

**STATE OF VERMONT
PUBLIC UTILITY COMMISSION**

Petition of Randolph Davis Road Solar LLC for a
Certificate of public good, pursuant to 30
V.S.A. §§ 248 and 8010, authorizing the
Installation and operation of a 500kW group
Net-metered solar electric generation system in
Randolph, Vermont

Case No. 21-2939-NMP

SURREBUTTAL TESTIMONY OF MICHAEL BINDER

September 9, 2022

Exhibits:

MB-38	Petitioner's 2nd Discovery Responses
MB-39*	A Slippery Slope
MB-40	Concentrated Runoff
MB-41	PAS Stockpile
MB-42	Reclamation Guidelines for PAS Soils
MB-43	MD Solar Design Guidance
MB-44A	PA Solar Stormwater 2019
MB-44B	PA Solar Stormwater 2021
MB-45	CT Solar Array Guidance
MB-46	RI Solar Guidance
MB-47	VT DEC Solar Literature Review
MB-48	Ohio Guidance Stormwater Solar Arrays
MB-49	Inadvertent Omission
MB-50*	A Typical Road
MB-51	Horizons Survey Data
MB-52	VT DEC comments
MB-53	484 points on an acre
MB-54	Virginia Mercury

* May be viewed as a Slideshow

Summary of Surrebuttal Testimony

Michael Binder is an abutting landowner to the site of the proposed solar Energy Facility Development. He Rebuts Testimony of Scott Homsted.

SURREBUTTAL TESTIMONY OF MICHAEL BINDER

Q1. Please state your name, address, and occupation.

A1. Michael Binder, 1953 Davis Rd, Randolph Center, Vermont 05061

I am a retired Anatomy Professor.

Q2. Have you previously testified before the Public Utility Commission (PUC) or in other judicial or administrative proceedings?

A2. Yes. I have submitted Prefiled and Rebuttal Testimony in this case.

Q3. What is the purpose of your testimony?

A3. The purpose of this Testimony is to rebut statements in the testimony of Scott Homsted.

Surrebuttal Part I Elevation Drawings

Q4. In his rebuttal testimony, Mr. Homsted wrote:

“We have worked with the Petitioner to develop the site plan, elevation drawing and civil engineering details for the Project.”

Do either of the two most recent site plans have Elevation Drawings?

A4. No. See Exhibit MB-39.

Surrebuttal Part II The Slopes Layer

Q5. Mr. Homsted testified that the Array is configured so that no Solar Panels are on slopes greater than 25%. Is he correct?

A5. No. The Petitioner contrived a Slopes Layer from a ground based survey with low horizontal resolution which hides the fact that some of the panels are on greater than 25% slopes. See Exhibit MB-39.

1 **Q6.** In the 2nd round of Discovery, you asked Mr. Homsted:

2 “Admit that the ‘on the ground survey’ data used to determine slope in the area near
3 the array, does not show areas of ‘greater than 25% slopes’ that would be seen on a
4 LiDAR derived slopes layer.”

5 Mr. Homsted replied: (Exhibit MB-38)

6 “Admitted. The on the ground data has a higher
7 precision than the LiDAR data.”

8 Does Mr. Homsted’s reply mean that the on-the-ground survey creates a more accurate slope
9 layer than a LiDAR derived slope layer?

10 **A6.** Not at all. He admits that a LiDAR based slopes layer would show that some panels are
11 on greater than 25% slopes, but he implies that we should trust the on-the-ground survey
12 slopes layer over the LiDAR slopes layer. What he implies is incorrect.

13 A ground based survey does have greater precision than LiDAR at any point that is directly
14 located by the surveyor, but this particular survey did not locate enough points to draw an
15 accurate slope layer. If, for example, a surveyor locates two points that are 50 ft apart, and no
16 points in between, the computer will interpolate to fill in the gap. The computer will not know
17 that there was a rise or a depression or even a cliff between those two points.

18 In order to have 10 ft. horizontal resolution (nowhere near as good as LiDAR), a surveyor
19 would have to locate points, in a grid pattern, every 10 feet. [see illustration in Exhibit
20 MB-53] The surveyor would have to locate more than 1800 points in order to cover an area of
21 4 acres. In his Discovery reply, Mr. Homsted included the data points from the ground-based-
22 survey (Exhibit MB-51). There were only 76 data points. The contour lines and slope layers
23 (under and around the array) in the five most recent Site Plans (See Exhibit MB-39) are
24 contrived from elevations taken at only 76 points. 76 points spread out over 4 acres does not
25 provide adequate resolution to draw accurate contours or slope layers.

1 **Q7.** Were you surprised when the Petitioner submitted their sixth Site Plan with slope layers
2 applied to the entire Limit of Disturbance?

3 **A7.** Yes. Exhibit MB-49 explains why I was surprised. Page 24 of Exhibit MB-39 explains
4 why I believe the Petitioner was so reluctant to place a LiDAR slopes layer alongside their
5 contrived layer.

6 **Surrebuttal Part III Impervious Precedent**

7 **Q8.** In his rebuttal testimony, Mr. Homsted wrote: (emphasis mine)

8 “Furthermore, the leading cause of increased runoff from any site is typically the
9 addition of impervious surfaces. This site adds approximately only 0.3 acres of
10 impervious surface, which is well below the State of Vermont July 1, 2022 threshold
11 of 0.5 acres of impervious surface and therefore will not require an operational
12 stormwater permit. ... **The State of Vermont has maintained that solar panels**
13 **are not jurisdictional impervious surface.** The ground under the panels remains
14 able to infiltrate runoff and grow vegetation.”

15 Does this mean that the panels are pervious?

16 **A8.** No. They are impervious. Many jurisdictions view them as “disconnected impervious
17 surfaces”. Depending on the spacing, size, and elevation of the panels, the permeability of the
18 soils, and the slope of the landscape, there are rules that allow disconnected impervious
19 surfaces to be considered pervious. Regardless of the soils, or the panel size and spacing, these
20 rules would not be applicable to the present proposal because of the steep slopes and the
21 orientation of the panels against the contour lines. See Exhibit MB-40.

22 **Q9.** What about Vermont’s Regulations?

23 **A9.** The word “solar” is not in the publication 2017 Vermont Stormwater Management
24 Manual Rule and Design Guidance. This comment and response by ANR (Exhibit MB-52)

1 may bear on the question: [the emphasis is mine]

2 131. Comment: How does this General Permit relate to energy projects? Are energy
3 development projects exempt from stormwater permit coverage and/or not included in a
4 sites' impervious surface calculations?

5 Response: There are no exemptions for energy projects under the general
6 permit, or under the Stormwater Permitting Rule or 10 V.S.A. § 1264. With that
7 said, when the Agency reviews solar projects the impervious surface associated
8 with solar panels is calculated based on the material that covers the ground- that
9 is, the base or foundation of the panel. **The Agency does not consider an**
10 **elevated solar panel to be impervious itself, provided precipitation coming**
11 **off the panel comes into contact with vegetated ground surface.**

12 **Q10.** Does it make any sense that ANR considers an elevated solar panel to be pervious if
13 precipitation coming off the panel comes into contact with vegetated ground surface?

14 **A10.** It makes very good sense when “only lands with good exposure and gentle slopes make
15 sense for solar development.”¹ See Exhibit MB-40 for why it wrong, in the present case, to
16 pretend the panels are pervious.

17 **Q11.** What happens when a jurisdiction treats all elevated panels as pervious?

18 **A11.** When the precedent of treating the panels as pervious is abused by developers,
19 environmental catastrophes occur and jurisdictions tighten up their regulations. The most
20 recent example of this sequence of events that I am aware of is in Virginia. (Exhibit MB-54)

21 **Q12.** Will that be Vermont’s fate?

22 **A12.** Hopefully not. The Hearing Officer recognized that not all projects should be passed
23 forward to stormwater mitigation when she wrote in her June 23, 2022 Order:

24 ¹ TRORC Plan page 242 is on page 257 of Exhibit MB-3 submitted May 6, 2022

1 “Nothing in the text of Section 6086(a)(1)(4) or the Commission’s precedent holds
2 that the Commission’s consideration of the soil erosion criterion is limited solely to
3 whether a facility will comply with Vermont’s stormwater regulations.”

4 **Surrebuttal Part IV Prime Agricultural Soils**

5 **Q13.** In your Rebuttal Testimony you expressed skepticism that the PAS Storage Area could
6 hold the amount of PAS that would be excavated. Are you still skeptical?

7 **A13.** I assumed (in my Rebuttal Testimony) that 20 inches of PAS (Horizons A and B) would
8 be excavated and stockpiled before the road was constructed; in which case the Storage Area,
9 as drawn on the site plan, would be undersized by about two orders of magnitude.

10 I was surprised to learn in the 2nd round of Discovery that rather than stockpiling the PAS, the
11 developer plans to bury most of it under material that is excavated from non PAS stretches of
12 the road. See Exhibit MB-50.

13 **Q14.** Does burial of PAS under a 9 ft high by 36 ft wide berm (Exhibit MB-50) conform to the
14 Reclamation Guidelines for Agricultural Soils? (Exhibit MB-42)

15 **A14.** Burial of PAS under a large berm is not explicitly mentioned in the guidelines. I
16 reasonably conclude that the buried PAS cannot be meaningfully reclaimed after 25 years of
17 compaction in anaerobic conditions.

18 **Q15.** Is one PAS Storage Area enough?

19 **A15.** No. In the 2nd round of Discovery (MB-38) I learned that very little PAS will be
20 excavated. However, there will be excavation “Approximately 12 inches” deep on two short
21 stretches of the Access Road. Typically, the Horizon A topsoil is only 8 inches deep. If
22 excavation goes into Horizon B, the developer is required by the Reclamation Guidelines for
23 Agricultural Soils (Exhibit MB-42) to store each Horizon in a separate stockpile.

1 **Q16.** Alex Depillis respectfully requested in his prefiled testimony (May 6, 2022) that the
2 Commission include several conditions, one of which is:

3 “Soil shall not be stockpiled on slopes greater than 15%.”

4 Is the PAS Storage Area, as shown on the Site Plan, on slopes greater than 15%?

5 **A16.** Yes. See Exhibit MB-41.

6 **Q17.** Are there other issues with PAS reclamation?

7 **A17.** Yes. AAFM has requested, as a condition of CPG, that procedures in Reclamation of
8 Vermont Agricultural Soils (exhibit MB-42) be followed. That includes:

9 “In areas where soils with a NRCS farmland classification of prime, statewide or
10 local importance are to be reclaimed, the final site topography should have slopes
11 less than 15 percent.”

12 It is absurd to propose that PAS slopes of 16% - 39% should be restored to 15%. Clearly, the
13 Reclamation Guidelines for Agricultural Soils were not intended to be used for projects that are
14 on slopes greater than 15%, and certainly not for the slopes (up to 39%) present on the
15 proposed Access Road. The Reclamation Guidelines serve AAFM well when “only lands
16 with good exposure and gentle slopes make sense for solar development”.² As development
17 proposals become increasingly atypical and unprecedented it is incumbent upon AAFM to
18 recommend denial of projects that cannot be reasonably reclaimed. Any site can be reclaimed
19 as best as is practical, but at some point “practical” is not consistent with AAFM’s
20 responsibility to protect agricultural soils.

21 **Q18.** Will there be any permanent stormwater control structures such as (but not limited to)
22 berms, swales, level spreaders, stone dams, culverts, or detention ponds on PAS (other than the
23 road itself)? How will they affect PAS reclamation?

24 ²TRORC Plan page 242 is on page 257 of Exhibit MB-3 submitted May 6, 2022

1 **A18.** The site plan gives no indication of what permanent stormwater control structures (if
2 any) will be built or where they will be built. Failure to build them will cause severe erosion
3 on both PAS and non PAS (see Exhibit MB-40).

4 **Surrebuttal Part V Precedent Creep**

5 **Q19.** Why is it that the Commission and the Parties do not know what permanent stormwater
6 structures will be built on PAS (or anywhere else on site)?

7 **A19.** Because the Petitioner is flouting Rules 5.107(C)(5)(e) and (g) which requires:

8 “Detailed plans for any drainage of surface and/or sub-surface water and plans to control
9 erosion and sedimentation both during construction and as a permanent measure”
10 and

11 “Plans of any proposed access driveway, roadway, or parking area at the project site,
12 including grading, **drainage**, and traveled width...”

13 Despite flouting the rule, Ms. Staskus states in her August 2021 Prefiled Testimony [page 7]
14 that the submitted Site Plan contains:

15 “Detailed plans for any drainage of surface and/or sub-surface water and plans to control
16 erosion and sedimentation both during construction and as a permanent measure”
17 and

18 “Plans of any proposed access driveway, roadway, or parking area at the project site,
19 including grading, **drainage**, and traveled width...”

20 **Q20.** Is there a good reason why the Commission does not require compliance with the plain
21 language requirements of Rules 5.107(C)(5)(e) and (g)?

22 **A20.** Yes and no. The ‘yes’ part is that there is precedent for accepting generic “boilerplate”
23 engineering drawings (stone dams, road cross sections, etc) for other solar projects. The
24 Hearing Officer, in her April 15, 2022 Order, wrote: [emphasis mine]

1 “The Petitioner explained that the erosion and sediment control measures described
2 on Sheet 2 of the site plans (exhs. RDS-MS-2 and RDS-MS2A) **are similar in**
3 **nature and detail to the information regularly submitted to and accepted by the**
4 **Commission in other net-metering proceedings.** Accordingly, I am satisfied that
5 the Petitioner’s site plan meets the requirements of Commission rules.”

6 I reasonably conclude that the reason the Commission does not require compliance with the
7 plain language requirements of Rules 5.107(C)(5)(e) and (g) is because of “Precedent Creep”.
8 The precedent that is being respected in this case is precedent that was established when it was
9 understood that “only lands with good exposure and gentle slopes make sense for solar
10 development.”³ Project proposals have become increasingly atypical and unprecedented, and
11 the generic, “boilerplate” engineering drawings (which are reasonable for gentle slopes) have
12 become increasingly inapplicable to proposals such as the present. (for example, see exhibit
13 MB-50)

14 **Q21.** Where will “Precedent Creep” lead?

15 **A21.** A reasonable conclusion is that it will lead to environmentally destructive projects. In
16 the present case, if the engineers consider the panels to be pervious, an environmentally
17 destructive project will be permitted. If the panels are recognized as impervious (which will
18 require an operational stormwater permit), and if this project can be properly engineered, the
19 Commission will better serve the public interest if it knows how extreme the engineering is
20 before it issues a CPG and passes the project forward to Stormwater Mitigation or Agricultural
21 Reclamation.

22 **Q22.** Does this conclude your Surrebuttal Testimony?

23 **A22.** Yes.

24 ³ TRORC Plan page 242 is on page 257 of Exhibit MB-3 submitted May 6, 2022