Solar in Stearns County

Vegetation requirements & Management

Heidi Winskowski, Environmental Services Department

Ryan Rothstein & Jason Selvog, Stearns Soil and Water Conservation District

Stearns County Minnesota

STEARNS COUNTY SOIL & WATER SWCD CONSERVATION DISTRICT

HISTORY

- 2016 – Beneficial habitat requirement added to zoning ordinance
- BWSR reviewed/approved plans
- Plans implemented – now what??
- 2020 – County, SWCD and BWSR discussed long term plan for program
  - Goals to ensure standard is met, in **plan preparation**, **implementation** and **long term**
  - SWCD expertise
  - Funding mechanism (early projects and new projects)

Stearns County Minnesota

COLLABORATION

Environmental Services (ESD)

Soil &Water Conservation District (SWCD)

Permitting

- Plan submittal (ESD)
- Plan review (SWCD)

Inspections

- Tracking (ESD)
- Field work (SWCD)

Follow up

- Share results (ESD)
- Offer assistance (SWCD)

STEARNS COUNTY SOIL & WATER SWCD CONSERVATION DISTRICT

Stearns County Minnesota

PERMITTING / ESD

ZONING ORDINANCE #439

Solar Farms – Interim use permit or Construction site permit

"The project site design shall include the installation and establishment of ground cover **meeting the beneficial habitat standards consistent with Minnesota Statutes, section 216B.1642**, or successor statutes and guidance as set by the Minnesota Board of Water and Soil Resources. The Solar Site Pollinator Habitat Assessment Form shall be completed to show that the beneficial habitat standard is met and submitted, along with the planting plan, with the construction site permit application."

PERMITTING / ESD

ZONING ORDINANCE #439

- Financial guarantee required = 125% of the cost to implement
  - Letter of credit or cash
  - Kept for minimum of 3 years
- Vegetation shall be maintained for life of solar project
- Fee required upfront – covers SWCD time to review plan and conduct follow up inspections over 25-year period
- ESD shall be notified when site is seeded and who contact person is for inspections

PERMITTING / ESD
Ground cover plan review

Obtain planting plan and plan review/ inspection fee from solar company

Forward plan to SWCD for review and approval

Obtain cost estimate to install ground cover

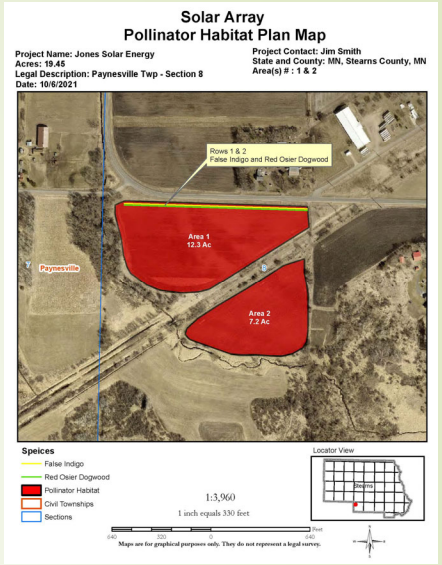
Obtain financial guarantee (125% of estimate)

Stearns County Minnesota

Stearns County SWCD – Solar Arrays

Stearns County SWCD is contracted by Stearns County Environmental Services to complete the following tasks:

- Complete Plan Reviews
  - Make sure the plan meets State requirements
- Complete Inspections
  - Inspect sites in the establishment period (year 1,2, & 3)
  - Inspect sites every 3 years after



Stearns County SWCD – Solar Arrays

Plan Review

What does the SWCD look for when completed a Plan Review?

- Seed Mix(s) composition
  - Number of species
  - Number of Grasses
  - Number of Forbs
  - Bloom periods
- Seed Mix calculations
  - Seeds/Sq/Ft
  - % of Forbs
- Tree/Shrubs Review (If used)
  - Species
  - Spacings

Low Growing Solar Array Dry Soils

This mix has been designed for solar projects as a groundcover under panel as part of solar arrays to provide benefits to a wide range of wildlife species. The mix includes combinations of grasses, sedges and rushes to provide year-round cover and benefits to pollinators.

BOARD OF WATER AND SOIL RESOURCES — DEPARTMENT OF NATURAL RESOURCES

Common Name	Scientific Name	Rate (lb/ac)	% of Mix (by weight)	% by Seed	Seeds/ sq ft
side-oats grama	*Bouteloua curtipendula*	1.50	7.83%	7.21%	3.31
blue grama	*Bouteloua gracilis*	0.31	1.63%	10.00%	4.59
nodding wild rye	*Elymus canadensis*				
junegrass	*Koeleria macrantha*	0.06	0.33%	10.00%	4.59
little bluestem	*Schizachyrium scoparium*	0.75	3.91%	9.00%	4.13
prairie dropseed	*Sporobolus heterolepis*	0.50	2.61%	6.41%	2.94
	Grasses Subtotal	**3.12**	**16.31%**	**42.63%**	**19.56**
Canada milk vetch	*Astragalus canadensis*	0.12	0.65%	1.70%	0.78
white prairie clover	*Dalea candida*	0.25	1.30%	3.79%	1.74
purple prairie clover	*Dalea purpurea*	0.38	1.96%	4.51%	2.07
	Legumes Subtotal	**0.75**	**0.04**	**0.10**	**4.59**
common yarrow	*Achillea millefolium*	0.01	0.03%	0.89%	0.41
Prairie Wild Onion	*Allium stellatum*	0.13	0.66%	1.11%	0.51
Canada anemone	*Anemone canadensis*	0.06	0.32%	0.39%	0.18
long-headed thimbleweed	*Anemone cylindrica*	0.06	0.33%	1.31%	0.60
common milkweed	*Asclepias syriaca*	0.31	1.63%	1.00%	0.46
whorled milkweed	*Asclepias verticillata*	0.08	0.41%	0.70%	0.32
ground plum	*Astragalus crassicarpus*	0.19	0.98%	0.78%	0.36
narrow-leaved purple coneflower	*Echinacea angustifolia*	0.25	1.30%	1.39%	0.64
grass-leaved goldenrod	*Euthamia graminifolia*	0.01	0.03%	1.74%	0.80
Northern Bedstraw	*Galium boreale*	0.02	0.08%	0.87%	0.40
rough blazing star	*Liatris aspera*	0.05	0.25%	0.61%	0.28
rough-spiked lobelia	*Lobelia spicata*	0.00	0.02%	2.24%	1.03
wild bergamot	*Monarda fistulosa*	0.03	0.16%	1.74%	0.80
large-flowered beard tongue	*Penstemon grandiflorus*	0.09	0.49%	1.05%	0.48
Prairie Cinquefoil	*Potentilla arguta*	0.01	0.03%	1.16%	0.53
Virginia mountain mint	*Pycnanthemum virginianum*	0.01	0.05%	1.66%	0.76
prairie coneflower	*Ratibida columnifera*	0.06	0.32%	2.09%	0.96
black-eyed susan	*Rudbeckia hirta*	0.05	0.24%	3.44%	1.58
field blue-eyed grass	*Sisyrinchium campestre*	0.03	0.16%	1.13%	0.52
stiff goldenrod	*Solidago rigida*	0.03	0.16%	1.02%	0.47
showy goldenrod	*Solidago speciosa*	0.02	0.10%	1.20%	0.55
heath aster	*Symphyotrichum ericoides*	0.01	0.03%	1.00%	0.46
smooth aster	*Symphyotrichum laeve*	0.03	0.16%	1.37%	0.63
heart-leaved alexanders	*Zizia aptera*	0.12	0.65%	1.20%	0.55
	Forbs Subtotal	**1.66**	**0.09**	**0.31**	**14.29**
Bicknell's sedge	*Carex bicknellii*	0.12	0.65%	1.70%	0.78
short sedge	*Carex brevior*	0.06	0.33%	1.46%	0.67
	Sedges Subtotal	**0.18**	**0.01**	**0.03**	**1.45**
Oats	*Avena sativa*	13.47	70.24%	13.08%	6.00
	Cover Crop Subtotal	**13.47**	**70.24%**	**13.08%**	**6.00**
	Total	**19.18**	**100.03%**	**100%**	**45.88**

Stearns County SWCD – Solar Arrays

Plan Review – What did we learn?

Most plans provided are over complicated

- CAD drawings as plan map
  - One simple map showing solar fields and planting locations/acres is sufficient
- Multiple seed mixes
  - Most sites can utilize one or two seed mixes (Inside/Outside the fence)
- Many solar companies are unfamiliar with habitat establishment process
  - Pollinator habitat is not in their wheel-house and they don't have staff that do this type of work
- Many solar companies do not know where to look for professional installation
  - A vendor list should be provided to help solar companies connect with professional habitat companies

Stearns County SWCD – Solar Arrays

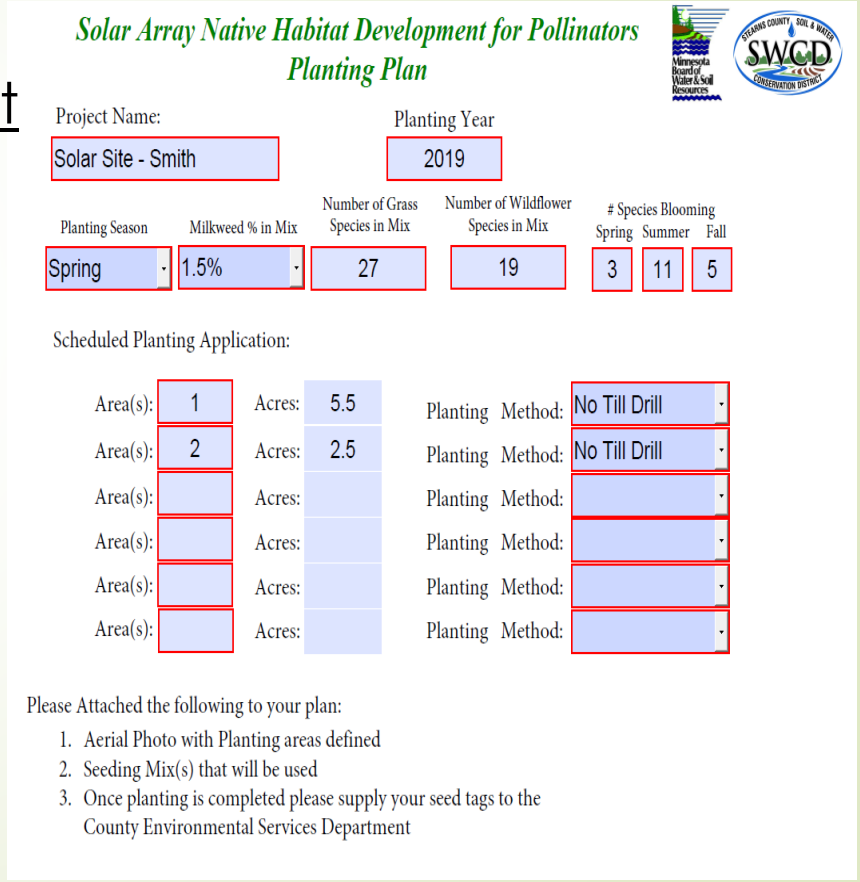
Implementation Requirements and Plan

The SWCD created a fillable establishment plan and management plan

The fillable plan helps in these ways:

- Helps keep plan applications consistent
- Provides the "How To" for establishment
- Provides the "How To" for management
- Provides seed mix guidelines
- Provides sample seed mixes for use
- More efficient

Fillable Plan and Management form



Solar Array Native Habitat Development for Pollinators
Planting Plan

Project Name: Solar Site - Smith

Planting Year: 2019

Planting Season	Milkweed % in Mix	Number of Grass Species in Mix	Number of Wildflower Species in Mix	# Species Blooming Spring	Summer	Fall
Spring	1.5%	27	19	3	11	5

Scheduled Planting Application:

Area(s):	1	Acres:	5.5	Planting Method:	No Till Drill
Area(s):	2	Acres:	2.5	Planting Method:	No Till Drill
Area(s):		Acres:		Planting Method:	
Area(s):		Acres:		Planting Method:	
Area(s):		Acres:		Planting Method:	
Area(s):		Acres:		Planting Method:	

Please Attached the following to your plan:

1. Aerial Photo with Planting areas defined
2. Seeding Mix(s) that will be used
3. Once planting is completed please supply your seed tags to the County Environmental Services Department

INSPECTIONS / ESD

- ESD updates spreadsheet for inspection due
  - Shared on Google Drive
- Inspect on years 1, 2, 3
  - Hopefully return financial guarantee
- Inspect every 3 years after fully established per plan and standard is met

Solar garden name	Vegetation Date	Vegetation FG Amount	Vegetation FG Release Date	1st Year Inspection	2nd Year Inspection	3rd Year Inspection	6th Year Inspection	9th Year Inspection
JSS Midtown Solar LLC	October 29, 2019, Touch up May 14, 2020	$20,477.50						
Richmond Solar	2018	$77,092.50		9/27/2018	8/19/2019- vegetation is coming up well	Completed by Greg Berg - 9/3/20; due again 2021		
Novel Brooten Solar LLC	June 2020	$26,799.38		Completed by Greg Berg on 10/1/20				
Michael Solar	2018			9/27/2018	8/19/2019- vegetation is coming up well	Completed by Greg Berg - 9/3/20; due again 2021		

Stearns County Minnesota

Stearns County SWCD – Solar Arrays

Inspections

What does the SWCD look for when completing an inspection?

Establishment years (1-3)

- Is the site establishing as expected?
- Are there weed problems?
- Does it need to be mowed?
- Has it been mowed?

Every 3-year inspection (Starting year 6)

- Is the site establishing/established?
- Are there weed problems?
- Does it need maintenance?
- Identify species and number of species

Stearns County SWCD – Solar Arrays

Inspection Form

- Stearns SWCD created an online form that is completed on a smartphone or tablet while in the field
- The online form include a map and turn-by-turn directions to the site
- The SWCD is able convert data to .pdf or spreadsheets
- Very simple to use

Stearns County SWCD – Solar Arrays

Assessment form converted to fillable online form

Habitat Friendly Solar Site Assessment Form for Established Plantings (after year 3)

BWSR

For solar companies and local governments to meet Habitat Friendly Standards

5-26-2020

1) % OF SITE DOMINATED BY NATIVE SPECIES COVER (wildflowers, grasses, sedges, shrubs, trees)

- ☐ 5-25% +5 points
- ☐ 26-50% +15 points
- ☒ 51-75% +20 points
- ☐ 76+ +25 points

Total points: 20

2) PERCENT OF SITE DOMINATED BY WILDFLOWERS (not grasses and sedges)

- ☐ 5- 8 % +10 points
- ☒ 9-16 % +15 points
- ☐ 17-25 % +20 points
- ☐ 26-34 % +25 points
- ☐ 35+ +30 points

Total points: 15

3) COVER DIVERSITY (# of plant species with >1% cover)

- ☐ 1-9 species +5 points
- ☒ 10-19 species +15 points
- ☐ 20-25 species +25 points
- ☐ 26 or more species +30 points

Total points: 15

Exclude invasive/noxious weeds from species totals.

4) SEASONS WITH AT LEAST 3 BLOOMING SPECIES PRESENT (check/add all that apply)

- ☒ Spring (April-May) +10 points
- ☒ Summer (June-August) +5 points
- ☒ Fall (September-October) +5 points

Total points: 20

See BWSR Pollinator Toolbox for information about bloom season

5) AVAILABLE HABITAT COMPONENTS WITHIN SITE OR WITHIN .25 MILES (check/add all that apply)

- ☒ Native bunch grasses for nesting +3 points
- ☒ Native flowering shrubs +4 points
- ☐ Clean, perennial water sources +3 points

Total points: 7

6) AVAILABLE HABITAT COMPONENTS ON-SITE (check/add all that apply)

- ☒ At least 1% milkweed cover +5 points
- ☒ Detailed management plan developed (see notes) with funding/contract to implement +15 points
- ☐ Signage legible at forty or more feet stating pollinator friendly solar habitat (see notes for sign numbers) +5 points
- ☒ Constructed and maintained nesting habitat feature/s (bee blocks, etc.) +5 points

Total points: 25

7) INSECTICIDE RISK

- ☐ Planned on-site insecticide use. (excluding buildings/electrical boxes, etc.) -25 points
- ☐ Communication with local chemical applicators/neighbors about need to prevent drift from adjacent areas. +10 points

Total points: 0

Grand Total: 102

Gold Standard - Provides Exceptional Habitat 85+

Meets Pollinator Standards 70

Project Name: Novel Energy Solutions (MARK YUNGERBERG)

Vegetation Consultant: Jason Selvog

Project County: Stearns

Project Size: 10 Ac

Evaluation Date: 8/19/21

See notes related to the questions on the back site of this form.

Site Notes: Site was recently mowed. Most likely for weed control.

Pg. 1

PROJECT NAME

Solar Site - Smith

VEGETATION CONSULTANT

Jason Selvog

PROJECT COUNTY

Stearns

PROJECT SIZE

8.0

EVALUATION DATE

8/4/2021

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PERCENT OF SITE DOMINATED BY NATIVE SPECIES COVER

(wildflowers, grasses, sedges, shrubs, trees)

The Minnesota DNR list should be used to determine if a species is native

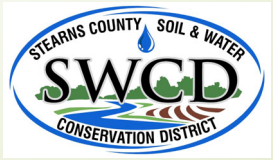
- ○ 5-25%
- ○ 26-50%

FOLLOW UP

- ESD sends inspection report to solar companies
- SWCD is available to answer questions on the inspection report

QUESTIONS?

- Heidi Winskowski, Environmental Services Department
  - 320-656-3613
  - Heidi.Winskowski@co.stearns.mn.us
- Ryan Rothstein & Jason Selvog, Stearns SWCD
  - 320-251-7800 ext. 3
  - ryan.rothstein@mn.nacdnet.net
  - jason.selvog@mn.nacdnet.net



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