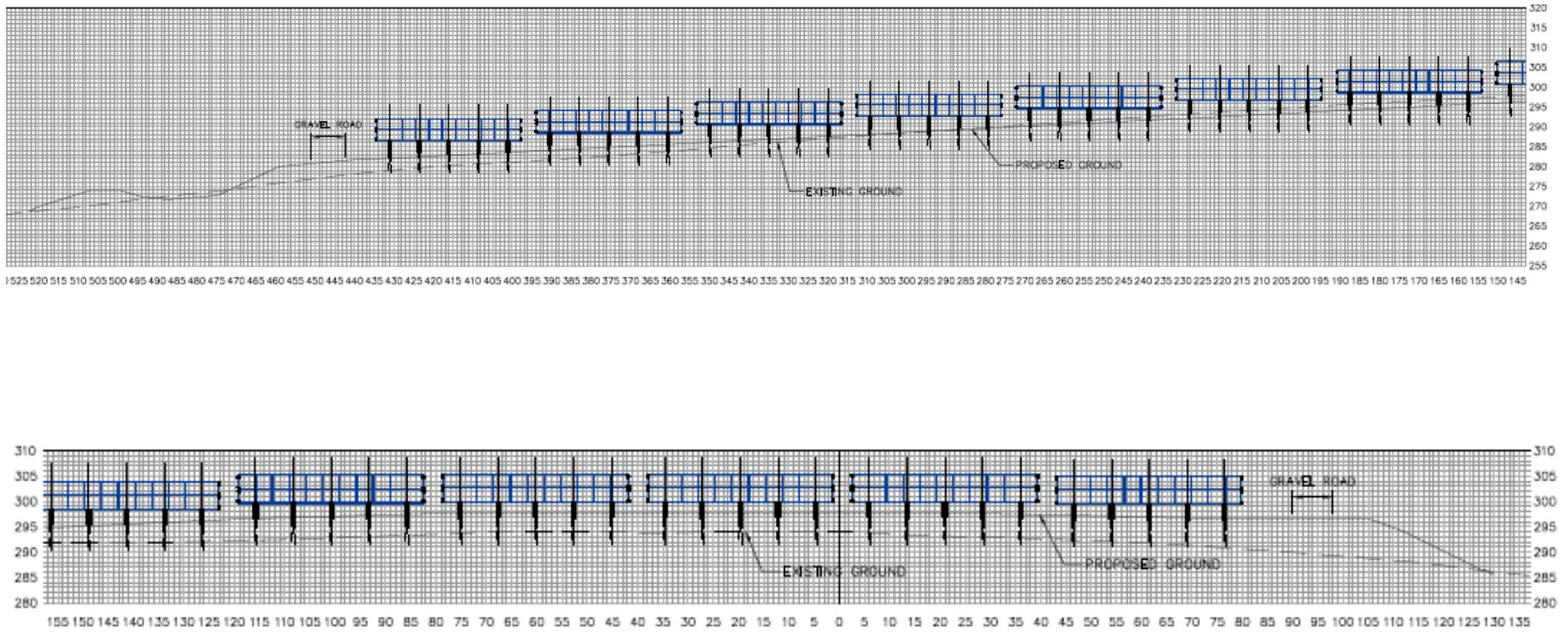


Figure 3: Proposed Solar Field Site Plan. (GRE 7)



**Figure 4:** Representative cross-section renderings showing potential site grading. (GRE 9)



**Figure 5:** Site rendering from Abutting residence (second floor) on Mountain View Road. (GRE 1, p. 15)