



BORREGO SOLAR

November 28, 2018

Keri Nusbaum
County Zoning Officer
Piatt County Courthouse
101 W. Washington, Room 105
Monticello, IL 61856
Tel. 309-467-2308, ext. 3

RE: Stormwater Narrative – Hermann Property Solar development – DeLand, IL

**CN Value Calculations and Stormwater Management
4 MW AC SOLAR ELECTRIC SYSTEM**

329 Frontier Piatt, LLC, c/o Borrego Solar Systems, Inc. (BSSI) plans to construct a 4 MW community solar facility (two co-located 2 MW facilities) west of North 375 East Road in Goose Creek Township. A project area of approximately 36 acres will be affected by construction and operation of the facility. This includes the areas encompassed by a fence and the associated access road. See the attached Layout and Materials Plan for the location of the system and associated roads.

The proposed stormwater management system for the solar array field is based on improved ground cover as compared to existing conditions to yield a reduction in stormwater runoff. Currently, row crops occupy the existing development area. After the installation of the solar arrays, gravel access road and equipment pads, a low maintenance shade tolerant seed mix (Meadow) will be planted for ground cover. As demonstrated by the calculations, the curve number (CN) is greatly reduced, which yields a reduction in stormwater runoff for any given storm event.

The solar array field will be designed to match current topography with limited grading proposed at the transformer pads and driveway apron. The solar panels in the array field will be supported by posts driven into the ground. There are no concrete footings or foundations proposed to support the solar array panels. The impervious footprint for the supports is negligible. Please note that the proposed solar panels will rotate with the sun up to fifty-two (52) degrees from horizontal reducing the chance of a concentrated flow/erosion along and below the edge of the panels.

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The following table depicts the calculations of weighted CN values for existing and proposed conditions. Under proposed conditions, the CN for the project limits will be reduced from existing conditions.

Storm Water Calculations - 329 Frontier Solar, LLC (11-28-18 Resubmit)					
Existing Conditions (within 14 acre disturbed area):					
Soil Type ¹	Acres	% of AOI	Hydrologic Soil Group (HSG)	CN ²	Comments
43A	2.2	6.1%	C/D	85	Row Crop/SR/Good
68A	23.2	64.6%	B/D	78	"
154A	2.0	5.6%	C/D	85	"
171B2	<u>8.5</u>	<u>23.7%</u>	C	<u>85</u>	
	35.9	100%		80.5	weighted ave.
Proposed Conditions:					
Soil Type ¹	Acres	% of AOI	Hydrologic Soil Group (HSG)	CN ²	Comments
43A	2.0	5.5%	C/D	71	Meadow Cover
68A	22.8	63.5%	B/D	58	
154A	2.0	5.6%	C/D	71	
171B2	8.2	22.7%	C	71	
43A	0.2	1%	C/D	98	Gravel Road
68A	0.4	1.2%	B/D	98	
171B2	0.3	0.9%	C	98	Pads
Pads/Piles	<u>0.01</u>	<u>0.0%</u>	C	<u>98</u>	
	35.9	100%		63.5	weighted ave.
1. Based on USDA/NRCS Web Soil Survey for affected acreage					
2. NRCS National Engineering Handbook, Part 630 Hydrology, Chapter 9					



In addition to the reduction in stormwater runoff, the proposed solar field will provide an improved water quality condition with the elimination of the plowing, tilling and harvesting of row crops. There will be no herbicides, pesticides or fertilizers used for proposed low maintenance shade tolerant ground cover. Stormwater impacts resulting from construction activities will be addressed by the conditions of the ILR10 General NPDES permit and associated SWPPP as required by the IEPA.

Regards,

A handwritten signature in black ink, appearing to read "Kip J. Smith".

Kip J. Smith, PE
Civil Engineer



A handwritten signature in black ink, appearing to read "Kip J. Smith", with the expiration date "Exp. 11/30/19" written below it.