Berkshire Design Group

October 8, 2026

Conway Planning Board
Town of Conway
32 Main Street
Conway, MA 01341

RE: Slope Waiver Request under Zoning Bylaw Section 9.1(c)(3)
Roaring Brook Road Solar Development Project
0 Roaring Brook Road, Conway, MA 01341 (Map 412 Lot 8)

Dear Board Members:

Berkshire Design Group (BDG) has prepared this memorandum to assist the Board in considering the applicant's request for a waiver under Section 9.1(c)(3) of the Conway Protective Zoning Bylaws to install a solar array on slopes between 15 and 18 percent. It responds to the applicant's Slope Waiver Request Letter dated September 29, 2026, and to the September 21, 2026 letter from Mr. Chris Waldo, which was forwarded to BDG for engineering comment. The decision is the Board's to make. BDG's role is to provide engineering context and the considerations on each side of the question, not to recommend an outcome.

1. Waiver Request and Bylaw Text

Section 9.1(c)(3) prohibits commercial solar installations on slopes of 15 percent or greater, averaged over 50 horizontal feet, and provides that "the Planning Board may consider waiving this up to 18% based on site-specific parameters." The bylaw does not define "site-specific parameters," set criteria for a waiver, or require a specific finding.

The applicant's current layout removes panels from slopes greater than 18 percent. Per the slope table on Sheet C102, approximately 9.3 percent of the area beneath the racks (about 21,500 square feet) is on slopes between 15 and 18 percent. The waiver would permit tables within the 15 to 18 percent band.

2. The Applicant's Justification

The September 29 letter offers four reasons for the waiver:

1. The array is within an existing field with established vegetative cover. No major clearing or grubbing is proposed, disturbance is limited to the foundation footprints, and disturbed ground is to be restored by decompaction, topsoil, and seed as needed.
2. Only approximately 9.3 percent of the area beneath the racks is on slopes between 15 and 18 percent, which the applicant presents as minimization to the extent practicable.
3. The 18-foot row spacing and single-axis tracking distribute panel runoff over vegetated ground, so that it infiltrates much as it does today.
4. MassDEP Wetlands Program Policy 17-1 identifies a maximum recommended slope of 33.5 percent, so the project is within state review standards.

The applicant also states that denying the waiver would reduce the project from approximately 4.05 MW DC to 3.06 MW DC and make it financially infeasible. BDG has no independent basis to evaluate that statement, and whether project economics are a "site-specific parameter" under the bylaw is not an engineering question.

3. Other Considerations

Considerations that may support the waiver

- The project maintains agricultural use beneath and around the tables and does not convert the field. Section 9.3(h)(6) requires that facilities be compatible with continued agricultural use, and the Town has adopted a Right to Farm Bylaw.
- No grading of the array area is proposed. Re-grading would create areas of disturbance that are significantly more susceptible to erosion as compared to the proposed project.
- The revised Stormwater Management Report (September 2026) shows reduced peak runoff from the site for the 2-, 10-, and 100-year storms, which may mitigate some concerns about runoff over steeper slopes.

Considerations that may argue against the waiver

- The waiver is discretionary. The 15 percent limit is a policy choice adopted by Town Meeting, and the Board may conclude that the applicant's reasons describe any well-designed array on an open field in Conway rather than conditions particular to this site.
- Soil mapping places Hydrologic Soil Group C soils within and upslope of the 15 to 18 percent areas. These soils have moderately low infiltration rates and generate more runoff than better-infiltrating soils that may be found on a different site. Runoff velocity, soil erodibility, and the potential for concentrated flow increase as soil conditions tend toward less infiltration.
- The MassDEP policy that references 33.5% slopes was written to protect wetland resource areas from stormwater impacts and applies to LID (low impact development) credit for wetland permitting. The policy does not take a position on overall impact of construction on steeper slopes.
- The applicant reports that 9.3 percent of the area beneath the racks is on slopes between 15 and 18 percent, and separately that removing those tables would reduce capacity from approximately 4.05 to 3.06 MW DC, a reduction of about 24 percent. The difference may reflect electrical requirements that would require removing full rows rather than individual tables, but as presented, the financial-feasibility argument is not clearly made and the Board may wish to ask for further explanation before considering the economic argument.

Considerations that may support conditions of approval

- Third-party inspection during and after construction and a long-term vegetation maintenance requirement may mitigate concerns about elevated erosion or proper re-vegetation.
- The foundation type, which is further discussed below, is not fixed in the record. Because the foundation types under discussion create less disturbance than other potential foundation designs, the Board may wish to condition a waiver on one of those methods being used, with any other method treated as a substantial change requiring Board approval (at which point the waiver could potentially be reconsidered).

4. Technical Questions Raised in the September 21, 2026 Letter

50-foot segment mapping. The letter asks that each 50-foot segment exceeding 15 percent be identified rather than averaged. The plans appear to base slope from a triangulated surface built from the field survey, with

triangles generally smaller than 50 feet. Averaging over a longer distance smooths local steepness. It would be possible for the applicant to provide an analysis of slope on a 50-foot grid, but in BDG's opinion, this is likely to show the same or less area in the 15 to 18 percent band, not more. BDG considers the slope areas on the plans an accurate and conservative representation of site conditions.

Soil information within the waiver areas. The Stormwater Management Report includes NRCS soil mapping and three test pits near the proposed basin; none is within the 15 to 18 percent areas. The bylaw does not require subsurface investigation there.

Row orientation relative to slope. Policy 17-1 identifies rows built down a slope, rather than across it, as an erosion concern. The policy goes on to say that orientation down a slope can be mitigated by designing breaks into the rows to force discontinuous runoff. In general, panels in the 15-18% slope zones are aligned closer to across the slope (less concerning) than down it (more concerning). The locations at the south of the site where the orientation is closer to down the slope are the ends of rows, which act as the required gaps. In the opinion of BDG, these areas comply with the intention of the DEP policy.

Foundation method and ground disturbance. Two possible post foundation designs have been discussed during the hearing process. Driven posts (essentially I-beams pushed into the ground) are typically installed with a hydraulic or vibratory hammer on a skid steer ("Bobcat") or small tracked machine. Ground screws are installed with a rotary head mounted on similar equipment. Neither requires excavation, and both can be expected to disturb less than one square foot at the foundation without removing ground cover. In BDG's opinion, the two methods produce equivalent ground disturbance, and in both cases the travel path of construction equipment is likely to be a larger source of disturbance than the foundations themselves.

For context, slopes up to 18% are within the normal operation of the construction equipment used for post installation. While BDG does not have information on the existing operation, based on our research, the installation equipment is generally similar in weight to mid-size hay baling equipment and lighter than the largest balers.

Downstream impacts. Our peer review of the project is based on compliance with the Massachusetts Stormwater Standards and Policy 17-1, which require the project to demonstrate no increase in runoff under the 2-, 10-, and 100-year design storms. Our comments related to stormwater are made in the overall peer review letters.

5. State References

Conway's bylaw sets the 15 percent limit as a local policy choice and does not identify a technical standard for evaluating "site-specific parameters." The following state references do not supersede the Town's bylaw, but the Board may find them informative on slope as a solar siting factor. All three set thresholds less restrictive than Conway's. However, we emphasize that the Town is entitled to a stricter local standard, and the Board has authority to apply it.

MassDEP Wetlands Program Policy 17-1 (2017). Policy 17-1 sets out MassDEP's approach to reviewing ground-mounted solar arrays under the Wetlands Protection Act and the Stormwater Management Standards. It recommends low-impact design measures for peak runoff, recharge, and sediment, and one condition for relying on them is that array slopes be no steeper than 3:1 (about 18 degrees, or 33.5 percent). The applicant's letter describes that figure as a maximum recommended slope. This may over-state what the policy document does. A more precise statement would be that this slope standard is a condition of the stormwater approach described by the policy, which effectively avoids a requirement to install stormwater management controls

when the conditions of the policy are met. It is true that this document is the most directly applicable state guidance on runoff, and the proposed slopes in this project are below the 3:1 requirement.

Technical Potential of Solar in Massachusetts (Synapse Energy Economics for DOER, July 2023). This statewide study rates land across the state for suitability for solar construction based on six categories, one of which is slope. Slopes of 10 degrees (about 17.6 percent) or less are rated "Most Suitable." Slopes up to 20 degrees (36 percent) are rated either "More Suitable" or "Less Suitable" depending on orientation, and grades over 20 degrees are considered not buildable. Conway's 15 percent limit is about 8.5 degrees and the 18 percent ceiling about 10.2 degrees, so the waiver areas fall at the upper end of the Most Suitable class. It is important to note that the study is a planning document, not guidance or a regulation.

225 CMR 29.00 and the DOER Baseline Standards (effective May 22, 2026). The state recently adopted new regulations for solar permitting, 225 CMR 29.00, Small Clean Energy Infrastructure Facility Siting and Permitting. Under those regulations, DOER published the *Guideline on Public Health, Safety, Environmental, and Other Standards,* which includes what DOER describes as "minimum standards for compliance with the regulation." Table 2, for generation and storage facilities, states: "The Site Footprint may not exceed a slope of 15 degrees compared to the original slope." A 15-degree slope is a grade of about 26.8 percent. The Guideline also requires runoff equal to or less than pre-development (notably, this standard does not apply to agrivoltaics), preservation of natural vegetation within the site footprint to the maximum extent possible, and compliance with local bylaws and the Wetlands Protection Act. This is the state's most recent and most specific slope baseline for solar siting, and it is substantially higher than either 15 or 18 percent.

6. The Board's Decision

Section 9.1(c)(3) allows a waiver on "site-specific parameters" but does not provide further guidance. BDG has recommended to the Board that the existence of a possible waiver suggests that sites in Conway are appropriate for solar arrays on slopes between 15% and 18%, but also that some sites in town are not suitable. Whichever way the Board decides, we recommend a written decision that identifies the site-specific parameters that led to the decision, which will make the current decision more defensible and provide guidance to future Board decisions on other projects.

Section 9.3(a)(2) describes the purpose of the bylaw's large-scale solar requirements as avoiding "site development which may result in negative environmental, neighborhood, or public safety impacts."

We also note that Mr. Waldo's letter asks for written findings, consistent with our recommendation above.

Sincerely,

Berkshire Design Group, Inc.

Christopher S. Chamberland, P.E.
Principal Civil Engineer

cc: George Forcier, Chair, Conway Planning Board
Melinda Costello, P.E., Weston & Sampson Engineers, Inc.