

Proposed Amendments to Stormwater Regulations From Roy Mirabito

I started with the definition contained in the Lancaster Stormwater Regulations (6/14/21) which reads: “Impervious Surface : Any surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas and other areas created using nonporous material: buildings, rooftops, structures, **,artificial turf and compacted gravel or soil.”

I would suggest that we insert “total surface area of ground-mounted solar panels” at the ** notation above.

To maintain consistency with the Lancaster Stormwater Control Bylaw Definitions (Chapter 170-3)) which currently states:

“Impervious Surface - Any material or structure on or above the ground that prevents water infiltration to the underlying soil. Impervious surface includes, without limitation, roads, paved parking lots, sidewalks, rooftops, total surface area of ground-mounted solar panels, compacted soils, hard-packed gravel driveways, and similar surfaces.”

I would suggest adoption of the updated Lancaster Stormwater Regulation to read : “Impervious Surface : Any surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas and other areas created using nonporous material: buildings, rooftops, structures, total surface area of ground-mounted solar panels, artificial turf and compacted gravel or soil.”

To maintain consistency with the Lancaster Zoning Bylaw (Chapter 220-3) Definition which states: “Impervious: Impenetrable by surface water, or having a percolation rate greater than 30 minutes per inch.” I would suggest adoption of the updated Lancaster Stormwater definition here.

Under Solar Energy Systems (Chapter 220-74) Definitions, I would suggest adding the same definition of impervious surface. No definition currently exists for impervious surface under this zoning bylaw.

I would also like to suggest adoption of the following DEP recommendations under Zoning Ground Mounted Solar Installations (Chapter 220-76) under Conditions as #9:

9.)The Stormwater Management Standards contained at 310 CMR 10.05(6)(k) apply to PVS projects. The stormwater standards include: attenuation of peak rates of runoff caused by land development (310 CMR 10.05(6)(k)2), provision of recharge (310 CMR 10.05(6)(k)3), control of Total Suspended Solids (TSS) from impervious surfaces (excluding solar panels) (310 CMR

10.05(6)(k)4), and the provision of adequate erosion and sedimentation controls (310 CMR 10.05(6)(k)8).

Solar projects within the Buffer Zone or other jurisdictional area should endeavor to utilize Low Impact Development techniques and will receive credit for Environmentally Sensitive Site Design when LID is incorporated pursuant to the “Minimum Criteria for Credit” from Volume 3, Chapter 1 of the Massachusetts Stormwater Handbook.

DEP recommends the measures below to control the peak runoff rate, provide recharge, and treat TSS, provided the following are also met (note: the Applicant may provide documentation for consideration demonstrating that the peak rate of runoff, recharge, and TSS treatment requirements are still met in cases where the factors below are not met):

- a.) slopes on which the PVS arrays are placed are not greater than 3:1 (18o or 33.5% slope), naturally or as graded;
- b.) an erosion control plan is developed and implemented which prevents direct discharges to wetlands and which grade the project site to avoid or minimize channelized stormwater flow from the Buffer Zone directly into wetland resource areas;
- c.) land disturbance and grading is conducted in a phased and selective manner (i.e. avoid, if possible, or minimize clearing the entire site at one time in order to minimize soil mobilization and the amount of soil exposure at any one time to reduce construction period runoff), or other appropriate construction best management practices are incorporated to preclude construction period runoff/erosion. Provide temporary land stabilization measures for all disturbed surfaces such as mulching until permanent native vegetative cover is established, and utilize temporary sedimentation basins as appropriate
- d.) construction and post-construction phase stormwater management plans include sub-catchments under the PVS arrays which include stormwater BMPs such as infiltration trenches, water bar/log bars, and natural vegetative cover consisting solely of native grass and plant species (note: the extent of stormwater BMPs required will depend largely on the existing cover type as compared to the proposed cover type. In some instances, BMPs may not be necessary, where the proposed cover type represents an improvement over existing conditions);
- e.) top soil is preserved or supplemented sufficient to maintain vegetation cover;
- f.) solar panel rows are spaced in a manner to allow sunlight penetration sufficient to support vegetation between the solar panel rows;
- g.) where panel rows follow the slope (i.e. the panel arrays are constructed down, rather than across, a slope) provide intermittent gaps between adjacent panels sufficient to accommodate anticipated runoff so that runoff occurs from individual panels rather than from the length of the entire array;

h.) panel drip edges (or leading edge of panels) are no greater than 10-feet above the ground surface;

i.) no conveyances or outfalls are constructed; and no work is proposed in a buffer zone of Resource Areas that borders a Critical Area, as defined at 314 CMR 9.02, or in the estimated habitat identified on the most recent Estimated Habitat Map of State Listed Rare Species prepared by the Natural Heritage and Endangered Species Program.

j.) PVS array designs which do not qualify for LID credits shall demonstrate compliance with the Stormwater Management Standards specified at 310 CMR 10.05(6)(k)1-10, except that no stormwater recharge or TSS treatment shall be required when the ground surface under, and adjacent to, the PVS arrays consists of gravel/crushed stone or is planted and maintained with native vegetative cover sufficient to provide adequate infiltration and eliminate surface water runoff. For peak rate attenuation, the runoff curve number computations shall be reflective of the final land cover type being proposed below the panels and between the rows of panels. Further, the land cover type must accurately reflect the existing condition in the stormwater calculations; Applicants are cautioned to appropriately evaluate the existing land cover type to avoid post-construction issues arising from stormwater runoff. An erosion and sedimentation control plan is required to be submitted as part of the NOI review pursuant to 310 CMR 10.05(6)(b) and 10.05(6)(k)8. Provision of perimeter controls alone is not sufficient to meet 310 CMR 10.05(6)(b) and 10.05(6)(k)8. In addition to perimeter controls, the plan must demonstrate land disturbance will be minimized at any one time, or that other appropriate measures are implemented, to prevent erosion to resource areas.

k.) When calculations show an increase in peak flow, MassDEP recommends that re-engineering be conducted to include construction of retention basins or grading modifications (such as terracing or berms), infiltration trenches, bioengineering techniques, non-structural practices (e.g. establishment of a suitably sized and graded buffer area between the panels and vegetated wetlands or land under water) to mitigate the peak flows.