



Utility Scale Solar Issues in VA

Podcast Interview with Virginia Association of Counties

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Scale Perspective – Land Use Change Expected in Virginia by 2045

Power (GW)	30	65
Land Area (acres)	317,000	687,000
Panel Area (acres)	57,000	123,000

Land Area (acres):

Washington, D.C.	39,000
Arlington County	16,640
Prince William County	215,040
Fairfax County	250,240
Loudoun County	332,800

Key Solar-Specific Management Considerations in Virginia

1. Cut/Fill/Topsoil burying with compaction
2. Lack of vegetative cover

Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. (9VAC25-840-40.1)

3. Curve numbers
 - a. Compaction
 - b. Panel imperviousness
4. Maintenance of controls
5. Improper installation of controls
6. Disregard for natural drainage divides

Virginia Tech White Paper



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White Paper

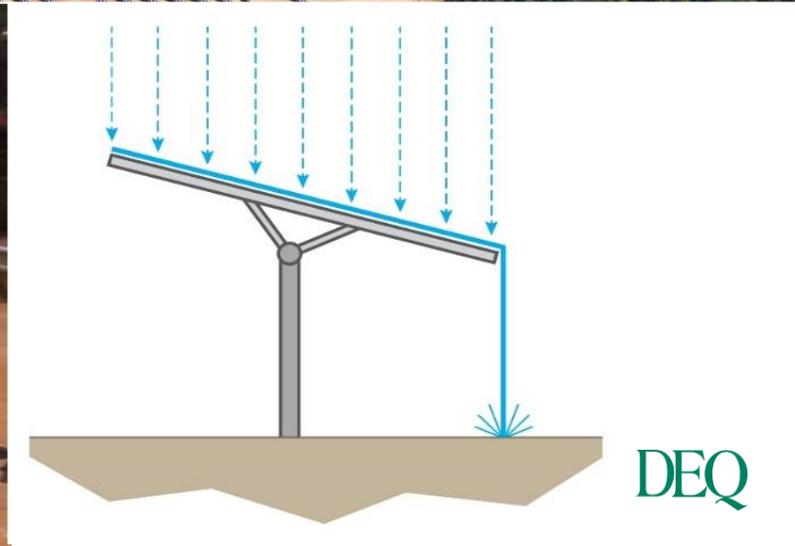
Soil-Site Management Protocols & Best Management Practices (BMPs) for Utility Scale Solar Site (USS) Development and Management in Virginia



USS Site Under Active Development in Southside Virginia (image from DEQ/AEP)

Full Document: <https://landrehab.org/wp-content/uploads/2024/05/USS-White-Paper-5-12-24.pdf>





The Biggest Erosion & Stormwater Issue in Virginia: Minimum Standard #1 (MS-1)

SW Handbook Section 5.3.1.1 - MS-1: Stabilization

Permanent or temporary soil stabilization will be applied to denuded (bare soil) areas within 7 days after final grade is reached on any portion of the site. Temporary soil stabilization will be applied within 7 days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization will be applied to areas that are to be left dormant for more than 1 year.

If final grade is reached on any portion of the site, vegetation must be established to prevent erosion. Because ground cover can reduce erosion potential by more than 90%, temporary seeding must be applied if any portion of the site will remain dormant for more than 14 days.

Compliance Snapshot – June 2023

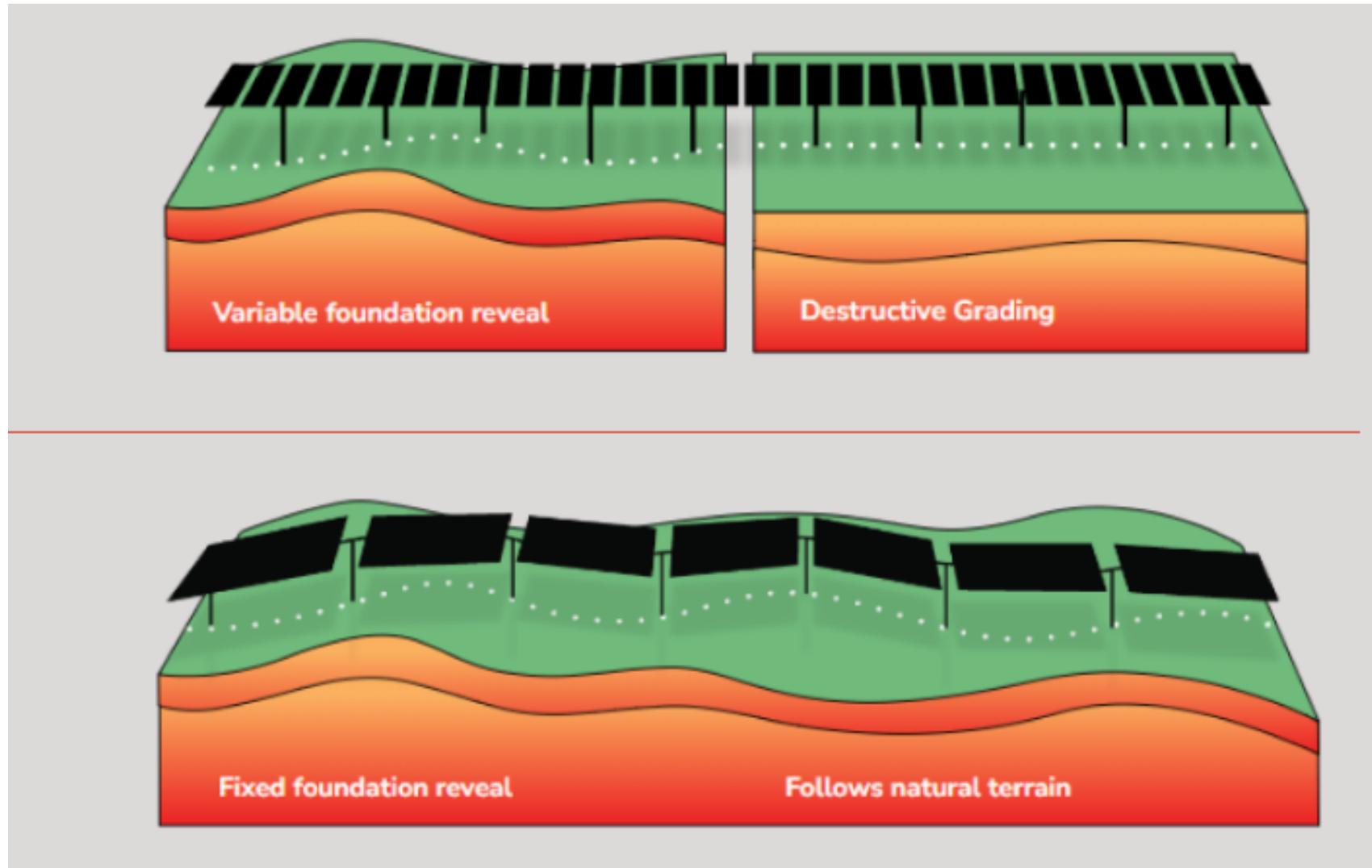
Permitted USS	124	
DEQ is VSMP	77	
Final Consent Orders	12	16%
Pending Consent Order	11	14%
March Inspections:		
• Notices of Violation	1	3%
• Warning Letters	8	20%
• Corrective Action Needed	21	54%
• No Issues	9	23%
• Total Sites	39	100%

$\frac{53}{77}$ = At least 69% had
“Issues”

Compliance Snapshot – June/July 2024

Regional Offices	Count of Total Sites	Noncompliance Rate
Blue Ridge	167	58%
Northern	39	67%
Piedmont	116	48%
Southwest	165	27%
Tidewater	94	10%
Valley	257	16%
TOTAL	838	33%

How to Reduce Grading





How to Reduce Runoff

SW Handbook Section 6.3.1.5.4 – Solar Cell Orientation/Inclination

...The rain sensor should be programmed to rotate the solar panels to their rain position (aka “Rain Stow”) after the immediately preceding 24 hours of rainfall’s cumulative volume (in watershed inches) exceeds the initial abstraction (I_a , inches)...

...The panels can redeploy to the desired angle based on the sun’s position once the rainfall rate drops to less than 0.02 inch per hour for more than 1 hour.



Land Conversion from Forest and Ag

- HB 206 (2022, Webert) – Will require mitigation



Photo credit: Joshua Wylie

≥50 Acres contiguous forest



Photo credit: The American Solar Grazing Association

≥10 Acres prime farmland

Research on Solar Runoff

- Grant from DEQ to Virginia Tech (VT) & Virginia State University (VSU) for \$3.4 million
- Additional \$500,000 from industry partners (pledged in-kind and cash)
- Goals:
 - Measure water quality and volume
 - Compare to current design practices
 - Improve modeling



Photo credit: Virginia Tech