

**NEW YORK STATE
DEPARTMENT OF AGRICULTURE AND MARKETS**

**Guidelines for
Agricultural Mitigation for Solar Energy Projects
4/11/18**

The following guidelines apply to the construction, restoration, and follow-up monitoring of solar energy projects impacting agricultural land. Depending on the size of the project, the project sponsor should hire an Environmental Monitor to oversee the construction, restoration and follow-up monitoring in agricultural fields.

For projects involving less than 20 acres of agricultural land, the Construction Manager or some other on-site personnel could serve as the Environmental Monitor. The Environmental Monitor should be on site whenever construction or restoration work is occurring on agricultural land.

For projects involving 20 acres or more of agricultural land the Environmental Monitor should be on site whenever construction or restoration work is occurring on agricultural land and should coordinate with the New York State Department of Agriculture and Markets, Division of Land and Water Resources to develop an appropriate schedule for project inspections to assure that the goals of these guidelines are being met.

In all cases the Environmental Monitor should contact the New York State Department of Agriculture and Markets, Division of Land and Water Resources, if farm resource concerns, management matters pertinent to the agricultural operation and site-specific implementation conditions found in these guidelines cannot be resolved.

Construction Requirements

The surface of access roads constructed through agricultural fields should be level with the adjacent field surface.

Install culverts and waterbars to maintain natural drainage patterns.

Strip all topsoil from agricultural areas used for vehicle and equipment traffic, parking, and equipment laydown and storage areas. Limit all vehicle and equipment traffic and parking to the access road and/or designated work areas such as laydown areas. Do not allow vehicles or equipment outside the work area without prior approval from the landowner and, when applicable, the Environmental Monitor.

The area of impact from the installation of electric cables can vary depending on the installation method and amount of disturbance. When an open trench is required for cable installation, topsoil stripping from the entire work area may be necessary. As a result, additional work space may be required.

Stockpile topsoil stripped from work areas (parking areas, electric cable trenches, along access roads) separate from other excavated material (rock and/or subsoil). At least 50 feet of temporary workspace is needed along "open-cut" electric cable trenches for proper topsoil segregation. All topsoil will be stockpiled immediately adjacent to the area where stripped/removed and shall be used for restoration on that particular site. Clearly designate topsoil stockpile areas in the field and on construction drawings.

Electric interconnect cables and transmission lines installed above ground can create long term interference with mechanized farming on agricultural land. As a result, interconnect cables should be buried in agricultural fields wherever practicable. Interconnect cables and transmission lines installed above ground should be located outside field boundaries wherever possible. When above ground cables and transmission lines must cross farmland, minimize agricultural impacts by using taller structures that provide longer spanning distances and locate poles on field edges to the greatest extent practicable.

All buried electric cables in cropland, hayland and improved pasture should have a minimum depth of forty-eight inches of cover. In unimproved grazing areas and land permanently devoted to pasture, the minimum depth of cover should be thirty-six inches. In areas where the depth of soil over bedrock ranges from zero to forty-eight inches, the electric cables should be buried entirely below the top of the bedrock or at the depth specified for the particular land use whichever is less. At no time should the depth of cover be less than twenty-four inches below the soil surface.

When buried electric cables alter the natural stratification of soil horizons and natural soil drainage patterns, rectify the effects with measures such as subsurface intercept drain lines. Consult the local Soil and Water Conservation District concerning the type of intercept drain lines to install to prevent surface seeps and the seasonally prolonged saturation of the cable installation zone and adjacent areas. Install all drain lines according to Natural Resource Conservation Service standards and specifications. Drain tile should meet or exceed the AASHTO M252 specifications.

Remove all excess subsoil and rock from the site. On-site disposal of such material should only be allowed if approved by the landowner, with appropriate consideration given to any possible agricultural or environmental impacts.*

In pasture areas, it may be necessary to construct temporary or permanent fences around work areas to prevent livestock access, consistent with landowner agreements.

Pick up all pieces of wire, bolts, and other unused metal objects and properly disposed of as soon as practical to prevent mixing with any topsoil.*

Excess concrete will not be buried or left on the surface in active agricultural areas. Concrete trucks will be washed outside of active agricultural areas.*

(*Any permits necessary for disposal under local, State and/or federal laws and regulations must be obtained by the contractor, with the cooperation of the landowner when required.)

Restoration Requirements

All agricultural areas temporarily disturbed by construction should be decompacted to a depth of 18 inches with a deep ripper or heavy-duty chisel plow. Soil compaction results should be no more than 250 pounds per square inch (PSI) as measured with a soil penetrometer. In areas where the topsoil was stripped, soil decompaction should be conducted prior to topsoil replacement. Following decompaction, remove all rocks 4 inches and larger in size from the surface of the subsoil prior to replacement of the topsoil. Replace the topsoil to original depth and reestablish original contours where possible. Remove all rocks 4 inches and larger from the surface of the topsoil. Subsoil decompaction and topsoil replacement should be avoided after October 1. All parties involved should be cognizant that areas restored after October 1st may not obtain sufficient growth to prevent erosion over the winter months. If areas are to be restored after October 1st, necessary provision should be made to restore and/or reseed any eroded or poorly germinated areas in the springtime, to establish proper growth.

Regrade all access roads to allow for farm equipment crossing and to restore original surface drainage patterns, or other drainage pattern incorporated into the design.

Seed all restored agricultural areas with the seed mix specified by the landowner, in order to maintain consistency with the surrounding areas.

Repair all surface or subsurface drainage structures damaged during construction to as close to preconstruction conditions as possible, unless said structures are to be removed as part of the project design. Correct any surface or subsurface drainage problems resulting from construction of the solar energy project with the appropriate mitigation as determined by the Environmental Monitor, Soil and Water Conservation District and the Landowner.

On affected farmland, postpone any restoration practices until favorable (workable, relatively dry) topsoil/subsoil conditions exist. Restoration should not be conducted while soils are in a wet or plastic state of consistency. Stockpiled topsoil should not be regraded and subsoil should not be decompacted until plasticity, as determined by the Atterberg field test is adequately reduced. No Project restoration activities should occur in agricultural fields between the months of October through May unless favorable soil moisture conditions exist.

Following restoration, remove all construction debris from the site.

Monitoring and Remediation

The Project Sponsor should provide a monitoring and remediation period of no less than one year immediately following the completion of initial restoration. The one year period allows for the effects of climatic cycles such as frost action, precipitation and growing

seasons to occur, from which various monitoring determinations can be made. The monitoring and remediation phase is used to identify any remaining agricultural impacts associated with construction that are in need of mitigation and to implement the follow-up restoration.

General conditions to be monitored include topsoil thickness, relative content of rock and large stones, trench settling, crop production, drainage and repair of severed subsurface drain lines, fences, etc.

Topsoil deficiency and trench settling shall be mitigated with imported topsoil that is consistent with the quality of topsoil on the affected site. Determine excessive amounts of rock and oversized stone material by a visual inspection of disturbed areas as compared to portions of the same field located outside the construction area. Remove and dispose of all excess rocks and large stones.

When the subsequent crop productivity within affected areas is less than that of the adjacent unaffected agricultural land, the Project Sponsor as well as other appropriate parties, should help to determine the appropriate rehabilitation measures to be implemented.

Decommissioning

If the use of the solar arrays is discontinued, remove all above ground structures and restore all areas previously used for agricultural production, according to recommendations by the landowner, the Soil and Water Conservation District, and Ag. and Markets . All concrete piers, footers, or other supports should be remove to a depth of 48 inches below the soil surface. Underground electric lines should be abandoned in place. Access roads in agricultural areas should be removed, unless otherwise specified by the landowner.