

Exhibit CS-BW-40

*Docket 8302
Exhibit CS-SMM-4
Bennington NRCS Soils Map
and Fact Sheets*

Soil Map—Bennington County, Vermont
(CHELSEA SOLAR)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

6/11/2014
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bennington County, Vermont
Survey Area Data: Version 17, Dec 22, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2010—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Bennington County, Vermont (VT003)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
18E	Windsor loamy fine sand, 15 to 60 percent slopes	0.9	0.5%
27B	Udipsammments and Udorthents, gently sloping	4.3	2.3%
40B	Galway-Nellis-Farmington complex, 3 to 8 percent slopes, rocky	5.9	3.2%
41C	Galway-Farmington complex, 8 to 15 percent slopes, very rocky	11.2	6.0%
64B	Stockbridge loam, 2 to 8 percent slopes	17.3	9.2%
64C	Stockbridge loam, 8 to 15 percent slopes	2.4	1.3%
65C	Stockbridge loam, 8 to 15 percent slopes, very stony	37.5	20.0%
66B	Georgia loam, 3 to 8 percent slopes	0.5	0.3%
66C	Georgia loam, 8 to 15 percent slopes	5.2	2.7%
67B	Georgia loam, 3 to 8 percent slopes, very stony	2.3	1.2%
67C	Georgia loam, 8 to 15 percent slopes, very stony	98.0	52.2%
68A	Massena silt loam, 0 to 3 percent slopes	0.0	0.0%
69B	Massena silt loam, 3 to 8 percent slopes, very stony	2.2	1.2%
Totals for Area of Interest		187.7	100.0%

41C: Galway-Farmington complex, 8 to 15 percent slopes, very rocky

These soils formed in loamy glacial till on uplands. GALWAY SOILS are moderately deep to bedrock and well drained. Permeability is moderate. Depth to carbonates ranges from 20 to 40 inches. FARMINGTON SOILS are shallow to bedrock and well drained and somewhat excessively drained. Permeability is moderate. Carbonates are present in some pedons.

This map unit is poorly suited to cultivated crops, hay and pasture because of stones on the surface and the bedrock outcrops.

Important farmland classification: NPSL	Land capability: 6 s	Vermont Agricultural Value Group: 10
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Vermont Residential Wastewater Disposal - Group and Subgroup:

IIc.- This unit is moderately suited as a site for soil-based residential wastewater disposal systems, based on a review by the Natural Resources Conservation Service of criteria set forth in the Vermont 2007 Environmental Protection Rules. The depth to bedrock in some areas is the primary concern. A significant percentage of this map unit has sufficient soil depth over bedrock to accept a range of designs. On-site investigations can help avoid areas with limited depth to bedrock. Additional fill material may be needed in some areas in order to meet the separation distance requirement between the bottom of the leachfield and bedrock.

PHYSICAL and CHEMICAL PROPERTIES							EROSION FACTORS		
Soil name	Depth (In)	Typical texture	Clay (Pct)	Soil reaction (pH)	Permeability (In/Hr)	Organic matter (Pct)	Kw	Kf	T
Galway	0-2	MPM, SPM	---	3.2 - 5.7	2-6	25-100	---	---	2
	2-4	SIL	7-18	5.6 - 7.3	0.6-2	2.0-6.0	.24	.32	
	4-21	L	5-18	5.6 - 7.8	0.6-2	0.0-1.0	.24	.28	
	21-32	GRV-SIL	3-18	7.4 - 8.4	0.6-2	0.0-1.0	.24	.32	
	32-36	UWB	---	---	0.01-20	---	---	---	
Farmington	0-3	MPM, SPM	---	3.2 - 5.7	2-6	25-100	---	---	1
	3-5	SIL	10-27	5.1 - 7.3	0.6-2	2.0-6.0	.32	.32	
	5-20	GR-L, L	10-27	5.6 - 7.8	0.6-2	0.0-1.0	.32	.37	
	20-25	UWB	---	---	0.01-20	---	---	---	

WATER FEATURES						SOIL FEATURES		
Soil name	Hydrologic group	Depth to seasonal high water table (Feet)	Flooding		Ponding		Hydric soil?	Depth to bedrock (range in inches)
			Frequency	Duration	Frequency	Duration		
Galway	C	---	None		None		No	20-40
Farmington	D	---	None		None		No	10-20

LAND USE LIMITATIONS				AGRICULTURAL YIELD DATA	
Soil name	Land use	Rating	Reason **	Crop name	Yield / acre
Galway	Dwellings with basements:	Very limited	Depth to hard bedrock	Pasture	3 AUM
Farmington	Dwellings with basements:	Very limited	Depth to hard bedrock		
Galway	Pond reservoir areas:	Very limited	Slope		
Farmington	Pond reservoir areas:	Very limited	Slope		

WOODLAND MANAGEMENT				
Soil name	Management concern	Rating	Reason	Vermont natural communities
Galway	Harvest equip operability:	Well suited		Mesic Maple-Ash-Hickory-Oak Forest, Transition Hardwoods Limestone Forest Variant, Limestone Bluff Cedar-Pine Forest, Temperate Calcareous Outcrop, Northern Hardwood Limestone Forest Variant
Farmington	Harvest equip operability:	Well suited		
Galway	Road suitability:	Moderately suited	Slope	
Farmington	Road suitability:	Moderately suited	Slope	
Galway	Erosion hazard (off-road):	Slight		
Farmington	Erosion hazard (off-road):	Slight		

65C: Stockbridge loam, 8 to 15 percent slopes, very stony

STOCKBRIDGE SOILS formed in loamy glacial till on uplands. They are very deep to bedrock and well drained. Permeability is moderate in the solum and moderately slow or slow in the substratum. Depth to carbonates is greater than 40 inches.

These soils are poorly suited to cultivated crops, hay and pasture because of the stones and boulders on the surface and the water erosion hazard.

<u>Important farmland classification:</u> NPSL	<u>Land capability:</u> 6 s	<u>Vermont Agricultural Value Group:</u> 9
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Vermont Residential Wastewater Disposal - Group and Subgroup:

Ila.- This unit is moderately suited as a site for soil-based residential wastewater disposal systems, based on a review by the Natural Resources Conservation Service of criteria set forth in the Vermont 2007 Environmental Protection Rules. The slow permeability in the substratum is the primary concern. Mound system construction and other site modifications may be necessary.

<u>PHYSICAL and CHEMICAL PROPERTIES</u>							<u>EROSION FACTORS</u>		
Soil name	Depth (In)	Typical texture	Clay (Pct)	Soil reaction (pH)	Permeability (In/Hr)	Organic matter (Pct)	Kw	Kf	T
Stockbridge	0-1	MPM	---	3.2 - 5.7	2-6	25-100	---	---	3
	1-9	L	5-18	5.1 - 7.3	0.6-2	2.0-6.0	.24	.28	
	9-24	L	5-18	5.6 - 7.3	0.6-2	0.5-2.0	.37	.43	
	24-36	GR-L	5-18	5.6 - 7.3	0.06-0.6	0.0-0.5	.24	.28	
	36-65	GR-L	3-18	5.6 - 8.4	0.06-0.6	0.0-0.5	.24	.28	

<u>WATER FEATURES</u>						<u>SOIL FEATURES</u>		
Soil name	Hydrologic group	Depth to seasonal high water table (Feet)	Flooding		Ponding		Hydric soil?	Depth to bedrock (range in inches)
			Frequency	Duration	Frequency	Duration		
Stockbridge	C	---	None		None		No	---

<u>LAND USE LIMITATIONS</u>				<u>AGRICULTURAL YIELD DATA</u>	
Soil name	Land use	Rating	Reason **	Crop name	Yield / acre
Stockbridge	Dwellings with basements:	Somewhat limited	Slope	Pasture	3 AUM
Stockbridge	Pond reservoir areas:	Very limited	Slope		

<u>WOODLAND MANAGEMENT</u>				
Soil name	Management concern	Rating	Reason	Vermont natural communities
Stockbridge	Harvest equip operability:	Well suited		Mesic Maple-Ash-Hickory-Oak Forest, Rich Northern Hardwood Forest, Sugar Maple-White Ash Northern Hardwood Forest Variant
Stockbridge	Road suitability:	Moderately suited	Slope	
Stockbridge	Erosion hazard (off-road):	Slight		

67C: Georgia loam, 8 to 15 percent slopes, very stony

GEORGIA SOILS formed in loamy glacial till on uplands. They are very deep to bedrock and moderately well drained. These soils have a perched water table at depths of 1.5 to 3.0 feet below the surface from late Fall through late Spring. Permeability is moderate in the solum and slow in the substratum. Depth to bedrock is greater than 40 inches.

These soils are poorly suited to cultivated crops, hay and pasture because of the stones and boulders on the surface, the seasonal high water table and the water erosion hazard.

<u>Important farmland classification:</u> NPSL	<u>Land capability:</u> 6 s	<u>Vermont Agricultural Value Group:</u> 9
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Vermont Residential Wastewater Disposal - Group and Subgroup:

IIh.- This unit is moderately suited as a site for soil-based residential wastewater disposal systems, based on a review by the Natural Resources Conservation Service of criteria set forth in the Vermont 2007 Environmental Protection Rules. The depth to the seasonal high water table is the primary concern. Mound system construction and other site modifications are often necessary. On sloping sites, curtain drains can help lower the water table to an acceptable level. In some cases, a detailed, site-specific analysis with groundwater level monitoring and determination of induced groundwater mounding may be required to establish the suitability of this unit.

PHYSICAL and CHEMICAL PROPERTIES							EROSION FACTORS		
Soil name	Depth (In)	Typical texture	Clay (Pct)	Soil reaction (pH)	Permeability (In/Hr)	Organic matter (Pct)	Kw	Kf	T
Georgia	0-1	MPM	---	3.2 - 5.7	2-6	25-100	---	---	3
	1-10	L	7-18	5.1 - 7.3	0.6-2	3.0-8.0	.28	.32	
	10-30	SIL	5-18	5.1 - 7.3	0.6-2	0.0-1.0	.32	.37	
	30-65	GR-SIL	10-18	5.1 - 7.3	0.06-0.2	0.0-0.5	.32	.37	

<u>WATER FEATURES</u>						<u>SOIL FEATURES</u>		
Soil name	Hydrologic group	Depth to seasonal high water table (Feet)	Flooding		Ponding		Hydric soil?	Depth to bedrock (range in inches)
			Frequency	Duration	Frequency	Duration		
Georgia	C	1.2-2.5	None		None		No	---

LAND USE LIMITATIONS				AGRICULTURAL YIELD DATA	
Soil name	Land use	Rating	Reason **	Crop name	Yield / acre
Georgia	Dwellings with basements:	Very limited	Depth to saturated zone	Pasture	3.8 AUM
Georgia	Pond reservoir areas:	Very limited	Slope		

WOODLAND MANAGEMENT				
Soil name	Management concern	Rating	Reason	Vermont natural communities
Georgia	Harvest equip operability:	Moderately suited	Wetness	Mesic Maple-Ash-Hickory-Oak Forest, Rich Northern Hardwood Forest, Sugar Maple-White Ash Northern Hardwood Forest Variant
Georgia	Road suitability:	Moderately suited	Slope	
Georgia	Erosion hazard (off-road):	Slight		