



Paul W. Ferriero, PE, PP, CME, LEED AP  
Robert C. Brightly, PE, PP, CME  
John E. Hansen, PE, PP, CME, LEED

Steven B. Bolio, PE, CME  
Dennis W. O'Neal, PE, PP, CME  
C. Richard Quamme, PE, CME  
Glenn A. Robinson, PLS

September 24, 2013

Mr. Lance Boxer, Chairman  
Bedminster Township Land Use Board  
1 Miller Lane  
Bedminster, New Jersey 07921

Re: KDC Solar Project  
Use Variance/Preliminary and Final Major Site Plan  
Block 71.02, Lot 1; Block 62, Lot 10; Block 69 Lot 4  
Country Club Road  
Our Project No. 12BD215

Dear Mr. Boxer:

The above referenced application requires preliminary and final major site plan with variances to construct a solar farm on lot 1, block 71.02, lot 10 block 62 and lot 4, block 69 along Country Club Road. Other improvements include a gravel access road network, inverter pads, fencing and lighting. The following documents have been reviewed in support of the application:

1. Correspondence from Gary T. Hall, Esq. dated May 31, 2013.
2. Land Use Board Application, dated December 4, 2102 and revised Form D.
3. Checklist, prepared by Robert C. Moschello, PE dated May 28, 2013.
4. Environmental Scoping Checklist, dated December 3, 2013.
5. Tax Certification, dated November 26, 2012.
6. Environmental Impact Statement, dated May 31, 2012, prepared by Amy S. Greene.
7. Stormwater Management Report dated May 31, 2013 prepared by Gladstone Design, Inc.
8. Preliminary and Final Major Site Development Plans, consisting of thirty-one (31) sheets, dated May 31, 2013, prepared by Gladstone Design, Inc.
9. Operations and Maintenance Manual for Stormwater Management Facilities dated May 31, 2013.
10. Drainage Area to Chambers Brook Plan, dated May 31, 2013, prepared by Gladstone Design, Inc.
11. Tributary Drainage Area Map, dated May 31, 2013, prepared by Gladstone Design, Inc.
12. Drainage Cross sections, consisting of two (2) sheets, dated May 31, 2013, prepared by Gladstone Design, Inc.

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13. Stormwater Management Report, dated May 31, 2013, prepared by Gladstone Design, Inc.
14. Compact Disc containing digital version of Geometry Plans.
15. Somerset County Planning Board Application, dated December 8, 2012.
16. Owner's Consent, dated December 3, 2012.
17. Acknowledgement of Agricultural Use, dated December 3, 2012.
18. Applicant Ownership Disclosure, dated December 3, 2012.
19. Forest Evaluation, dated December 3, 2013, prepared by Gracie and Harrigan Consulting Foresters, Inc.
20. Property deeds.
21. Utility service letters.

A review of the above documents results in the following comments for the Board's consideration:

I. General

- A. A use variance is required for a stand alone solar generating facility.
- B. The application has been amended to request an interpretation regarding the lot coverage issue as outlined below and, in the alternative, a variance has been requested if necessary.
- C. The proposal retains the existing dwelling on the property, however the documentation indicates it is proposed to remain vacant. It is not clear how this vacant/abandoned use on the property is treated from a land use perspective. It should be noted that the zone table indicates the density is 0.006 when it would be 0.0 if the dwelling unit were not to be used as a dwelling unit.
- D. The route of the connection from the jack and bore pit needs to be shown on the plan. A use variance has been requested for lot 1, block 71.02, however it should be clarified that it is for the transmission line and not additional solar arrays.
- E. The lot coverage figures in the zone table have been modified to include the solar panels. As stated in the Township Land Management Ordinance:
  1. *Coverage, lot* shall mean the square footage or other area measurement by which all buildings and impervious surfaces cover a lot as measured in a horizontal plane to the limits of the impervious area(s). All surfaced parking areas and all required parking areas which are permitted to remain unsurfaced shall be included in the computation of lot coverage. Lot coverage shall also include the area covered by all decks, patios, and unpaved stone or other semi-pervious surfaces.
  2. The Township ordinance does not regulate "impervious" coverage, therefore the narrow definition of impervious coverage for solar arrays does not apply. All gravel drive areas and the horizontal projection of the solar arrays meet the definition of lot coverage in the ordinance and are subject to the 5% maximum

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limit of the lot area. It appears a variance is required. The applicant is requesting an interpretation from the Board on this issue.

- F. A design waiver from section 13-508.3.a has been requested for the access drives that are not paved/curbed.

## II. Site Plans

### A. Sheet 1 – Project Data/Vicinity Map

1. It is recommended that any approval by the Board require the filing of a deed of merger of lots 10 and 4.

### B. Sheets 2 & 3 – Existing Conditions and Environmental Constraints Map

1. The topography appears to show a number of areas with slopes that exceed 15%. The steep slopes as designated in 13-605.9 need to be added to the plan.
2. As noted on the plan, the limits of the wetlands and transition areas are subject to NJDEP approval. Any action by the Board should be subject to the receipt of an LOI that confirms the wetlands and transition areas shown on the plan.

### C. Sheet 4 – Overall Proposed Site Plan

1. The plan notes that the existing dwelling and garage will not be used for residential or commercial purposes. Does this imply that there will be no institutional or other use of the structure? Additionally, there needs to be some mechanism to ensure the maintenance and upkeep of the structures if they remain vacant to ensure they do not fall into disrepair.
2. The overall project is a very large construction project requiring significant site disturbance. It should be anticipated that there will be large areas necessary for contractor staging, materials and equipment storage, construction trailers, etc. A construction staging plan needs to be prepared to show how these will be handled on the site.

### D. Sheets 5 through 10 – Site Dimension Plan

1. The plans include a table of the bearings and distances of the easements on the property. It is very difficult to relate the lines to the bearings and distances since they are spread over several sheets. A single easement map should be created that incorporates all easements for the property and shows limited other information.
2. Conservation easements should not be shown extending into road rights of way.
3. Lot closure calculations and descriptions will be required for all easements.
4. Testimony should be provided on the depth of the proposed jack and bore for the transmission line.

### E. Sheets 11 through 16 – Grading and Utility Plan

1. Extensive earthmoving operations are required for the project. Information needs to be provided regarding the total amount of cut, total amount of fill and the net value.

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Based on the amount of soil to be moved on or off the site, a bond may be required to protect the Township streets.

2. Based on the location of the anti-seep collars depicted on the outfall from basin 3, it appears the top of the collar will extend above grade. Profiles of all storm sewer lines should be provided and the anti-seep collars shown.
3. The top of berm widths and side slopes need to be added to the plan.
4. The filled berm along the northern property line will direct runoff to the adjoining lots. A swale should be installed to intercept the water and ensure it stays on the applicant's property.
5. There is a flat area proposed under the solar panels north of the berm along Meadow Road that is likely to cause the accumulation of water. It is recommended the area be re-graded.

F. Sheets 17 through 22 – Landscaping Plan

1. The plan indicates that there will be a seed mix installed in the bottom of the basins, however notes elsewhere on the plan state that no topsoil is to be spread in the bottom of the basin. This needs to be reconciled.
2. Documentation needs to be provided for the suitability of the pasture seed mix for use in the shaded conditions under the solar panels.

G. Sheets 23 through 28 – Soil Erosion Plan

1. This plan will need to be certified by the Somerset-Union Soil Conservation District.
2. The plan shows a stone tracking pad to the edge of Country Club Road for construction access. Since the road has just been repaved, a paved apron at least 20' long should be provided before the tracking pad to prevent damage to the roadway.
3. Hay bale barriers should be installed in front of all outlet structures until the contributory drainage area is stabilized.
4. Intermediate rows of silt fence should be provided in the areas of re-grading. The contributory drainage area to any section of fence should not exceed 2 acres.

H. Sheets 29 through 31 – Construction Details

1. Additional detail needs to be provided for the outlet structures. The size of the aluminum plate on the interior of the structure needs to be provided. Structure 1 shows a 6" orifice with a solid plate at 118.00 and a 3" orifice at 118.07. There will be interference between the two openings and cover plates. A front elevation should be provided to scale for each structure.
2. A dimension needs to be provided for the size of the anti-seep collars.
3. The "Bio-retention Water Quality Swale" detail should indicate it is for the water quality basin and not a swale.
4. A detail needs to be provided for the geo-grid drive.

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### III. Stormwater Management Report

A. Based on a detailed review of the stormwater management report, the following items require additional clarification/information:

1. A number of the drainage boundaries are delineated by proposed berms. Since the berms are integral to the drainage design, they should be included within the operations and maintenance deed restriction to prevent their removal.
2. A number of swales direct runoff down the graded side slopes of the detention basins. Stability of the side slopes needs to be demonstrated.
3. Solar panels extend into the grass swale within drainage area for Basin #1. The swale should be left unencumbered to allow proper maintenance and to ensure they will function as designed.
4. The curve number calculation for the proposed conditions analysis utilizes a meadow cover for the pervious cover. Since the majority of the drainage areas will have the solar panels installed above them, we question whether the use of a meadow condition is appropriate.
5. The limits of the basin spillways should be added to the grading plans. It appears that the grading will need to be adjusted to allow for the spillway bottom widths specified.
6. Provide anti-seep collars (or other seepage control) calculations for the outlet pipe from the basins.
7. The applicants engineer shall confirm that the trash rack is in accordance with NJDEP standards.
8. The sand layer detail within the infiltration basin should include a note that the material must be certified by a licensed engineer.
9. As-built plans shall be required as a condition of any favorable Resolution.
10. Drainage easements should be provided around the basins, swales and berms.
11. Access for maintenance vehicles need to be provided for each basin.
12. An Operations and Maintenance Manual will be reviewed once the stormwater design has been approved.
13. The area of disturbance used in the allowable outflow calculation appears to be based upon the disturbance limit coinciding with the limits of tree clearing whereas disturbance extends beyond the tree limits. The engineer shall provide documentation from NJDEP that only areas of tree clearing count as disturbance and areas of grading that ultimately will retain the same or similar land cover do not count towards disturbance. It appears that there are areas that will be disturbed outside the tree limits that need to be accounted for.
14. The stormwater rules stipulate the "Design stormwater management measures so that the post-construction peak runoff rates for the two, 10 and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed." The engineer shall provide documentation that the area of the panels/project located outside of the wooded areas is excluded from the percentage

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- requirement. This also includes areas of the proposed infiltration/detention basins and berm construction.
15. The engineer shall provide documentation that the longest representative Tc for existing drainage area # 3 has been utilized. If a similar flow path as PDA#3-Basin were utilized, a longer Tc would result.
  16. The Tc utilized for PDA#2 needs to be revised since the upper segments of the flow path are cutoff by the limits of PDA#2A.
  17. The majority of the proposed Tc sheet flow roughness coefficients are based on a dense grass cover to be utilized under the proposed solar panels. The engineer should provide testimony on the suitability of the roughness coefficient utilized in relation to the type of vegetation that can be reasonably expected to grow under the panels.
  18. The entire pervious inflow areas tributary to the proposed detention/infiltration basins are analyzed with a meadow cover. The engineer shall confirm that all of the basins, swales and berms will be planted and maintained with meadow vegetation.
  19. The depth of the water quality storm exceeds 12" maximum within bio-retention basin #2A. The basin footprint should be expanded in order to comply with the BMP Manual requirements.
  20. The gravel driveways should be deed restricted against their being paved at some point in the future since they have not been modeled as paved surfaces.
  21. Additional information on how the drain times were calculated for the detention/infiltration basins need to be provided. The analysis indicates no infiltration for basins 1 and 2 which would result in the basins never fully emptying which is not consistent with the times noted in the report.
  22. The groundwater recharge spreadsheet used in the analysis indicates no change in land cover within the Klinesville soil group. It appears that there are wooded areas within the soil group that will be disturbed as well as some gravel installed with the proposed driveways. The amount of woods used within the Penn soil group has increased under proposed conditions from what the spreadsheet used in the existing condition. The engineer shall confirm all the land covers used within the spreadsheet and whether they are consistent with the areas utilized within the drainage area analysis.
  23. Additional information on the BMP used within the groundwater spreadsheet needs to be provided.
  24. The outlet structure details need to be consistent with the outlet structure information contained within the drainage report (weir and structure size not consistent). Revise as needed.
  25. Change the bio-retention swale detail to a bio-retention basin detail. The detail needs to include the specification and certification of the sand layer. The maximum percent of fine and very fine sand content needs to be added to the soil media layer.
  26. The outlet pipes from the proposed basins need to be checked against the stage discharge through the outlet structures to ensure the free flow conditions utilized on the outlet orifices/weirs.

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27. Provide backup information on how the peak flow rates were calculated for the swale analysis.
28. The swale stability calculations (within the soil erosion and sediment control section of the report) are subject to review and approval from the Somerset Union Soil Conservation District.
29. Emergency spillway grading for Basins 2A, 2B, and 2C needs to be provided. Based on the elevations of the spillways, it appears that the grading will extend into the wetland transition areas for Basins 2A and 2B and into the solar array for Basin 2C. The spillway capacity analysis should be based on the slope of the spillway on the grading plan.
30. The berm grading for Basin 2 needs to be extended. It appears that the grading will extend into the wetland transition areas.
31. The width of the emergency spillways used in the analysis of Basins 1, 2 & 3 are not consistent with the grading plans. Revise as necessary.
32. The engineer shall provide backup information on the weir coefficients used in the analysis of the emergency spillways. The coefficient used varied between Basins 1-3.
33. Correct the top of berm spot elevation within Basin #1 (121.4 vs. 121.9). Revise the top of berm spot elevations to provide a minimum of one foot of freeboard above the emergency spillway storm peak elevation.
34. Since the water quality basins will collect runoff from higher storm events, one foot of freeboard should be provided in the basins above the emergency spillway storm.
35. Permeability testing needs to be provided for all of the infiltration basins. The testing should be in accordance with Appendix E of the NJDEP BMP Manual.
36. Revise the emergency spillway detail to include the rip-rap lining as noted within the calculations for proposed Basins # 1 and #2.

IV. Operations and Maintenance Manual

- A. A final review of the manual will be completed once the stormwater management issues above are addressed.
- B. A deed restriction must be filed to require conformance with the manual.
- C. The manual should include a requirement that all inspection reports be provided to the Township Engineer by April 1 of each year.

V. Forest Evaluation Report

- A. Based on the extent of the clearing, the approval of the tree removal permit requires the input of the Environmental Commission.
- B. The report makes a broad statement that the areas to be cleared “primarily support trees that have diameters less than 5”...” It further states that 38.6 acres of forest will be cleared as a result of the project and that only 21 trees will be cleared that will require replacement under the ordinance. This is only based on one of the stands of trees on the site and seems to be an extraordinarily small number of trees given the extent of the clearing. Testimony needs to be provided that the entire of limit of

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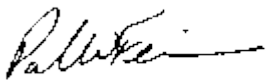
clearing was analyzed and all non-cedar trees with a diameter of 5" or greater have been identified. For example, the aerial photo in the report shows trees along north-south drive west of the house that will be removed and are not included in the replacement analysis.

#### VI. Environmental Impact Statement

- A. The report makes a several conclusions regarding the required use variance and the planning and legal arguments related thereto which seems beyond the scope of an "environmental" report. If the information is intended to be part of the planning justification, the qualifications of the preparer as a professional planner need to be provided.
- B. Section 3.2 states that there are no slopes present that meet the definition of steep slopes in the Township ordinance. Based on a review of the topographic map, this is not correct.
- C. Section 3.5 regarding threatened and endangered species indicates that a field inspection was conducted on "October 25, 2013". The date needs to be corrected.
- D. The report does not address any impacts related to the disruption of wildlife habitat for non-threatened and endangered species. The project will effectively remove about 60 acres from use by local wildlife. The impact of the tree removal, grading and panel installation should be evaluated with respect to the fragmentation and elimination of native species habitat.
- E. The plan shows a number of large inverter pads for the system. The noise generated by the inverters is not insignificant and can be disturbing since it is a constant humming sound while the system is in operation. In particular, the applicant should address section 13-509.5.b.1 which prohibits noise disturbances regardless of compliance with the State noise standards.

I trust the above comments are useful to the Board in its consideration of the application.

Very truly yours,



Paul W. Ferriero, PE, PP, CME  
Township Engineer

cc: Board Members  
Frank Banisch, PP/AICP  
Thomas Collins, Esq.  
Robert C. Moschello, PE