



---

<b>Permittee:</b>	Aurora Distributed Solar, LLC
<b>Permit Type:</b>	Solar Energy Project
<b>Project Location (Facility)<sup>1</sup>:</b>	Albany, Annandale, Atwater, Brooten, Chisago County, Dodge Center, Eastwood, Fiesta City, Hastings, Lake Emily, Lake Pulaski, Lawrence Creek, Lester Prairie, Mayhew Lake, Montrose, Paynesville, Pine Island, Scandia, Waseca, West Faribault, and West Waconia
<b>Docket No:</b>	IP6928/GS-14-515
<b>Permit Section:</b>	Site Permit Sections 6.4 and 6.5 – Agricultural Impact Mitigation Plan and Vegetation Management Plan
<b>Date of Submission:</b>	<b>December 21, 2015</b>

---

Aurora Distributed Solar, LLC (“Aurora”) respectfully submits this filing in compliance with Sections 6.4 and 6.5 of the Site Permit.

“6.4 Agricultural Impact Mitigation Plan

The Permittee shall, with the cooperation of the Minnesota Department of Agriculture, develop an Agricultural Impact Mitigation Plan (AIMP). The purpose of the AIMP shall be to identify measures to minimize potential impacts to agricultural uses of the land upon the decommissioning of the Project. The Permittee shall submit the AIMP to the Commission fourteen (14) days prior to submitting the first site plan for any portion of the Project. The AIMP shall include:

(a) Measures that will be taken to segregate topsoil from subsoil during grading activities and the removal of topsoil during construction of the Project to the extent that such actions do not violate sound engineering principles or system reliability criteria.

(b) Measures that will be taken to minimize impacts to and repair drainage tiles damaged during construction of the Project.

---

<sup>1</sup> The Facilities listed in the Project Location (Facility) category above are those that are affected by this filing. Facility names correspond to Facility names as presented in the Site Permit issued to Aurora Distributed Solar, LLC on June 30, 2015.

(c) Measures that will be taken to prevent the introduction of non-native and invasive species.

(d) Measures that will be taken to re-vegetate disturbed areas with appropriate low-growing vegetation to the extent that such actions do not violate sound engineering principles or system reliability criteria.

(e) Measures that will be taken to maintain established vegetation at the facilities throughout the operational life of the facility.

#### 6.5 Vegetation Management Plan

The Permittee shall, in cooperation with the Minnesota Department of Commerce and the Minnesota Department of Natural Resources, develop a Vegetation Management Plan for the Project and submit it to the Commission fourteen (14) days prior to submitting the first Site Plan required by Section 6.1 of this permit. The purpose of the Vegetation Management Plan is to minimize tree clearing, prevent the introduction of noxious weeds and invasive species, revegetate disturbed areas at each Facility with appropriate low-growing species, and maintain appropriate vegetation at each Facility throughout the operating life of the Project. The Vegetation Management Plan shall:

(a) Identify measures taken to minimize tree removal and minimize ground disturbance.

(b) Identify a comprehensive re-vegetation plan for disturbed areas.

(c) Identify methods to maintain appropriate vegetation throughout the operating life of the Project.

(d) Identify vegetation control methods to be used during the operation and maintenance of the Project.

(e) Identify measures to prevent the introduction of noxious weeds and invasive species on lands disturbed by construction activities.”

On October 30, 2015, Aurora efiled an Agricultural Impact Mitigation and Vegetation Management Plan as eDocket ID. No. 201510-115266-08. Aurora revised the Agricultural Impact Mitigation and Vegetation Management Plan in response to additional coordination that occurred with the Minnesota Department of Agriculture, the Minnesota Department of Natural Resources, and Minnesota Department of Commerce Environmental Review and Analysis department. The enclosed revised Agricultural Impact Mitigation and Vegetation Management Plan incorporates the results of those coordination efforts and comments from those agencies and comprises the plan that will be utilized at all facilities.

**AGRICULTURAL IMPACT MITIGATION AND  
VEGETATION MANAGEMENT PLAN**

**Aurora Distributed Solar Project**

**PUC Docket No. E-6928/GS-14-515**

**December 2015**



## Table of Contents

1. Introduction.....	5
1.1. General Provisions .....	6
1.2. Organization .....	7
1.3. Abbreviations and Definitions .....	8
2. Project Description .....	9
2.1. Project location .....	9
2.2. Design.....	11
Photovoltaic Arrays and Solar Field .....	11
Balance of Plant Equipment.....	11
Operations and Maintenance Area.....	12
Access Roads/Transportation System.....	12
Public Safety.....	12
2.3. Agricultural Environmental Monitor.....	12
Qualifications and Selection of the Agricultural Monitor .....	13
Aurora Environmental Monitor .....	13
2.4. Construction and Restoration .....	14
2.5. Operation and Maintenance.....	16
2.6. Decommissioning and Repowering.....	16
Timeline.....	16
Financial Resource Plan .....	17
Removal and Disposal of Project Components.....	17
Restoration/Reclamation of Facility .....	17
3. Vegetation Management Plan .....	18
3.1. Design.....	18
3.2. Re-vegetation .....	19
3.3. Construction and Post-Construction Restoration.....	19
Vegetation removal.....	19
Erosion Control .....	20
Re-vegetation .....	20

Standards for Seed and Seed Mixes.....	22
Noxious weed management.....	22
3.4. Operation and Maintenance.....	23
Erosion Control .....	23
Vegetation maintenance .....	24
Noxious weed management.....	24
3.5. Decommissioning .....	24
Erosion Control .....	24
Re-vegetation .....	25
Noxious weed management.....	25
4. Agricultural Impact Mitigation Plan.....	26
4.1. General Provisions .....	26
4.2. Design.....	26
4.3. Construction and Restoration .....	26
Procedures for Determination of Damages and Compensation.....	26
Topsoil preservation.....	27
Agricultural Drain Tile.....	27
Soil Compaction/Rutting.....	28
Excess Soil and Rocks .....	28
Construction Debris .....	29
4.4. Operation and Maintenance.....	29
4.5. Decommissioning .....	29
Soil.....	29
Tile.....	29
Access Roads.....	29
Land Leveling.....	30
Vegetation Restoration.....	30
Post-Restoration Monitoring.....	30
5. Adaptive Management .....	31
5.1. Site-specific Vegetation Plans.....	31
5.2. Annual Status Report.....	31
5.3. Report Availability.....	31

Appendix A – Sample Seed Mixes

Appendix B – State of Minnesota 2015 Noxious Weed List and Chippewa County Supplement

# **AGRICULTURAL IMPACT MITIGATION AND VEGETATION MANAGEMENT PLAN**

## **1. Introduction**

The Minnesota Public Utility Commission issued the Site Permit for the 100-megawatt (MW) Aurora Distributed Solar Energy Project on June 30, 2015. The Site Permit requires a variety of pre-construction notices and compliance filings, including an Agricultural Impact Mitigation Plan (AIMP; Condition 6.4) and a Vegetation Management Plan (Condition 6.5). This joint Agricultural Impact Mitigation and Vegetation Plan (AIMP/VMP) is intended to fulfill the requirements of both Condition 6.4 and Condition 6.5. The plan was developed by Aurora Distributed Solar, LLC (Aurora) in consultation with the Minnesota Department of Agriculture (MDA), the Minnesota Department of Natural Resources (MDNR), and the Department of Commerce.

The purpose of this plan is to describe how Aurora will minimize tree clearing, prevent the introduction of noxious weeds and invasive species, re-vegetate disturbed areas, and maintain appropriate vegetation at each solar facility throughout the operating life of the project. It also identifies measures that will be used to minimize potential agricultural impacts at each solar facility allowing for potential return to productive agricultural use after decommissioning of the project.

As described in the site permit, the Project consists of up to 21 distributed photovoltaic (PV) power plant facilities that range in size from 1.5 MW to 10.0 MW. Some details will vary from site to site, such as land cover seed mix, top soil management, and erosion control measures. Therefore, this plan will serve as the guiding document to fulfill Conditions 6.4 and 6.5 of the site permit for the project as a whole. Pre-construction site plans capturing the level of detail necessary for each individual facility. This will be provided under the pre-construction filings required under Condition 6.1 of the Site Permit which will include the final site plans for each distributed facility prior to the start of construction at that site. In addition, the pre-construction plans will also be included in each of the site-specific Stormwater Pollution and Prevention Plans (SWPPP).

The site plan for each facility will each include (1) a general narrative describing the specific facility including any site specific aspects relating to this AIMP/VMP; (2) a site plan depicting the solar panel layouts, access roads, primary electrical equipment, interconnection lines, and other associated facilities; (3) engineering drawings for site preparation and construction including soil management (4) a seeding plan which details the seed mix or mixes to be utilized at the site and the areas where the mixes are to be applied; (5) a landscaping plan that describes adjacent land uses and identifies any site-specific strategies to minimize the visual impact of the Facility to adjacent land uses. Each of these ready-for-construction site plans will include facility-specific information detailing the manner in which this plan will be implemented while still referencing the general provisions detailed herein.

## 1.1.General Provisions

This AIMP/VMP has been developed to fulfill the requirements of both Condition 6.4 and Condition 6.5. of the Site Permit issued on June 30, 2015. The mitigation actions set forth in this plan will be implemented in accordance with the measures listed below.

Aurora will retain qualified contractors with demonstrated educational background and practical experience to serve as an Agricultural Environmental Monitor (AEM) to oversee the mitigation actions in this plan; Aurora may negotiate with specific Landowners who wish to carry out the mitigation actions themselves to ensure those actions are consistent with the conditions contained in the AIMP/VMP and the Site Permit.

Aurora will retain an Agricultural Environmental Monitor (AEM) with demonstrated educational background and practical experience to ensure that appropriate mitigation measures are carried out consistent with this plan. In addition to the AEM, Aurora will provide Environmental Monitoring (EM) staff responsible for ensuring compliance with all applicable regulations including any permits and approvals.

Temporary repairs will be made by Aurora (or its contractors) during construction as needed to minimize the risk of additional property damage or interference with the Landowner's access to or use of the property that may result from an extended time period to implement mitigation actions. Except as otherwise provided in this plan, mitigation actions will extend to associated future maintenance and repair activities by Aurora during operation of the Project.

In addition, Aurora will only implement the mitigation actions in this plan to the extent that they do not conflict with the requirements of any applicable federal and state rules and regulations and other permits and approvals. To the extent a mitigation action required by this plan is determined to be in conflict with the requirements of federal or state regulations, Aurora will inform the MDA or MDNR as applicable, and work with them and the Landowner to develop a reasonable alternative mitigation action. Aurora will file with the Commission the nature of the conflict and the agreed-upon alternative mitigation within thirty (30) days of the resolution. Consistent with the complaint reporting procedure, Aurora will provide each Landowner with a telephone number and address which can be used to contact Aurora, both during and following the completion of construction. If the contact information changes after the completion of construction, Aurora will provide the Landowner with updated contact information. Aurora will respond to Landowner telephone calls and correspondence within a reasonable time.

Certain provisions of this plan require Aurora to consult and/or agree with the Landowner; Aurora will engage in a good faith effort to secure the agreement. In the event of a disagreement between Landowner and Tenant, Aurora's obligation will be satisfied by securing the Landowner's written agreement and if necessary the Commission's input will be sought.

If any provision of this plan is held to be unenforceable, no other provision will be affected by that holding, and the remainder of the plan will be interpreted as if it did not contain the unenforceable provision.



## **1.2.Organization**

This agricultural impact mitigation and vegetation management plan is divided into the following major sections:

- Introduction
- Project Description
- Vegetation Management Plan
- Agricultural Impact Mitigation Plan
- Quality Control and Adaptive Management

### 1.3. Abbreviations and Definitions

Aurora	Aurora Distributed Solar, LLC / Permittee
Agricultural Drain Tile	A practice or sort of equipment that removes excess water from soil subsurface.
AEM	Agricultural Environmental Monitor
AIMP	Agricultural Impact Mitigation Plan
BWSR	Board of Water and Soil Resources
Balance of Plant	Balance of plant refers to supporting and/or auxiliary components integrated into a comprehensive power system package
Conservation Reserve Program	A cost share and rental payment program for land use under United States Department of Agricultural and is administered by USDA Farm Service Agency
CSW	Construction Stormwater Permit
Decompaction	Introducing air space into the soil decreasing soil bulk density.
DC	Direct Current
EM	Environmental Monitor
Landowner	Any property owner other than Aurora
LGU	Local Government Unit
MW	Megawatt
GAP	Gap Analysis Program
MDA	Minnesota Department of Agricultural
MDNR	Minnesota Department of Natural Resources
MPUC	Minnesota Public Utilities Commission
NWIS	Noxious Weeds Invasive Species
NPDES	National Pollutant Discharge Elimination System
Restoration	The process of reconverting disturbed land through planting of vegetation.
RIM	Reinvest in Minnesota
SCADA	Supervisory Control and Data Acquisition is a system that operates with coded signals over communication channels to provide control of remote equipment.
SDS	State Disposal System
Site or facility	Individual distributed photovoltaic (PV) power plant facility contributing to the project
Soil Compaction	When stress is applied to soil that causes densification as air is removed from the soil.
Solar Energy System	Solar arrays, panels, collection and distribution systems
SWPPP	Stormwater Pollution and Prevention Plan
O&M	Operations and Maintenance
PLS	Pure Live Seed is the percentage of good viable seed that has the potential to germinate.
Project	The 100-megawatt (MW) Aurora Distributed Solar Energy Project
PV	Photovoltaic
USFWS	United States Fish and Wildlife Service
USACE	United States Army Corps of Engineers
VMP	Vegetation Impact Plan
WCA	Wetland Conservation Act

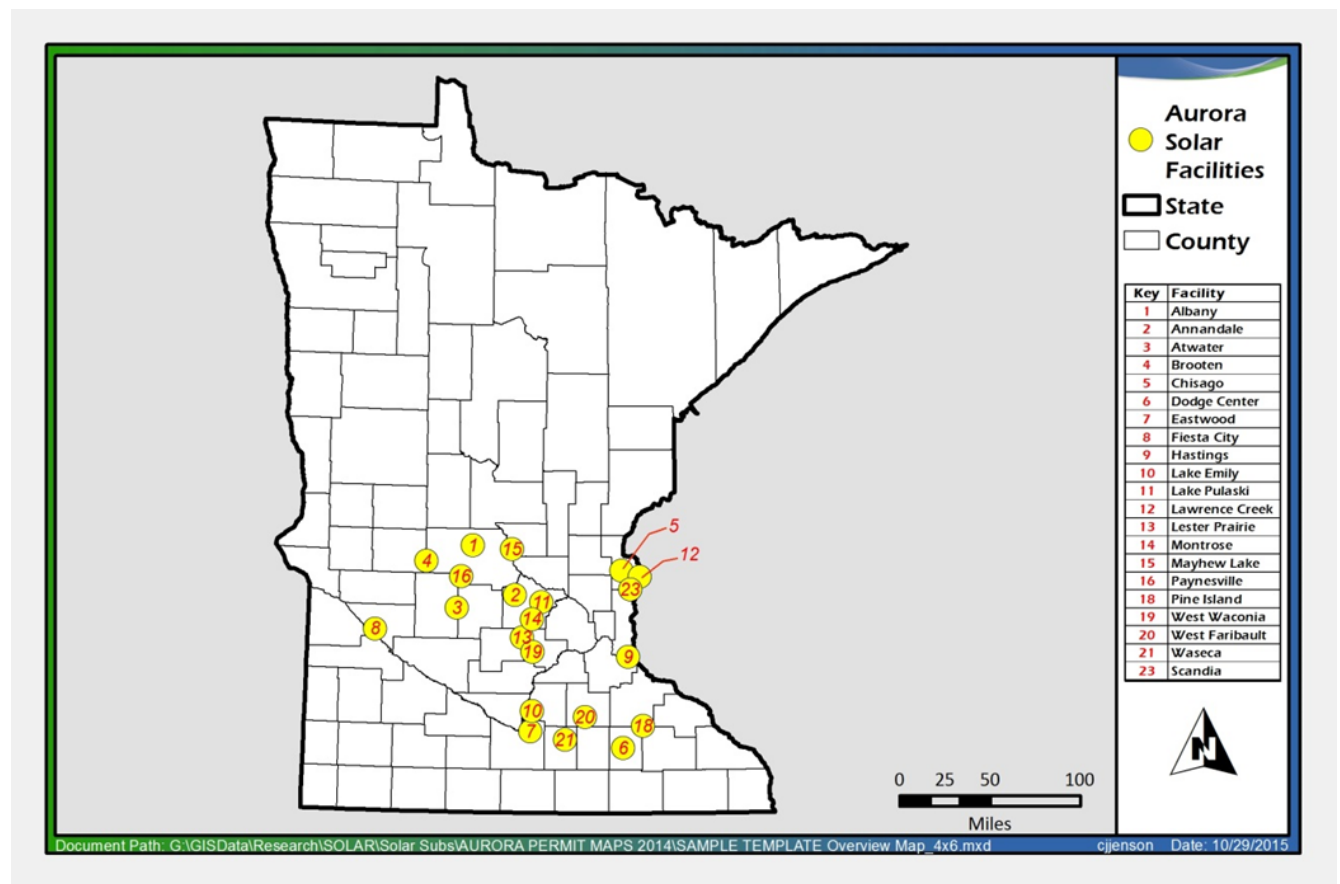
## 2. Project Description

Under the Site Permit issued June 30, 2015, the Project consists of up to 21 distributed photovoltaic (PV) power plant facilities that range in size from 1.5 MW to 10.0 MW. The land under Aurora’s control at each facility ranges from approximately 13 acres to 231 acres.

### 2.1. Project location

Aurora likely will not be constructing solar facilities at all 21 locations. The final decision on which facilities will be selected for construction will be based on information such as interconnection details, site-specific conditions, landowner discussions, and environmental or engineering survey results. Aurora, therefore, has developed this plan to address all 21 facility locations to have the flexibility to build the combination of facilities that best uses the resources to obtain 100 MW of solar power. The facility locations identified in the Site Permit are shown in Figure 1 and Table 1 below. This plan will be updated to reflect the final sites constructed as part of the Project. As required under Section 9.1 of the Site Permit, upon completion of the entire project, Aurora will file with the Commission a copy of the as-built plans and specifications for the sites that are constructed.

**Figure 1 Aurora Solar Project Facility Locations**



**Table 1: Designated Sites**

Facility	County	Township/Range/Section	Facility Land Control (acres)	Preliminary Development Area (acres)	Anticipated MW-AC
Albany	Stearns	Sections 8 & 17, T 125N, R 31W	230.6	107.4	10.0
Annandale	Wright	Section 32, T 121N, R 27W	70.6	70.6	6.0
Atwater	Kandiyohi	Section 1, T 119N, R 33W	40.1	36.3	4.0
Brooten	Stearns	Section 31, T 124N, R 35W	13.0	13.0	1.5
Chisago	Chisago	Section 12, T 34N, R 21W	62.4	60.6	7.5
Dodge Center	Dodge	Section 32, T 107N, R 17W	68.5	60.0	6.5
Eastwood	Blue Earth	Section 14, T 108N, R 66W	49.7	49.7	5.5
Fiesta City	Chippewa	Section 9, T 117N, R 40 W	25.6	25.6	2.5
Hastings	Washington	Section 8, T 26N, R 20W	40.6	40.6	5.0
Lake Emily	Le Sueur	Section 24, T 110N, R 26W	46.9	42.4	5.0
Lake Pulaski	Wright	Section 15, T 120N, R 25W	75.8	63.2	8.5
Lawrence Creek	Chisago	Section 27, T 34N, R 19W	74.3	39.4	4.0
Lester Prairie	McLeod	Section 25, T 117N, R 27W	29.9	26.0	3.5
Mayhew Lake	Benton	Section 12, T 36N, R 31W	36.0	21.8	4.0
Montrose	Wright	Section 2, T 118N, R 26W	37.7	34.8	4.0
Paynesville	Stearns	Section 4, 8 & 9, T 122N, R 32W	223.6	108.4	10.0
Pine Island	Goodhue	Section 31, T109N, R 15W	46.9	42.2	4.0
Scandia	Chisago	Section 35, T 33N, R 20W	24.4	23.3	2.5
Waseca	Waseca	Section 12, T 17N, R 23W	89.2	85.2	10.0
West Faribault	Rice	Section 2, T 109N, R 21W	85.5	59.4	5.5
West Waconia*	Carver	Section 1, T 115N, R 26W	75.7	78.1	8.5

\* Preliminary Development Area boundary is larger than the Facility Land Control boundary in this particular instance to accommodate possible interconnection in the public right-of-way on the north side of Highway 5/25.

## 2.2.Design

Each solar facility is comprised of PV modules mounted on a linear axis tracking system and a centralized inverter(s). The modules will be approximately 6.4 feet long by 3.1 feet wide, and 1 to 2 inches thick. Aurora anticipates the majority of the tracking system foundations will be driven piers and will not require concrete. However, depending on site specific engineering constraints, some concrete foundations may be required. Balance of plant components include electrical cables, conduit, electrical cabinets, switchgears, step up transformers, SCADA systems, and metering equipment.

The solar facilities contain operations and maintenance (O&M) areas and internal access roads; each facility will be fenced, and gated at the access point. Areas of bare ground will be re-vegetated with a low-growing seed mix (e.g., short grasses or flowers, low-growing forbs, low-growing wetland seed mixes or similar low-growing perennial cover<sup>1</sup>). A general composition of the low-growing seed mix is included in Appendix A.

### Photovoltaic Arrays and Solar Field

The solar field at each facility will consist of the following equipment:

- *Solar field:* Linear arrays of PV modules approximately 4 to 10 feet above grade, variance will depend on the final design. The maximum height will be approximately 10 feet at a 45 degree tilt.
- *Solar inverters skids and electrical cabinets:* Inverters will be enclosed and installed on a cement pad or cement pier foundation system that will be determined based on the observations of the site hydrological conditions at the inverter location. The inverters will be approximately 30 feet long, 11 feet wide, and 12 feet tall.
- *Security fence:* The security fence surrounding the facility will consist of up to seven feet of chain-link, agricultural fence attached to wooden posts topped by a one to two foot extension of monofilament cable tilted 45 degrees outward from the vertical plan of the agricultural fence portion. The agricultural fence will consist of a square or rectangular grid of woven wire. A gap, approximately 7" in height, will be left open between the ground and the agricultural fence sections to allow for movement of smaller animal species into and out of the site.

### Balance of Plant Equipment

The panel blocks will be mounted on metal racks that will be installed on a series of posts that will be driven into the soil or in some cases installed on a concrete foundation. Each panel block contains internal access drives and electrical utilities to support the array. Each panel block will likely include one to four inverters, depending on the size of the panel block. Inverters will be installed adjacent to the panel blocks on an inverter skid or on a concrete pad, either of which may be enclosed.

---

<sup>1</sup> The final composition of the seed mix to be applied at each individual site will be provided in the Pre-Construction plans and Site Specific SWPPP filed with the Commission. Seed mixes may be altered with prior concurrence with PUC, DNR and MDA based on species availability or other site specific need.

Inverters convert the direct current (DC) output of the panels to alternating current (AC), which is required for delivery to the electrical distribution grid. The panels deliver DC power to the inverters through cabling that will typically be located in an underground trench (approximately three feet deep and one to two feet wide) or, in some limited circumstances, aboveground conduit.

## Operations and Maintenance Area

The O&M area at each facility may consist of the following components:

- *O&M Support Areas:* Aurora does not anticipate utilizing a specific onsite O&M building at each location. Instead, Aurora will likely utilize one or more centrally located off-site facilities and/or warehouse space. This will likely be rented or leased space suitable to support multiple individual facilities. The location of this space will be determined depending on the final locations of the project facilities constructed. If an onsite support space is required, it will be within the enclosed inverter housing at a facility, or a temporary weather enclosure for maintenance activities. .
- *Parking, and receiving/loading areas:* Parking, and receiving/loading areas are minimal as compared to the staging/laydown areas utilized during construction. All onsite parking, and receiving/loading areas are located within the development area of each facility.
- *Lighting:* During construction, temporary service poles will be 18 feet tall. During operations, lighting will be located near O&M areas (inverters), security gates and perimeter areas if necessary for safety and security. Lighting will be motion-activated or switch-activated and downward facing to minimize effects.

## Access Roads/Transportation System

Earthen or gravel roads, typically 12 to 20 feet wide, will also be constructed within each facility between some panel blocks and/or around the preliminary development area perimeter to provide access to the solar equipment and accommodate ongoing maintenance of the solar facilities and emergency vehicles.

No upgrades or other changes to existing off-site transportation systems will be necessary during either construction or operations of the facilities (i.e., all new access road construction will be occurring within the facility parcel boundaries), with the limited possible exception of minor field access or driveway changes which may be needed on a facility-by-facility basis.

## Public Safety

Security fencing and perimeter landscaping will be designed to maintain safe roadway sightlines where the facilities are located along public roadways. Fence lines will also be setback from public roadways enough to allow deer or other wildlife to move through areas near a facility so as to reduce the likelihood of them using public roadways or rights-of-way.

### 2.3.Agricultural Environmental Monitor

An Agricultural Environmental Monitor (Agricultural Monitor) shall be retained and funded by Aurora for the purposes of providing third-party review of the AIMP/VMP through construction and post-construction stabilization of vegetated areas. The Agricultural Monitor will serve to ensure the long-term

agricultural feasibility of the sites is maintained. The Agricultural Monitor will not have the authority to direct the contractor regarding construction activities, but they will have authority to request that Aurora's EM stop construction if the Agricultural Monitor believes a compliance issue has been identified. The Agricultural Monitor will have full access to project facilities and will have the option of attending meetings where construction is discussed. Specific duties of the Agricultural Monitor will include, but are not limited to the following:

1. Participate in preconstruction training activities sponsored by Aurora.
2. Monitor construction and restoration activities for compliance with provisions of this AIMP/VMP.
3. Report instances of noncompliance with the AIMP/VMP to Aurora's EM and Field Representative.
4. Prepare periodic compliance reports to the DNR and the MDA.
5. Coordinate communication of Landowner concerns to the DNR and the MDA if necessary, although this will be typically handled by the Field Representative.
6. Maintain a written log of Landowner concerns reported to the Agricultural Monitor regarding compliance with this AIMP/VMP. The written log should record when the AGMONITOR reported each logged concern to the DNR and MDA.
7. Be responsible for determining whether weather conditions have caused the soil to become so wet that the activity to alleviate compaction would reduce the future production capacity of the land and advising Aurora's Environmental Monitors of these conditions. Aurora will be solely responsible in making the decision on whether it will proceed with construction under these conditions. Compensation for Landowner, as appropriate, will be determined as described in the "Procedures for Determination of Damages and Compensation" section of this AIMP/VMP.
8. In disputes between Aurora and a Landowner over restoration, advise the Aurora Field Representative and follow the complaints resolution procedure.

### Qualifications and Selection of the Agricultural Monitor

The Agricultural Monitor selected for the project will have sufficient relevant education and demonstrated practical experience with electric power generation facility construction, redevelopment and restoration of agricultural land. The resume/qualifications of the Agricultural Monitor will be submitted to PUC, MDA, and DNR upon request for approval prior to construction.

### Aurora Environmental Monitor

In addition to the Agricultural Monitor, Aurora will utilize, through its Health, Safety, and Environmental Quality Program, Environmental Monitoring (EM) staff responsible for ensuring compliance with all applicable regulations including any permits and approvals. Aurora will provide Health, Safety, and Environmental Quality Program, staff to serve as the Environmental Monitors (EM) for the Project, responsible for ensuring compliance with all applicable regulations including any permits and approvals.

The Aurora EM will:

1. Be full-time members of the Aurora inspection team.
2. Be responsible for verifying Aurora's compliance with provisions of this AIMP during construction (as well as other site permit requirements).

3. Work collaboratively with other members of Aurora's construction team and Aurora's Field Representative in achieving compliance with this AIMP.
4. Observe construction activities on project facilities on a regular basis.
5. Have the authority, after consultation with the construction manager, to stop construction activities that are determined to be out of compliance with provisions of this AIMP.
6. Document instances of noncompliance and work with construction personnel to identify and implement appropriate corrective actions as needed.
7. Ensure that any complaints or disputes relative to this AIMP/VMP are documented in the Complaint Reporting Procedure
8. Provide construction personnel with training or review training materials associated with provisions of this AIMP before construction begins.
9. Should the EM determine that, due to wet conditions, continued construction activity would result in damage to the future production capacity of the land included in the construction area, the EM may request temporarily cessation of the construction activity in a specific area or site until the EM consults with supervisory personnel of Aurora.

## **2.4. Construction and Restoration**

At each facility, construction will begin with initial site preparation work (such as grading and vegetation removal, including a limited amount of tree removal at some facilities), workforce mobilization, and construction of general site improvements such as access improvements and the staging/laydown area. The staging/laydown area will be located within the facility boundaries at each facility, and the area will depend on the overall size of that particular facility. Alternately, the construction contractor may use an existing warehouse or paved laydown area for central staging.

The solar energy system (solar arrays and collection and distribution systems) will be installed next along with access roads within the arrays. The solar facilities will be constructed in blocks, and multiple blocks could be constructed simultaneously. Typically, a facility will be constructed in four to eight months. Electrical testing and equipment inspections will be conducted on each facility, and the construction of the distributed facilities will allow individual solar facilities to become operational (generating electricity and delivering power to the grid) prior to full build out of the up to 100-MW project. As these areas near completion, temporary staging and laydown areas will be vacated and all disturbed areas will be reseeded and re-vegetate consistent with a project-specific vegetation and restoration plan. Once installation is complete, the primary staging area will be reduced in size.

For every 2 MW of installed capacity, Aurora estimates that there will be between 25 and 35 trucks used for delivery during construction and light duty trucks on a daily basis for transportation of construction workers to and from the site during construction. Typical construction equipment such as scrapers, dozers, dump trucks, watering trucks, motor graders, vibratory compactors, and backhoes will be used during construction. Specialty construction equipment that may be used during construction will include:

- Skid steer loader;
- Vibratory pile driver;
- Medium duty crane;



- All-terrain forklift;
- Concrete truck and boom truck;
- High reach bucket truck; and
- Truck-mounted auger or drill rig.

Table 1 provides data on how Aurora will schedule the construction process for each facility, including task duration and key predecessors.

**Table 2 Construction Timeline for Individual Facilities**

Task	Duration	Key Predecessor
Site Preparation <sup>2</sup> , Grubbing and Clearing	2 days per acre	Construction begins
Laydown and Temporary Job Site Trailers	7 days	Construction begins
Civil Construction	10 days per acre (may vary according to terrain)	Laydown and Temporary Job Site Trailers
PV Mounting Posts	5 days/MW	Site Preparation, Grubbing and Clearing
Underground Collection System	4 days/MW	Site Preparation, Grubbing and Clearing
Electrical Enclosure/Inverter	15 days/unit	Laydown and Temporary Jobsite Trailers
Tracker Installation	3 days/MW	PV Mounting Posts
PV Module Installation	3 days/MW	Tracker Installation
Interconnection Tie (portion within facility boundary)	10 days/facility	Laydown and Temporary Job Site Trailers
Testing	20 days	Interconnection Tie

After construction, temporarily disturbed areas will be restored. The temporary disturbed areas will be graded to natural contours and soil will be loosened and seeded if necessary. Once construction is complete, the access roads will be regraded, filled, and dressed as needed. Although few, if any, temporary roads will be constructed with the Project, any temporary roads will be decommissioned and restored. Erosion control methods will be identified in the site specific SWPPP, as well as requirements of

<sup>2</sup> Sites located within Northern Long Eared Bat territory with less than one acre of trees will not be subject to tree removal from June 1 thru July 30, Sites with greater than one acre of tree removal will not be subject to tree removal from April 1 through September 30.

the general contractor and relevant permits. Aurora anticipates that the post-construction clean-up and site restoration activities will last approximately two to four weeks per facility with establishment of vegetation in following growing season. Seeding will be completed as indicated on the site-specific Seeding and Landscaping Plans or as modified with concurrence with PUC, DNR, and MDA. Aurora anticipates utilizing low growing species in the seed mixes to minimize shading as well long term vegetation maintenance.

## **2.5.Operation and Maintenance**

The expected service life of each facility is 25 to 30 years, although it may be extended with appropriate approvals from regulatory agencies. Post-construction compliance filings under the AIMP/VMP associated with operations and maintenance of the project are provided in Section 5 of this plan. Maintenance activities will include the following:

- Equipment inspection: Inspection of the main equipment will occur at regular intervals, including: PV panel inspection, inverter, transformer and electrical panel inspection, electrical check, noise check, and cable and wiring inspection.
- Performance monitoring: Performance monitoring of the Project facilities will consist of a weekly or monthly download of the data acquired by the onsite meteorological station (energy produced, alarms, faults, etc.).
- Facility maintenance: Housekeeping of the facilities will include road maintenance, vegetation maintenance including occasional mowing the ground cover that is planted under the arrays at each facility, weeding or spot spraying, fence and gate inspection, lighting system checks, and PV panel washing (if required; minimal to no washing is anticipated to be needed at the facilities).

## **2.6.Decommissioning and Repowering**

At the end of its useful life, the facilities can be decommissioned or repowered. Decommissioning would include removing the solar arrays, inverters, electrical collection system, underground lines, fencing, lighting and substations, and possibly the O&M facility.

Aurora reserves the right to extend operations at some or all of the facilities instead of decommissioning at the end of the site permit term. Aurora may apply for an extension of the Site Permit to continue operation of the Project. If an extension to the site permit is requested, a decision may be made on whether to continue operation with existing equipment or to retrofit the facilities with upgrades based on newer technologies.

Standard decommissioning practices would be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and restoration. The site permit requires a decommissioning plan for each facility 14 days before the start of commercial operation. As with the pre-construction plans, this AIMP/VMP will be specifically referenced by each individual decommissioning plan submitted for the project.

### **Timeline**

Decommissioning is estimated to take two to three weeks per facility and the decommissioning crew will ensure that all equipment is recycled or disposed of properly.

### Financial Resource Plan

A decommissioning agreement will be established between Aurora and any subsequent landowner. For any facility lease, Aurora provides for an escrow account to secure Aurora's obligations to remove the facilities upon the end of the PV system's useful life or at the end of the lease term. The escrow shall be held, administered, and disbursed by a title company, bank or other qualified escrow agent mutually satisfactory to the parties.

If Aurora does not remove the solar facilities within twelve (12) months after the expiration of the lease or earlier termination of the lease, the landowner may draw from the escrow an amount sufficient to reimburse lessor for the difference between lessor's out-of-pocket costs of removing the solar facilities, less the salvage value of the solar facilities.

### Removal and Disposal of Project Components

Removal and disposal of required project components will be done in accordance with applicable laws and regulations, including, but not limited to, the requirements of the site permit. All components to be removed will be assessed, and wherever possible, these components will be re-utilized or recycled.

### Restoration/Reclamation of Facility

After all equipment is removed, each facility will be restored to its original condition as much as possible. Compaction of the site subsoil will be assessed, and where required, alleviated on cropland using deep-tillage equipment. De-compaction of the topsoil, if necessary, will be performed during favorable soil conditions. Any holes or voids created by poles, concrete pads, and other equipment will be filled in with suitable soil materials to existing conditions and seeded.

### 3. Vegetation Management Plan

As described in the Site Permit application and Environmental Assessment submitted for the project, the development areas of all of the facilities are comprised of mostly row crops. Non-native invasive species cover is generally low, because of the intensive weed management associated with agriculture.

Three facilities (Dodge Center, Paynesville, and Pine Island) have rare and unique natural communities within the areas of site control. Section 14.2 of the Site Permit requires that the identified natural communities be delineated through biological surveys and the sites at these facilities be designed to avoid these rare and unique natural communities avoided.

Title searches completed for all projects have confirmed no Conservation Reserve Program lands or any other conservation easements on any of the facilities' properties. The U. S. Fish and Wildlife Service (USFWS) administer a program by which it holds easements on private lands that have wetlands and/or grassland habitat. The Minnesota DNR and Minnesota Board of Water and Soil Resources (BWSR) also administer conservation programs such as Reinvest in Minnesota (RIM), in which the DNR and/or BWSR holds easements on private lands for conservation purposes. No RIM or USFWS easements have been identified on any of the facilities.

Managed lands including state forests, state parks, wildlife management areas and scientific and natural areas have been avoided in the site selection process. Public Waters Inventory water bodies have been avoided through site selection and design of site layout at each facility.

Soil conditions were considered in site selection and design of site layout at each facility. Steep slopes and highly erodible soils have been avoided to the extent possible.

Through careful site selection and layout design, wetlands have been avoided to the extent possible. Aurora has fully coordinated with the U.S. Army Corps of Engineers (USACE) and local government units (LGUs) under the Minnesota Wetland Conservation Act (WCA). Aurora has received all necessary federal, state and WCA permits for wetland impacts prior to construction.

#### 3.1.Design

Solar arrays require a relatively level surface, which in turn can require a certain amount of grading and vegetation removal at each site. Access roads and laydown areas may also require vegetation removal and grading/earthwork. Aurora will minimize impacts to vegetation during construction and operation of the facilities. The final design minimizes clearing of trees and shrubs to the extent possible.

Solar energy projects require removal of trees and woody vegetation from the development area and possibly the larger facility land control area to reduce shading of the PV arrays. In some locations Aurora may seek voluntary agreements with neighboring landowners for lands outside the facility boundary to conduct limited tree trimming on adjacent parcels if future shading of the arrays becomes a concern.

## 3.2.Re-vegetation

The seeding plan for the facility includes planting a no mow turf with forbs under the array and in between panel rows. Large open areas will be planted with a pollinator friendly mix. A sample composition of the seed mixes proposed are included in Appendix A. Furthermore, Aurora commits to a decommissioning plan and complete removal of project components and re-vegetation of the site following the end of the project's life. The specifics of post construction re-vegetation and maintenance of this vegetation during the operation of the project are discussed further in sections 3.3 and 3.4 of this plan. Post-project re-vegetation is discussed further in section 3.5 of this plan.

## 3.3.Construction and Post-Construction Restoration

### Vegetation removal

Construction of each of the facilities will require vegetation removal and some grading to provide a relatively level surface for the solar arrays. In addition, vegetation will have to be removed for access roads and laydown areas in the defined development and access areas.

#### *Upland Vegetation Removal*

Vegetation will be cleared within the development area prior to construction as allowed by landowner agreements and permit conditions. Brush, trees, and herbaceous vegetation will be cleared to facilitate access and meet safety standards. Clearing may be accomplished with the use of chainsaws, mowers, and hydraulic tree-cutting equipment. Vegetation will be cut at, or slightly above, the ground surface. Rootstock or stumps will be ground down to surface level.

At the time of clearing, any merchantable trees may be cut to standard logging lengths and stacked in upland areas within the land control boundary. Non-merchantable material, including trees, brush, and slash, will be either cut and scattered, placed in windrow piles, chipped, or burned within the land control boundary and outside of wetland areas.

Slash burning will only occur within the land control area where burn permits have been issued by the local permitting authority. Where this method is approved by appropriate agencies and landowners, brush will be burned in the center of the land control area, in piles located away from forested areas. All permit conditions and local ordinances will be followed. Slash burning would be done as soon as practicable, as allowed by the local permitting authority.

#### *Wetland Vegetation Removal*

Any forested wetlands will require the removal of all woody vegetation within the development area. The removal of woody vegetation within forested wetlands will be conducted in accordance with USACE permit conditions. Within these areas, all trees and large shrub species will be cleared to ground level; stumps may be removed to the extent allowed by USACE regulations.

The deposition of upland tree material within wetlands is prohibited, and large-scale chipping will not be allowed in wetlands. Where equipment is used to clear small diameter trees and shrubs on a small scale, the resulting woody debris may be chipped and evenly scattered. Any excess material must be removed from the wetland boundary. Slash piles are not to be placed in wetlands or adjacent to waterways as fire debris has the potential to wash into adjacent streams and water bodies.

The use of heavy equipment in wetlands will be minimized to the extent practicable and construction in wetlands will be scheduled to take place during frozen conditions where possible. Where this is not feasible, wetland impacts will be minimized to the best extent possible and in accordance with USACE and local wetland authority requirements.

## Erosion Control

Each individual site will be required to obtain authorization under National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater (CSW) Permit. A SWPPP has been prepared in accordance with the NPDES/SDS CSW Permit, prior to submitting an application for CSW permit and prior to conducting any construction activity. During construction, measures will be put in place as required by the SWPPP to stabilize recently-graded exposed soils. Soil replacement and/or amendments may be necessary in limited areas of some of the facilities, especially in hydric soil units near wetlands, or other areas with soil limitations.

A SWPPP for each facility has been prepared to provide detailed, site specific erosion control measures. Aurora will work together with construction engineer/consultant and EM to implement erosion control measures and best management practices for each site. Erosion control measures may include (but are not limited to) the following:

- Limiting vegetation removal and ground disturbance
- Erosion control mats/fabrics
- Sand bags
- Mulching
- Protective berms
- Silt fences

Aurora will utilize wildlife-friendly erosion mesh for the Chisago, Scandia and Lake Emily facilities, which are in the vicinity of protected reptile species such as the Blanding's turtle. For facilities that are located in areas where these species are not found, Aurora will reserve the right to use other mesh or fencing type based on cost and availability.

The contractor will be responsible for acquiring certified weed-free straw mulch from approved sources, and copies of applicable documentation must be maintained during construction and available upon request. Straw mulch may be used to protect exposed soils as necessary and will be anchored to prevent migration into wetlands, if used.

As noted above, best management practices will be implemented to minimize damage to wetland soils including minimizing the use of heavy equipment in wetlands, constructing in wetlands during frozen conditions, use of matting materials and other requirements as required by USACE and LGUs.

## Re-vegetation

Following construction all waste, construction materials, and debris from construction activities will be removed from each site. Oversight for the implementation of re-vegetation and restoration procedures will be provided by the EM. Temporary disturbed areas and temporary access roads will be re-vegetated.

Any areas of bare ground will be re-vegetated with the appropriate seed mix identified for that area on the seeding and landscape plans (e.g., short grasses or flowers, low-growing forbs, low-growing wetland seed mixes or some other low-growing perennial cover). Aurora will submit an annual report on the status of re-vegetation at all sites to the PUC, DNR, and MDA for the first three years of operation.

In general, re-vegetation will be completed as follows:

### *Uplands*

#### *Ground preparation*

Ground preparation and seeding are to occur following completion of construction activities and site cleanup. Soil will be tilled with a disc, field cultivator, or chisel plow or mulch will be applied, as necessary to prepare upland areas for restoration. Prior to seeding, areas should be sufficiently soft to allow for seed penetration and straw mulch anchoring (if required) to provide surface soil stability.

#### *Seeding*

Aurora has coordinated and continues to coordinate with DNR on developing a diverse and appropriate seeding plan for its facilities. Aurora's seed mix design is based on recommendations from the DNR as well as the U. S. Department of Agriculture's Natural Resource Conservation Administration guidelines for pollinator friendly seed mixes<sup>3</sup>. Three sample seed mixes are identified in Appendix A. The species composition of individual mixes at a given facility may vary based on regional variations and are subject to availability at the time of purchase. Should substitution need to occur because of availability Aurora will consult with MDNR and MDA and update this document to incorporate the seed mixes of record.

Aurora has also consulted with DNR and MDA on establishment of ground cover. Re-vegetation will be timed such that seeding/plantings are done at a time congruent with the area's growing schedule/season, to the extent practicable with the construction schedule. If final construction occurs in winter months, reseeding augmentation may be necessary in the following spring.

Broadcast seeding will occur as specified in the seed mixes. Seed is to be uniformly distributed by a mechanical, hand-operated seeder; or in small seeding areas, by hand. Following seeding, the surface is to be raked with a cultipacker or hand raked, as necessary. The soil bed is to be prepared as appropriate to the seed type and site conditions.

Alternate methods of seed application may include drilling or hydroseeding. Drilled seed will be sown at a depth no more than 0.25 inches. Seeding equipment will be able to accommodate and uniformly distribute different sizes of seed at the required depth. Feeding mechanisms will be able to evenly distribute different seed types at the rates specified. Within cleared areas, it is assumed that seed drilling will be limited by the presence of stumps and roots left in place to retain the soil surface. Hydroseeding will occur as specified in the seed mixes. Seed will be applied in a broadcast, hydromulch slurry. The hydromulch seed mix will allow the contractor to see where application has taken place, ensuring uniform coverage of the seeding area. The hydroseeder must provide for continuous agitation of slurry and provide for a uniform flow of slurry.

---

<sup>3</sup> Conservation Cover (327) for Pollinators: Upper Midwest. Accessed online at [www.plant-materials.nrcs.usda.gov/pubs/mipmctn10591.pdf](http://www.plant-materials.nrcs.usda.gov/pubs/mipmctn10591.pdf)

## *Wetlands*

Restoration within wetland areas will include the removal of all construction mats and restoration of all ruts and depressions left by mats that are greater than six inches deep. No fill from outside of a wetland area will be used for repair of ruts.

The preferred method for re-vegetation of disturbed areas within wetlands is reliance on re-vegetation by resident hydrophytic plant communities.

In some situations, a disturbed area may be dominated by native wetland plant species with rhizomatous root systems. In these cases, these root systems may be able to recolonize small areas of disturbance rapidly. A temporary cover-crop seed mix may be broadcast-seeded to provide temporary cover and reduce the potential for noxious weed invasion while native vegetation becomes established.

## **Standards for Seed and Seed Mixes**

Seed and Seed Mixes used will be locally sourced, where practical, and purchased on a Pure Live Seed ("PLS") basis for seeding re-vegetation areas. Seed tags will identify:

- Purity;
- Germination;
- Date tested;
- Total weight and PLS weight;
- Weed seed content; and
- Seed supplier's name and business information.

Seed will be used within 12 months of testing as required by applicable state rules and regulations. The seed tags on the seed sacks will also certify that the seed is "noxious weed free." Seed rates used on the project will be based on PLS rate, not actual weight. The species components of individual mixes are subject to availability at the time of purchase. Grass species may be substituted with alternative native or non-invasive species that are included in Natural Resource Conservation Service guidelines and subject to approval by Aurora.

Seed tags or other purchase documentation must be provided by the contractor and available to Aurora's EM prior to seeding. The documentation will be reviewed by the AEM prior to use to ensure that the seed mix complies with specifications described herein.

## **Noxious weed management**

The Minnesota Noxious Weed Law (MN Statutes 18.75-18.91) defines a noxious weed as an annual, biennial or perennial plant that the Commissioner of Agriculture designates to be injurious to public health, the environment, public roads, crops, livestock or other property. The purpose of the law is to protect residents of the state from the injurious effects of noxious weeds. There are twenty nine plant species regulated as noxious weeds in Minnesota. Twenty are listed as prohibited noxious weeds which consist of two regulatory lists: twelve plants listed on the prohibited eradicate list and eight on the Minnesota Noxious Weed law. Five species are listed as restricted noxious weeds and are prohibited from importation, sale and unlawful transportation in Minnesota. Four species are listed as specially regulated



plants that can be enforced under specific conditions. Appendix B provides a detailed listing of each of these species.

In addition to the Minnesota Noxious Weed Law, Chippewa County specifically maintains a list of county weeds which includes four additional species (Abutilon theophrasti Medik., Velvetleaf, Xanthium strumarium L., Common Cocklebur, Helianthus annuus L., Common Sunflower). Appendix B of this document will be updated as necessary to include any updates to this county specific list or the Minnesota Noxious Weed Law .

Aurora has identified the following mitigation measures to be implemented that should prevent the introduction of noxious weeds and invasive species (NWIS) on lands disturbed by construction activities:

- Minimize soil disturbance to the extent possible;
- Check construction equipment for weeds;
- To prevent the introduction and spread of NWIS into the facilities from offsite locations, equipment will be cleaned prior to arrival onsite;
- Re-vegetate with intended plant species ( low-growing perennials) as soon as practicable to discourage noxious weed growth;
- Encourage early detection and eradication of patches of weeds through treatment with herbicides or mechanical methods; and
- Locate and use weed-free staging areas if there is an issue at the site.

To prevent the spread of NWIS during clearing and construction, straw mulch and wood chips used for stabilization will consist of state-certified weed-free material. The contractor will be responsible for locating and documenting the source of state-certified weed-free mulch. Sources must be approved by the AEM prior to purchase and copies of the applicable documentation must be given to the AEM and made available upon request to the appropriate agencies. AEM approved mulch derived from onsite locations may be spread up to six inches deep in upland areas to provide ground protection along access paths. Upon abandonment of any temporary access routes, mulch is to be spread evenly to a depth no greater than one inch. Mulch must be removed to a minimum depth so as not to inhibit germination and still maintaining stabilization until final restoration of the site. Mulch will not be used in any wetland locations.

### **3.4.Operation and Maintenance**

As detailed in Section 5 of this document, Aurora will submit to the Commission a memorandum and update to this plan upon completion of post-construction restoration of the entire project.

#### **Erosion Control**

The solar facilities will be fenced and seeded in a low growth seed mix to reduce stormwater runoff and erosion. Overall, the facilities are expected to improve erosion conditions, since the area under the arrays will be in permanent low-growth vegetation rather than cultivated fields.

## Vegetation maintenance

Tall growing vegetation would inhibit the safe and reliable operation of the project. Therefore, vegetation maintenance during operation of the Project will include mowing the ground cover that is planted in the vicinity of the arrays at each facility as necessary. Maintenance within the solar array will be infrequent. Maintenance in the large open areas will include intermittent haying (or mowing provided minimum blade heights are established). Mowing efforts will be generally targeted for late spring and early fall to avoid impacts to ground nesting species. Material that is mowed will be bagged and removed from the site to prevent smothering of the vegetation

## Noxious weed management

The EM will monitor the facilities for noxious weeds and report any infestations of NWIS species to Aurora. Major infestation areas identified during the first growing season will be treated with the use of herbicides or by mechanical methods. In the event that herbicide is required for control, the herbicide would be spot-sprayed to specifically target the NWIS colony and minimize killing non-targeted plants. Broadcast treatment of herbicides will not be utilized. The contractor applying herbicide is required to obtain any necessary permits and/or certifications prior to herbicide application. The contractor applying herbicide must keep proper documentation of location and timing of herbicide use and be prepared to provide such documentation to Aurora upon request as required under federal law. Treatment shall conform to manufacturer's specifications.

Herbicides will not be used if landowners prohibit their use. Herbicides will be used in accordance with manufacturer's specifications and all applicable federal and state regulations. Herbicides may be used to control the re-sprout of the stumps of tall-growing tree species or to control listed invasive or noxious weed infestations. Herbicides will not be used for within 75 feet of the vegetative buffer zone of water body crossings unless specifically designed for use in wet areas and must be permitted by the manufacturer's specifications for that purpose. Herbicides used within a 75 foot buffer zone of wet or wetland areas will only be applied if rain is not forecast during the next 24 hours.

## 3.5.Decommissioning

In the event that a facility is decommissioned, all equipment will be removed and the site restored consistent with the procedures identified in the Decommissioning Plan filed in accordance with Section 10.1 of the Site Permit. After all equipment is removed, any holes or voids created by poles, concrete pads, and other equipment will be filled in with soil to the surrounding grade and seeded with previously approved seed mix. This will include re-vegetation as native prairie or returning the site to agriculture uses. Additional details regarding the return to agricultural uses following decommissioning are provided below in the AIMP section of this document.

## Erosion Control

During decommissioning activities applicable erosion control measures identified above, in section 3.3 of this plan will be implemented.

## Re-vegetation

Aurora anticipates that post-decommissioning use of most projects may be for agricultural purposes, in which event the vegetation may be tilled and prepped for row crop agriculture or maintained as pasture or for a hay crop. If no specific use is identified, Aurora will vegetate the site with a native prairie seed mix. In the event that a property is considered for subsequent use other than for agriculture purposes, it will be the responsibility of that subsequent owner to obtain any necessary approvals for that change in use. If any change of land use by a subsequent owner is approved prior to the decommissioning of the project, appropriate vegetative cover will be provided by the subsequent landowner for a hay crop based upon the proposed future intended use.

## *Ground preparation*

During operation of the facilities, soil compaction could occur from the movement of maintenance vehicles between the rows of the solar arrays. This impact is expected to be negligible, and will be primarily confined to the gravel access roads. Holes created by poles, concrete pads, and other equipment will be filled in with soil to existing conditions. Compaction will be alleviated as needed via plowing using appropriate deep-tillage and draft equipment. Alleviation of compaction of the topsoil will be performed during suitable weather conditions, and will not be performed when weather conditions have caused the soil to become so wet that activity to alleviate compaction would damage the future production capacity of the land.

## *Reseeding*

Where a specific use of the site is undetermined, reseeding mixes will include native seed varieties commonly found and/or available from local seed distributors, will be certified noxious weed-free, and will match the surrounding desirable native vegetation to the extent possible or the proposed future intended use as required by appropriate agencies. The seed mixes are designed to augment the natural colonization by local, native seed sources.

Aurora's land agents will work with landowners to develop appropriate measures for reseeding of disturbed lands. Unless requested by the landowner, a native area vegetation seed mix will be used.

## *Monitoring*

Decommissioning of any individual site will not require new permits or approvals. Decommissioning should include post-restoration monitoring as required by the NPDES/SDS CSW Permit and SWPPP or other applicable requirements.

## Noxious weed management

Facilities will be monitored by a designated qualified individual for noxious weeds in areas where seeding and erosion control measures have been implemented and will follow-up with reseeding measures where vegetative cover is inadequate to provide long term stability and sustainable native plant communities.

## **4. Agricultural Impact Mitigation Plan**

### **4.1. General Provisions**

Aurora will negotiate in good faith with each Landowner that has adjacent land in agricultural production to secure any necessary agreements containing the conditions or provisions necessary to implement the provisions of this AIMP that affect surround land (e.g., tile repair and maintenance). The mitigation actions set forth in this AIMP are subject to negotiation and approval or change by an adjacent Landowner, so long as such changes are negotiated with and acceptable to Aurora and the designated AEM. Mitigative actions will be executed by qualified contractors retained by Aurora, including any mitigation required outside the project boundary, unless otherwise specified or agreed upon by the Landowner.

### **4.2. Design**

Solar facilities do not normally require concrete foundations or other permanent infrastructure; therefore, long-term impacts on agriculture are minimal. In addition, Aurora avoided selecting facility locations that would require extensive grading and topsoil management. Aurora's engineering, land rights and permitting staff has and will continue to seek input from Landowners to address final design and soil management issues described below. Access roads will be designed so as to not impede proper drainage and will be built to mitigate soil erosion on or near the temporary or long term access roads required for the life of the project facility.

Where Aurora is not the landowner, prior to construction, Aurora or its representative will review the final construction design plan with the Landowner when requested to do so by the Landowner. Aurora has contacted the Landowners for their knowledge of any agricultural tile locations and has incorporated information on location of drain tile.

Construction period top soil management plans, drain tile damage compensation, and other construction issues are discussed below.

### **4.3. Construction and Restoration**

Aurora will make good faith efforts to provide notice to the Landowner in advance of the commencement of construction activities on Agricultural Land. Notice may include personal contact, email, letter, or telephone contact.

#### **Procedures for Determination of Damages and Compensation**

Aurora will maintain an internal log documenting any Landowner requests for construction-related damages, including but not limited to crop damages, through resolution. All landowner requests will be treated in a standard manner regarding the recovery of damages, to provide a degree of certainty and predictability for Landowner and Aurora, and to foster good relationships among Aurora and Landowner over the long term.

Aurora will make a good-faith effort with landowners to negotiate damage claims. Aurora will offer to compensate Landowners according to the terms of Aurora's damage claim policy in effect at the time the Easement is executed and recorded. The compensation offered is only an offer to settle, and the offer shall not be introduced in any proceeding brought by the Landowner to establish the

amount of damages Aurora must pay. Should Aurora not be able to settle with a landowner then it will be handled through the complaints process required under Section 6.10 of the Site Permit, although submitted as a confidential filing with the Commission,

### Topsoil preservation

The facilities will require some grading and soil management. Aurora will segregate topsoil that must be removed for ground work. Topsoil removed due to grading will be removed to the actual depth of the topsoil or to an approximate maximum depth of 12 inches.

Excess topsoil may be made available to a Landowner who wishes to use this topsoil elsewhere on his or her property. If the topsoil is made available to a Landowner in other areas of the Project, it will be provided "as is" and the Landowner, not Aurora, will be responsible for verifying that the quality of the topsoil meets the Landowner's farming requirements. The Landowner is solely responsible for obtaining any required local, state, or federal permits or permissions that may be necessary for the placement of topsoil on his or her property.

Topsoil and subsoil layers that are removed during construction for temporary disturbed areas will be stored separately and replaced in the proper sequence after the solar facility is installed. Unless otherwise specified in the site-specific plan described above, Aurora will not use this soil for other purposes, including road crossings. No topsoil or subsoil (other than incidental amounts) may be removed from the site without Landowner written consent.

### Agricultural Drain Tile

Aurora has contacted the Landowners for their knowledge of the location of any agricultural tile. If the Landowner did not know where drain tile is located, Aurora has attempted to identify where the tile is located. The location of drain tile has been considered in facility designs. As required in Section 8.6 of the Site Permit, tile that is damaged, cut, or removed as a result of Aurora's location efforts will be promptly repaired to the extent necessary for adjacent agricultural purpose or proper drainage. The repair will be reported to the EM.

If tile is damaged by Project construction, and repair is required, the tile will be repaired with materials of at least the same quality as that which was damaged. If tiles on or adjacent to the construction area are adversely affected by construction, Aurora will take such actions as are necessary to restore the tile function, including the relocation, reconfiguration, and replacement of the existing tile. Aurora will correct tile repairs, as needed, after completion of construction, provided the repairs are made by Aurora or their agents or designees.

The affected Landowner may elect to negotiate a fair settlement with Aurora for the Landowner to undertake the responsibility for repair, relocation, reconfiguration, or replacement of damaged tile. In the event the Landowner chooses to undertake the responsibility for repair, relocation, reconfiguration, or replacement of the damaged tile, Aurora will have no further liability for the identified damaged tile.

The following standards and policies apply to the tile repairs completed by Aurora:

1. Tiles will be repaired with materials of the same or better quality as that which was damaged.

2. If water is flowing through a damaged tile, temporary repairs will be promptly installed and maintained until such time that permanent repairs can be made.
3. Before completing permanent tile repairs in an area where a Landowner, EM, or Aurora has identified a potential concern arising from Project construction, tiles will be examined within the work area to check for tile that might have been damaged by construction equipment. If tiles are found to be damaged, they will be repaired so they operate as well after construction as before construction began.
4. Aurora will make efforts to complete permanent tile repairs within a reasonable timeframe after construction, taking into account weather and soil conditions.
5. Following completion of construction and damage settlement, Aurora will be responsible for correcting and repairing tile breaks, or other damages to tile systems that are discovered after the first significant rain event to the extent that such breaks are the result of Project construction. Aurora will provide the Landowner with a field representative contact information should tile damage issues be identified after construction. Aurora will not be responsible for tile repairs performed by the Landowner.

Aurora will be responsible for installing additional tile or other drainage measures, including adding topsoil, as necessary to properly drain wet areas under Aurora's control caused by the construction of the Project that may impact public road ways or landowners.

### Soil Compaction/Rutting

Compaction will be alleviated as practicable on active cropland crossed by construction equipment. Aurora will work with the Landowner to alleviate compaction during suitable weather conditions in a mutually agreeable manner.

Aurora will repair damage incurred due to compaction, ruts, erosion, and/or washing of soil caused by construction or as mutually agreed upon in the land owner lease. If, by mutual agreement, the Landowner repairs such damage, Aurora will reimburse the Landowner for the reasonable cost of labor and the use of equipment to repair damage incurred due to compaction, ruts, erosion, and/or washing of soil caused by construction. Aurora will make such payments within a reasonable period of time following completion of project construction and after receiving a statement substantiating the Landowner's repair costs for facilities under lease agreement.

If there is a dispute between the Landowner and Aurora as to what areas need to be ripped or chiseled, the depth at which compacted areas should be ripped or chiseled, or the necessity for, or rates of, lime, fertilizer, and organic material application, Aurora will follow the complaint procedure filed with the Commission pursuant to Section 6.10 of the Site Permit prior to making a final decision.

### Excess Soil and Rocks

Excess soil and rock will be retained onsite or removed from the site if requested by the Landowner under a lease agreement. After construction and restoration of Agricultural Lands, Aurora will make good faith

efforts to obtain written acknowledgement of completion of such activities from the Landowner if under a lease agreement.

### Construction Debris

Aurora will remove construction-related debris and material which is not an integral part of the solar facility from the Landowner's property at Aurora's cost. Such material may include excess construction materials or litter generated by the construction crews.

## 4.4. Operation and Maintenance

There is little ongoing maintenance at the solar facilities that will impact current or future agricultural use. The Project will have a positive impact on facility locations that are dominated by agricultural land pre-construction, because the facilities will be revegetated with low-growing species, providing better quality habitat and soil-building conditions during operation of the facilities. Details regarding seeding, vegetation, weed control, landscaping, and related maintenance plans are provided above in the Vegetation Management Plan located in Section 3 of this document.

## 4.5. Decommissioning

This section of the plan identifies measures that can be used to minimize potential agricultural impacts at a solar facility if it is to be returned to productive agricultural use after decommissioning if the landowner wishes to do so.

### Soil

Topsoil and subsoil will be segregated and stockpiled during decommissioning activities. Subsoil will be placed back into trenched areas or racking posts. Topsoil will be layered on top to a depth agreed to with Landowner up to a depth of 12 inches. The topsoil will be replaced so that after settling occurs, the existing contours of topsoil's depth and contour (with an allowance for settling) will be achieved.

### Tile

As part of decommissioning, any damaged tile necessary for site drainage or adjacent agricultural purposes will be repaired with materials of at least the same quality as that which was damaged, as necessary for agricultural site drainage. If tiles on or adjacent to the construction area are adversely affected by construction or facility operation, Aurora will take mitigation actions as are necessary to restore the tile function, including the relocation, reconfiguration, and replacement of the existing tile. Aurora will correct tile repairs, as needed, after the useful life of the solar facility, provided the repairs were made by Aurora or their agents or designees. Aurora will not be responsible for tile repairs that Aurora has paid the Landowner to perform.

### Access Roads

Facility access roads will be used for decommissioning purposes, after which removal of the roads will be discussed with the Landowner using the following process:

- A. After final cleanup, temporary roads may be left intact through mutual agreement of the Landowner and Aurora unless otherwise restricted by Federal, State, or local regulations.

- B. If a temporary road is to be removed, the land upon which the temporary road is constructed will be returned to its previous use and restored to equivalent condition as existed prior to decommissioning.

### Land Leveling

As part of site decommissioning, to the extent feasible Aurora will restore the area disturbed by construction to pre-decommissioning elevation and contour. If uneven settling occurs or surface drainage problems develop, as a result of Project decommissioning, Aurora will provide additional land leveling services, or compensation, within 45 days of receiving a Landowner's written notice, weather permitting.

### Vegetation Restoration

Vegetation restoration will be performed based upon the property use after decommissioning. Aurora assumes that most sites will be utilized for agricultural use after decommissioning and appropriate measures will be implemented to facilitate agricultural production. Soil conservation and best management practices will be used to prevent soil erosion and impacts to waterways and neighboring adjacent uses. Vegetation restoration plans upon decommissioning are described above in the Vegetation Management section of this plan.

### Post-Restoration Monitoring

Decommissioning of any individual site will not require new permits or approvals except a NPDES/SDS CSW Permit and SWPPP if grading activities are necessary and exceed applicable permit thresholds. Decommissioning should include post-restoration monitoring as required by the NPDES/SDS CSW Permit and SWPPP or other applicable requirements. In addition, the EM or Aurora Field Representative assigned to decommissioning monitoring will stay in contact with Landowners, including on-site check in, as required by the SWPPP or other applicable requirements until those permits and conditions are met and the permits closed.

In situations where additional restoration is necessary, the complaint procedure will be followed to determine the need for additional restoration (fertilizing or re-seeding).

As part of the post restoration monitoring, the EM or Aurora Field Representative will also survey for excessive noxious weeds and address if there is an issue. This may involve consulting an agronomist or biologist if re-vegetation is not sufficient or if there are problems with noxious weeds after one growing season.



## 5. Adaptive Management

This plan incorporates best management practices identified at the time of construction to ensure the Project is constructed and operated in a manner that:

- Minimizes impacts to future agricultural uses at and near the facilities;
- Provides for successful re-vegetation of disturbed areas with diverse native vegetation at the Project sites;
- Minimizes the potential for invasive plant species at and near the Project sites; and
- Provides for maintenance the facilities over the life of the permit in a manner that allows for continuous operation of the facilities while maintaining a nuisance-free site.

Although the plan incorporates current best management practices, it is anticipated that knowledge of construction and decommissioning techniques, seed mixes, vegetation establishment techniques, and vegetation maintenance practices will evolve over the 30-year term of the permit. This plan includes mechanisms to review and, where necessary, update existing practices in order to ensure that appropriate vegetation is successfully established and maintained throughout the operating life of each facility.

### 5.1.Site-specific Vegetation Plans

Sample seed mixes for no-mow turf, prairie, and wet meadow are identified in Appendix A. As noted in Section 3.3 of this document, the species composition of individual mixes at a given facility may vary based on regional variations and are subject to availability at the time of purchase. Because seeding of the facilities will take place during the summer and fall of 2016, neither the site-specific composition of seed mixes nor the availability of different species is known at the time this document was prepared (December 2015). Aurora will continue to work the MDNR to identify seed mixes and seeding methods appropriate to each facility.

Aurora will file an update to Appendix A of this document with the Commission, MDNR, and MDA at least fourteen (14) days prior to the pre-operation meeting required under Section 6.9 of the Site Permit. The update will include information with species composition, seeding methods, the long term maintenance plan for vegetation at the site, and a map showing the vegetation cover of each facility.

### 5.2.Annual Status Report

In addition to the post-construction update, Aurora will also file an annual report on the status of the re-vegetation at all sites with the Commission, MDNR, and MDA for the first three years of operation to ensure any site specific issues are addressed. Aurora, in consultation with Commerce, MDNR, and MDA, will consider the results of the annual report in determining whether changes to this plan are warranted to reflect lessons learned over the course of facility operations.

### 5.3.Report Availability

A current version of this plan will be maintained and made available at all facilities. The results of this annual review will be made available to the Commission, EERA, MDA, and MNDNR.

## APPENDIX A

# Seed/Seed Mixes

---

Seed/Seed Mixes used will be purchased on a Pure Live Seed (“PLS”) basis for seeding re-vegetation areas.

Seed tags will identify:

- Purity;
- Germination;
- Date tested;
- Total weight and PLS weight;
- Weed seed content; and
- Seed supplier’s name and business information.

Seed will be used within 12 months of testing as required by applicable state rules and regulations. The seed tags on the seed sacks will also certify that the seed is “noxious weed free.” Seed rates used on the project will be based on PLS rate, not actual weight.

Following are three sample seed composition mixes anticipated for use at facilities. Aurora notes that the species components of individual mixes are subject to availability at the time of purchase. Grass species may be substituted with alternative native or non-invasive species that are included in Natural Resource Conservation Service guidelines and subject to approval by Aurora. Although the composition of the seed mixes will vary by facility and depending upon seed availability at the time of purchase, Aurora is providing the following mixtures to demonstrate its commitment to establishing a diverse mixture of native seeds at each site.

## Sample General Composition of Seed Mix for use within Solar Panel Array

No Mow Turf with Forbs; Seeding Rate: 42 seeds per Sq. ft./ac	Height	Bloom Time	oz./acre	Seeds/oz.	Seeds/sq. ft.
<i>Cover Crop</i>					
<i>Avena sativa</i> (Oats) <sup>1</sup>	3'	NA	20lbs/ac	1,100	8.9
<i>Grasses</i>					
<i>Bouteloua curtipendula</i> (Side oats grama) PLS	1-2'	Jun-Nov	8.0	6000.00	1.10
<i>Bouteloua gracilis</i> (Blue grama) PLS	1'	Jul-Oct	4.0	40,000.00	3.67
<i>Buchloe dactyloides</i> (Buffalo grass--BOWIE cultivar) PLS	5"	Apr-Dec	128.0	3,600.00	10.58
<i>Carex bicknelli</i> (Copper shouldered oval sedge) PLS	1-3'	Mar-May	2.0	17000.00	0.78
<i>Koeleria macrantha</i> (Junegrass) PLS	10-20"	Apr-Jun	4.0	200,000.00	18.37
<i>Sporobolus heterolepis</i> (Prairie Dropseed) PLS	2-3'	Jun-Aug	4.0	16,000	1.47

<sup>1</sup> Spring oats to be included as a temporary cover crop

<i>Forbs</i>					
<i>Allium canadense</i> (Wild garlic)	1-2'	May-Jul	8.0	560.00	0.10
<i>Allium stellatum</i> (Prairie onion)	8-18"	Jul-Aug	1.00	11,000.00	0.25
<i>Anemone canadensis</i> (Canada Anemone)	1-2'	May-Jun	1.00	8,000.00	0.18
<i>Anemone patens</i> (Pasqueflower)	3-18"	Apr-May	1.00	18,000.00	0.41
<i>Asclepias tuberosa</i> (Butterfly-weed)	1-2'	Jun-Aug	2.00	4,300.00	0.20
<i>Echinacea angustifolia</i> (Narrow leaved Purple Coneflower)	1-2'	Jun-Jul	2.00	7000	0.32
<i>Sisyrinchium campestre</i> (Prairie blue-eyed grass)	4-16"	May-Jun	1.00	45,000.00	1.03
<i>Solidago nemoralis</i> (Gray goldenrod)	1-2'	Aug-Oct	0.50	300,000.00	3.44

### Sample General Composition of Pollinator Friendly Seed Mix for use Outside Solar Panel Array

<b>Prairie Seed Mix (Mesic prairie UPs23) Seeding Rate: 40 seeds per Sq ft/ac</b>	<b>Height</b>	<b>Bloom Time</b>	<b>oz/acre</b>	<b>Seeds/oz</b>	<b>Seeds/sq ft</b>
<i>Forbs</i>					
<i>Allium canadense</i> (wild garlic)	1-2'	May-Jul	1.0	560.00	0.01
<i>Amorpha canescens</i> (lead plant)	1-3'	Jun-Jul	2.0	16000.00	0.73
<i>Anemone canadensis</i> (Canada Anemone)	1-2'	May-Jun	1.00	8000.00	0.18
<i>Asclepias tuberosa</i> (Butterfly-weed)	1-2'	May-Sep	3	4300	0.30
<i>Coreopsis palmata</i> (Prairie coreopsis)	1-3'	Jul-Aug	2	10000	0.46
<i>Dalea candida</i> (White Prairie Clover)	1-3'	May-Sep	4	19000	1.74
<i>Dalea purpurea</i> (Purple Prairie Clover)	1-3'	Jun-Sep	6	15000	2.07
<i>Echinacea angustifolia</i> (Narrow leaved Purple Coneflower)	1-2'	Jun-Jul	2	7000	0.32
<i>Galium boreale</i> (northern bedstraw)	1-3'	May-Aug	0.15	70000	0.24
<i>Liatris aspera</i> (rough blazingstar)	1-4'	Aug-Sep	2	16000	0.73
<i>Lobelia spicata</i> (pale-spike lobelia)	1-2'	Jun-Jul	0.1	900000	2.07
<i>Monarda fistulosa</i> (Wild Bergamot)	2-4'	May-Sep	0.25	70000	0.40
<i>Phlox pilosa</i> (Prairie phlox)	6-24"	Mar-May	0.2	19000	0.09
<i>Potentilla arguta</i> (Prairie cinquefoil)	1-3'	Jun-Sep	0.5	230000	2.64
<i>Pycnanthemum virginianum</i> (Mountain Mint)	1-3'	Jul-Aug	0.2	220000	1.01
<i>Ratibida columnifera</i> (Upright prairie coneflower)	1-3'	May-Oct	1	42000	0.96
<i>Rudbeckia hirta</i> (black-eyed Susan)	1-3'	Jun-Oct	0.5	92000	1.06
<i>Sisyrinchium campestre</i> (Prairie blue-eyed grass)	4-16"	May-Jun	0.5	45000	0.52
<i>Solidago rigida</i> (Stiff Goldenrod)	1-5'	Aug-Oct	0.25	41000	0.24
<i>Solidago speciosa</i> (showy goldenrod)	1-5'	Aug-Sep	0.25	95000	0.55
<i>Symphotrichum ericoides</i> (Heath Aster)	1-3'	Aug-Oct	1	200000	4.59
<i>Symphotrichum novae-angliae</i> (New England Aster)	3-7'	Aug-Oct	1	66000	1.52
<i>Zizia aptera</i> (Heart-leaved Alexanders)	1-3'	May-Jun	0.5	12,000	0.14
<i>Cover Crop</i>					
<i>Avena sativa</i> (Oats)			20lbs/ac		

<i>Grasses</i>					
Carex bicknelli (Copper shouldered oval sedge)	1-3'	Mar-May	2.0	17000.00	0.78
Bouteloua curtipendula (Side oats grama)	1-2'	Jun-Nov	24.0	6000.00	3.31
Schizachyrium scoparium (Little Bluestem PLS)	1-3'	Jun-Dec	32.0	15,000	11.02
Sporobolus heterolepis (Prairie Dropseed PLS)	2-3'	Jun-Aug	8.0	16,000	2.94

## Sample General Composition of Seed Mix for use in Wetland Areas

### 34-271 Wet Meadow South & West<sup>2</sup>

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/sq ft
fringed brome	<i>Bromus ciliatus</i>	1.23	1.10	9.18%	4.45
bluejoint	<i>Calamagrostis canadensis</i>	0.06	0.05	0.41%	5.00
Virginia wild rye	<i>Elymus virginicus</i>	1.12	1.00	8.37%	1.55
rice cut grass	<i>Leersia oryzoides</i>	0.28	0.25	2.07%	3.10
tall manna grass	<i>Glyceria grandis</i>	0.17	0.15	1.26%	3.90
fowl manna grass	<i>Glyceria striata</i>	0.11	0.10	0.83%	3.30
fowl bluegrass	<i>Poa palustris</i>	0.39	0.35	2.88%	16.50
	<b>Total Grasses</b>	<b>3.36</b>	<b>3.00</b>	<b>25.00%</b>	<b>37.80</b>
bristly sedge	<i>Carex comosa</i>	0.24	0.21	1.78%	2.36
pointed broom sedge	<i>Carex scoparia</i>	0.06	0.05	0.43%	1.60
awl-fruited sedge	<i>Carex stipata</i>	0.19	0.17	1.40%	2.10
tussock sedge	<i>Carex stricta</i>	0.03	0.03	0.21%	0.50
fox sedge	<i>Carex vulpinoidea</i>	0.16	0.14	1.13%	5.00
path rush	<i>Juncus tenuis</i>	0.04	0.04	0.34%	15.00
dark green bulrush	<i>Scirpus atrovirens</i>	0.20	0.18	1.48%	30.00
woolgrass	<i>Scirpus cyperinus</i>	0.09	0.08	0.67%	50.00
	<b>Total Sedges and Rushes</b>	<b>1.01</b>	<b>0.90</b>	<b>7.44%</b>	<b>106.56</b>
marsh milkweed	<i>Asclepias incarnata</i>	0.27	0.24	2.03%	0.43
common boneset	<i>Eupatorium perfoliatum</i>	0.02	0.02	0.18%	1.30
grass-leaved goldenrod	<i>Euthamia graminifolia</i>	0.01	0.01	0.06%	1.00
spotted Joe pye weed	<i>Eutrochium maculatum</i>	0.02	0.02	0.18%	0.75
autumn sneezeweed	<i>Helenium autumnale</i>	0.03	0.03	0.23%	1.30
sawtooth sunflower	<i>Helianthus grosseserratus</i>	0.04	0.04	0.30%	0.20
great lobelia	<i>Lobelia siphilitica</i>	0.02	0.02	0.13%	2.90
blue monkey flower	<i>Mimulus ringens</i>	0.01	0.01	0.07%	6.80
Virginia mountain mint	<i>Pycnanthemum virginianum</i>	0.07	0.06	0.53%	5.10
giant goldenrod	<i>Solidago gigantea</i>	0.02	0.02	0.14%	1.50
eastern panicled aster	<i>Symphyotrichum lanceolatum</i>	0.03	0.03	0.22%	1.50
red-stemmed aster	<i>Symphyotrichum puniceum</i>	0.19	0.17	1.42%	5.00
tall meadow-rue	<i>Thalictrum dasycarpum</i>	0.01	0.01	0.12%	0.11
blue vervain	<i>Verbena hastata</i>	0.15	0.13	1.12%	4.61
bunched ironweed	<i>Vernonia fasciculata</i>	0.03	0.03	0.28%	0.30
Culver's root	<i>Veronicastrum virginicum</i>	0.01	0.01	0.12%	4.20
golden alexanders	<i>Zizia aurea</i>	0.28	0.25	2.06%	1.00
	<b>Total Forbs</b>	<b>1.23</b>	<b>1.10</b>	<b>9.19%</b>	<b>38.00</b>
Oats or winter wheat (see note at beginning of list for recommended dates)		7.85	7.00	58.37%	3.12
	<b>Total Cover Crop</b>	<b>7.85</b>	<b>7.00</b>	<b>58.37%</b>	<b>3.12</b>
	<b>Totals:</b>	<b>13.45</b>	<b>12.00</b>	<b>100.00%</b>	<b>185.48</b>
<b>Purpose:</b>	Wet meadow / Sedge meadow reconstruction for wetland mitigation or ecological restoration projects				

<sup>2</sup> Standard State Seed Mix [http://www.bwsr.state.mn.us/native\\_vegetation/state\\_seed\\_mixes.pdf](http://www.bwsr.state.mn.us/native_vegetation/state_seed_mixes.pdf)

## APPENDIX B

The Minnesota Noxious Weed Law (MN Statutes 18.75-18.91) defines a noxious weed as an annual, biennial, or perennial plant that the Commissioner of Agriculture designates to be injurious to public health, the environment, public roads, crops, livestock, or other property. The purpose of the law is to protect residents of the state from the injurious effects of noxious weeds.

There are twenty-nine plant species regulated as noxious weeds in Minnesota. Twenty plants are listed as [prohibited noxious weeds](#) which consist of two regulatory lists— twelve plants listed on the [prohibited eradicate list](#) and eight on the [prohibited control list](#). Prohibited noxious weeds must be eradicated or controlled in accordance with the Minnesota Noxious Weed Law. Five species are listed as [restricted noxious weeds](#) and are prohibited from importation, sale, and unlawful transportation in Minnesota. Four species are listed as a [specially regulated plants](#) that can be enforced under specific conditions.

**Prohibited Noxious Weeds** – Attempts must be made by all landowners to control or eradicate species on these lists. These species cannot be transported without a permit or sold in Minnesota

**Eradicate List** –must be eradicated by killing the above and belowground parts of the plant.

1. [Yellow Starthistle](#) *Centaurea solstitialis* L.
2. [Grecian Foxglove](#) *Digitalis lanata* Ehrh.
3. [Oriental Bittersweet](#) *Celastrus orbiculatus* Thunb.
4. [Japanese Hops](#) *Humulus japonicus* Siebold & Zucc.
5. [Dalmatian Toadflax](#) *Linaria dalmatica* (L.) Mill.
6. [Common Teasel](#) *Dipsacus fullonum* L.
7. [Cutleaf Teasel](#) *Dipsacus laciniatus* L.
8. [Giant Hogweed](#) *Heracleum mantegazzianum* Sommier & Levier
9. [Brown Knapweed](#) *Centaurea jacea* L.
10. [Meadow Knapweed](#) *Centaurea x moncktonii* C.E. Britton
11. [Black Swallow-wort](#) *Cynanchum louiseae* Kartesz & Gandhi
12. [Palmer Amaranth](#) *Amaranthus palmeri* S.Watson

**Control List** –must be controlled preventing the maturation and spread of propagating parts.

1. [Leafy Spurge](#) *Euphorbia esula* L.
2. [Canada Thistle](#) *Cirsium arvense* (L.) Scop.
3. [Plumeless Thistle](#) *Carduus acanthoides* L.
4. [Purple Loosestrife](#) *Lythrum salicaria* L., *L. virgatum* L.,
5. [Wild Parsnip](#) *Pastinaca sativa* L. **(Except for non-wild cultivated varieties)**
6. [Common Tansy](#) *Tanacetum vulgare* L.
7. [Spotted Knapweed](#) *Centaurea stoebe* L. ssp. *micranthos* (Gugler) Hayek
8. [Narrowleaf Bittercress](#) *Cardamine impatiens* L.

**Restricted Noxious Weeds** - may not be sold, transported without a permit, or intentionally planted in Minnesota.

1. [Common or European Buckthorn](#) *Rhamnus cathartica* L.
2. [Glossy Buckthorn](#) (and all cultivars) *Fragula alnus* Mill.
3. [Multiflora Rose](#) *Rosa multiflora* Thunb.
4. [Common Reed](#) (non-native subspecies) *Phragmites australis* (Cav.) Trin. ex Steud. ssp. *Australis*
5. [Garlic Mustard](#) *Alliaria petiolata* (M. Bieb.) Cavara & Grande

**Specially Regulated Plants** –shall be handled, controlled or eradicated according to specified regulations.

1. [Poison Ivy](#) *Toxicodendron radicans* (L.) Kuntze & *T. rydbergii* (Small) Green *Must be eradicated or controlled for public safety along rights-of-ways, trails, public accesses, business properties open to the public or on parts of lands where public access for business or commerce is granted. Must also be eradicated or controlled along property borders when requested by adjoining landowners.*
2. [Japanese Knotweed](#) *Polygonum cuspidatum* Seib. & Zucc.
3. [Giant Knotweed](#) *Polygonum sachalinense* F. Schmidt ex Maxim.  
*Any person, corporation, business or other retail entity distributing Japanese and/or giant knotweeds for sale within the state, must have information directly affixed to the plant or container packaging that it is being sold with, indicating that it is unadvisable to plant this species within 100 feet of a water body or its designated flood plain as defined by Minnesota Statute 103F.111, Subdivision 4.*



## **Specialty Regulated Plants Continued**

### 4. **Japanese Barberry Cultivars** *Berberis thunbergii* DC.

***These cultivars average greater than 600 seeds per plant and will begin a three-year phase-out period in Minnesota beginning January 1, 2015:***

• 'Angel Wings' • 'Antares' • var. *atropurpurea* • 'Bailtwo' (Burgundy Carousel®) • 'Monomb' (Cherry Bomb™) • 'Crimson Velvet' • 'Erecta' • 'Gold Ring' • 'Bailsel' (Golden Carousel®; *B. koreana* × *B. thunbergii* hybrid) • 'Inermis' • 'Bailgreen' (Jade Carousel®) • 'JN Redleaf' (Ruby Jewel™) • 'JN Variegated' (Stardust™) • 'Kelleris' • 'Kobold' • 'Anderson' (Lustre Green™) • 'Marshall Upright' • 'Painter's Palette' • 'Pow Wow' • 'Red Rocket' • 'Rose Glow' • 'Bailone' (Ruby Carousel®) • 'Silver Mile' • 'Sparkle' • 'Tara' (Emerald Carousel®; *B. koreana* × *B. thunbergii* hybrid) • Wild Type (parent species – green barberry)

***\*At the end of the phase-out period (December 31, 2017), these cultivars will become Restricted Noxious Weeds in Minnesota and will be illegal to sell and propagate.***

**County Noxious Weeds** – County Noxious Weeds are plants that are designated by individual county boards to be enforced as prohibited noxious weeds within the county's jurisdiction and must be approved by the Commissioner of Agriculture, in consultation with the Noxious Weed Advisory Committee. Each county board must submit newly proposed County Noxious Weeds to the Minnesota Department of Agriculture for review. Approved County Noxious Weeds shall also be posted with the county's general weed notice prior to May 15<sup>th</sup> each year. Counties are solely responsible for developing County Noxious Weed lists and their enforcement. **Contact your local County Agricultural Inspector or Designated Employee for more information on County Noxious Weeds**

<http://www.mda.state.mn.us/en/plants/pestmanagement/weedcontrol/cailist.aspx>

### **Adding species to County Noxious Weed Lists**

It is up to an individual county to determine if they will have a designated county noxious weed list and the process for selection of species to be added to the list. If the county board of commissioners establishes a county noxious weed list, townships wanting to add species should pass a resolution with the county's Township Association showing that the representative of townships for that county are in favor of adding a particular species and enforcing it. This resolution can then be submitted to the County Agricultural Inspector or Designated Employee for that jurisdiction. It is still up to the county board of commissioners to decide if they want to list and enforce any species submitted to them via the township association or other entities. Minnesota Department of Agriculture approved County Noxious Weed Lists can be enforced by authorized agents of the commissioner under the MN Noxious Weed Law as outlined in *Minnesota Statutes 18.80 – 18.81*.

Townships can also use their local ordinance process to regulate plant species that are not listed by the county or state. Enforcement of species listed via a municipal ordinance is the responsibility of municipal authorities and cannot be regulated under or associated with the MN Noxious Weed Law - *MS 18.75 – 18.91*.

***Failure to comply with the Minnesota Noxious Weed Law may result in an enforcement action by a county or local municipality.***

## **Additional resources for regulated noxious weeds and non-regulated invasive plants in Minnesota**

MDA Website - <http://www.mda.state.mn.us/weedcontrol>

MN DOT Website - <http://www.dot.state.mn.us/roadsides/vegetation/pdf/noxiousweeds.pdf>

MN DNR Website - <http://www.dnr.state.mn.us/invasives/terrestrialplants/index.html>

MN Board of Water and Soil Resources Cooperative Weed Management Areas -

<http://www.bwsr.state.mn.us/grantscostshare/cwma/CWMA.html>

## GENERAL NOTICE TO CONTROL OR ERADICATE NOXIOUS WEEDS

Notice is hereby given this 13th day of May, 2015, pursuant to *Minnesota Statutes, Section 18.83, Subdivision 1 (2009)*, that all persons in Chippewa County, Minnesota, shall control or eradicate all noxious weeds on land they occupy or are required to maintain. Control or eradication may be accomplished by any lawful method, but the method(s) applied may need to be repeated in order to prevent the spread of viable noxious weed seeds and other propagating parts to other lands. Failure to comply with the general notice may mean that an individual notice, *Minnesota Statutes, Section 18.83, Subdivision 2 (2009)*, will be issued. An individual notice may be appealed within two working days of receipt to the appeal committee in the county where the land is located. Failure to comply with an individual notice will mean that the inspector having jurisdiction may either hire the work done or seek a misdemeanor charge against the person(s) who failed to comply. If the work is hired done by the inspector, the cost can be placed as a tax upon the land and collected as other real estate taxes are collected. You may obtain a list of the plants that are designated noxious and the members of the appeal committee from your County Agricultural Inspector. You can also obtain this information from your Local Weed Inspectors. Local Weed Inspectors include the township supervisors, city mayors or their appointed assistants. More information regarding the statewide listed noxious weeds\*, the MN Noxious Weed Law and a list of County Agricultural Inspectors can be obtained from the Minnesota Department of Agriculture's Web Site by visiting: <http://www.mda.state.mn.us/weedcontrol>, or Chippewa County's website <http://www.co.chippewa.mn.us/notice.htm>.

\* In addition to the statewide listed noxious weeds provided by the Minnesota Department of Agriculture, velvetleaf, *Abutilon theophrasti* Medik., common cocklebur, and common sunflower, *Helianthus annus* L., have been approved for listing by the county board of commissioners as County-Listed Noxious Weeds in Chippewa County as permitted by *Minnesota Statutes §18.79, Subds. 13 and 14*. Contact your county agricultural inspector for more information regarding County Noxious Weeds.

### By order of the Township and City Weed Inspector

**Big Bend Township**

Gary Olson  
Keith Olson  
Robert Blom

**Lone Tree Township**

Ralph Thissen  
Corey Erickson  
Chad Gunter

**Tunberg Township**

Dave Arends  
Paul Dvergsten  
Jim Nordstrom

**Crate Township**

Stan Harms  
Bill Luschen  
Dean Jansen

**Louriston Township**

Kevin Lundberg  
James Schmaedeka  
Scott Ruitter

**Woods Township**

Gordon Molenaar  
Bill Osterbauer  
Daryl Hillers

**Grace Township**

Tim Jansen  
Cory Bosch  
Henry Arends

**Mandt Township**

Galen Rud  
Rod Pederson  
Marcus Goldenstein

**Clara City**

Jack Sparks, Mayor

**Maynard**

Richard Groothuis, Mayor

**Granite Falls Township**

Ardell Waller  
Tony Schuler  
Keith Sandberg

**Rheiderland Township**

Arnold Brouwer  
Arvin Brouwer  
Carl Meyer

**Milan**

Ted Ziemann, Mayor

**Havelock Township**

Ron Abel  
Joshua Koenen  
Dusty Spletter

**Rosewood Township**

Mark Weckwerth  
Kyle Kranz  
Lowell Birhanzel

**Watson**

Joel Rongstad, Mayor

**Montevideo**

Debra Lee Fader, Mayor

**Kragero Township**

Keith Dalen  
Matt Norby  
Robert Nielsen

**Sparta Township**

Doug Norman  
Jeff Dahl  
Richard Enevoldsen

**Chippewa County Board of Commissioners**

Matt Gilbertson  
Jeff Lopez  
David Nordaune  
Jim Dahlvang  
David Lieser

**Leenthrop Township**

Wayne Formo  
Steven Sederstrom  
Bradley Sunderland

**Stoneham Township**

Tom Pieper  
Loren Gosseling  
John Bristle

Josh Macziewski Chippewa County Agriculture/Drainage Inspector Department 320-269-7447