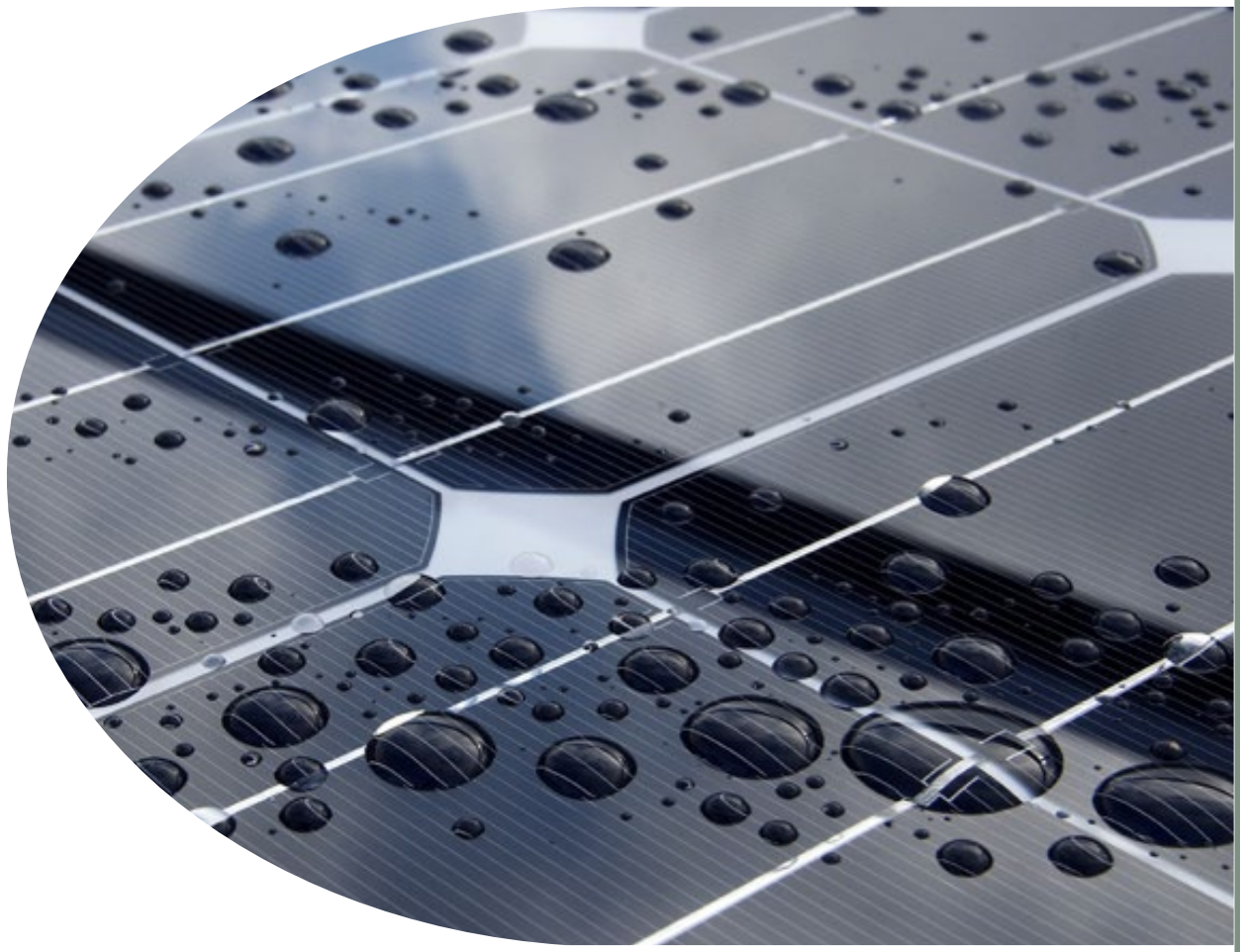
NEW YORK STATE | Department of Environmental Conservation

Solar Development and the Construction General Permit

Broome County Spring Municipal Training Series: Solar and the Environment
April 16, 2026

BACKGROUND & IMPLEMENTATION



BACKGROUND

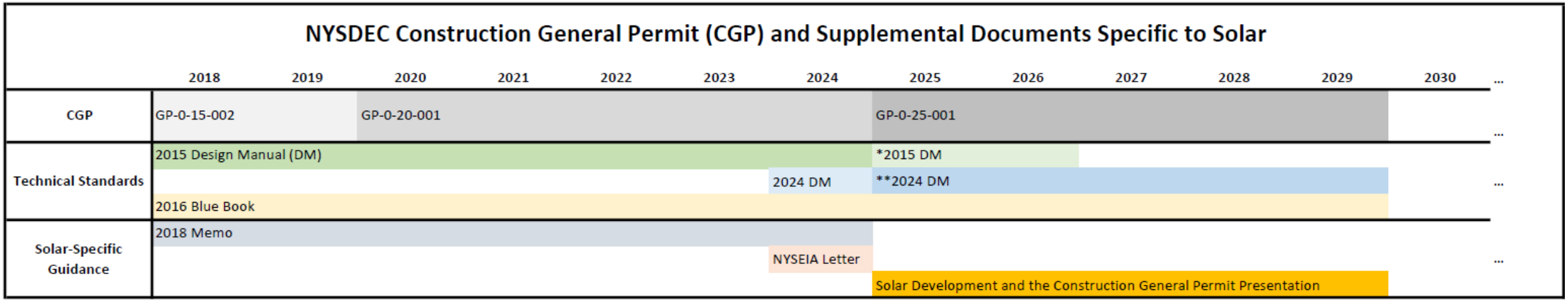
The Division of Water (DOW) issued “Solar Panel Construction Stormwater Permitting/SWPPP Guidance” on April 5, 2018. The 2018 Memo outlined two scenarios to comply with the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-20-001, (CGP). However, the 2018 Memo did not completely address every solar installation scenario, and stormwater best practices and research relevant to the solar industry were evolving.

Therefore, the Construction General Permit (CGP) GP-0-25-001 was updated to replace the 2018 solar memo and provide clarification to achieve statewide consistency in the implementation of the CGP for solar energy construction sites.

To be clear, the 2018 solar memo has been superseded by the CGP GP-0-25-001 (i.e., the 2018 solar memo is null and void), and this presentation is provided to help designers comply with GP-0-25-001.

TIMELINE FOR IMPLEMENTATION

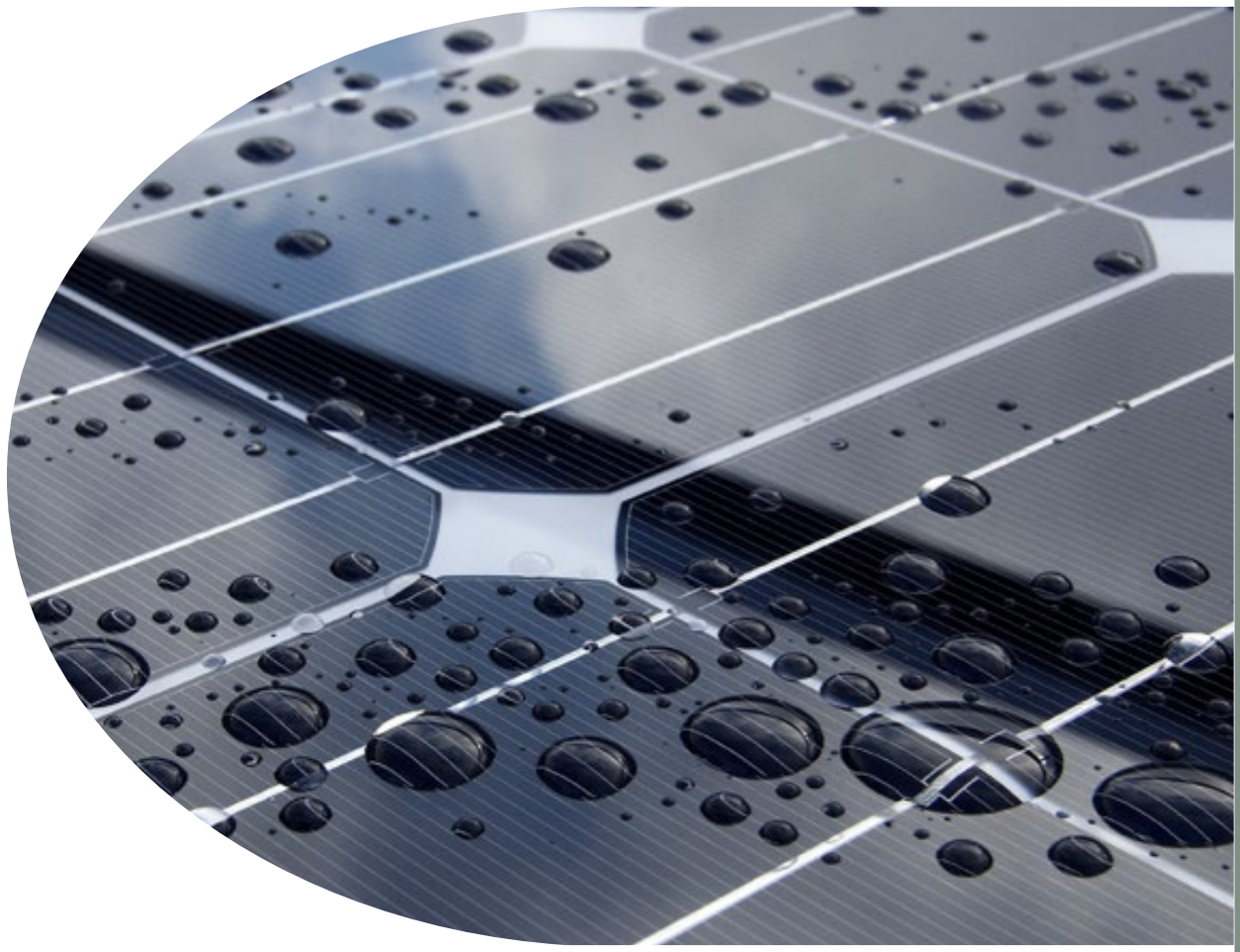
As of 4/9/26 JRM *(Note: there could be changes in the future)*



*2015 DM is allowed under GP-0-25-001 if specific requirements are met, for a set time period; see GP-0-25-001 Part III.B.2.b.iii. and Part III.B.2.d. See also the sections in the GP-0-25-001 Fact Sheet and GP-0-25-001 Responsiveness Summary corresponding to those references.

**2024 DM is the default requirement in GP-0-25-001. See GP-0-25-001 Part II.C.1. and Part III.B.2.b.i.

GUIDING PRINCIPLES



GUIDING PRINCIPLES

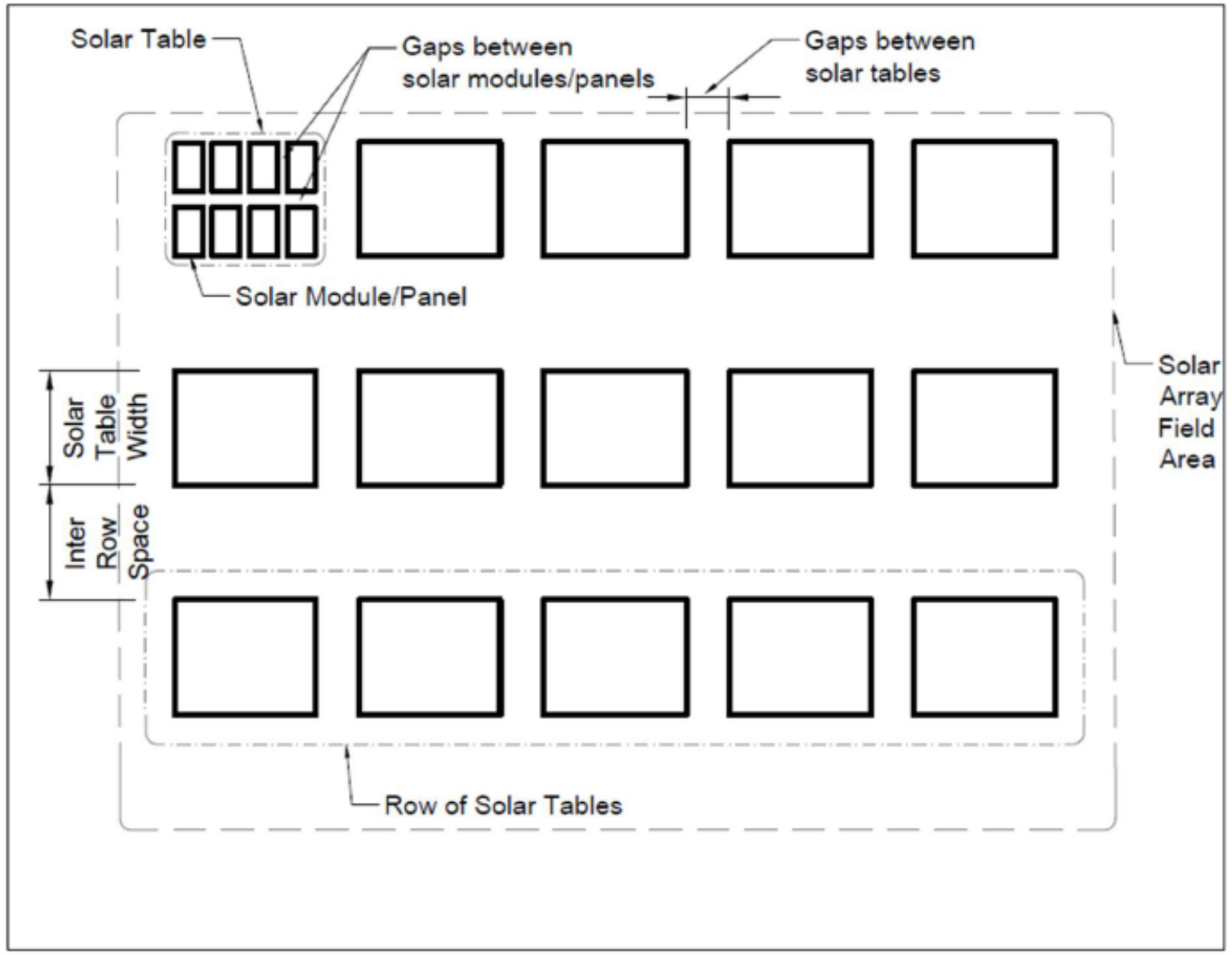
The following guiding principles shall be considered during the design of solar energy construction sites:

- Solar project sites are to be designed and constructed to promote sheet flow and infiltration underneath and between rows of solar panels.
- Compaction on solar sites is a critical factor to address; soil decompaction and restoration may be required after heavy equipment has been used to install solar panels.
- Solar project sites, like all other sites covered under the CGP, need to be stable, and discharges on solar project sites need to be non-erosive.

SOLAR ARRAY FIELD AREAS VS. OTHER AREAS ON SITE

The scenarios in this training only apply to the solar array field area of the project site (including rows of solar panels, inter-row spaces, and surrounding buffer area), excluding traditional impervious areas (e.g., buildings, substation pads, traditional access roads, parking areas).

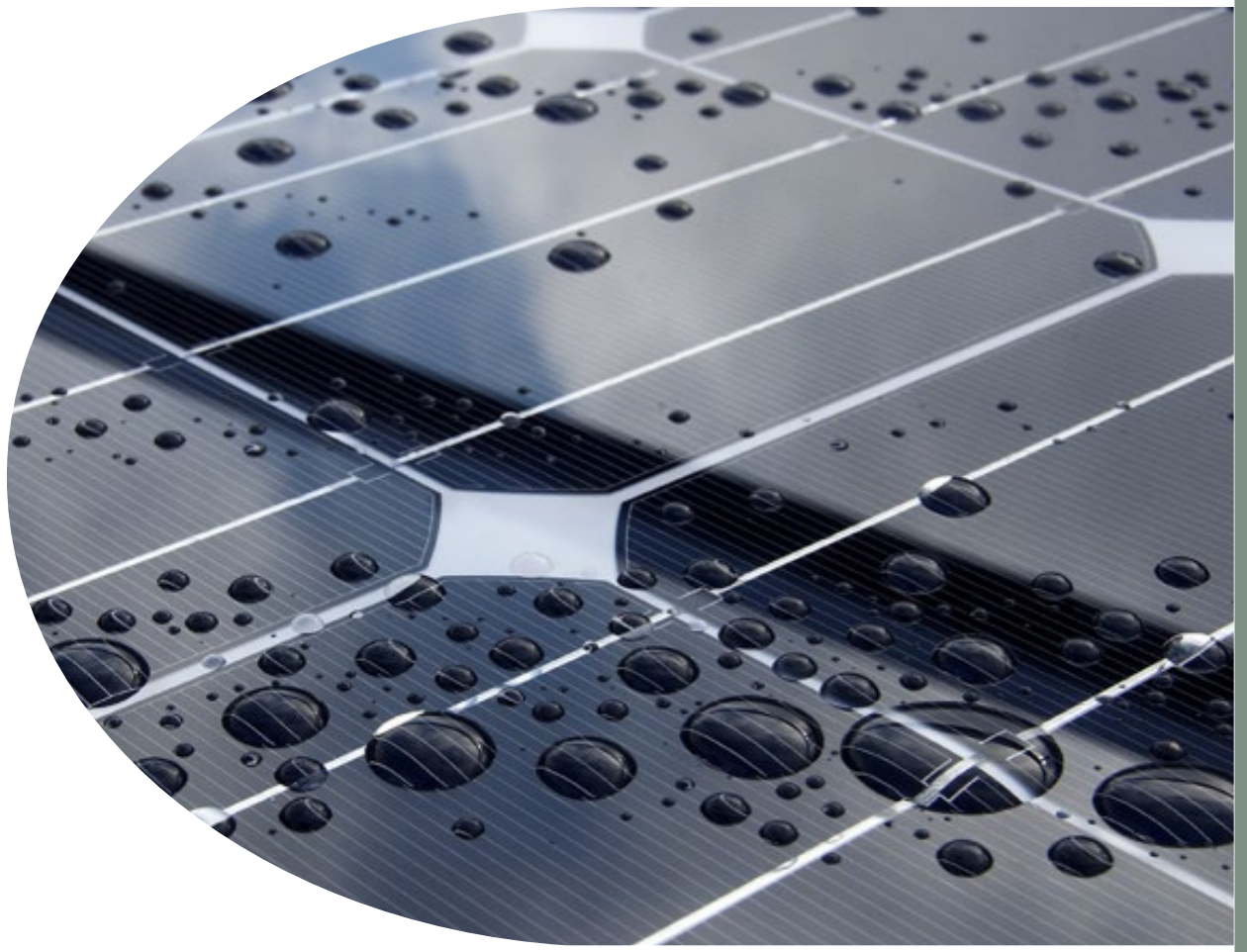
SOLAR ARRAY FIELD AREAS VS. OTHER AREAS ON SITE



SOLAR ARRAY FIELD AREAS VS. OTHER AREAS ON SITE

For solar energy construction sites that include the construction of traditional impervious areas (e.g., buildings, substation pads, traditional access roads, parking areas), the Stormwater Pollution Prevention Plan (SWPPP) must address post-construction stormwater management controls for those areas of the project.

APPENDIX B
TABLE 1:
BASIC SWPPP



8% SLOPE MAXIMUM

Maximum 8% slope

- DM Section 5.3.2 Sheet Flow to Filter Strip
- Permanent vegetation designed to treat sheet flow from adjacent surfaces and remove pollutants through filtration and infiltration

PANELS ELEVATED OFF THE GROUND

Solar panels are constructed on post or rack systems and elevated off the ground surface enough to allow a well-established vegetative cover (per “Final Stabilization” definition in Appendix A of the CGP).

PANELS SPACED ONE TABLE WIDTH APART

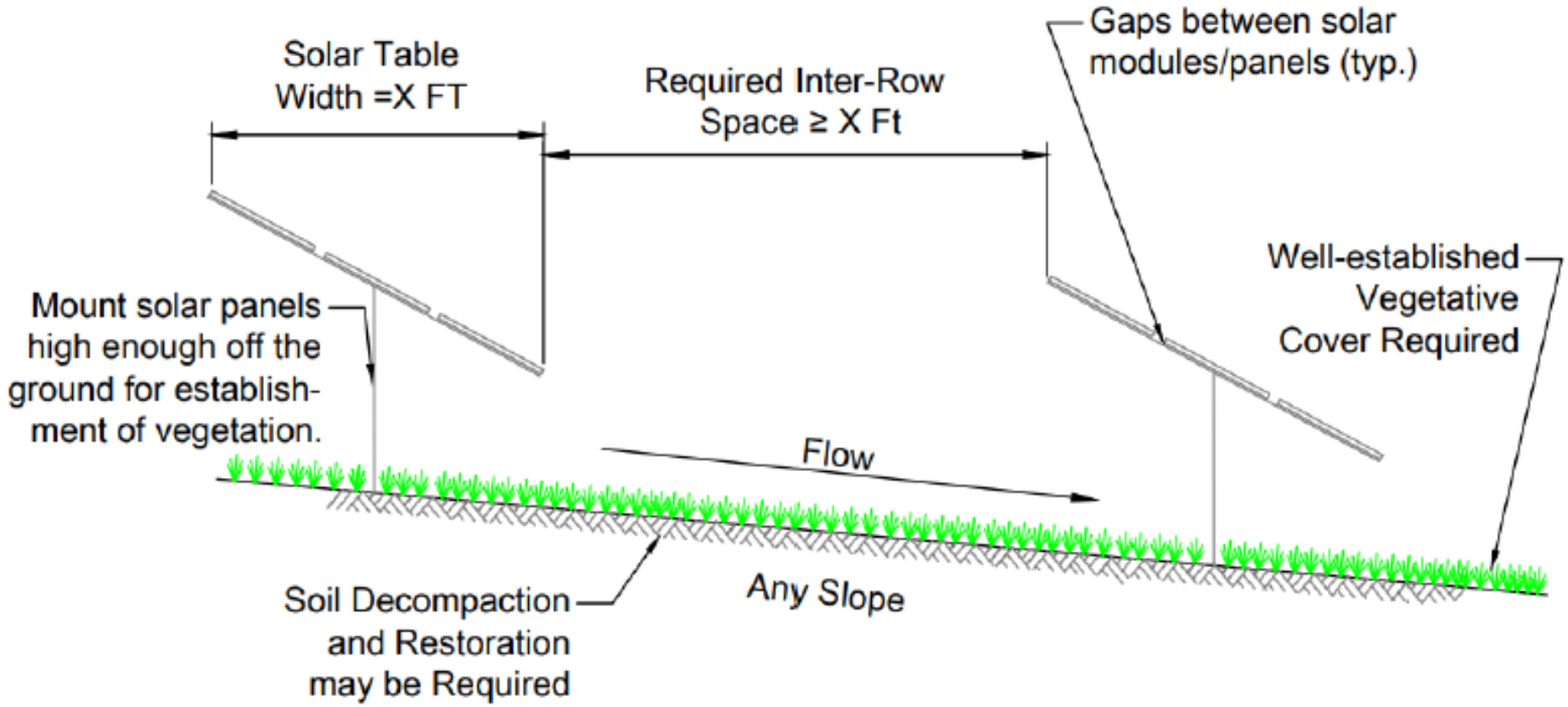
The rows of solar panels are spaced apart so that stormwater can flow off the down gradient side of the panels and continue as sheet flow across the ground surface (maximum 8% slope)

- DM Section 5.3.2 Sheet Flow to Filter Strip
- DM Section 5.3.4 Disconnection of Impervious Area
- Diagram 2: NYSDEC Solar Profile View: Inter-Row Space Requirements.

PANELS SPACED ONE TABLE WIDTH APART

- For rotating panels, the inter-row space requirement must be met for the largest solar panel width considering all solar panel rotations/positions. The inter-row space requirement must be met downgradient of every row of solar panels on site.
- The design professional needs to consider the most conservative or design limiting position for the panels when determining how these design standards should be implemented.

PANELS SPACED ONE TABLE WIDTH APART



Note:
X= plan view distance,edge to edge (the largest distance possible for rotating tables considering all table rotations/positions).

PANELS WILL NOT ALTER HYDROLOGY

Construction of the solar array field area will not alter the hydrology from pre- to post-development conditions

- Appendix A of the CGP, for definition of "Alter the hydrology…the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g., 10 yr and 100 yr).
- The design professional needs to perform the necessary site assessment/hydrology analysis to make this determination.

MAINTAIN SHEET FLOW: Panels not on the contour

- If solar panels are not generally installed along the contour, erosion and sediment controls are required in and adjacent to the solar array field area to minimize shallow concentrated flow and rill formation until “Final Stabilization” is achieved.
- Once “Final Stabilization” is achieved, and the panels are:
  - Elevated
  - Adequately spaced
  - Will not alter the hydrology

  It is not expected that runoff from the solar panels will result in concentrated flow and soil erosion.

MAINTAIN SHEET FLOW: Panels not on the contour

Through proper design and installation of panels - even if not along the contour - the site could still be designed to allow the area to function as a pervious filter strip.

- Sheet Flow to Filter Strip (Section 5.3.2 of the 2024 DM)
- Panels are:
  - Elevated
  - Adequately spaced
  - Will not alter the hydrology
  - Precipitation falls to a well-vegetated surface and flows across the solar array field area as sheet flow
- This meets the water quality volume (WQv) and runoff reduction volume (RRv) sizing criteria in the CGP for this portion of the solar array field area.
- Since the panels are not treated as connected impervious area, the 10 ft. pretreatment requirement is not necessary for each row of tables.

MAINTAIN SHEET FLOW: Slope limitations

In accordance with Table 5.7 of the 2024 DM, it is noted that there are slope limitations for the filter strip. They can only be used on slopes less than or equal to 8%. This is to ensure that sheet flow can be maintained. If slopes are greater than 8%, then there is an alternative:

- Design and implement permanent engineered practices from the Blue Book and DM or use the NYSDEC Gravel Diaphragm detail (Diagram 3) along the slope/contour, to reestablish and maintain sheet flow, which is considered to meet the RRv and WQv requirements. It is worth noting that the use of the gravel diaphragm has been effectively implemented in many scenarios.

OR…

MAINTAIN SHEET FLOW: Slope Limitations

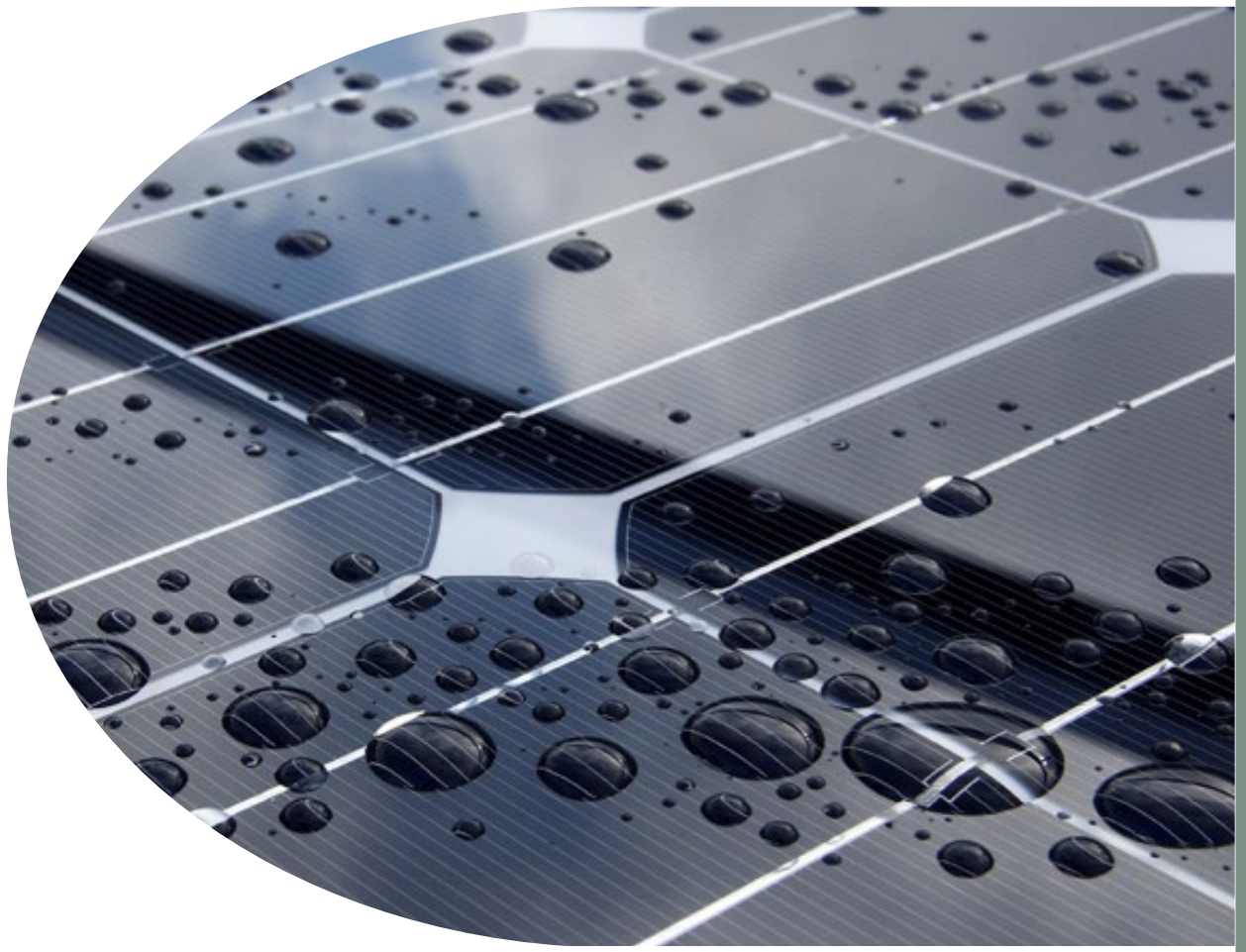
- Where sheet flow cannot be maintained, consider the panels in that area to be connected impervious and design post-construction stormwater management control practices to provide water quality and quantity controls for this portion of the solar array field area consistent with the CGP and DM. Some acceptable design elements used on other sites for RRv and WQv include gravel diaphragms (see Diagram 3: NYSDEC Gravel Diaphragm Along the Contour), level spreaders and flow diffusers.

SUMMARY

- Unlike conventional construction projects, when the project can achieve:
  - Panels elevated off the ground surface AND
  - Rows of panels have adequate spacing AND
  - Sheet flow is maintained AND
  - There is no change in hydrology

  No other practices are required to address the WQv and RRv requirements for the Solar Array Field Area.

APPENDIX B TABLE 2: FULL SWPPP



SWPPPS THAT REQUIRE POST-CONSTRUCTION STORMWATER MANAGEMENT

- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the New York State Standards and Specifications for Erosion and Sediment Controls (Blue Book), or the 2024 New York State Stormwater Management Design Manual (DM), OR
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions, OR
- Solar array field areas with panels spaced closer than one table width apart, OR
- Solar array field areas with ground-mounted tables, OR
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)

GREATER THAN 8% SLOPE

If slopes are greater than 8% and rows of solar panels are installed generally along the contour, these design options are available:

- Design and implement permanent engineered practices from the Blue Book, the DM, or Diagram 3: NYSDEC Gravel Diaphragm, that reestablish and maintain sheet flow, which will meet RRv and WQv requirements; or
- Where sheet flow cannot be maintained as per 3.B.1, design post-construction stormwater management control practices to provide the RRv and WQv **for this portion of the solar array field area**. The sizing criteria shall be calculated assuming that the panels in the portion of the solar array field area on a slope greater than 8% are connected impervious.

GREATER THAN 8% SLOPE

If individual rows of solar panels are not generally installed along the contour, and on a slope greater than 8%:

- Design and implement permanent engineered practices from the Blue Book, the DM, or Diagram 3: NYSDEC Gravel Diaphragm, that reestablish and maintain sheet flow, which will meet RRv and WQv requirements; or
- Where sheet flow cannot be maintained, design post-construction stormwater management control practices to provide water quality and quantity treatment (RRv, WQv, CPv, Qp, and Qf) **for this portion of the solar array field area**. The sizing criteria shall be calculated assuming that the panels in the portion of the solar array field area on a slope greater than 8% are connected impervious.
    - Diagram 3: NYSDEC Gravel Diaphragm Along the Contour may be used to meet RRv and WQv requirements, but the requirements for CPv, Qp, and Qf must be met with a different practice(s).

Summary

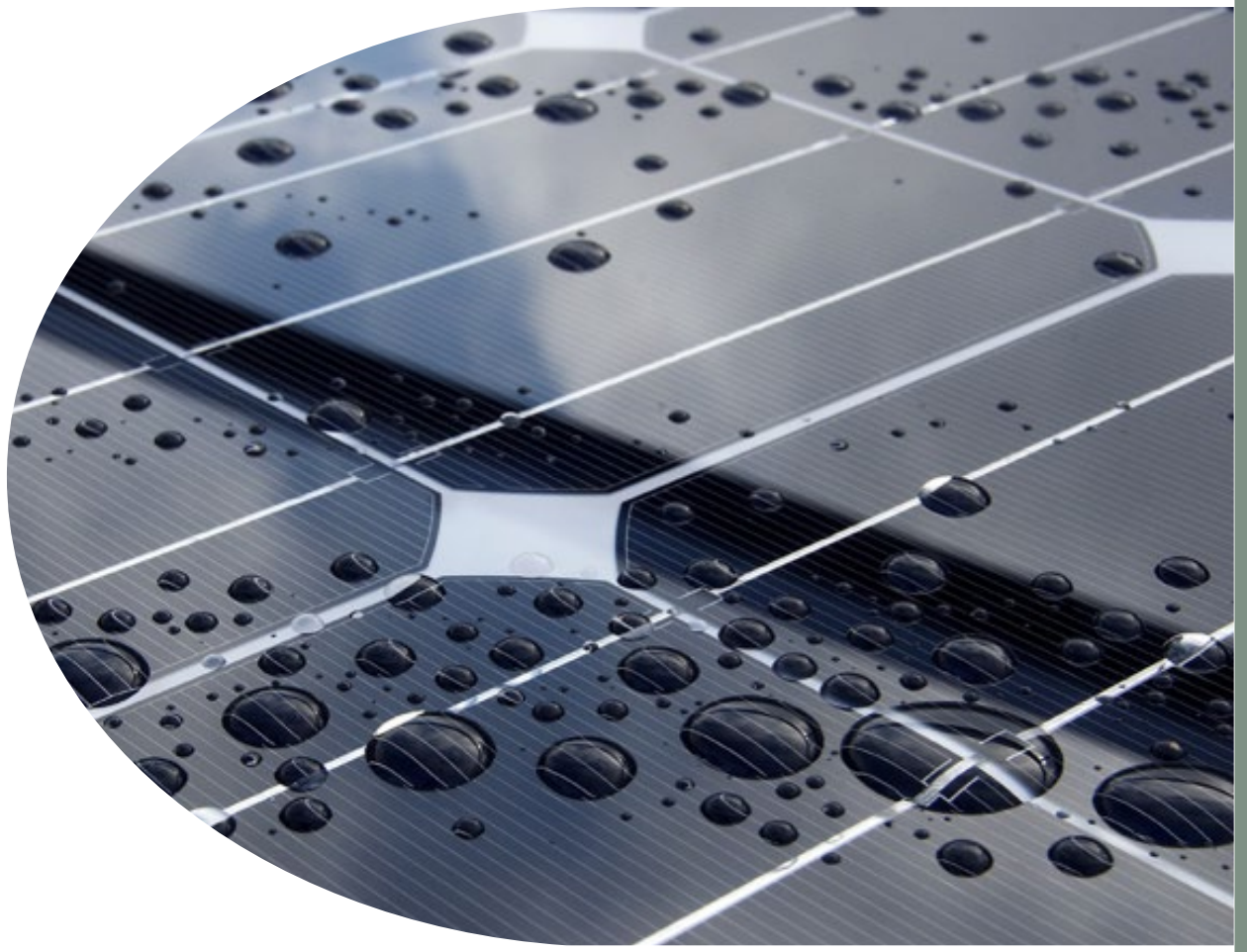
Basic SWPPP (Erosion and Sediment Control Plan Only)

- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre-to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.

Full SWPPP (Erosion and Sediment Controls AND Post-construction Stormwater Management:

- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre-to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)

OPTIONAL TOOLS FOR SOLAR SITES



LIMITED USE PERVIOUS ACCESS ROAD

This is not required for solar sites. It can only be used if all of the following criteria have been met:

- Not utilized during construction.
- Not temporarily covered with fabric and stone or any other materials during construction.
- Not used as a RRv practice for other impervious areas on site.
- For hydrology analysis, the Limited Use Pervious Access Road Curve Number (CN) will match pre-development conditions.
- The design and construction of the Limited Use Pervious Access Road needs to comply with all of the notes in the detail.

ALTERNATIVE SUBSTATION DESIGN

- Developed by EDR
- The systems provide treatment and management of post-construction stormwater runoff quality and quantity by providing storage and infiltration of all rain events, up to and including, the 100-year storm
- Has to comply with Chapters 5 and 6 of the DM to not be considered a deviation
  - Separation distance to groundwater/bedrock for infiltration practices
  - Minimum width of the riparian buffer/filter strip of 50 ft.

SCARIFIED ROAD DETAIL

- For upland roads and work areas
  - Not suitable for wetlands or agricultural areas
  - Meant for minimal intermittent use
  - Not intended to ensure access for emergency vehicles
- There is flexibility in modeling these in TR-55.
  - Mostly vegetated: Pervious surface
  - Farm road: Dirt road
  - Use BPJ

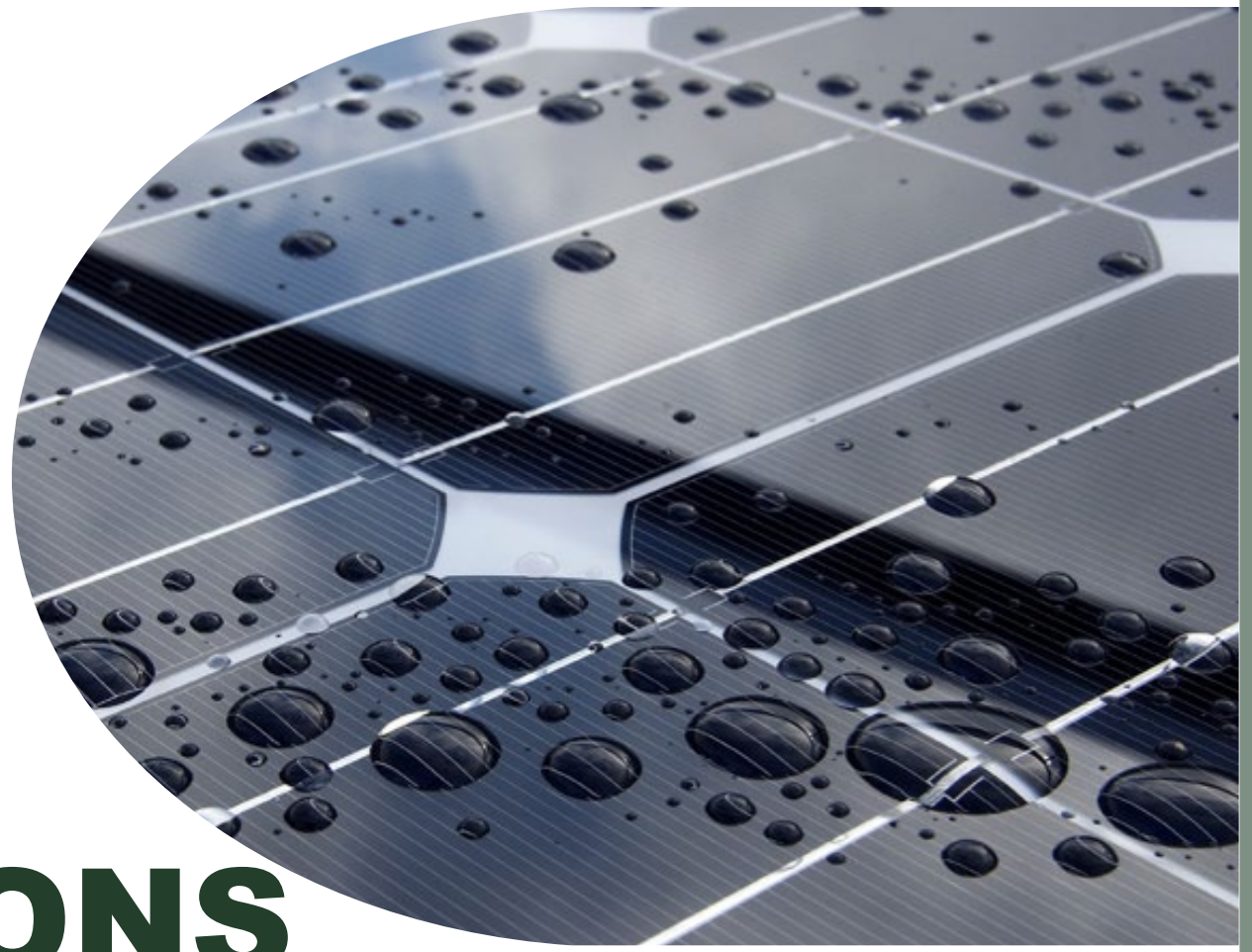
SCARIFIED ROAD DETAIL

- During construction, the access road is gravel.
- Post-construction, bring in 6 inches of topsoil and scarify, then seed and mulch
- These roads get well-vegetated and have reasonably good infiltration
- Particularly useful for utility lines
  - Currently used by National Grid and Central Hudson Gas and Electric among others

FLOW DIFFUSERS

- Provide additional attenuation to reduce runoff rates
- Used at staggered locations primarily beneath the panels to catch water leaving the panels and slow it down while avoiding most of the drive aisles for construction
  - When flow diffusers are used to treat the WQv of the panels, the designer sizes the storage volume of the flow diffuser sump to hold the calculated incremental WQv of the contributing panel sub-area flowing into each diffuser.
  - The WQv sump sizing criteria is calculated using the applicable WQv equations in the DM, assuming the panels in the portion of the contributing solar array field are impervious for the purposes of sizing the sump
- The maximum flow diffuser spacing is the same as water bar spacing outlined in the Blue Book

ADDITIONAL CONSIDERATIONS



TREE CLEARING

Note: this slide was added October 24, 2025

The best, and standard, practice:

- Owner/operator to prepare a complete SWPPP that includes the entire renewable energy project, including the tree clearing sequence.
- Submit a corresponding eNOI for the entire renewable energy project.
- Owner/operator then submits an eNOT when the entire renewable energy project construction is complete.

In the event that the tree clearing sequence must be conducted prior to development of the complete SWPPP for the entire renewable energy project:

- The 2025 CGP allows for the owner/operator to prepare a SWPPP just for the tree clearing sequence and submit a corresponding eNOI.
- An eNOT for the tree clearing sequence must be filed by the owner/operator before submitting an eNOI for remainder of the renewable energy project.

In the event that the above options are not feasible:

- The 2025 CGP allows for the owner/operator to prepare a SWPPP just for the tree clearing sequence and submit a corresponding eNOI.
- The 2025 CGP allows the owner/operator to then modify the tree clearing SWPPP, and the corresponding eNOI, to include the remainder of the renewable energy project.

TREE CLEARING

Note: this slide was added October 24, 2025

In all three of the cases identified, all of the eligibility requirements for the entire project (common plan of development or sale) need to be met. This includes:

- All UPA permits or their equivalent, including the 401 Water Quality Certification (WQC), must be obtained before submittal of the eNOI.

ADDITIONAL DEC RESOURCES

- Consult the DOW Bureau of Flood Protection & Dam Safety “Floodplain Management Guidelines for Solar Array and Wind Farm Projects” Fact Sheet if considering a solar project in a floodplain.
- Consult the Division of Materials Management “Photovoltaic Solar Projects at Closed Solid Waste Landfills” Program Policy (DMM-4), issued 01/04/2023, if considering a solar project at a landfill.

DECOMPACTION

- Heavy use areas, such as laydown yards and temporary access roads need to be decompacted to 12”, except in agricultural areas where it must be 18”
- Traffic areas between the rows of solar tables need to be decompacted to 6 inches or the depth of the topsoil layer, whichever is greater

DECOMPACTION

- At the end of the project an inspector should be able to push a 3/8-inch metal bar 12 inches into the soil just with bodyweight.
- If the solar array field area falls under Table 2 AND no decompaction is performed, then the designer needs to account for the change in the modeling inputs and provide WQv treatment for those areas

DEWATERING

The CGP only allows for discharges of clean water. If soil or groundwater contamination exists, or a polymer or other water treatment chemical is used then:

- Hold and haul OR
- Apply for an Individual SPDES Permit
  - Inform the Applicant as early on in the process as possible that they may need to apply so there is no lapse in the work schedule
  - If a treatment system is proposed, the Applicant still needs to get an Individual SPDES permit.

IN CONCLUSION

“With great power comes great responsibility.”

-Uncle Ben to Peter Parker

We all need to see these projects succeed in the most environmentally conscious way practicable.

Sometimes minimums aren't enough.

Make sure you consider your site and conditions - and make sound choices.

SPECIAL THANKS

Julie Melançon, CPESC

John Muthersbaugh, EIT

Luke Scannell, PE

Carrie Buetow, CPESC

Natalie Browne

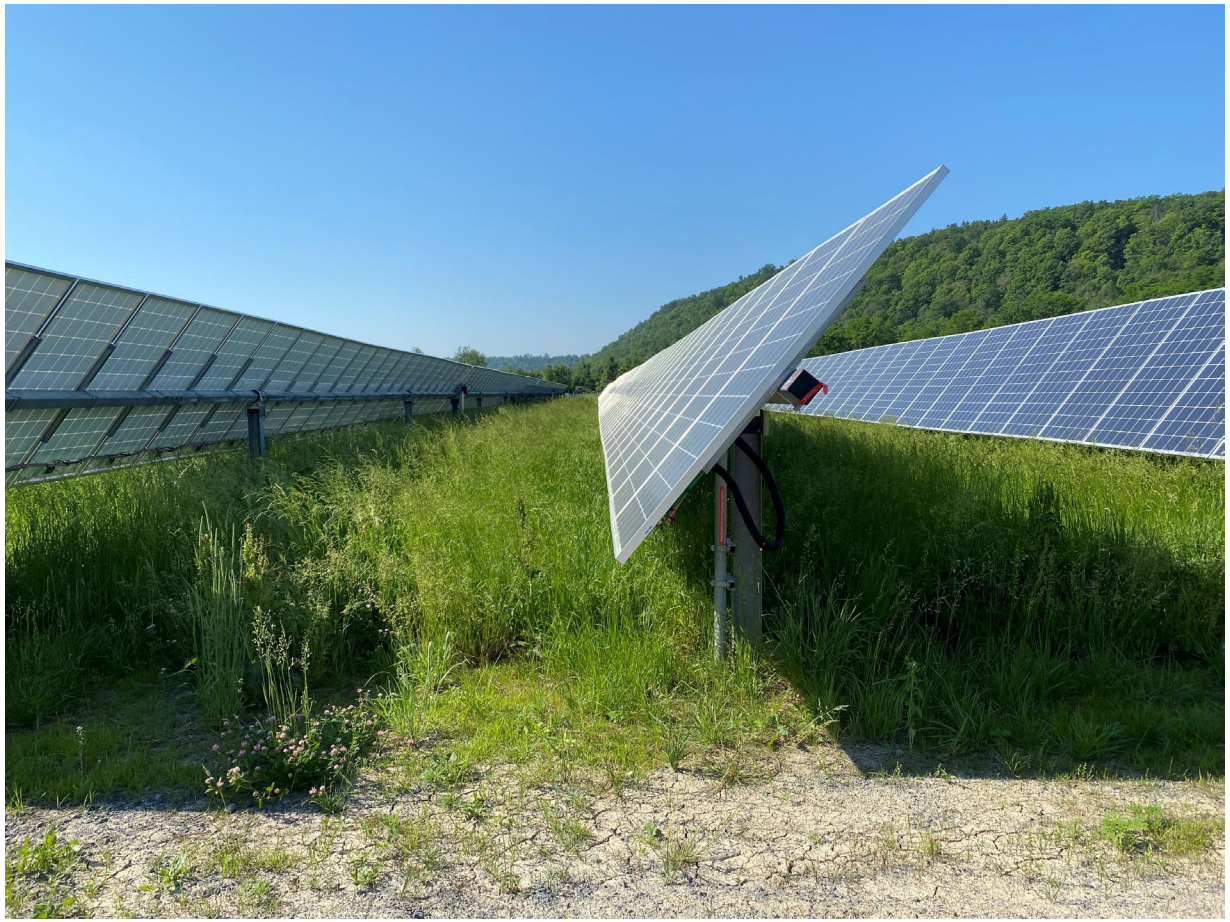
Steve Rose, PE

Michelle Lafay

Brian Nicholson, PE

Kris LaPan, PE

Benjamin Fiorese



End

Contact Information

Contact

Map of DEC Offices:

https://dec.ny.gov/about/contact-us/map-of-dec-offices

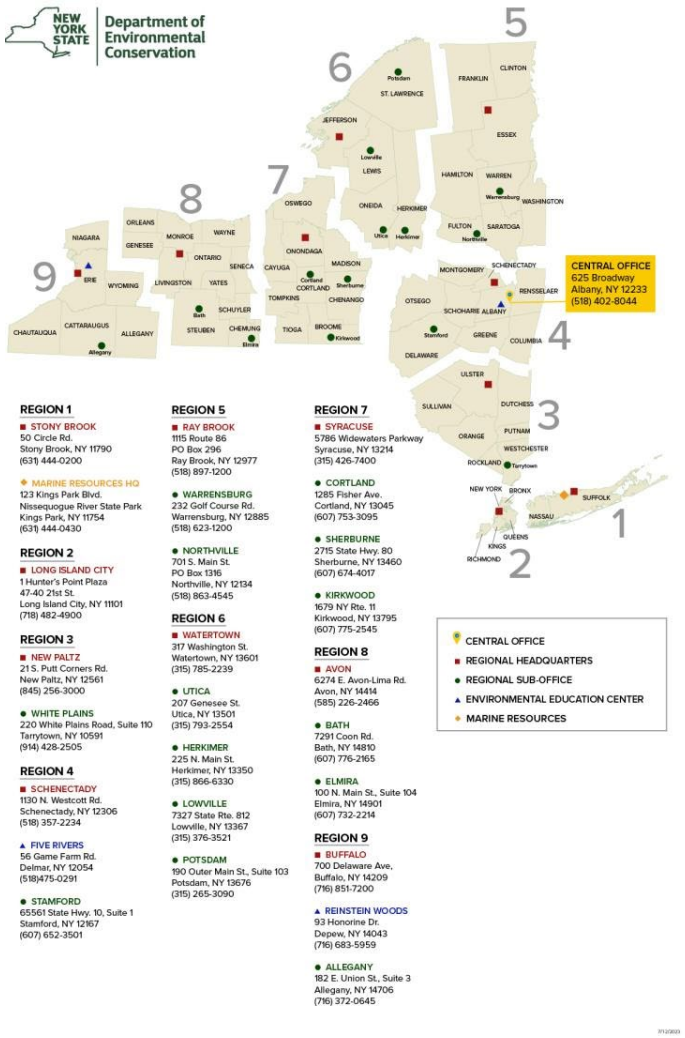
Project Specific Question?

Contact the DEC Region where the site is located.

Other CGP Question?

Contact the DEC Central Office:

- Stormwater_info@dec.ny.gov
- 518-402-8111



Contacts

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Q & A

Department of Environmental Conservation