Solar Installations in the Massachusetts Floodplain

Guidance for the installation of solar panels, battery storage facilities, and other clean energy structures according to regulations of the National Flood Insurance Program. (There may be other considerations under the Wetlands Protection Act.)

Existing National Flood Insurance Program (NFIP) Floodplain Requirements:

- **Solar installations that are not attached to a structure should not be placed in Coastal High Hazard Areas** (V zones and coastal A zones.)
- **Local permit:** All development in the floodplain, including solar installations, requires either a local permit or some type of documented local zoning review by the community for compliance with local Floodplain Overlay Districts. Communities are required to ensure that the proposed installation will be reasonably safe from flood damages and that the installation is not constructed so as to increase flooding off-site.
- **Adequately anchored:** All portions of the structure must be adequately anchored to the ground to prevent flotation, collapse or movement during a flood.
- **Flood-resistant materials:** The installation must be constructed with materials that are resistant to flood damage, such as concrete and steel.
- **Elevation:** Panels and all electrical systems must be installed to minimize flood damage. A good rule of thumb is 2 feet above the base flood elevation for the lowest portion of the panel at maximum tilt and for all electrical components.
- **No-rise analysis for floodways:** If proposed in a floodway, a hydraulic and hydrologic analysis must be completed to ensure there is no rise in the base flood elevation or extent due to the installation. This must include all components of the solar panel, servicing equipment, roadways, fences, etc.
- **Associated service buildings and other structures:** Any associated service buildings or other structures located in the floodplain will need to meet the foundation and elevation requirements for that flood zone as required in the flood-resistant construction standards of the Massachusetts State Building Code and requirements of the NFIP.

Other Considerations:

- Related service roads, detention, storm water conveyance, vegetation, grading and drainage should be designed for erosion resistance. Avoid installation in erodible soils. Utilize sediment control measures to minimize impacts. Follow local guidance and applicable stormwater best management practices such as those at Massachusetts Stormwater Handbook and Stormwater Standards | Mass.gov.
- Other approvals and/or permits are most likely required, including compliance with the Massachusetts Wetlands Protection Act and local wetlands regulations. *Note that compliance with the compensatory storage requirements for floodplains in the Wetlands Protection Act* ***do not*** *guarantee that the project will meet the no-rise analysis requirements for floodways*.