Appendix A Scoping Decisions

COMMERCE DEPARTMENT

In the Matter of the Applications of
Regal Solar, LLC, for a
Certificate of Need and Site Permit for the
up to 100 MW Regal Solar Project in
Benton County, Minnesota

Environmental Assessment
Scoping Decision

Docket No. IP7003/CN-19-223
Docket No. IP7003/GS-19-395

The above matter is before the assistant commissioner of the Department of Commerce ("department" or "commerce") for a decision on the scope of the environmental assessment ("EA") to be prepared for the Regal Solar Project ("project") proposed by Regal Solar, LLC ("applicant") in Benton County.

This scoping decision identifies topics that will be analyzed in the EA.

Project Purpose

The applicant indicates the project "would install . . . solar generating capacity in Minnesota that can contribute to satisfying utilities' and consumers' demands for renewable energy, and potentially meet utility renewable requirements or individual sustainability goals, depending on the ultimate power purchaser."[1] The applicant has not secured a power purchase agreement at this time.[2]

Project Description

The applicant proposes to construct a 100 MW solar energy generating system. The project's primary components include photovoltaic panels affixed to linear ground-mounted single-axis tracking systems, inverters and transformers housed in electrical cabinets, electrical collection system, project substation, and SCADA systems and metering equipment.[3] It also requires fencing, access roads, laydown areas, weather stations, and an operation and maintenance facility.[4] The project would interconnect to the electrical grid at the existing Platte River Substation through a new 115 kV overhead gen-tie transmission line less than 1,500 feet long.[5]

Located directly west of U.S. Highway 10, approximately 230 feet west of Rice and one and one-half miles southeast of Royalton (**Figure 1**), the project is entirely within Langola Township on approximately 800 acres of center pivot irrigated farmland.[6] This farmland is not designated prime farmland.[7] The applicant holds a purchase option with a single landowner.[8]

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1 Regal Solar, LLC (September 6, 2019) *Revised Regal Site Permit Application*, eDockets Nos. 20199-155714-01, 20199-155714-02, 20199-155714-03, 20199-155714-04, 20199-155714-05, 20199-155714-06, 20199-155714-07, 20199-155714-08, 20199-155714-09, 20199-155715-01, 20199-155715-02, 20199-155715-03 (hereinafter "Application"), page 3.

2 *Id*., page 1.

3 *Id*., pages 10-20.

4 *Ibid*.

5 *Id*., page 19.

6 *Id*., page 7.

7 *Id*., page 58.

8 *Id*., page 3.

The applicant anticipates construction to begin fall 2020, with an expected in-service date fourth quarter 2021.[9] The project is expected to cost approximately $146 million.[10]

Regulatory Background

The project requires two distinct approvals—a certificate of need and site permit—from the Public Utilities Commission ("commission"). On July 22, 2019, the applicant filed separate certificate of need and site permit applications. The commission met to consider the applications at its September 5, 2019, agenda meeting, and decided that updated and corrected applications were required.[11] The applicant submitted revised applications on September 6, 2019.[12] Per the commission's October 11, 2019, written order, these applications were deemed substantially complete upon their submittal.[13, 14] The order also referred the matter to the Office of Administrative Hearings for appointment of an administrative law judge to conduct summary proceeding procedures.[15, 16]

Environmental Review

Environmental review must be complete prior to the commission's decision on certificate of need and site permit applications. In this matter, department Energy Environmental Review and Analysis ("EERA") staff will conduct environmental review under Minnesota Statutes 216B and 216E and Minnesota Rules 7849 and 7850.

Certificate of Need

Applications for a certificate of need require preparation of an environmental report ("ER"). An ER contains "information on the human and environmental impacts of the [project] associated with the size, type, and timing of the project, system configurations, and voltage".[17] It also contains information on system alternatives to the project, as well as mitigation measures.

Minnesota Rule 7849.1500, subpart 1, requires an ER include: **A**. A general description of the proposed project and associated facilities; **B**. A general description of the alternatives to the proposed project that are addressed . . . ; **C**. An analysis of the human and environmental impacts of a project of the type proposed and of the alternatives identified; **D**. An analysis of the potential impacts that are project specific; **E**. An analysis of mitigative measures that could reasonably be implemented to eliminate or minimize any adverse impacts identified for the proposed project and each alternative analyzed; **F**. An

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9 Application, page 4.

10 *Id*., page 9.

11 Public Utilities Commission (October 11, 2019) *Order Accepting Applications as Substantially Complete Pending Additional Information and Directing Use of Informal Process*, eDockets No. 201910-156514-01 (hereinafter "October Written Order").

12 *Supra* note 1.

13 October Written Order, page 6.

14 Regal Solar, LLC, (September 6, 2019) *Revised Regal Certificate of Need Application*, eDockets Nos. 20199-155713-01, 20199-155713-02, and 20199-155713-03 (TRADE SECRET).

15 October Written Order, page 6.

16 Department of Commerce (August 9, 2019) *EERA Completeness Review*, eDockets No. 20198-155060-01 (as part of a summary proceeding the administrative law judge provides findings of fact, conclusions of law, and recommendations regarding the applications).

17 Minn. R. 7849.1500.

analysis of the feasibility and availability of each alternative considered; G. A list of permits required for the project; H. A discussion of other matters identified by the commissioner [of commerce].

The applicant requested full and partial exemptions from certain certificate of need filing requirements it believed were "inapplicable and unnecessary to determine need for the [p]roject".[18] Several of these exemption requests concern alternatives to the proposed project that must be discussed in an ER under Minnesota Rule 7849.1500, subpart 1(B). The commission, in adopting the recommendations of the department's Division of Energy Resources through its May 13, 2019, written order, authorized the requested exemptions.[19] As a result, the following system alternatives to the proposed project need not be studied: demand side management;[20] purchased power;[21] facilities using a non-renewable energy source;[22] upgrading existing facilities;[23] and transmission rather than generation.[24]

Site Permit

Applications for a site permit under the alternative process require preparation of an EA.[25] The EA contains an overview of the resources affected by the project, and discusses potential human and environmental impacts and mitigation measures.[26] It also contains information on alternative site locations to the project should alternative sites be included in the scope.

Minnesota Rule 7850.3700, subpart 4, requires an EA include: A. a general description of the proposed facility; B. a list of any alternative sites . . . that are addressed; C. a discussion of the potential impacts of the project and each alternative site . . . on the human and natural environment; D. a discussion of mitigative measures that could reasonably be implemented to eliminate or minimize any adverse impacts identified for the project and each alternative site . . . analyzed; E. an analysis of the feasibility of each alternative site . . . considered; F. a list of permits required for the project; and G. a discussion of other matters identified in the scoping process.

Joint Proceeding

When there are multiple applications before the commission for a single project, the environmental review required for each application may be combined. The commission authorized the department to

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[18] Regal Solar, LLC (March 13, 2019) *Request for Exemption from Certain Certificate of Need Application Content Requirements*, eDockets No. 20193-151054-01.

[19] Public Utilities Commission (May 13, 2019) *Order Regarding Exemption from Certain Certificate of Need Application Content Requirements*, eDockets No. 20195-152889-01.

[20] Department of Commerce (April 4, 2019) *Comments*, eDockets No. 20194-151713-01, page 6 (the applicant "is not a regulated utility, has no retail customers, and plans to sell the project's output into the wholesale market. For these reasons, and the fact that the project is a renewable energy project, conservation programs could not serve as an alternative to the project").

[21] *Id*., page 4 (the applicant "is proposing to produce power to sell to utilities in the market, and thus is in the business of selling rather than purchasing power").

[22] *Id*., page 5 ("since the intent of the project is to provide renewable energy to sell to the market, examination of non-renewable alternatives would be irrelevant").

[23] *Id*., pages 4, 5 (the applicant "is not a vertically integrated regulated utility and therefore has no existing facilities in Minnesota for which efficiency could be improved to mitigate the need for the project").

[24] *Id*., page 7 ("transmission facilities are not true alternatives to the [p]roject as the purpose of the [p]roject is to increase the available supply of renewable energy").

[25] Minn. Stat. 216E.04, subd. 5; Minn. R. 7850.3700, subp. 1.

[26] Minn. Stat. 216E.04, subd. 5; Minn. R. 7850.3700, subp. 4.

combine the environmental review required for the certificate of need and site permit; therefore, these applications will be processed jointly using Minnesota Rule 7829.1200 and Minnesota Rule 7850.2800 to 7850.3900.[27] Staff will prepare an EA in lieu of an ER, which means the EA will combine the analysis of issues typically reviewed for a site permit in an EA and system alternatives otherwise studied in an ER into a single document. This is the only state environmental review document required for the project.

Scoping Process Summary

Scoping is the first step in the environmental review process. Staff use the information gathered during scoping to focus the EA on the most relevant information needed by the commission to make informed decisions. Scoping includes a public meeting and comment period that provide opportunities for interested persons to help develop the scope of the EA.[28]

On October 28, 2019, the commission and department issued a joint *Notice of Public Information and Environmental Assessment Scoping Meeting* and associated public comment period.[29] Notice was sent to those individuals on the project contact list and to potentially affected landowners.[30] The applicant published notice in the *Benton County News* on October 29, 2019.[31] Additionally, notice was available on the EERA webpage.[32] Minnesota Rule 7850.3700, subpart 3, requires commerce to determine the scope of the EA within 10 days after the close of the public comment period.

Public Meeting and Comment Period

Commission and EERA staff jointly held the public information and scoping meeting as noticed. The purpose of the meeting was to provide information and answer questions about the project and permitting process, and gather input regarding potential impacts and mitigative measures that should be studied in the EA. The meeting also provided an opportunity to solicit potential site or system alternatives. Multiple handouts were provided, including presentation slides, process summary, and comment form.[33] A court reporter was present to document verbal statements.[34]

Seven local people (including four neighboring landowners) attended the public meeting. Commission, department, and applicant representatives gave verbal presentations. Individuals asked questions about the project, and provided verbal comments. No site or system alternatives were recommended for study.

A public comment period, ending December 2, 2019, provided an opportunity for interested persons to identify issues, mitigation measures, and site or system alternatives for study in the EA. Written comments were received from one state agency. Site or system alternatives were not recommended.

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27 October Written Order, page 6.

28 Minn. R. 7850.3700, subp. 2.

29 Public Utilities Commission (October 28, 2019) *Notice of Public Information and Environmental Assessment Scoping Meeting*, eDockets No. 201910-156937-02.

30 Public Utilities Commission (October 28, 2019) *Certificate of Service and Service Lists*, eDockets No. 201910-156937-04.

31 Public Utilities Commission (November 18, 2019) *Affidavit of Publication Public Information and Environmental Assessment Scoping Meeting*, eDockets No. 201911-157657-02.

32 Department of Commerce (n.d.) *Project Docket: Regal Solar Project*, https://mn.gov/eera/web/project/13656/.

33 Department of Commerce (November 15, 2019) *Meeting Handouts*, eDockets No. 201911-157568-01.

34 Department of Commerce (December 3, 2019) *Environmental Assessment Scoping Comments Received*, eDockets No. 201912-157991-01 (hereinafter "Public Comments").

Comments Received

Staff received a variety of comments about the project. Representatives from the Benton County Board and the Langola Township Board of Supervisors expressed support for the project. No individuals specifically spoke against the project.

Concerns included but were not limited to impacts resulting from the construction and operation of the project to aesthetics, agriculture (including access along existing farm roads), electrical interference, human health (specifically electric and magnetic fields), noise, noxious weed control, property values, recreation, screening along county roads, stray voltage, and wildlife and their habitats (with emphasis on deer movement). Concerns about project decommissioning were also raised.

Scoping comments are compiled and available to view or download on eDockets or the EERA webpage.[35]

Agency Comments

The Department of Transportation ("MnDOT") requested the EA address relevant permits or authorizations from road and rail authorities. "[A]ny associated electrical collection systems that run along a trunk highway right of way would need to permitted through a municipal, cooperative or investor owned electric service provider. MnDOT allows private parties to place connecting lines across trunk highway rights of way, but does not allow private parties to place such facilities longitudinally along trunk highways."[36] Additionally, MnDOT requests the applicant coordinate material delivery that might affect MnDOT right-of-way with the District 3A Engineering Specialist Senior.

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[35] Public Comments; *supra* note 32.

[36] Department of Transportation (December 2, 2019) *Comments*, eDockets No. 201912-157944-01.

Having reviewed the matter and consulted with department staff, I hereby make the following scoping decision in accordance with Minnesota Rule 7850.3700:

MATTERS TO BE ADDRESSED

The EA will describe the project and the human and environmental resources of the project area. It will provide information about potential impacts—both positive and negative—concerning the resources outlined in this scoping decision. The EA will describe mitigation measures that could reasonably be implemented to reduce or eliminate identified negative impacts. The EA will identify impacts that cannot be avoided and irreversible and irretrievable commitments of resources.

The EA will include the information that would have otherwise been required in an ER for a certificate of need by Minnesota Rule 7849.1500. This includes evaluating matters of size, type, and timing that would normally be excluded in an EA for a site permit application. The EA will describe and analyze the availability and feasibility of system alternatives, including a no-build alternative.

Data and analyses in the EA will be commensurate with the importance of potential impacts and the relevance of the information to consider mitigation measures. EERA staff will consider the relationship between the cost of data and analyses and the relevance and importance of the information in determining the level of detail to provide in the EA. Less important material may be summarized, consolidated, or simply referenced.

The EA will list information sources. If relevant information cannot be obtained within timelines prescribed by statute and rule, the costs of obtaining such information is excessive, or the means to obtain it is unknown, EERA staff will include in the EA a statement that such information is incomplete or unavailable and the relevance of the information in evaluating potential impacts or alternatives.

Staff will abbreviate analysis in the EA for resource topics determined to be of minor importance to the commission's decision in these dockets. *Abbreviated analysis* means that the resource topic will not be discussed in as much detail as the standard analysis. The decision whether to abbreviate analysis for certain resource topics will be made by EERA staff, and will be based on information from the site permit application, field visit(s), comments received, preliminary environmental analysis, and staff experience with similar projects.

The issues outlined below will be analyzed in the EA for the project. This outline is not intended to serve as a table of contents for the document itself.

Project Information

- Purpose
- Description
- Location
- Site Requirements
- Engineering and Design
- Construction
- Operation and Maintenance
- Decommissioning
- Cost

Regulatory Framework

- Certificate of Need
- Site Permit
- Other Permits or Approvals
- Environmental Review Process

Affected Environment, Potential Impacts, and Mitigative Measures

Human Settlement

- Aesthetics
- Cultural Values
- Displacement
- Electronic Interference
- Land Use and Zoning
- Noise
- Public Health and Safety (including EMF, stray voltage)
- Public Services and Infrastructure
- Recreation
- Socioeconomics (including property values, local v non-local labor)

Land Based Economies

- Agriculture (including access along farm roads)
- Forestry
- Mining
- Tourism

Archaeological and Historic Resources

Natural Environment

- Air
- Geology
- Groundwater
- Surface Water
- Rare and Unique Resources
- Soils
- Vegetation
- Wetlands
- Wildlife (including deer movement)
- Wildlife Habitat

Alternatives to the Proposed Solar Project

The EA, in accordance with Minnesota Rule 7849.1500, will describe and analyze the feasibility of the following system alternatives, and the human and environmental impacts and potential mitigation measures associated with each.

- No-build Alternative
- 100 MW Solar Facility in a different location
- 100 MW Wind Facility

Unavoidable Impacts

The EA will discuss ways to mitigate potential impacts; however, even with mitigation strategies, certain impacts cannot be avoided. These unavoidable impacts will be listed.

Irreversible and Irretrievable Commitments of Resources

Resource commitments are irreversible when it is impossible or very difficult to redirect that resource to a different future use. An irretrievable commitment of resources means the resource is not recoverable for use by future generations. Irreversible and irretrievable commitments of resources will be listed.

ISSUES OUTSIDE THE SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The EA will not consider the following:

- Any site alternative other than the site location proposed by the applicant.
- Any system alternative not specifically identified in this scoping decision, including: demand side management; purchased power; facilities using a non-renewable energy source; upgrading existing facilities; and transmission rather than generation.
- The manner in which landowners are compensated.

SCHEDULE

The EA is anticipated to be complete in April 2020. Upon completion, it will be noticed and made available for review. A public hearing will be held in the project area after the EA has been issued. This hearing will be noticed. Comments on the EA may be submitted into the hearing record.

Signed this 4th day of December, 2019

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE

Katherine Blauvelt, Assistant Commissioner

COMMERCE DEPARTMENT

In the Matter of the Applications of
Regal Solar, LLC, for a
Certificate of Need and Site Permit for the
up to 100 MW Regal Solar Project in
Benton County, Minnesota

Environmental Assessment
Revised Scoping Decision

Docket No. IP7003/CN-19-223
Docket No. IP7003/GS-19-395

The above matter is before the deputy commissioner of the Department of Commerce ("department" or "commerce") for a decision on the scope of the environmental assessment ("EA") to be prepared for the Regal Solar Project ("project") proposed by Regal Solar, LLC ("applicant") in Benton County.

A site permit application for the project was filed September 6, 2019.[1] It was accepted by the commission on October 11, 2019.[2] The assistant commissioner issued a scoping decision on December 5, 2019.[3] "Once the commissioner has determined the scope of the environmental assessment, the scope shall not be changed except upon a decision by the commissioner that substantial changes have been made in the project or substantial new information has arisen significantly affecting the potential environmental effects of the project or the availability of reasonable alternatives."[4]

During development of the EA, the applicant identified constraints with the proposed electrical interconnection point. On May 8, 2020, at the applicant's request, the permitting process was suspended so that the applicant could revise how the project would interconnect to the electrical grid. On August 4, 2020, the applicant filed an addendum to its site permit application.[5] On August 12, 2020, the applicant also revised its certificate of need application.[6]

Revised Project Description and Location

The applicant proposes to construct a 100 MW solar energy generating system. The project's primary components include photovoltaic panels affixed to linear ground-mounted single-axis tracking systems, inverters and transformers housed in electrical cabinets, electrical collection system, project substation,

1 Regal Solar, LLC (September 6, 2019) *Revised Regal Site Permit Application*, eDockets Nos. 20199-155714-01, 20199-155714-02, 20199-155714-03, 20199-155714-04, 20199-155714-05, 20199-155714-06, 20199-155714-07, 20199-155714-08, 20199-155714-09, 20199-155715-01, 20199-155715-02, 20199-155715-03. (hereinafter "Revised Application").

2 Public Utilities Commission (October 1, 2019) *Order Accepting Applications as Substantially Complete Pending Additional Information and Directing Use of Informal Review Process*, eDockets No. 201910-156514-01.

3 Department of Commerce (December 5, 2019) *Scoping Decision for Environmental Assessment*, eDockets No. 201912-158059-01.

4 Minnesota Rule 7850.3700, Subpart 3.

5 Regal Solar, LLC (August 4, 2020) *Regal Site Permit Addendum*, eDockets Nos. 20208-165585-01, 20208-165585-02, 20208-165585-03, 20208-165585-04, 20208-165585-05, 20208-165585-06, 20208-165585-07, 20208-165585-08, 20208-165585-09, 20208-165586-01 (Trade Secret), 20208-165586-02, 20208-165586-03, 20208-165586-04, 20208-165586-05 (hereinafter "Addendum").

6 Regal Solar, LLC (August 12, 2020) *Revised Certificate of Need Application*, eDockets Nos. 20208-165819-01, 20208-165819-02, 20208-165819-03, 20208-165819-04 (Trade Secret), 20208-165819-05, 20208-165819-06, 20208-165819-07.

and SCADA systems and metering equipment.[7] It also requires fencing, access roads, laydown areas, weather stations, and an operation and maintenance facility.[8]

The project substation and electrical collection system will no longer be located within the land control area,[9] and the project will no longer interconnect to the electrical grid at the existing Platte River Substation.[10] The project's new interconnection point is a new, yet-to-be-built Minnesota Power-owned switching station to be located approximately three and three-tenths miles northwest of the land control area at the southeast corner of Acorn Road NW and 75th Avenue NW.[11] The solar array will be connected to the project substation through a double-circuit above-ground 3-phase 34.5 kV collection line.[12] The project substation would intertie with the switching station through a 115 kV gen-tie line approximately 700 feet long.[13] (See **Figure 1**.)

Public Comment Period

On August 25, 2020, commission and department staff jointly issued a *Notice of Comment Period on Amended Certificate of Need and Site Permit Applications and the Scope of the Environmental Assessment*.[14] The notice requested comments to help address the following questions.

- What new or additional potential human and environmental impacts of the proposed project should be considered in scope of the Environmental Assessment (EA);
- What are possible methods to minimize, mitigate, or avoid the potential impacts?
- Are there any items missing or mischaracterized in either of the amended applications, issues that need further development, or any review process related issues that need further consideration?

No public comments were received. Comments were received from two state agencies. These comments are available to view or download on eDockets.

The Department of Natural Resources ("DNR") provided comments concerning decommissioning and repowering, oak wilt, erosion control, wildlife, state listed species, Minnesota Biological Survey Sites of Biodiversity Significance, and pollinator habitat.[15] The DNR included several attachments to their comments. The Board of Soil and Water Resources provided comments about pollinator habitat.[16] The applicant responded to these comments in their reply comments.[17]

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7 Revised Application, pages 10-20.
8 *Ibid*.
9 As defined in the Addendum "land control area" means the "[a]pproximate 802-acre area of privately-owned land for which [the applicant] has a purchase option".
10 Addendum, page 1.
11 *Id*., page 1, 2.
12 *Id*., page 2.
13 *Ibid*.
14 Public Utilities Commission and Department of Commerce (August 25, 2020) *Notice of Comment Period on Amended Certificate of Need and Site Permit Applications and the Scope of the Environmental Assessment*, eDockets No. 20208-166143-01.
15 Department of Natural Resources (September 14, 2020) *Comments*, eDockets Nos. 20209-166562-01, 20209-166562-02, 20209-166562-03, 20209-166562-04.
16 Board of Soil and Water Resources (September 15, 2020) *Comments*, eDockets No. 20209-166622-01.
17 Regal Solar, LLC (September 22, 2020) *Reply Comments*, eDockets No. 20209-166769-01.

Having reviewed the matter and consulted with department staff, I hereby make the following Order on the content of the EA:

MATTERS TO BE ADDRESSED

The EA will study the project in a manner consistent with the December 5, 2019, Scoping Decision.

Project Information

The EA will describe the revised project as identified in the December 5, 2019, Scoping Decision.

Regulatory Framework

The EA will provide information on the regulatory framework as described in the December 5, 2019, Scoping Decision.

Affected Environment, Potential Impacts, and Mitigative Measures

The EA will discuss the affected environment, potential impacts, mitigative measures associated with the revised project as described in the December 5, 2020, Scoping Decision.

Alternatives to the Proposed Solar Project

The EA will identify and discuss alternatives to the revised project as identified in the December 5, 2019, Scoping Decision.

Unavoidable Impacts

The EA will discuss unavoidable impacts of the revised project as described in the December 5, 2019, Scoping Decision.

Irreversible and Irretrievable Commitments of Resources

The EA will discuss irreversible and irretrievable resource commitments of the revised project as described in the December 5, 2019, Scoping Decision.

Issues Outside the Scope of the Environmental Assessment

The EA will not consider the issues identified in the December 5, 2019, Scoping Decision.

Schedule

The EA is now anticipated to be complete in November 2020.

Signed this 23rd day of September 2020

STATE OF MINNESOTA
DEPARTMENT OF COMMERCE

Aditya Ranade, Deputy Commissioner

Appendix B Supplemental Information Provided by Applicant

COMMERCE DEPARTMENT

Supplemental Information Inquiry #1

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: December 18, 2019

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: No later than March 15, 2020

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Consistent with EERA staff's recommendation to provide opportunity for public review of decommissioning plans (eDocket No. 201911-157639-01), please provide a draft decommissioning plan consistent with the Report and Recommendations of the Solar and Wind Decommissioning Working Group (eDocket No. 20188-146145-02). The plan will be included as an appendix to the EA. Specifically the plan should include:

   - A description of how the facility will be disconnected from the grid.
   - A detailed description of how the physical components will be removed, transported off-site, and disposed of. The description should include the stepwise process of removal (for example, how will the panels be removed, what components need to be broken down on site, what can be salvaged/recycled and what will be landfilled).
   - A restoration goal statement and a detailed description of how restoration will be accomplished.
   - A detailed estimate of decommissioning costs prepared by an experienced engineer (including: solar array dismantling costs, foundation removal costs, access road removal costs, transportation costs, disposal fees, estimated scrap value). This estimate should also include a description of cost assumptions (for example, major equipment needs, what type of disposal sites are required for component disposal, depth of removal).
   - A plan for decommissioning security – including the type of instruments being considered, a timeline for funding of the assurance, a description of how the amount of money available will be reconciled with the changing cost estimates, and the proposed beneficiary of the security.

Requested information sent to *whom* by *what means* on *date*.

Decommissioning Plan provided in Appendix E.

COMMERCE DEPARTMENT

Supplemental Information Inquiry #2

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: January 6, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: No later than January 24, 2020

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. The project is expected to cost $146 million dollars. This is an engineering estimate. What is the variability associated with this estimate? Meaning this estimate is anticipated to reflect actual costs with *what* percent?

A variable of up to 10% is anticipated. That is, the project is expected to cost $146 million +/- 10%.

2. Table 2.5-1 on page 9 of the revised application provides estimated project costs. Explain "development expense" and "financing".

Development expenses include development payments to the landowner, the land purchase, costs associated with developing the project such as title clearing, design, environmental and engineering surveys, and permit applications. Additionally, development costs include property tax payments during construction and construction management.

Financing costs includes legal/transactional fees associated with financing, tax equity commitment fees, upfront construction and construction commitment fees, construction interest and the upfront fee for the operating letter of credit required by financing parties.

3. Above-ground, below-ground, and hybrid electrical collection systems are presented in the application. What are the estimated costs of these systems? That is, what would the project cost using each collection system?

A below-ground collection system has been assumed for the projected project cost of $146 million +/- 10%. An above-ground collection system is anticipated to result in an ~1% decrease in the project cost and a hybrid collection system would be an anticipated ~.5% decrease of the project costs.

4. The application does not specify panel or inverter type. Would panel type or inverter type effect project costs? If so, provide a cost range estimate for different inverter types.

Panels and inverters under consideration for the Project vary in cost. Panels are anticipated to be between 32-38 cents per watt DC and inverters between 3-4.5 cents per watt AC.

5. Complete the table in current US Dollars.

Exact costs are not available at this stage of development. Overall, above-ground and hybrid collection systems will have more cost efficiencies during construction as a reduction in buried cabling would decrease the total time required to install the facilities. Above-ground and hybrid collection systems will also result in an increase to the cost of vegetation management as more time will be required to mow around above ground facilities.

Land acquisition and permitting	No Change	No Change	No Change
Design, procurement, and construction	~1% decrease	Baseline	~.5% decrease
Development expense	No Change	No Change	No Change
Interconnection	No Change	No Change	No Change
Financing	No Change	No Change	No Change
Post-construction and permit compliance	~10% increase to vegetation management expenses	Baseline	~10% increase to vegetation management expenses
Total	-	-	-
Decommissioning	To be provided – draft decommissioning plans in process	To be provided – draft decommissioning plans in process	To be provided – draft decommissioning plans in process

6. Discuss the gen-tie line in more detail. Provide an anticipated alignment and pole placements. Discuss how the gen-tie line will cross existing transmission lines. Provide a more specific pole height. Will the wood poles be treated? If so, with what? Are the dead-end structures made of steel?

The anticipated placement of poles is not available at this stage of development and will be determined in coordination with the interconnecting utility throughout the MISO scoping process. Any crossing of existing transmission lines will be coordinated through consent and crossing agreements prior to construction.

The poles are anticipated to be between 70-80 feet tall. If wood poles are used they will be treated with Creosote, Pentachlorophenol, or an equivalent preservative.

Dead-end structures will be made of steel.

7. Provide electric and magnetic field estimates for the above-ground collection lines and the gen-tie line in 50-foot increments out to 150 feet starting from directly underneath the line.

	115 kV Electric Field (kV/m)			
Feet	0	50	100	150
kV/m	1.48	0.4	0.1	0.03
	115 kV Magnetic Field (Milligauss)			
Feet	0	50	100	150
MilliGauss	90	23	6	1.5
	34.5 kV Electric Field (kV/m)			
Feet	0	50	100	150
kV/m	0.82	0.2	0.05	0.01
	34.5 kV Magnetic Field (Milligauss)			
Feet	0	50	100	150
MilliGauss	90	26	7	2

8. Provide an update on the MISO interconnection process.

The project has a 100 MW interconnection request in the MISO West DPP-2018-APR study cycle. The DPP study cycle is underway with the current MISO study schedule indicating DPP 1 completion in February 2020, DPP 2 completion in May 2020, and DPP 3 completion in September 2020 with GIA execution expected in Q1 2021.

9. Table 1.4-1 indicates that a Water Appropriation Permit may be required from DNR for trench dewatering. Please indicate why this permit may be required. Provide a detailed explanation of how trench dewatering will occur.

Construction activities that require soil excavation such as trenching below-ground collection lines may require dewatering should soil and groundwater conditions during construction activities exhibit water within the trench. Depending on construction timing, the site may have a temporary cover crop. If so, Regal would dewater through a filter bag to a well vegetated area. If a temporary cover crop is not present and dewatering is necessary, Regal's construction contractor would build a dewatering structure, typically made with hay bales and geotextile fabric. Regardless of the dewatering method, this activity will be consistent with Minnesota DNR Water Appropriations Permit Program as well as Best Management Practices required by the Project's National Pollutant Discharge Elimination System Permit

and associated Stormwater Pollutant Prevention Protection Plan. Regal notes that a DNR Water Appropriation Permit is only triggered for trench dewatering if water appropriation volumes exceed 10,000 gallons per day or 1 million gallons per year. Regal would employ the dewatering Best Management Practices regardless of whether the volume to be appropriated triggered trigger the DNR Water Appropriation Permit.

10. Question 4 asks about cost information concerning panel and inverter costs. Provide updated information, if known, regarding panels and inverters. Has a type been selected? If so, how many will be needed? If a decision is not made, when will one be made? How long will it take to procure the equipment?

Panel and inverters have not been selected. A decision is anticipated in the third quarter of 2020 to allow for a 6-9 month lead time for delivery prior to installation of the panels and inverters at the site.

11. During the scoping meeting Mr. Peterka asked how many piles will be needed. I don't believe an answer was given at the meeting. How many piles will be needed for the project?

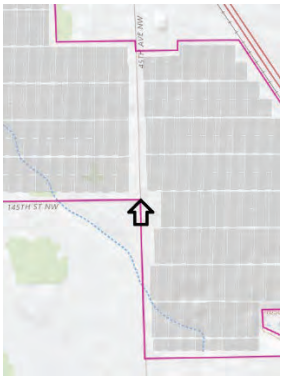
The preliminary design presented in the application includes approximately 52,000 piles. This number is subject to change depending on the technology selected for the Project and final engineering.

12. Pages 40 and 41 of the revised application provide a visual rendering of the project. How were these renderings prepared? Who prepared them? What program was used? At what tilt are the panels? What is the elevation of the road? What is the field elevation?

The visual renderings were prepared by Westwood Professional Services. They were prepared through a program called Sketchup by utilizing a scaled site plan along with the existing contours in which 3D solar models were placed in their location on the site plan. The 3D solar models were then raised per the corresponding contours (1' contours).

The panels are shown at a 20-degree tilt. The road elevation is 1075 and the field elevation for the solar array is 1070-1074.

13. Provide two additional visual renderings (above- and below-ground collection systems) of the project from the point identified on the map below looking north. Ensure the panels are at full tilt, and provide a vehicle for scale. Provide information as to how the rendering was created.



Please see attached visual renderings. The renderings were created using the same process and program described in #12.

Existing Conditions

Westwood GERONIMO ENERGY studio 360°

Regal Solar Project

Benton County, MN

Proposed Solar Development: below-ground collection

Westwood GERONIMO ENERGY studio 360°

Regal Solar Project

Benton County, MN

Proposed Solar Development: above-ground collection

Westwood GERONIMO ENERGY studio 360°

Regal Solar Project

Benton County, MN

COMMERCE DEPARTMENT

Supplemental Information Inquiry #3

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: February 4, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: No later than February 14, 2020

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Please clarify the height of the fence. The application states the fence "will consist of an agricultural woven wire fence and will extend approximately 6 feet above grade", and one foot of smooth wire will be used. Is the wire additive to the total? Is the fence six feet in total (5 ft woven, 1 ft wire)? Or seven feet in total (6 ft woven, 1 ft wire)? Or some other combination?

The agricultural fence will be 6 feet tall with an additional 1 foot of smooth wire for a total height of approximately 7 feet tall (smooth wire will be at a 45-degree angle).

2. The application indicates that collection lines will be "directionally bored" under roads. At the scoping meeting, it was indicated this would occur regardless of what collection system is used. (Please confirm.) Is this a conventional bore or an HDD bore? Please provide a description of boring method that will be used. If it is unknown at this time what method will be used, please indicate that and describe both methods.

A conventional guided bore is expected to be used for installing collection lines under roads. This method is a steerable, trenchless method using a surface or pit-launched, self-propelled or trailer mounted drilling rig. The entry-point and exit-point at the ends of the bore are typically an open trench where the drill and conduit can be pulled-back out of the bore-hole and the collection lines can be pulled through the conduit. This method may use air and/or water for circulating cuttings from the drill bit face along the annulus of the bore hole, and back to the boring entry point.

The Project prefers to keep the option open for using overhead lines at the two road crossings.

3. Please complete the following table. I completed "site preparation" as an example, delete and provide the appropriate information. Please contact me to discuss should you believe different task descriptions or durations would be more useful to the public.

Task	Estimated Duration	Key Predecessor	Anticipated Timeframe
Site preparation	20 days	Start of Construction	April-May
Laydown areas/job site trailers	4 days	Start of Construction	April-May
Fencing	10 days	Site Preparation	May
Access roads	10 days	Site Preparation	May
Posts and foundations	30 days	Site Preparation	May-June
Tracking	30 days	Site Preparation	June
Wiring and cabling	45 days	Tracking, Panel installation	June-July
Panels	60+ days	Tracking installation	July-September
Electrical collection system	30 days	Site Preparation	May-June
Major electrical equipment	30 days	Site Preparation	July-August
Project substation	30 days	Site Preparation	July-August
Transmission line	5 days	Project Substation	August
Operations building/parking lot	30 days	Project Substation	September
Restoration	10 days	Major Electrical, Panels, wiring and cabling	September
Testing	10 days	Major Electrical, Substation, Panels	September
Commissioning	10 days	Testing	October

4. Complete the following paragraph, make additional changes as necessary for accuracy:

   The applicant anticipates an average of 100 workers (laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel) at the project site during construction. During peak construction periods up to 150 workers may be employed at the site. The applicant plans for construction activities to occur between 7 a.m. and 5 p.m., Monday through Saturday. In some cases, construction activities may occur outside of these times. In situations where activities such as testing or commissioning need to be performed outside of daylight hours, temporary lighting for these activities will be provided by the engineering, procurement and construction contractor.

Updates made in the paragraph above.

5. Provide information regarding the construction of above-ground utility poles, including collection poles and gen-tie poles.

All poles will be directly installed in the ground without foundations unless soil conditions are not suitable for direct-embedment of poles and require the use of alternative foundations (e.g., concrete foundations). Direct installation of the poles could occur by either directly driving them into the ground or pre-drilling a hole, in which the pole can be placed, and back-filling with dirt removed from the hole.

6. Provide additional information regarding safety (beyond signage, fencing, and lighting found on pages 17, 18, and 33). What electrical safeguards will be used on the project, including the substation and gen-tie line? What construction practices will be followed to ensure the safety of personnel? Etc.

The project substation and gen-tie line will be designed and constructed in compliance with the National Electric Code. Prior to energization an electrical inspector will provide sign-off that the facilities have been properly installed and all facilities will be regularly inspected as described in question 12 below. Any work conducted within the fenced substation will be completed by a trained substation technician/electrician.

A project specific Environmental Health and Safety (EHS) plan will be developed prior to construction which will establish and maintain appropriate EHS rules and procedures and all personnel will undergo safety orientation and training. Additionally, before the start of work each day, each crew will perform a field level hazard assessment to review the hazards associated with the work that the crew will be performing that day. Weekly safety meetings will also be held with all personnel working onsite.

7. Will restoration wait until all construction is complete or will it begin on a rolling basis as areas of the solar array are completed?

Erosion control measures will occur on a rolling basis. At this time final seeding and landscaping is anticipated to occur following all construction.

8. Page 24 implies that temporary access roads will be created for construction. Please provide further information regarding these temporary facilities. Are they simply staked areas to limit movement throughout the project location?

The access roads displayed on the Site Permit Application Figures will be one of the first facilities constructed to facilitate orderly movement across the site. From these graveled access roads, crews will use the 16.5-foot space between arrays to access any given point in the Preliminary Development Area. Construction would progress in a manner that starts closest to the graveled access roads and progresses away, thereby creating the “temporary” access corridors (the 16.5-foot corridor between to-be-constructed arrays). These areas will not be staked or otherwise constructed with materials used for the permanent access roads; rather, they will be easily identified as a function of the construction process as piles are staked and installed first, followed by the tracking rack system, and mounting panels. Similar to permanent access roads, limiting traffic to these “rows” minimizes soil disturbance, mixing, and compaction across the site.

9. Provide more information regarding the vegetative screening. For example, what type of vegetation will be used? How tall will it be when planted? What steps will be taken to assure it “takes”? What happens if it dies?

Sheet C.400 of Appendix B provides details on the proposed vegetative screening. The proposed screening will be a combination of evergreens (techny arborvitae) and shrubs (cardinal dogwood) to provide foliage and color variation year-round. Following a discussion with the landowner at the environmental scoping meeting, Regal will be increasing the length of the vegetative screening per their request by approximately 500 feet (revised site plan is attached illustrating this change). Regal is also in the process of coordinating with the landowner on their preference for vegetation type and therefore the proposed screening may be adjusted as a result of that coordination. Regardless of the final agreed upon vegetation, screening will be installed using youth-stage plants to provide greater probability of successful establishment. Older, mature vegetation tends to be more difficult to transplant successfully and the options for procuring mature vegetation are extremely limited. Shrubs are installed around 2 feet tall, reaching approximately 8 feet in height at maturity. Evergreens would be installed at approximately 3-4 feet in height, reaching 12-15 feet in height at maturity. The vegetative screening will be professionally maintained through the life of the Project and will be replaced if it fails to establish.

10. How many full time positions will be needed to operate the project? Will these be local jobs?

The Project will require 4 to 5 full-time positions once operational with one position being a plant manager and the others plant technicians. Regal plans to advertise locally for these positions and hopes to draw qualified applicants from the vicinity of the project area.

11. Paragraph two in Section 3.5 refers to "scheduled *monthly* and *quarterly* inspection(s)" (emphasis added). However, Table 3.5.1 lists "yearly" for nearly every task. Which is correct?

Table 3.5.1 is correct.

12. How will the project substation and transmission line be maintained? That is, are there any routine inspections planned for these facilities? If so, at what intervals?

Inspections will be performed on the substation every month and on the transmission line every 6 months. The breakers, transformers, and other major equipment will be maintained in accordance with the National Electric Code and manufacturers' recommendations.

13. What other inspections might be required for the operating and maintaining the project? For example, gate and fence inspection? Presence of animals?

In addition to Table 3.5-1 in the application, the fence and gate surrounding the project substation will be inspected every month and the fence and gates around the arrays will occur every six months. Animal presence will not be routinely monitored as the project fencing is not intended to prohibit animals from entering/exiting the facility. However, any animal carcasses identified during routine inspections and maintenance will be documented and disposed of in accordance with applicable regulations.

14. Are there maintenance activities where additional staff will be brought in?

The on-site staff will conduct the scheduled inspections and routine maintenances including roads. However, if issues are found (and corrective maintenance required), unless minor, additional subject matter experts may be needed to perform the repairs.

Additional staff or contractors will also be brought in to assist with snow plowing and vegetation management/mowing when needed on the site.

15. While I understand that exact costs are not available, provide the current "best estimate" to complete the following table.

Project Component	Baseline Cost	Above-ground Collection System	Below-ground Collection System	Hybrid Collection System
Land acquisition and permitting	Land acquisition and permitting are included in development expenses	No change	No change	No change
Design, procurement, and construction	$122.8 million	~ 1% decrease	Baseline	~ 0.5% decrease
Development expense	$7.3 million	No change	No change	No change
Interconnection	$9.0 million	No change	No change	No change
Financing	$6.9 million	No change	No change	No change
Post-construction and permit compliance	Not Applicable. This is an operational expense that is not included in the total estimated project costs. $146 M is for development costs only	~ 10% increase	Baseline	~ 10% increase
Total	$146 million +/- 10 percent	All options within 10 percent engineering estimate.		

16. Information regarding the gen-tie line beyond what was provided in response to Supplemental Information Inquiry #2 is needed to complete environmental review. If an exact crossing cannot be described, coordinate with the interconnecting utility to develop and describe the available options to cross the existing 115kV line and interconnect to the substation.

    "The project substation and gen-tie line are associated facilities of the project as defined by Minnesota Rule 7850.1000, subpart 3, and, as a result, will be analyzed as part of the environmental review process." (EERA Comments on Application Completeness)

Refer to the attached updated Figure 4a that illustrates the potential transmission routing area. The area measures 1.2 acres and is located on land leased by Regal Solar, and, outside the Land Control Area, land owned by Minnesota Power. The exact route to interconnect to the MN Power Substation cannot be determined until the appropriate time in the MISO scoping process. Based on a review from Regal's

transmission team, the area identified in the attached map provides the potential total area the transmission structures can be located.

17. Provide cost information for inverter skid transformers similar to what was provided for panels and inverters as part of Supplemental Information Inquiry #2.

Inverter skid transformers will cost approximately $0.04/Wdc.

REGAL SOLAR

0 250 500 750 Feet

1:5,500

Figure 4a
Below-Ground
Preliminary Project Layout
Regal Solar Project
Benton County, MN

45.783906, -94.261881

- Adjacent Residence
- Existing Substation
- Collection Line
- Land Control Area
- Security Fence
- Transmission Routing Area
- Access Road
- Solar Array
- Inverter
- Associated Facilites
- Project Substation
- O&M Facility
- Laydown Area
- Railroad

Document Path: Z:\Clients\E_H\Geronimo\Regal\Site_Permit\Mapping\Fig4a_Regal_Below_Ground_Layout - detail.mxd

brian.schreurs Date: 2/13/2020

COMMERCE DEPARTMENT

Supplemental Information Inquiry #4

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: February 21, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: Preferred February 28; no later than March 6

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Verify whether telecommunication cables (fiber optic, telephone, etc.) are buried within 1,600 feet of the land control area. Contact Benton Cooperative Telephone and InteleCONNECT as appropriate. If telecommunication cables are buried in local vicinity (1,600 feet), provide a shapefile showing their approximate location along with a short description of the buried utility.

Regal contacted the Benton Cooperative Telephone Company, dba Benton Communications, InteleConnect, and CenturyLink. Benton Communications will provide location data and Regal will provide this information to EERA staff once received. InteleConnect is a telecommunication broker and does not have physical utility lines. A request for line locations has been submitted via voicemail to CenturyLink and no response has been received to date.

2. Verify whether natural gas pipelines are buried within 1,600 feet of the land control area. Contact utilities as appropriate. If natural gas lines are buried in the local vicinity (1,600 feet), provide a shapefile showing their approximate location along with a short description of the buried utility.

Regal was unable to identify pipelines beyond a gas line located on the north side of County Road 40 that was documented during the survey of the Land Control Area and is depicted on sheet C101 of the site plan.

3. Describe how permanent stormwater runoff from new impervious surfaces, including panels, access roads, inverter stations, O&M building, parking lot, and substation will be addressed. (*see* MPCA Letter, eDockets No. 20198-155308-01)

Regal has incorporated some permanent stormwater practices into the preliminary design of the Project, such as low water crossings and minimizing grading. The design of permanent stormwater features, such as basins will be completed as part of the final engineering for the Project. Final engineering and stormwater practices that will be implemented will be informed by soil testing, including infiltration rates that will be completed in the fall of 2020 prior to construction. After final engineering and prior to construction, Regal will submit a National Pollutant Discharge Elimination System permit and associated Stormwater Prevention Protection Plan (SWPPP) to MPCA for review. This permit and SWPPP will be reviewed and approved by MPCA.

4. Have soil borings been performed on site to measure water infiltration rates? If so, what is the infiltration rate? (*see* MPCA Letter, eDockets No. 20198-155308-01)

No, soil borings will be performed as a part of the geotechnical analysis this fall prior to construction.

5. Thank you for completing Supplemental Information Inquiry # 3, Question 4. However, instead of listing who will provide temporary lighting, please describe the temporary lighting.

Temporary lighting would be provided with a mobile light plant trailer. The configuration, brightness and other characteristics of the mobile light plant trailer utilized will be dependent upon those possessed by the chosen contractor or those possessed by the rental company utilized by the contractor.

6. Did the applicant field verify the location of the farm road discussed on page 39 of the meeting notes? If so, what was the outcome of that verification? If the farm road is on property to be owned by the applicant, what steps will be taken to assure continued access along that road? Lastly, were any further discussions about this topic held between the applicant and the landowner?

No. The location of the farm road discussed on page 39 of the meeting notes has not been field verified since the environmental scoping meeting. However, Regal reviewed the aerial photographs of the Project with the owner of the adjacent property to the west of the Project. Aerial photographs confirm the driveway is located directly east of the tree line and an electrical distribution line, which are located on or near the property line. Therefore, the driveway appears to be located, in large part, within the Land Control Area that will be purchased by Regal. As shown in the site plan, including sheets C200 and C210, the Project fence is currently planned to be located approximately 60 feet or more from the property line. Accordingly, the Project fence will not block the driveway the neighbor has been using. Regal has provided this information to the neighbor but has been unable to discuss directly with the neighbor. Regal has relayed to the to the neighbor via voice messages that it will continue to allow the neighbor to use the driveway and will pursue options with the neighbor to address their concerns on an ongoing basis, including granting a license or easement agreement to the neighbor over the existing driveway as it is surveyed when the ALTA survey of the Land Control Area is completed in 2020.

7. Staff appreciates Figure 4a provided as part of Information Inquiry #4. Previous site plans continued to reference the Langola Substation as the interconnect point. Staff's understanding is that the site plan will be revised to reflect Figure 4a. This correction clears up some confusion.

   However, staff has remaining questions. Your response indicates that "the exact route to interconnect to the [substation] cannot be determined until the appropriate time in the MISO

scoping process." Please explain the MISO scoping process, with specific attention to where in the process micro-routing is applied. Put another way, how does the MISO scoping process relate to specific transmission line routes as opposed to interconnection points?

It is staff's understanding that applicants routinely provide transmission line routes without MISO "approval". For example, Dodge County Wind provided an approximately 25 mile transmission line route with alternatives. Why, in this instance, does the MISO scoping process prevent Regal from providing the approximate location of a 350-foot line?

The MISO scoping and study process occurs in three phases as outlined in the Generator Interconnection Process diagram attached. The final routing into the interconnecting substation will not occur until the end of DPP Phase 2 at the earliest, and likely not until the end of DPP Phase 3. Transmission line routes of longer lengths base their primary and alternative routes off of a corridor and lease agreements, however the exact routing to enter the interconnecting substation (the last several hundred feet) would still not be determined until DPP Phase 2 or 3. In this case, almost the entire route will be located on land owned by Minnesota Power, the substation owner, and the exact configuration will be highly dependent on where the line will need to enter the substation. The entry point into the substation and its configuration are what will be determined in the MISO process.

8. The application indicates that "there is one location at the crossing of Halfway Crossing Road that may require tree removal should above-ground electrical configuration be used." This location appears plainly on Figure 4a as provided in Inquiry #4, and is about 500 feet long with two turns. The application continues by stating that this area would be bored if below ground electrical collection equipment is used, and no trees would be cleared as result. Describe how this would occur, with specific aim to demonstrate how no tree clearing would be required.

The AC collection corridor depicted in Figure 4a was designed to avoid the densest area of trees south of Halfway Crossing Road in order to minimize tree clearing should above-ground collection be implemented. If below-ground collection is used, final design will follow the same general corridor and potentially reduce the angle of the turns to bore the lines in one-continuous bore so that above-ground junction points are not needed. If above-ground work can be avoided then tree clearing can likely be avoided.

9. Are inverter skids constructed on- or off-site?

Regal anticipates the inverter skids will be constructed off-site and shipped from the manufacturer to site assembled. The foundations for the inverter skids will be constructed on-site.

10. The MISO DPP 1 study was expected to be complete in February 2020. Was this study completed?

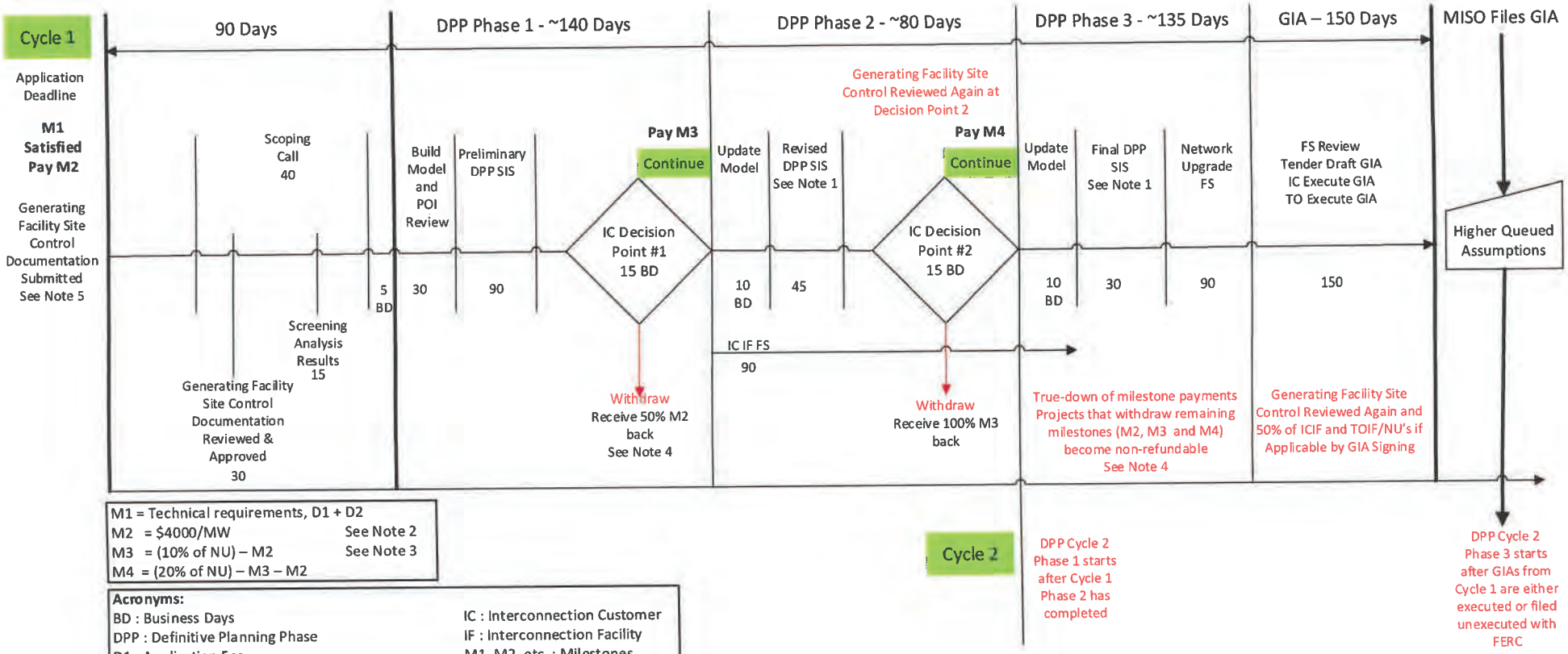
The study has not yet been completed. The anticipated date has been pushed by MISO to March 20, 2020.

11. How would existing distribution lines be crossed with an above ground collection system? Would outages be necessary? If so, how would outages be mitigated and communicated?

The crossing of existing distribution lines would require taller structures (up to 60 feet) for the above-ground collection system to cross over the top of the existing lines. No outages are anticipated and the crossing will be coordinated with the local distribution utility.

Generator Interconnection Process

DPP Phase 1 + DPP Phase 2 + DPP Phase 3 + GIA = ~ 505 Days



M1 = Technical requirements, D1 + D2
M2 = $4000/MW See Note 2
M3 = (10% of NU) – M2 See Note 3
M4 = (20% of NU) – M3 – M2

Acronyms:

BD : Business Days
DPP : Definitive Planning Phase
D1 : Application Fee
D2 : DPP Study Funding Deposit
FS : Facilities Study
GIA : Generator Interconnection Agreement
IC : Interconnection Customer
IF : Interconnection Facility
M1, M2, etc. : Milestones
NU : Network Upgrades
POI : Point of Interconnection
SIS : System Impact Study

Notes:

1) Effective September 19th 2018, for new cycles, Affected System, Stability, and Short Circuit Studies are required only for DPP phase 2 and DPP phase 3
2) M3 and M4 will be adjusted based on previously paid M3 and M4 for Provisional Requests
3) DPP Phase 1 and Phase 2 of each cycle will model higher queued assumptions from previous Phase 3 studies as available during the time of the study
4) True down and M2 requirements go into effect beginning with DPP-2020-Cycle 1
5) Site Control is due at least 90 Calendar Days prior to the kick-off of DPP Phase 1 beginning with DPP-2020-Cycle 1
6) Days on this diagram are Calendar Days unless where noted as Business Days – "BD"

COMMERCE DEPARTMENT

Supplemental Information Inquiry #5

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: March 30, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

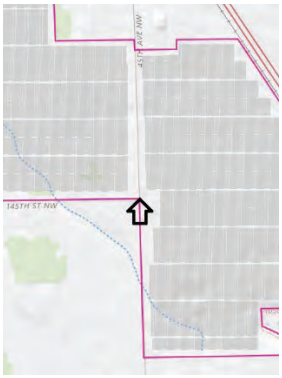
Respond: As soon as possible

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Provide two additional visual renderings (above- and below-ground collection systems) of the project from the point identified on the map below looking north. Ensure ALL panels are shown to be 20 feet tall (worse case), and provide a vehicle for scale. Provide information as to how the rendering was created, as well as information pertaining to how setbacks from the fence affect the overall appearance of the panels, that is, how the perceived height is affected by distance from the road—given that the panels are to be depicted as 20 feet tall, and the fence is seven feet tall, please explain why the panels don't appear at least twice as tall as the fence.



Renderings depicting 20 ft tall panels are attached. They were prepared through a program called Sketchup in which the Project layout is placed over a 1-foot interval topographic map. Using a 3D model

of the solar panel, the panels are placed per the layout. The panels are then moved to the corresponding contour heights and the image is overlaid on the existing photo. Prior visual renderings depicted panels at 10 feet tall which is why there was a discrepancy between the height of the fence and panels.

Existing Conditions

Westwood

Regal Solar Project

Benton County, MN

Proposed Solar Development with below ground collection

Westwood

Regal Solar Project

Benton County, MN

Proposed Solar Development Image with above ground collection

Westwood

Regal Solar Project

Benton County, MN

COMMERCE DEPARTMENT

Supplemental Information Inquiry #6

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: September 15, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: As soon as possible

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publically available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Regarding the collection line corridor: Did the company consider either collocation with or underbuilding along the existing 115 kV Langola Tap Line to the proposed switch yard? If yes, why was this option not pursued? If no, why not? Particularly considering the siting factors noted in 7850.4100.

Response: Upon completion of DPP1, MISO, Minnesota Power, and GRE indicated concerns remained about the potential impact of the Project on the local distribution system, even when interconnecting to the Platte River Substation. Their concerns revolved around the fact that the Langola and Platte River Substations are at the terminal end of a 4.5-mile-long 115 kilovolt (kV) radial line tap. The utilities were concerned that the additional load at the end of this line tap could cause problems with the line tap and to the ECE distribution system. To resolve their concerns, the utilities proposed that Regal construct a second 115kV line in parallel to the existing 4.5-mile-long line tap. Under-hanging a 34.5 kV line on the existing GRE owned line tap was not an option presented by GRE as suitable for resolving its concerns. Moreover, it is not feasible because the existing poles are not capable of holding the existing 115kV line in addition to Regal's double-circuit 3-phase 34.5 kV collection line. Constructing a new 4.5-mile-long 115kV line (or a 4.5-mile-long 34.5 kV line) adjacent to the existing line 115kV line was not feasible or practicable for numerous reasons. For example, a new 115kV line would require a route permit and the Project's anticipated timeline needed to satisfy the Federal Investment Tax Credit requirements would not allow the time needed to get a route permit. Moreover, the addition of another overhead power line would result in a considerable expansion of the existing corridor into agricultural

fields, which would significantly disrupt existing irrigation infrastructure. It would also involve considerable tree clearing where the line crosses the Platte River just west of Highway 10. Therefore, instead of co-locating the proposed 34.5 kV line or a new 115 kV line adjacent to the existing 4.5-mile 115kV line, Regal elected to partially co-locate the new 3.3-mile 34.5 kV line in the existing ECE distribution line corridor. In the proposed alignment, ECE has agreed to bury its distribution line along a 0.7 mile stretch so that there are not two lines located along the collector line right-of-way thereby limiting the impacts that would otherwise be realized. The remainder of the proposed alignment is along existing transmission right-of-way and agricultural field boundaries. The proposed solution of the 34.5 kV line was presented to Minnesota Power and MISO and was found to be an acceptable solution to resolve the previously expressed concerns.

2. Please provide any other information concerning this topic you find necessary and appropriate. I understand the answer to this question might be "none".

None.

COMMERCE DEPARTMENT

Supplemental Information Inquiry #7

To: Melissa Schmit
Geronimo Energy, LLC

Sent via email to melissa@geronimoenergy.com

From: Andrew Levi
Energy Environmental Review and Analysis

Date: October 15, 2020

Project: Regal Solar Project
PUC Docket No. IP7003/CN-19-223
PUC Docket No. IP7003/GS-19-395

Respond: As soon as possible

Please respond to the following questions or provide the requested data or information. Staff intends to use the information provided to develop the environmental assessment for the project, which is a public document. **Responses will be publicly available** unless otherwise designated by the respondent as "nonpublic information" pursuant to Minnesota Statute § 13.02, subdivision 12.

Directions: Responses to questions should be contained within this form to the greatest extent possible (11-point Calibri Light, plain text font, RGB 191, 0, 0). Attach supporting documentation as necessary. While data and information requests, for example, shapefiles or draft plans, will not be contained within this form, document their submittal using this form as follows: "*Requested information* sent to *whom* by *what means* on *date*."

Do not eFile your response. Return the completed form, as a PDF, along with necessary supporting documentation, and/or requested data or information to andrew.levi@state.mn.us. Contact me at (651) 539-1840 with questions.

1. Check this table for accuracy.

Project Component	Baseline Cost (millions)	Above-ground Collection System (includes aboveground collection corridor)	Below-ground Collection System (includes aboveground collection corridor)	Hybrid Collection System (includes above ground collection corridor)
Design, procurement, and construction	$118.6	~ 1% decrease	Baseline	~ 0.5% decrease
Development expense*	$28.2	No change	No change	No change
Interconnection	$15.2	No change	No change	No change
Financing**	$2.7	No change	No change	No change
Total	$164.7 million +/- 10 percent	All options within 10 percent engineering estimate.		

* Includes development payments to the landowner, land purchase, costs associated with developing the project such as title clearing, design, environmental and engineering surveys, and permit applications. Additionally, development costs include property tax payments during construction and construction management.

** Includes legal/transactional fees associated with financing, tax equity commitment fees, upfront construction and construction commitment fees, construction interest and the upfront fee for the operating letter of credit required by financing parties.

No edits required, but note that the header on each of the three columns on the right of the table were modified to make it clear that each of those three scenarios includes the aboveground collection corridor.

2. Check this table for accuracy. Expect only the "anticipated timeframe" column to change.

Task*	Estimated Duration (days)	Key Predecessor	Anticipated Timeframe
Site preparation	20	Start of Construction	June-July
Laydown areas/job site trailers	04	Start of Construction	June-July
Fencing	10	Site Preparation	July
Access roads	10	Site Preparation	July
Posts and foundations	30	Site Preparation	July-August
Tracking	30	Site Preparation	August
Wiring and cabling	45	Tracking, Panel Installation	August-September
Panels	60+	Tracking Installation	September-November
Electrical collection system	30	Site Preparation	July-September
Major electrical equipment	30	Site Preparation	September-November
Project substation	30	Site Preparation	September – November
Transmission line	05	Project Substation	October
Operations building/parking lot	30	Project Substation	October-November
Restoration	10	Major Electrical	October-November
Testing	10	Major Electrical	November
Commissioning	10	Testing	December

*Tasks are not necessarily in chronological order.

The anticipated timeframe column has been updated.

3. Was routing the collection line on the north side of the bridge across the Platte River discussed? Is it feasible?

It was considered, however during the process of determining a route, a "gap" parcel (an area between parcels with no clear owner) was identified on the north side of the bridge across the Platte River. Because no owner could be identified an easement could not be obtained for this area. Accordingly, it is not possible to place the collection line in an area without an easement.

4. Was burying the ECE distribution line to 163 Street NW discussed? Is it feasible?

It was considered; however, the aboveground collection corridor is located on the opposite side of the road from this portion of the distribution line and ECE did not request or otherwise require this portion of its distribution line to be buried.

5. EMF tables appear the same for the double circuit collection line. Is EMF identical with six circuits as opposed to three?

The values in the EMF table are within the range of expected values for the double circuit.

Appendix C Sample Solar Site Permit

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

SITE PERMIT FOR A
SOLAR ENERGY GENERATING SYSTEM

IN
[COUNTY]

ISSUED TO
[PERMITTEE]

PUC DOCKET NO. [Docket Number]

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850 this site permit is hereby issued to:

[Permittee]

The Permittee is authorized by this site permit to construct and operate [Provide a description of the project authorized by the Minnesota Public Utilities Commission]. The solar energy generating system and associated facilities shall be built and operated within the site identified in this permit and as portrayed in the official site maps, and in compliance with the conditions specified in this permit.

This site permit shall expire [xx] years from the date of this approval.

Approved and adopted this ____ day of _____

BY ORDER OF THE COMMISSION

_____

Daniel P. Wolf,
Executive Secretary

CONTENTS

ATTACHMENTS

1 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to [Permittee Name] (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This permit authorizes the [Permittee Name] to construct and operate [Provide a description of the project as authorized by the Minnesota Public Utilities Commission], and as identified in the attached site maps, hereby incorporated into this document.

1.1 Preemption

Pursuant to Minn. Stat. § 216E.10, this permit shall be the sole site approval required for the location, construction, and operation of the solar energy generating system and this permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose government.

2 PROJECT DESCRIPTION

[Provide a description of the project as authorized by the Minnesota Public Utilities Commission]

2.1 Associated Facilities

2.2 Project Location

The project is located in the following:

County	Township Name	Township	Range	Section

3 DESIGNATED SITE

The site designated by the Commission for the [Project Name] is the site depicted on the site maps attached to this permit. [As applicable, provide a detailed description of the authorized site. Example: The site is generally described as follows...]

The layout represents the approximate location of photovoltaic tracker rows and associated facilities within the project boundary and identifies a layout that seeks to minimize the overall

potential human and environmental impacts of the project, which were evaluated in the permitting process. The project boundary serves to provide the Permittee with the flexibility to make minor adjustments to the layout to accommodate requests by landowners, local government units, federal and state agency requirements, and unforeseen conditions encountered during the detailed engineering and design process. Any modification to the location of a photovoltaic tracker row or other associated facility depicted in the preliminary layout shall be done in such a manner to have comparable overall human and environmental impacts and shall be specifically identified in the site plan pursuant to Section 8.3.

4 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the solar energy generating system and associated facilities over the life of this permit.

4.1 Permit Distribution

Within 30 days of permit issuance, the Permittee shall send a copy of the permit and the complaint procedures to any regional development commission, county auditor and environmental office, and city and township clerk in which any part of the site is located.

Within 30 days of permit issuance, the Permittee shall provide all affected landowners with a copy of this permit and the complaint procedures. In no case shall the landowner receive this site permit and complaint procedures less than five days prior to the start of construction on their property. An affected landowner is any landowner or designee that is within or adjacent to the permitted site.

4.2 Access to Property

The Permittee shall contact landowners prior to entering the property or conducting maintenance within the site, unless otherwise negotiated with the affected landowner.

4.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the [Site Permit Application date and title], and the record of the proceedings unless this permit establishes a different requirement in which case this permit shall prevail.

4.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during construction of the project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative 14 days prior to commencing construction. The Permittee shall provide the field representative's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to commencing construction. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, residents, local government units and other interested persons.

4.3.2 Site Manager

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this permit during the commercial operation and decommissioning phases of the project. This person shall be accessible by telephone or other means during normal business hours for the life of this permit.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the site manager 14 days prior to commercial operation of the facility. The Permittee shall provide the site manager's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to commercial operation of the facility. The Permittee may change the site manager at any time upon notice to the Commission, affected landowners, local government units and other interested persons.

4.3.3 Employee Training and Education of Permit Terms and Conditions

The Permittee shall inform and educate all employees, contractors, and other persons involved in the construction and ongoing operation of the solar energy generating system of the terms and conditions of this permit.

4.3.4 Public Services and Public Utilities

During construction, the Permittee shall minimize any disruption to public services and public utilities. To the extent disruptions to public services or public utilities occur these will be temporary, and the Permittee will restore service promptly. Where any impacts to utilities have the potential to occur the Permittee will work with both landowners and local agencies to determine the most appropriate mitigation measures if not already considered as part of this permit.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction.

4.3.5 Temporary Work Space

Temporary work space and equipment staging areas shall be selected to limit the removal and impacts to vegetation. Temporary work space shall not be sited in wetlands or native prairie as defined in sections 4.3.10 and 4.3.11. Temporary work space shall be sited to comply with standards for development of the shorelands of public waters as defined in Section 4.3.10. Temporary easements outside of the authorized site boundary will be obtained from affected landowners through rental agreements and are not provided for in this permit.

4.3.6 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0100 to 7030.0080, at all times at all appropriate locations during operation of the facility. Construction and maintenance activities shall be limited to daytime working hours to the extent practicable to ensure nighttime noise level standards will not be exceeded.

4.3.7 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners and land management agencies. Care shall be used to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the project during construction and operation.

4.3.1 Topsoil Protection

The Permittee shall implement measures to protect and segregate topsoil from subsoil on all lands unless otherwise negotiated with the affected landowner.

4.3.2 Soil Compaction

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the project's life and shall confine compaction to as small an area as practicable.

4.3.3 Soil Erosion and Sediment Control

The Permittee shall implement erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the facility disturbs more than one acre of land, or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit from the MPCA that provides for the development of a Stormwater Pollution Prevention Plan (SWPPP) that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the facilities shall be returned to pre-construction conditions.

4.3.4 Public Lands

In no case shall photovoltaic tracker rows and associated facilities including foundations, access roads, underground cable, and transformers, be located in the public lands identified in Minn. R. 7850.4400, subp. 1, or in federal waterfowl production areas. Photovoltaic tracker rows and associated facilities shall not be located in the public lands identified in Minn. R. 7850.4400, subp. 3, unless there is no feasible and prudent alternative.

4.3.5 Wetlands and Water Resources

Photovoltaic tracker rows and associated facilities, including access roads, underground cable and transformers shall not be placed in public waters and public waters wetlands, as shown on the public water inventory maps prescribed by Minnesota Statutes Chapter 103G, except that

electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources (DNR) and the United States Army Corps of Engineers (USACE), and local units of government as implementers of the Minnesota Wetlands Conservation Act. Photovoltaic tracker rows and associated facilities including foundations, access roads, underground cable and transformers, shall be located in compliance with the standards for development of the shorelands of public waters as identified in Minn. R. 6120.3300, and as adopted, Minn. R. 6120.2800, unless there is no feasible and prudent alternative.

Construction in wetland areas shall occur during frozen ground conditions to minimize impacts, to the extent feasible. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. Soil excavated from the wetlands and riparian areas shall be contained and managed in accordance with all applicable wetland permits. Wetlands and riparian areas shall be accessed using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts.

Wetland and water resource areas disturbed by construction activities shall be restored to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. All requirements of the USACE, DNR, and local units of government shall be met.

4.3.6 Native Prairie

Solar panels and associated facilities including foundations, access roads, collector and feeder lines, underground cable, and transformers shall not be placed in native prairie, as defined in Minn. Stat. § 84.02, subd. 5, unless addressed in a prairie protection and management plan and shall not be located in areas enrolled in the Native Prairie Bank Program. Construction activities, as defined in Minn. Stat. § 216E.01, shall not impact native prairie unless addressed in a prairie protection and management plan.

The Permittee shall prepare a prairie protection and management plan in consultation with the DNR if native prairie, as defined in Minn. Stat. § 84.02, subd. 5, is identified within the site boundaries. The Permittee shall file the plan 30 days prior to submitting the site plan required by Section 8.3 of this permit. The plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, the DNR, and the Commission.

4.3.7 Vegetation Removal

The Permittee shall disturb or clear vegetation on the site only to the extent necessary to assure suitable access for construction, and for safe operation and maintenance of the project. The Permittee shall minimize the number of trees removed in selecting the site layout specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and other vegetation, to the extent that such actions do not violate sound engineering principles or interfere with the operation of the facility.

4.3.8 Beneficial Habitat

The Permittee shall implement site restoration and management practices that provide for native perennial vegetation and foraging habitat beneficial to gamebirds, songbirds, and pollinators; and that enhances soil water retention and reduces storm water runoff and erosion. The Permittee shall develop a vegetation management plan that incorporates, to the extent applicable and appropriate, the technical guidance and best management practices outlined in the DNR's *Prairie Establishment and Maintenance Technical Guidance for Solar Projects*[1]. The vegetation management plan shall be filed at least 30 days prior to the pre-construction meeting.

To ensure continued management and recognition of beneficial habitat, the Permittee is encouraged to seek certification of the project by following guidance set forth by the Pollinator Plan provided by the Board of Water and Soil Resources. All documents required by Board of Water and Soil Resources for Habitat Friendly Solar Certification and maintenance of that certification should also be filed with the Commission.

4.3.9 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture, Minnesota Department of Natural Resources, and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner or designee to obtain approval for the use of pesticide at least 14 days prior to any application on their property. The landowner may

[1] https://files.dnr.state.mn.us/publications/ewr/prairie_solar_tech_guidance.pdf

request that there be no application of pesticides on any part of the site within the landowner's property. The Permittee shall provide notice of pesticide application to affected landowners, and known beekeepers operating apiaries within three miles of the project site at least 14 days prior to such application.

4.3.10 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by project construction activities. The Permittee shall develop an Invasive Species Prevention Plan to prevent the introduction and spread of invasive species on lands disturbed by project construction activities and file with the Commission 30 days prior to the pre-construction meeting.

4.3.11 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall consult with landowners on the selection and use of seed for replanting.

4.3.12 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city or township roads that will be used during the construction phase of the project. Where practical, existing roadways shall be used for all activities associated with construction of the facility. Oversize or overweight loads associated with the facility shall not be hauled across public roads without required permits and approvals.

The Permittee shall locate all perimeter fencing and vegetative screening in a manner that does not interfere with routine road maintenance activities and allows for continued safe travel on public roads.

The Permittee shall construct the least number of site access roads it can. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

4.3.13 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to identified archaeological and historic resources when constructing the facility. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office (SHPO) and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize project impacts on the resource consistent with the SHPO and State Archaeologist requirements.

Prior to construction, workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. Construction at such location shall not proceed until authorized by local law enforcement or the State Archaeologist.

4.3.14 Interference

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the project, the Permittee shall take whatever action is feasible to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the project.

4.3.15 Restoration

The Permittee shall restore the areas affected by construction of the solar facility to the condition that existed immediately before construction began to the extent possible. The time period to complete restoration may be no longer than 12 months after the completion of construction, unless otherwise negotiated with the affected landowner. Restoration shall be compatible with the safe operation, maintenance and inspection of the project. Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities.

4.3.16 Cleanup

All waste and scrap that is the product of construction shall be removed from the site and all premises on which construction activities were conducted and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

4.3.17 Pollution and Hazardous Wastes

All appropriate precautions to protect against pollution of the environment shall be taken by the Permittee. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all wastes generated during construction and operation of the facility.

4.3.18 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction.

4.3.19 Public Safety

The Permittee shall provide educational materials to landowners adjacent to the site and, upon request, to interested persons about the project and any restrictions or dangers associated with the project. The Permittee shall also provide any necessary safety measures such as warning signs and gates for traffic control or to restrict public access. The Permittee shall submit the location of all underground facilities, as defined in Minn. Stat. § 216D.01, subd. 11, to Gopher State One Call following the completion of construction at the site.

4.3.20 Site Identification

The solar site shall be marked with a visible identification number and or street address.

4.4 Feeder Lines

Feeder lines that carry power from an internal project interconnection point to the project substation or interconnection point on the electrical grid may be overhead or underground. Overhead and underground feeder lines that parallel public roads shall be placed within the

public right-of-way or on private land immediately adjacent to the road. The Permittee shall obtain approval from the private landowner or government unit responsible for the affected right-of-way.

Feeder line locations shall be located in such a manner as to minimize interference with agricultural operations including, but not limited, to existing drainage patterns, drain tile, future tiling plans, and ditches. Safety shields shall be placed on all guy wires associated with overhead feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines with the site plan pursuant to Section 8.3.

4.5 Other Requirements

4.5.1 Safety Codes and Design Requirements

The solar energy generating system and associated facilities shall be designed to meet or exceed all relevant local and state codes, Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards, the National Electric Safety Code (NESC), and North American Electric Reliability Corporation (NERC) requirements. The Permittee shall report to the Commission on compliance with these standards upon request.

4.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations. A list of the permits known to be required is included in the permit application. The Permittee shall submit a copy of such permits to the Commission upon request.

5 SPECIAL CONDITIONS

Special conditions shall take precedence over other conditions of this permit should there be a conflict.

[Describe any special conditions]

Examples of special conditions included in permits:

- Avian Mitigation Plan
- Environmental Control Plan

- Agriculture Mitigation Plan
- Vegetation Management Plan
- Property Restrictions
- Minnesota Department of Natural Resources Requirements
- Minnesota Pollution Control Requirements
- Minnesota State Historical Preservation Office Requirements
- Minnesota Department of Transportation Requirements

For example:

Landscaping Plan

The Permittee shall develop a site specific landscaping plan that considers local government ordinances and setbacks, and that mitigates to the extent practical the visual impacts to all adjacent residences. The landscaping plan shall be filed at least 14 days prior to the pre-construction meeting. Within 14 days of approval of the final Landscaping Plan, the Permittee shall provide all affected landowners with copies of the plan.

Vegetation Management Plan

The Permittee shall develop a vegetation management plan in consultation with the DNR to the benefit of pollinators and other wildlife, and to enhance soil water retention and reduce storm water runoff and erosion. The vegetation management plan shall be filed at least 14 days prior to the pre-construction meeting. Within 14 days of approval of the final Vegetation Management Plan, the Permittee shall provide all affected landowners with copies of the plan.

Security Fence

The security fence surrounding the facility shall be designed to minimize the visual impact of the project. While maintaining compliance with the NESC, the Permittee shall install an eight-foot wood pole and woven wire fence, or substantially similar, around the perimeter of the facility. This type of fence is commonly referred to as a “deer fence” or “agricultural fence.” The permittee shall consult with the DNR to insure the design of the facilities preserves or replaces identified natural wildlife, wetland, woodland or other corridors.

Tree Removal Timetables

Tree removal required by the project shall be done between October 1st and March 30th to mitigate negative impacts to the northern long-eared bat and to minimize potential impacts on migratory birds, unless other appropriate time limitations on tree clearing are determined in consultation with the U.S. Fish and Wildlife Service (USFWS). The Permittee shall file an account of that consultation 14 days prior to the pre-construction meeting.

Independent Inspector

The Permittee shall retain an independent third-party inspector, which could include a local unit of government with the inspection authority. The selection of the inspector and scope of the inspection effort shall be approved by the Department of Commerce and Commission's Executive Secretary. The inspector shall oversee the construction process and ensure that the project conforms to the site permit terms, conditions, and the specifications outlined in the record. The inspector shall file a report at 30-day intervals with the Commission addressing compliance during construction and the first 60 days of operation.

6 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the site within four years after the date of issuance of this permit the Permittee shall file a report on the failure to construct and the Commission shall consider suspension of the permit in accordance with Minn. R. 7850.4700.

7 COMPLAINT PROCEDURES

Prior to the start of construction, the Permittee shall submit to the Commission the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this permit.

Upon request, the Permittee shall assist the Commission with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

8 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this permit is a failure to comply with the conditions of this permit. Compliance filings must be electronically filed with the Commission.

8.1 Pre-Construction Meeting

Prior to the start of any construction, the Permittee shall participate in a pre-construction meeting with the Department of Commerce and Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the construction start date.

8.2 Pre-Operation Meeting

At least 14 days prior to commercial operation of the facility, the Permittee shall participate in a pre-operation meeting with the Department of Commerce and Commission staff to coordinate field monitoring of operation activities for the project. Within 14 days following the pre-operation meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees.

8.3 Site Plan

At least 30 days prior to the pre-construction meeting, the Permittee shall provide the Commission, the Department, and the [Environmental department of the county where the site is located] with a site plan that includes specifications and drawings for site preparation and grading; specifications and locations of photovoltaic panels and other structures to be constructed including all electrical equipment, pollution control equipment, fencing, roads, and other associated facilities; and procedures for cleanup and restoration. The documentation shall include maps depicting the site boundary and layout in relation to that approved by this permit.

The Permittee may not commence construction until the 30 days has expired or until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intends to make any significant changes to its site plan or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission at

least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

8.4 Status Reports

The Permittee shall report to the Commission on progress during site construction. The Permittee need not report more frequently than monthly. Reports shall begin with the submittal of the site plan for the project and continue until completion of restoration. Reports shall describe construction activities and progress, and activities undertaken in compliance with this permit. Reports shall include text and photographs.

8.5 Labor Statistic Reporting

The Permittee shall file quarterly reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the project. The reports shall (a) detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers, and (b) provide an account of: (i) the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7; (ii) the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the project; and (iii) the total gross hours worked or total full-time equivalent workers. Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

8.6 In-Service Date

At least three days before the facility is to be placed into service, the Permittee shall notify the Commission of the date on which the facility will be placed into service and the date on which construction was completed.

8.7 As-Builts

Within 90 days after completion of construction, the Permittee shall submit copies of all final as-built plans and specifications developed during the project.

8.8 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (e.g., ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the solar energy generating system.

8.9 Project Energy Production

The Permittee shall, by February 1st following each complete or partial year of project operation, file a report with the Commission on the monthly energy production of the facility including:

(a) the installed nameplate capacity of the permitted facility;

(b) the total daily energy generated by the facility in MW hours;

(c) the total monthly energy generated by the facility in MW hours;

(d) the monthly capacity factor of the facility;

(e) yearly energy production and capacity factor for the facility;

(f) the average monthly and average annual solar strength gradient measured in kWh/m²/Day observed at the facility;

(g) the operational status of the facility and any major outages, major repairs, or performance improvements occurring in the previous year; and

(h) any other information reasonably requested by the Commission.

This information shall be considered public and must be filed electronically.

8.10 Emergency Response

The Permittee shall prepare an Emergency Response Plan in consultation with the emergency responders having jurisdiction over the facility prior to project construction. The Permittee shall submit a copy of the plan, along with any comments from emergency responders, to the Commission at least 14 days prior to the pre-construction meeting and a revised plan, if any, at least 14 days prior to the pre-operation meeting. The Permittee shall provide as a compliance

filing confirmation that the Emergency Response Plan was provided to the emergency responders and Public Safety Answering Points (PSAP) with jurisdiction over the facility prior to commencement of construction. The Permittee shall obtain and register the facility address or other location indicators acceptable to the emergency responders and PSAP having jurisdiction over the facility.

8.11 Extraordinary Events

Within 24 hours of discovery of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to: fires, solar panel collapse, acts of sabotage, collector or feeder line failure, and injured worker or private person. The Permittee shall, within 30 days of the occurrence, file a report with the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

8.12 Wildlife Injuries and Fatalities

The Permittee shall report any wildlife injuries and fatalities to the Commission quarterly.

9 DECOMMISSIONING AND RESTORATION

9.1 Decommissioning Plan

The Permittee shall submit a decommissioning plan to the Commission at least fourteen 14 days prior to the pre-operation meeting and provide updates to the plan every five years thereafter. The plan shall provide information identifying all surety and financial securities established for decommissioning and site restoration. The decommissioning plan shall provide an itemized breakdown of costs of decommissioning all project components, which shall include labor and equipment. The plan shall identify cost estimates for the removal of solar panels, racks, underground collection cables, access roads, transformers, substations, and other project components. The plan may also include anticipated costs for the replacement of panels or repowering the project by upgrading equipment.

The Permittee shall also submit the decommissioning plan to the local unit of government having direct zoning authority over the area in which the project is located. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

9.2 Site Restoration

Upon expiration of this permit or upon termination of operation of the project, the Permittee shall have the obligation to dismantle and remove from the site all solar panels, mounting steel posts and beams, inverters, transformers, overhead and underground cables and lines, foundations, buildings, and ancillary equipment. To the extent feasible, the Permittee shall restore and reclaim the site to pre-project conditions. Landowners may require the site be returned to agricultural production or may retain restored prairie vegetation, or other land uses as agreed to between the landowner and the Permittee. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. All such agreements between the Permittee and the affected landowner shall be submitted to the Commission prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within 18 months of termination.

9.3 Abandoned Solar Installations

The Permittee shall advise the Commission of any solar facilities that are abandoned prior to termination of operation of the project. The project, or any equipment within the project, shall be considered abandoned after one year without energy production and the land restored pursuant to Section 9.2 unless a plan is submitted to and approved by the Commission outlining the steps and schedule for returning the project, or any equipment within the project, to service.

10 COMMISSION AUTHORITY AFTER PERMIT ISSUANCE

10.1 Final Boundaries

After completion of construction the Commission shall determine the need to adjust the final site boundaries required for the project. This permit may be modified, after notice and opportunity for hearing, to represent the actual site boundary required by the Permittee to operate the project authorized by this permit.

10.2 Expansion of Site Boundaries

No expansion of the site boundary described in this permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a

change in the boundary of the site for the project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

10.3 Periodic Review

The Commission shall initiate a review of this permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the Commission, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of this permit. No modification may be made except in accordance with applicable statutes and rules.

10.4 Modification of Conditions

After notice and opportunity for hearing this permit may be modified or amended for cause, including but not limited to the following:

(a) violation of any condition in this permit;

(b) endangerment of human health or the environment by operation of the project; or

(c) existence of other grounds established by rule.

10.5 More Stringent Rules

The issuance of this permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

10.6 Right of Entry

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

(a) To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.

(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.

(c) To sample and monitor upon the facilities easement of the property.

(d) To examine and copy any documents pertaining to compliance with the conditions of this Permit.

11 PERMIT AMENDMENT

This permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

12 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer. The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new Permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new Permittee, and interested persons such process as is required.

13 REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may initiate action to revoke or suspend this permit at any time. The Commission shall act in accordance with the requirements of Minn. R. 7850.5100, to revoke or suspend the permit.

14 EXPIRATION DATE

This permit shall expire 30 years after the date this permit was approved and adopted.

ATTACHMENT 1

Complaint Handling Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES FOR
PERMITTED ENERGY FACILITIES

A. Purpose

To establish a uniform and timely method of reporting and resolving complaints received by the permittee concerning permit conditions for site preparation, construction, cleanup, restoration, operation, and maintenance.

B. Scope

This document describes complaint reporting procedures and frequency.

C. Applicability

The procedures shall be used for all complaints received by the permittee and all complaints received by the Minnesota Public Utilities Commission (Commission) under Minn. R. 7829.1500 or Minn. R. 7829.1700 relevant to this permit.

D. Definitions

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other route and associated facilities permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written complaint alleging a violation of a specific permit condition that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A complaint which, despite the good faith efforts of the permittee and a person, remains unresolved or unsatisfactorily resolved to one or both of the parties.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

E. Complaint Documentation and Processing

1. The permittee shall designate an individual to summarize complaints for the Commission. This person's name, phone number and email address shall accompany all complaint submittals.

2. A person presenting the complaint should to the extent possible, include the following information in their communications:

    a. name, address, phone number, and email address;
    b. date of complaint;
    c. tract or parcel number; and
    d. whether the complaint relates to a permit matter or a compliance issue.

3. The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

    a. docket number and project name;
    b. name of complainant, address, phone number and email address;
    c. precise description of property or parcel number;
    d. name of permittee representative receiving complaint and date of receipt;
    e. nature of complaint and the applicable permit condition(s);
    f. activities undertaken to resolve the complaint; and
    g. final disposition of the complaint.

F. Reporting Requirements

The permittee shall commence complaint reporting at the beginning of project construction and continue through the term of the permit. The permittee shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to the Commission's Consumer Affairs Office at 1-800-657-3782 (voice messages are acceptable) or consumer.puc@state.mn.us. For e-mail reporting, the email subject line should read "PUC EFP Complaint" and include the appropriate project docket number.

Monthly Reports: During project construction and restoration, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be filed by the 15th of each month to Daniel P. Wolf, Executive Secretary, Public Utilities Commission, using the eDockets system. The eDockets system is located at: https://www.edockets.state.mn.us/EFiling/home.jsp

If no complaints were received during the preceding month, the permittee shall file a summary indicating that no complaints were received.

G. Complaints Received by the Commission

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the permittee.

H. Commission Process for Unresolved Complaints

Commission staff shall perform an initial evaluation of unresolved complaints submitted to the Commission. Complaints raising substantial permit issues shall be processed and resolved by the Commission. Staff shall notify the permittee and appropriate persons if it determines that the complaint is a substantial complaint. With respect to such complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the staff notification. The complaint will be presented to the Commission for a decision as soon as practicable.

I. Permittee Contacts for Complaints and Complaint Reporting

Complaints may filed by mail or email to:

[Name]
[Mailing Address]
[Phone]
[Email]

This information shall be maintained current by informing the Commission of any changes as they become effective.

ATTACHMENT 2

Compliance Filing Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE FOR
PERMITTED ENERGY FACILITIES

A. Purpose

To establish a uniform and timely method of submitting information required by Commission energy facility permits.

B. Scope and Applicability

This procedure encompasses all known compliance filings required by permit.

C. Definitions

Compliance Filing: A filing of information to the Commission, where the information is required by a Commission site or route permit.

D. Responsibilities

1. The permittee shall file all compliance filings with Daniel P. Wolf, Executive Secretary, Public Utilities Commission, through the eDockets system. The eDockets system is located at: https://www.edockets.state.mn.us/EFiling/home.jsp

General instructions are provided on the eDockets website. Permittees must register on the website to file documents.

2. All filings must have a cover sheet that includes:

    a. Date
    b. Name of submitter/permittee
    c. Type of permit (site or route)
    d. Project location
    e. Project docket number
    f. Permit section under which the filing is made
    g. Short description of the filing

3. Filings that are graphic intensive (e.g., maps, engineered drawings) must, in addition to being electronically filed, be submitted as paper copies and on CD. Paper copies and CDs should be sent to: 1) Daniel P. Wolf, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147, and 2) Department of Commerce, Energy Environmental Review and Analysis, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198.

The Commission may request a paper copy of any electronically filed document.

PERMIT COMPLIANCE FILINGS[1]

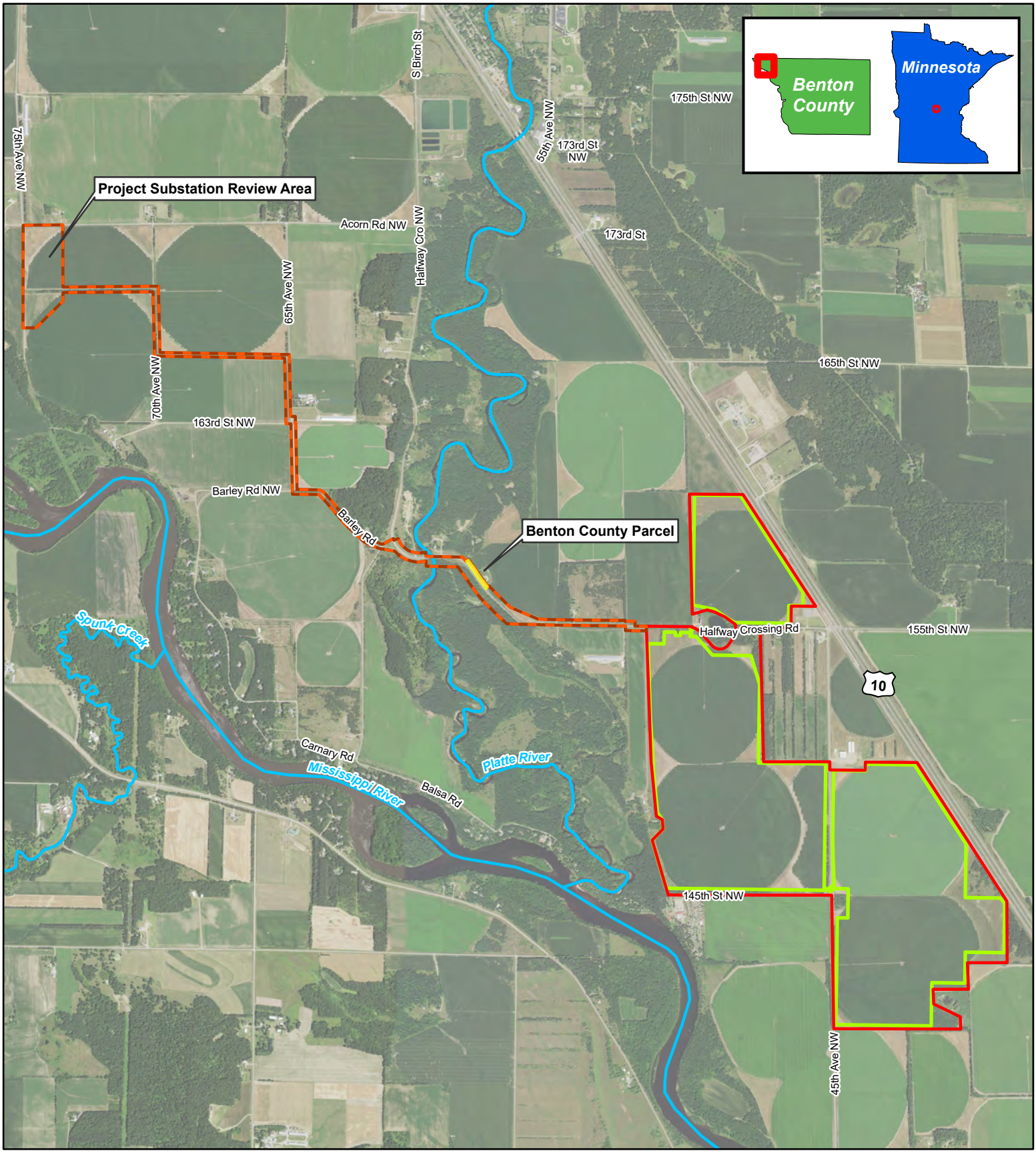
PERMITTEE:
PERMIT TYPE:
PROJECT LOCATION:
PUC DOCKET NUMBER:

Filing Number	Permit Section	Description of Compliance Filing	Due Date

[1] This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. It is not a substitute for the permit; the language of the permit controls.

ATTACHMENT 3
Route Maps

Appendix D Detailed Maps



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Project Overview

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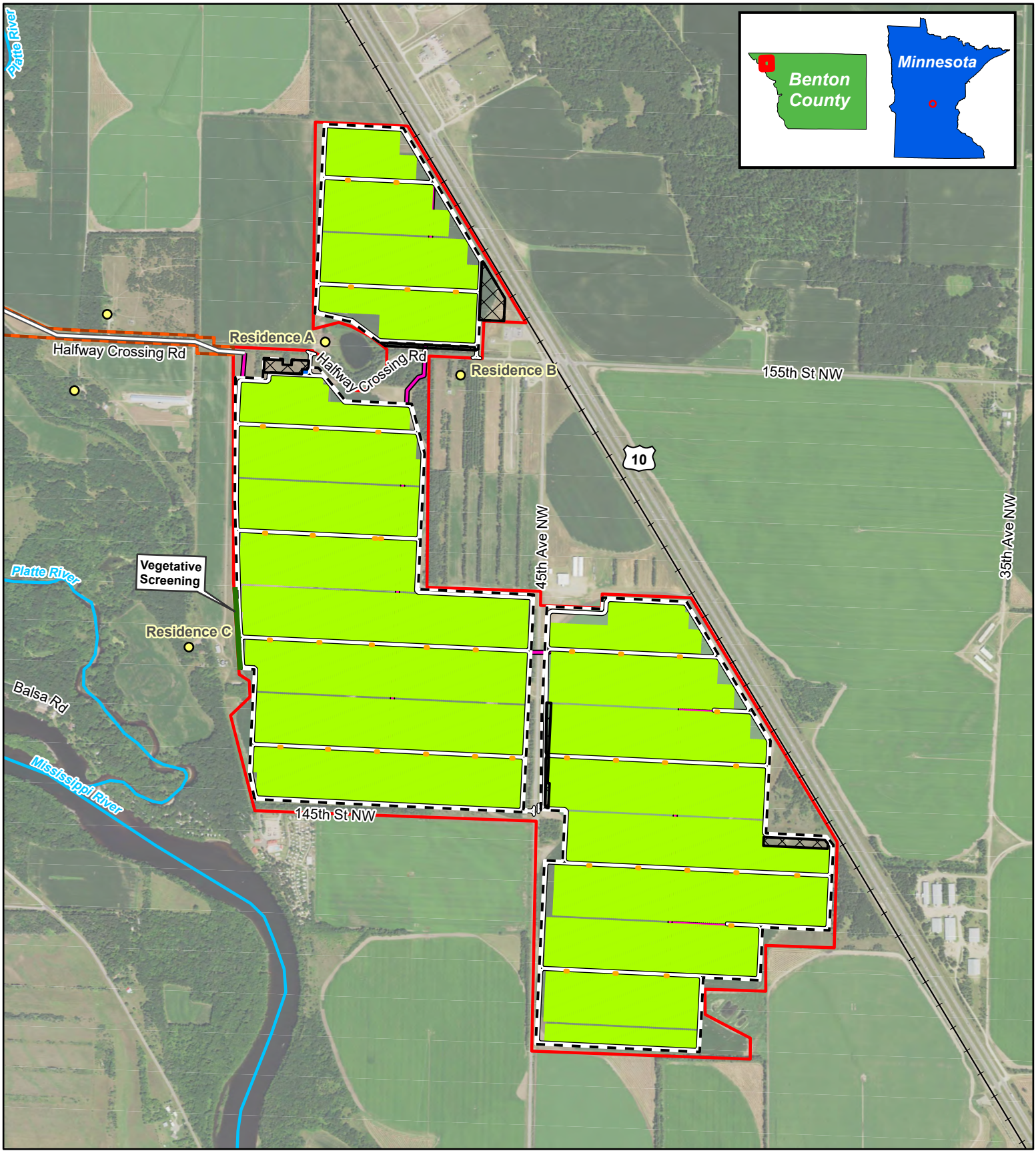
- Land Control Area
- Expanded Land Control Area
- Preliminary Development Area
- Benton County Parcel



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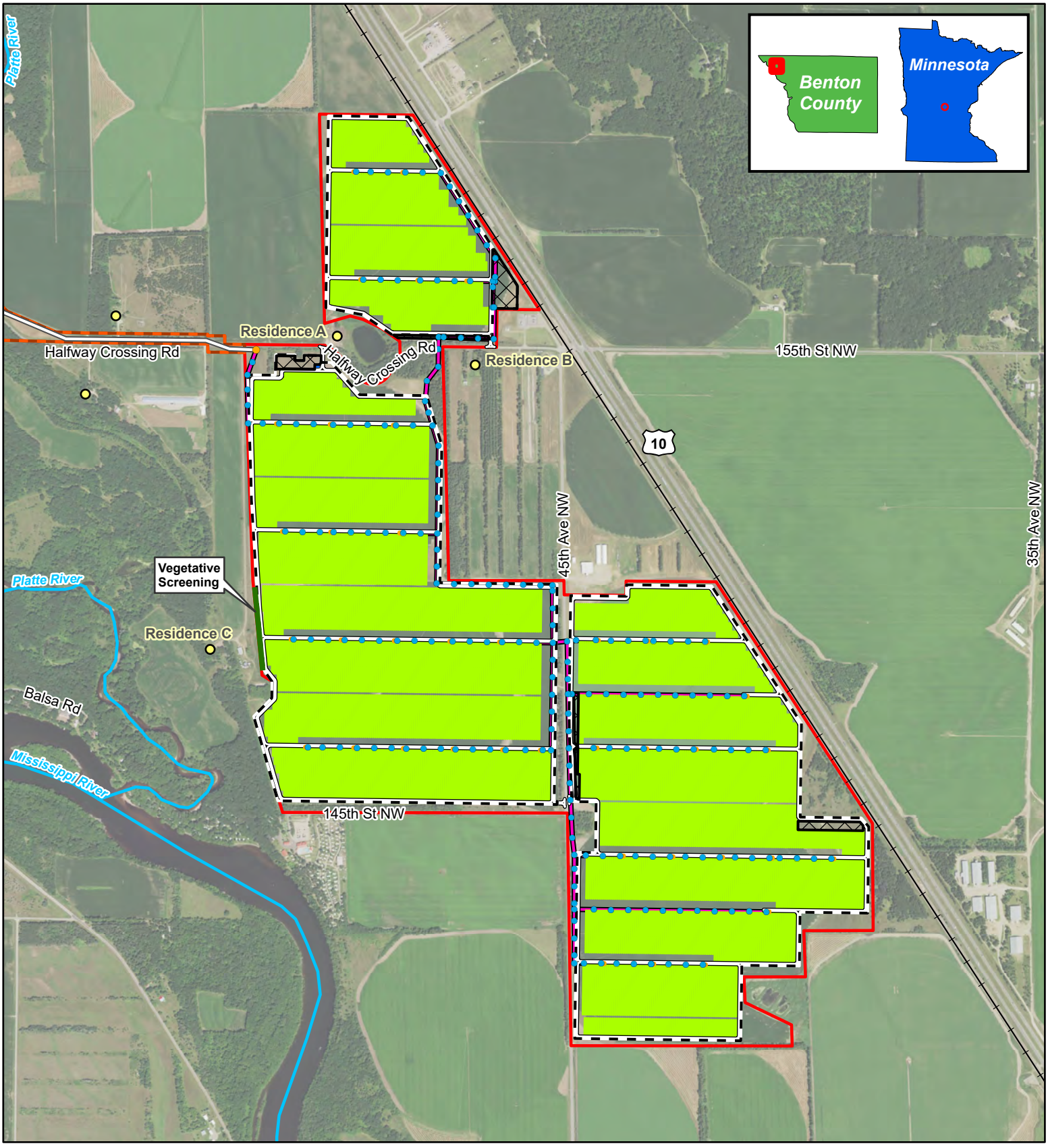
Below-Ground Preliminary Project Layout

45.783906, -94.261881

- Adjacent Residence
- Above Ground Collection
- Collection Line
- Vegetative Screening
- Expanded Land Control Area
- Land Control Area
- Security Fence
- Access Road
- Solar Array
- Inverter
- Project Substation
- O&M Facility
- Laydown Area
- NHD Stream
- Railroad



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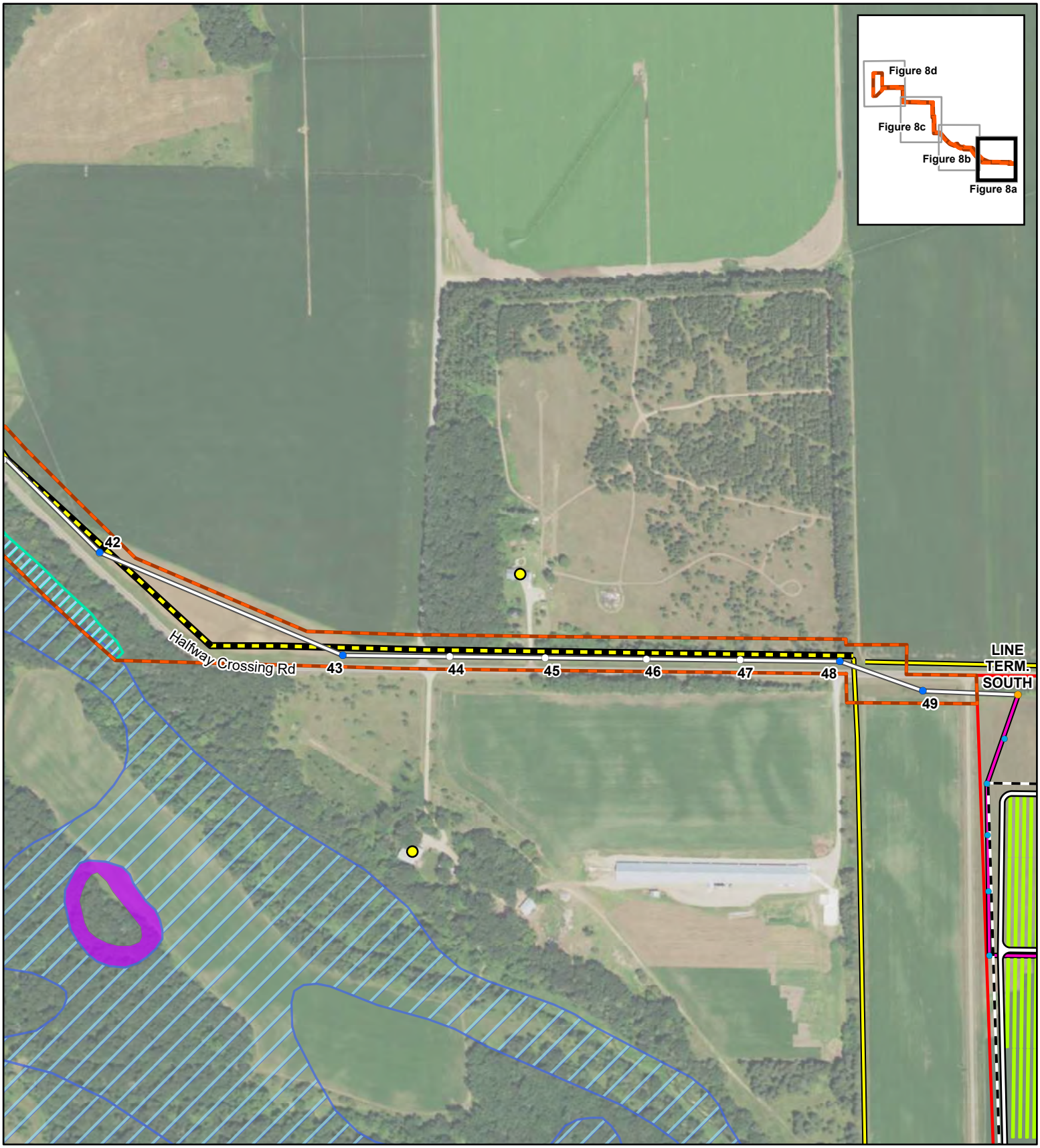
Above-Ground Preliminary Project Layout

45.783906, -94.261881

- Preliminary Riser Pole
- Above-Ground Collection Pole
- Adjacent Residence
- Above Ground Collection
- Collection Line
- Vegetative Screening
- Land Control Area
- Expanded Land Control Area
- Security Fence
- Access Road
- Solar Array
- Inverter
- Project Substation
- O&M Facility
- Laydown Area
- NHD Stream
- Railroad



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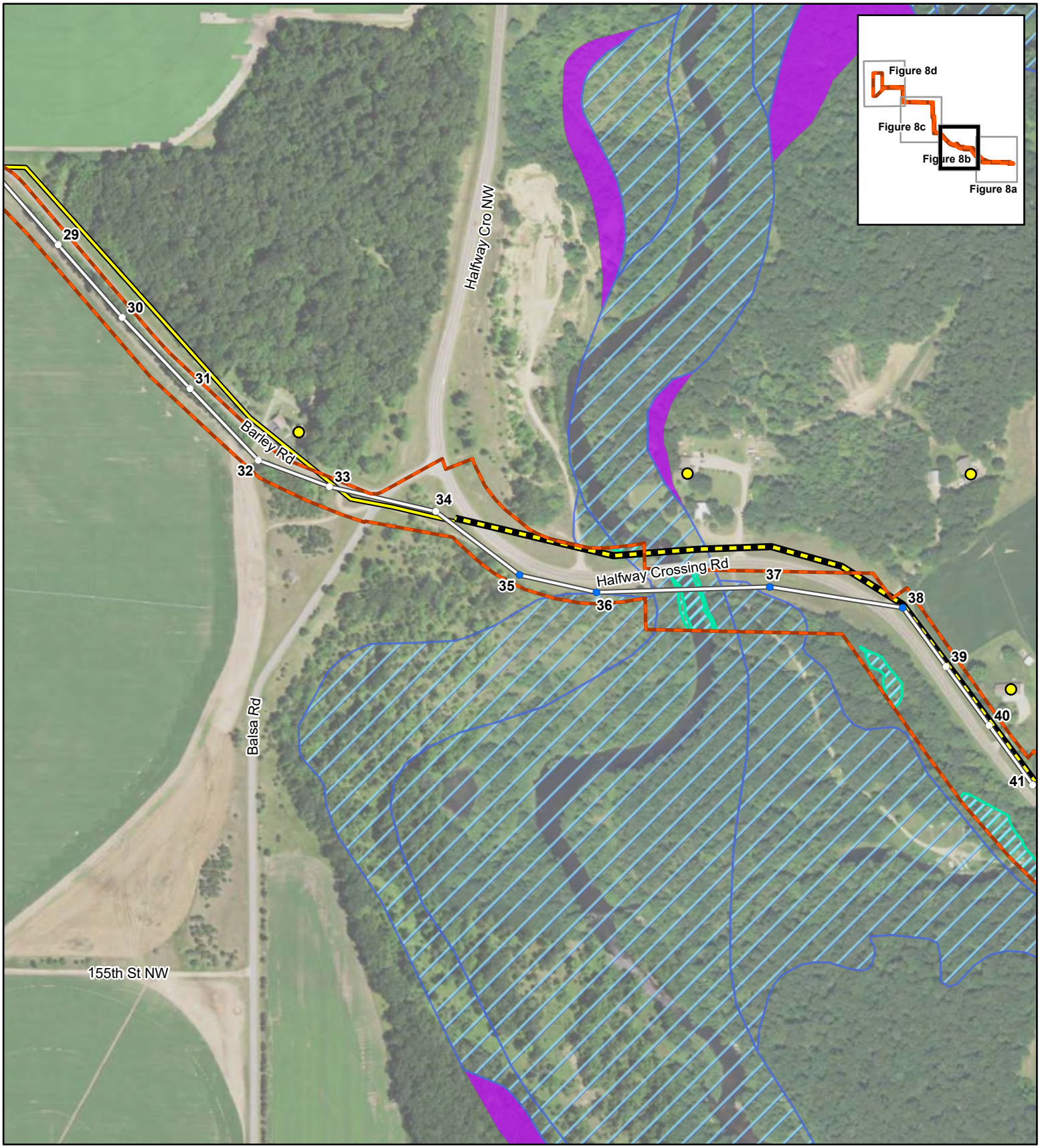
Collection Line

45.783906, -94.261881

- Preliminary Dead End Pole
- Preliminary Riser Pole
- Preliminary Tangent
- Adjacent Residence
- Above Ground Collection
- ECE Distribution Line
- ECE Distribution Line to be buried
- Expanded Land Control Area
- Delineated Wetlands
- 500 Year Floodplain
- 100 Year Floodplain
- Above-Ground Collection Pole
- Collection Line
- Land Control Area
- Security Fence
- Access Road
- Solar Array



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Collection Line

45.783906, -94.261881

- Preliminary Dead End Pole
- Preliminary Tangent
- Adjacent Residence
- Above Ground Collection
- ECE Distribution Line
- ECE Distribution Line to be buried
- Expanded Land Control Area
- Delineated Wetlands
- 500 Year Floodplain
- 100 Year Floodplain

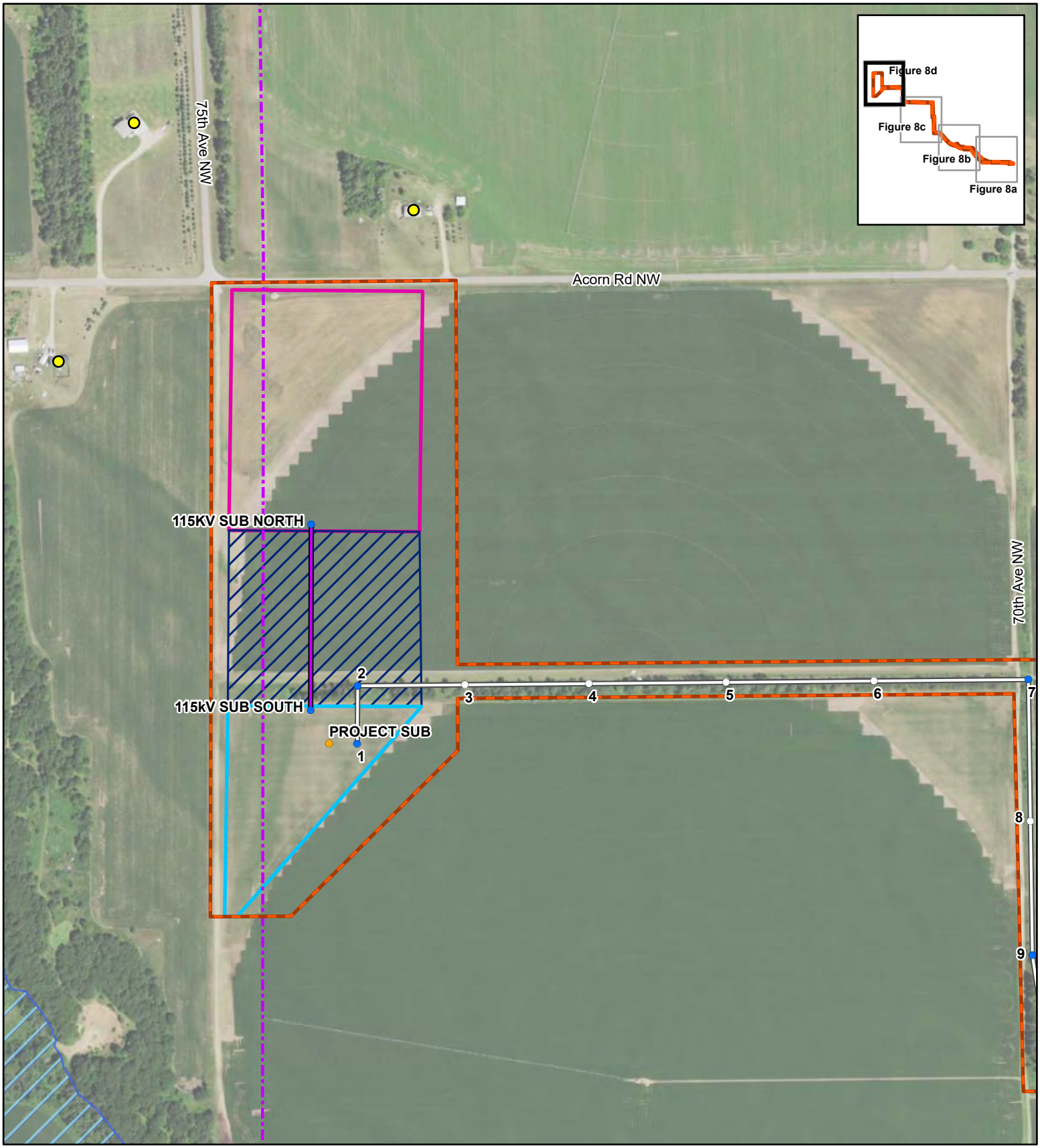
0 250 500 Feet

1:5,034

Collection Line

45.783906, -94.261881

- Preliminary Dead End Pole
- Preliminary Tangent
- Adjacent Residence
- Above Ground Collection
- ECE Distribution Line
- Expanded Land Control Area
- 100 Year Floodplain



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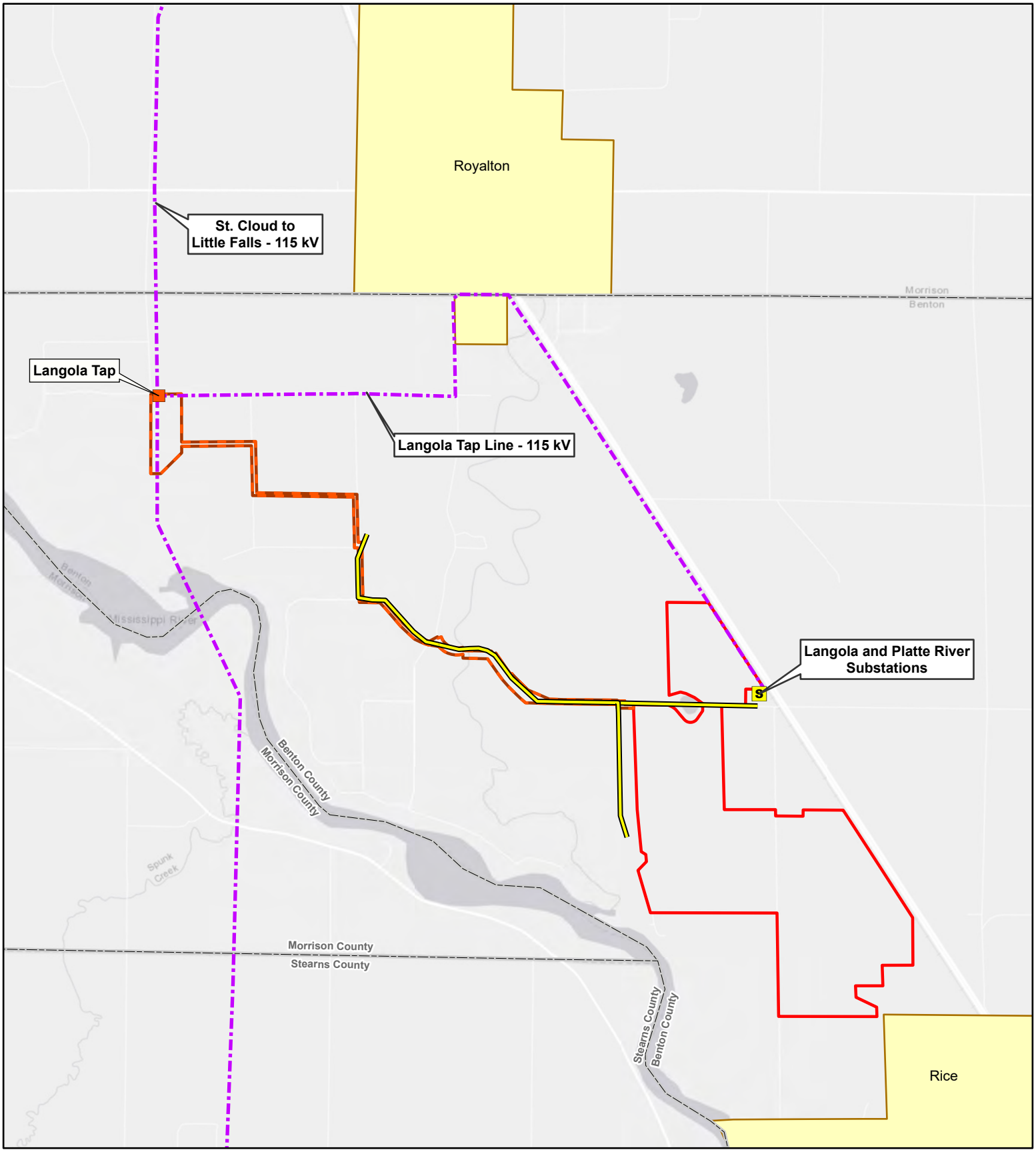
Collection Line

45.783906, -94.261881

- Preliminary Dead End Pole
- Preliminary Riser Pole
- Preliminary Tangent
- Adjacent Residence
- 115kV Gen-Tie
- Existing 115 kV Transmission
- Above Ground Collection
- Expanded Land Control Area
- Project Substation
- Gen-Tie Area
- Switching Station Area
- 100 Year Floodplain



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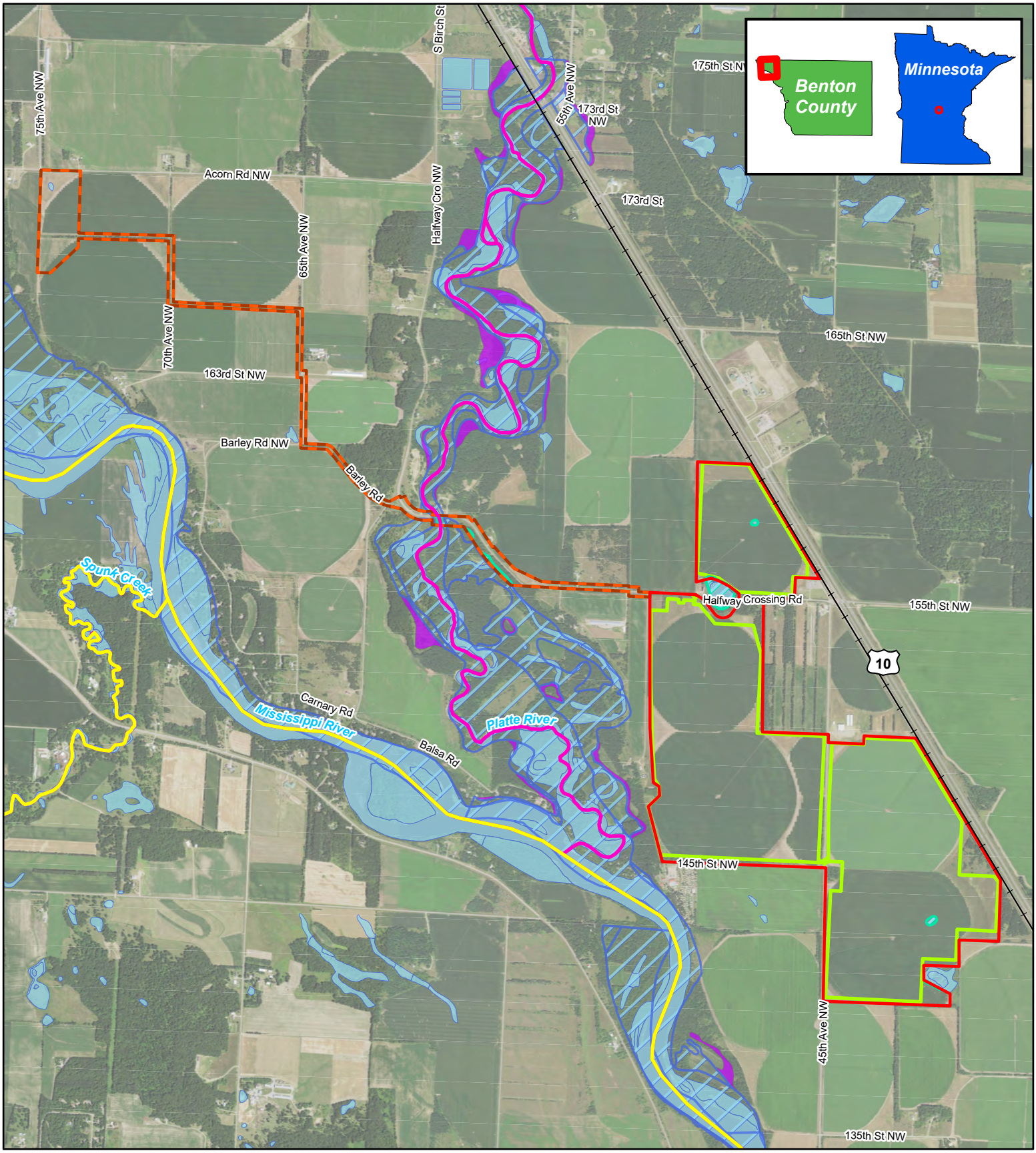
Existing Transmission System

45.783906, -94.261881

- LangolaTap
- S Existing Substation
- ECE Distribution Line
- Existing Transmission Line
- Land Control Area
- City/Town
- County Boundary



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0 0.25 0.5 0.75 Miles

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Water Resources

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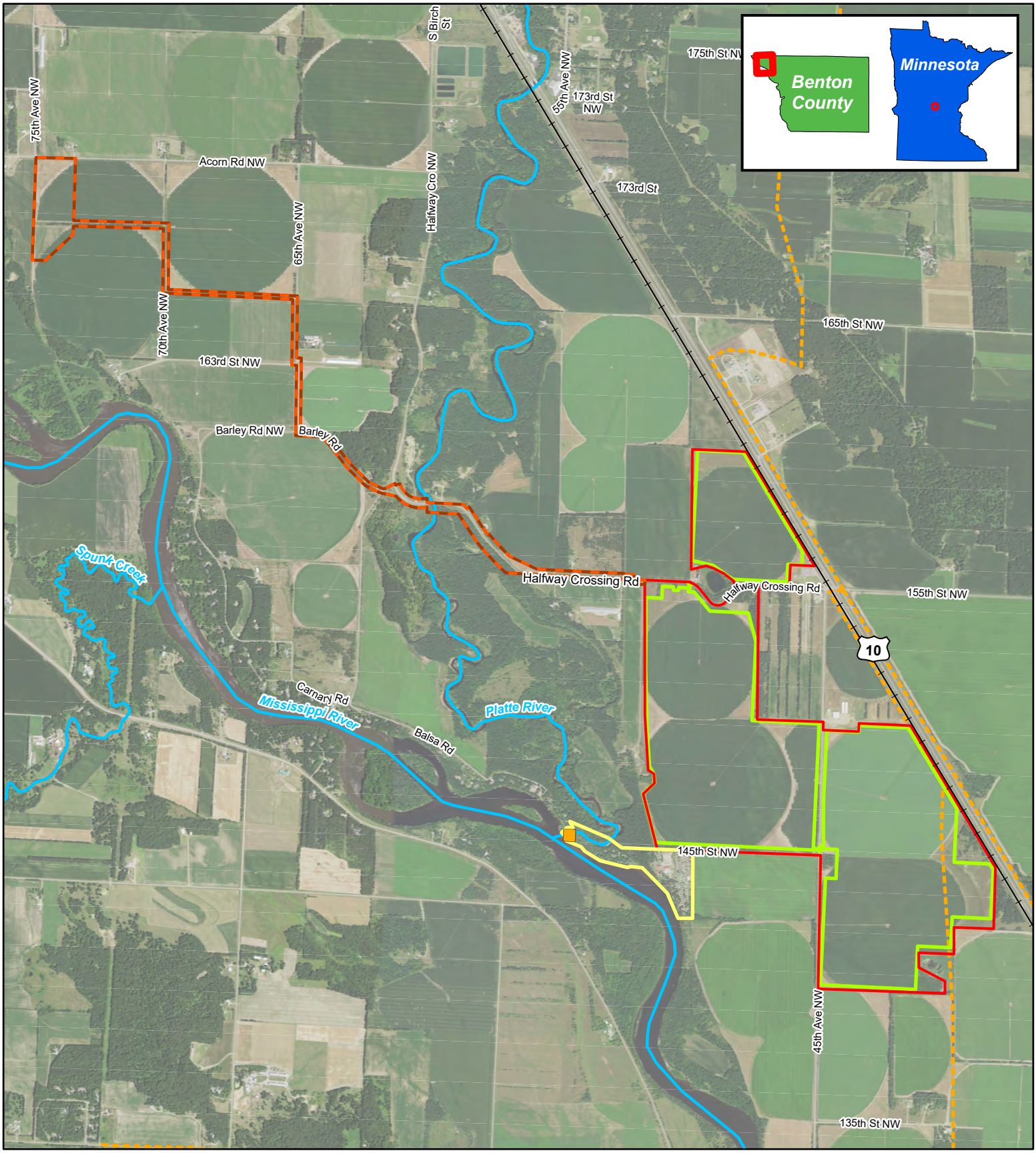
- Land Control Area
- Expanded Land Control Area
- Preliminary Development Area
- Impaired Water
- Public Water Inventory (PWI)
- Delineated Wetlands
- NWI Wetland (MDNR)

Flood Zone

- 500 Year Floodplain
- 100 Year Floodplain



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Recreation

45.783906, -94.261881

- Boat Ramp and Dock
- Land Control Area
- Expanded Land Control Area
- Preliminary Development Area
- Two Rivers Campground
- NHD Stream
- Snowmobile Trail
- Railroad

Appendix E Decommissioning Plan

DECOMMISSIONING REPORT For

Regal Solar Project

Benton County, Minnesota

July 30, 2020

Prepared For:

Regal Solar, LLC

Prepared By:

Westwood

Table of Contents

Executive Summary

At the request of Regal Solar, LLC ("Owner"), Westwood Professional Services ("Westwood") has prepared this Decommissioning Plan for the proposed Regal Solar, LLC project ("Project") located in Benton County, Minnesota. The Decommissioning Plan describes the procedures for and estimated costs associated with decommissioning the Project and restoring the Project site in accordance with applicable professional engineering and industry standards. The goals for the Decommissioning Plan are to provide the plan and process for restoring the site so that it can be utilized for agricultural uses, or other economical land uses, after the project ceases to operate. The Decommissioning Plan describes procedures and estimated costs for three electrical collection system options: above-ground, below-ground, or a hybrid system with AC collection located below-ground and DC collection located above-ground. The anticipated decommissioning costs for the below-ground and hybrid system are similar and therefore described conjunctively.

Decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with applicable federal, state, and local permits, including the Site Permit issued by the Minnesota Public Utilities Commission. The decommissioning and restoration process comprises removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed); and seeding. The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and/or disposal. The Project consists of numerous materials that can be recycled, including steel, aluminum, glass, copper, and plastics. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on site until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal. Above-ground structures include the an approximately 3.3 mile above-ground collection line from the array to the point of interconnect, panels, racks, inverters, pads, fences, any interconnection facilities located on the property, and electrical collection system if the above-ground or hybrid option is utilized. Below-ground structures include the foundations and electrical collection system if the below-ground or hybrid option is utilized. The above-ground and below-ground structures are collectively referred to herein as the "Project Components."

The panels used in the Project will contain silicon, glass, and aluminum, which have recycling value. Modules will be dismantled and packaged per manufacturer or approved recycler's specifications and shipped to an off-site approved recycler. To estimate the Project's decommissioning costs and salvage

revenues, input was utilized from contractors, landfills, salvage yards, and recycling facilities located in proximity of the Project area and RS Means cost data.

All racking and fencing material will be broken down into manageable units, removed from the facility, and sent to an approved recycler. All racking posts driven into the ground will be pulled and removed. Following decommissioning activities, the sub-grade material and topsoil from affected areas will be de-compacted and restored to a density and depth consistent with the surrounding areas if the areas exhibit densities indicative of significant compaction. If the subsequent use for the Project site will involve agriculture, a deep till of the project site will be undertaken, at least 12 inches in all areas. The affected areas will be inspected and thoroughly cleaned, and all construction-related debris will be removed. Disturbed areas will be reseeded to promote re-vegetation of the area, unless the area is to be immediately redeveloped. In all areas restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, ensure establishment of suitable grasses and forbs if the area will not be converted back to row crop agriculture, and control noxious weeds and pests.

The decommissioning costs also include an estimate of transportation and restoration costs. The estimated decommissioning costs and salvage revenues are expressed in present-day dollars and do not account for inflation or other future changes in costs or salvage values.

Beginning in year fifteen of the Project's operational life, Regal will either create a reserve fund, enter into a surety bond agreement, create an escrow account, or provide another form of security that will ultimately fund decommissioning and site restoration costs after the project operations cease, to the extent that the salvage value does not cover decommissioning costs. The exact amount to be allocated for decommissioning will be determined by a third-party study in year fourteen that will assess the difference between estimated decommissioning costs and the salvage value.

Above-ground Electrical Collection System

The estimated cost to decommission the Project and restore the Project site was determined by

subtracting the estimated salvage revenue of $8,750,894 from the estimated decommissioning and site restoration costs of $13,095,989 which results in a net total cost of $ 4,345,095to decommission the Project and restore the Project site (approximately $ 43,451 per megawatt). The salvage revenue is based upon the scrap value of salvaged materials including material salvaged from the solar panels, racking systems, and other equipment rather than the sale and reuse of the equipment in other solar farm projects or other installations.

The tabulated summary is below

Decommissioning Activities	Decommissioning Costs	Salvage Value	Net Cost	Net Cost/MW
Mobilization/ Demobilization/ Permitting	$735,000	$0	$735,000	$7,350
PV Site - Civil Infrastructure	$1,158,464	$32,447	$1,126,018	$11,260
PV Site - Structural Infrastructure	$1,247,327	$1,765,904	-$518,577	-$5,186
PV Site - Electrical Collection System	$4,177,010	$6,907,314	-$2,730,304	-$27,303
Above-Ground Collection Line	$139,222	$0	$139,222	$1,392
PV Site - Restoration	$2,944,744	$0	$2,944,744	$29,447
Substation - Transformer Removal	$120,480	$37,280	$83,200	$832
Substation - Demolition/Disposal of Substation Site Improvement Materials	$23,750	$1,750	$22,000	$220
Substation - Site Gravel Removal and Site Restoration	$139,800	$6,200	$133,600	$1,336
Project Management	$541,250	$0	$541,250	$5,413
Construction Totals	**$11,227,047**	**$8,750,894**	**$2,476,153**	$24,762
Contingency	$1,552,924	$0	$1,552,924	$15,529
County Administration Costs	$316,019	$0	$316,019	$3,160
Totals	**$13,095,989**	**$8,750,894**	**$4,345,095**	$43,451

*Based upon a preliminary project design of 40 power blocks.

Below-ground or Hybrid Electrical Collection System

The estimated cost to decommission the Project and restore the Project site was determined by subtracting the estimated salvage revenue of $9,626,420 from the estimated decommissioning and site restoration costs of $13,706,556 which results in a net total cost of $4,080,136 to decommission the Project and restore the Project site (approximately $ 40,801 per megawatt). The salvage revenue is based upon the scrap value of salvaged materials including material salvaged from the solar panels, racking systems, and other equipment rather than the sale and reuse of the equipment in other solar farm projects or other installations.

The tabulated summary is below.

Decommissioning Activities	Decommissioning Costs	Salvage Value	Net Cost	Net Cost/MW
Mobilization/ Demobilization/ Permitting	$767,000	$0	$767,000	$7,670
PV Site - Civil Infrastructure	$1,158,464	$32,447	$1,126,018	$11,260
PV Site - Structural Infrastructure	$1,312,722	$1,825,054	-$512,332	-$5,123
PV Site - Electrical Collection System	$4,571,958	$7,723,689	-$3,151,730	-$31,517
Above-Ground Collection Line	$139,222	$0	$139,222	$1,392
PV Site - Restoration	$2,944,744	$0	$2,944,744	$29,447
Substation - Transformer Removal	$120,480	$37,280	$83,200	$832
Substation - Demolition/Disposal of Substation Site Improvement Materials	$23,750	$1,750	$22,000	$220
Substation - Site Gravel Removal and Site Restoration	$139,800	$6,200	$133,600	$1,336
Project Management	$541,250	$0	$541,250	$5,413
Construction Totals	**$11,719,391**	**$9,626,420**	**$2,092,971**	$20,930
Contingency	$1,621,975	$0	$1,621,975	$16,220
County Administration Costs	$330,054	$0	$330,054	$3,301
Totals	**$13,671,420**	**$9,626,420**	**$4,045,000**	$40,450

*Based upon a preliminary project design of 40 power blocks.

1.0 System Description

Above-ground Electrical Collection System

For the purposes of this decommissioning plan and estimate, the project is assumed to consist of the following components:

- 40 inverters
- NEXTracker™ racking system
- (2,743) 84-module rows (NEXTracker™ Single Axis Tracker – SPT)
- (1,210) 56-module rows (NEXTracker™ Single Axis Tracker – SPT)
- (76) 28-module rows (NEXTracker™ Single Axis Tracker – SPT)
- Approximately 52,000 Foundation Posts (Array Bearing, Motor, Inverter Skid)
- Access roads to the arrays – 16’ wide of gravel base, with curved sections being up to 45’ wide
- 42,207 linear feet – 6'-high array security fence
- 129,679 linear feet – Medium voltage overhead electrical collection cables
    - 112,056 linear feet of above-ground electrical cables within PV array
    - 17,623 linear feet for above-ground collection line electrical cables
- 247 - utility poles (198 in PV array and 49 for above-ground collection line)
- 220,000 linear feet – DC electrical collection cables
- 1 electrical substation
- 1 operations and maintenance (“O&M”) building

Below-ground or Hybrid Electrical Collection System

For the purposes of this decommissioning plan and estimate, the project is assumed to consist of the following components:

- 40 inverters
- NEXTracker™ racking system
- (3,903) 84-module rows (NEXTracker™ Single Axis Tracker – SPT)
- (96) 56-module rows (NEXTracker™ Single Axis Tracker – SPT)
- (27) 28-module rows (NEXTracker™ Single Axis Tracker – SPT)
- 52,698 Foundation Posts (Array Bearing, Motor, Inverter Skid)
- Access roads to the arrays – 16’ wide of gravel base, with curved sections being up to 45’ wide
- 42,207 linear feet – 6'-high array security fence
- 107,667 linear feet – Medium voltage below-ground electrical collection cables

- 49 – utility poles for above-ground collection line
- 220,000 linear feet – DC electrical collection cables
    - 202,377 linear feet of above-ground or below-ground electrical cables within PV array
    - 17,623 linear feet for above-ground AC collection line electrical cables
- 1 electrical substation
- 1 operations and maintenance ("O&M") building

Note that the above lists of components and estimated quantity of each component is based upon the Project's preliminary design to date. Final design and construction of the Project may result in quantities that vary from the figures given above.

2.0 Decommissioning

Upon the end of the Project's life or "abandonment," the decommissioning and site-restoration process detailed in this plan would begin and be completed within approximately 13 months; see section 3.3 below for schedule information. The following general decommissioning and site restoration process would occur:

- Remove modules, electrical equipment, racking, and scrap
- Complete removal of pile foundations
- Remove access roads (unless landowner requests they remain)
- Remove collector system electrical cable
- Remove site security fencing
- Remove project substation
- Complete earthwork and site restoration

2.1 Trigger Resulting in Decommissioning

Decommissioning of solar panels must occur upon the expiration of the Site Permit or at the end of operations of the facility.

2.2 Decommissioning Requirements

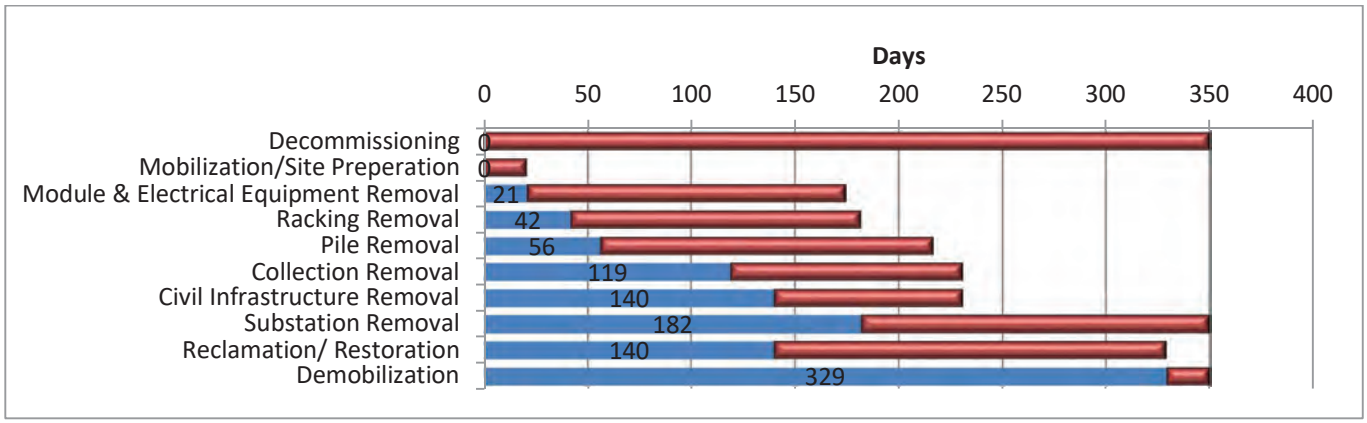
As part of decommissioning, the Project will utilize best practices to restore drainage in the area to the condition it was in before the commencement of decommissioning. Disposal of structures and/or foundations shall meet all applicable rules and regulations to proper disposal.

2.3 Schedule

The decommissioning process will likely take place over a 13-month period. This timeline is based on the assumption that the removal of the modules, racking system, and pile foundations will take approximately the same duration to remove them as it did to install them. Approximately three (3) weeks are needed for site mobilization and demobilization for decommissioning. It is also assumed that no decommissioning work will be performed during the winter months or during times of inclement weather (high winds, heavy rains).

The estimated Project schedule, shown below, is an estimated timeline of the decommissioning activities. This schedule is subject to change based on actual field conditions, weather conditions, and any unforeseen conditions.

Estimated Project Schedule



**Some tasks may be completed concurrently depending upon scheduling and methods of the contractor.*

***Schedule shows duration total in calendar days and is subject to delays/changes based on weather conditions, winter and unforeseen conditions.*

2.4 Project Facilities Removal and Site Restoration

Prior to decommissioning, landowners will be consulted to identify the extent and type of work to be completed. Some Project infrastructure such as access roads and collection lines may be left in place upon request of the landowner. The removal and disposal details of the Project components are found below.

- Modules: Modules inspected for physical damage, tested for functionality, and removed from racking. Functioning modules packed and stored for reuse (functioning modules may produce

power for another 25 years or more). Non-functioning modules packaged and sent to the manufacturer or a third party for recycling or another appropriate disposal method;

- Racking: Racking uninstalled, sorted, and sent to metal recycling facility;
- Steel Pier Foundations: Steel piles removed and sent to a recycling facility; Wire: Underground wire abandoned in place at depths greater than four feet.
- Wire above four feet removed and packaged for recycling or disposal; overhead wire will be removed from the poles and packages for recycling or disposal
- Conduit: Above-ground conduit disassembled onsite and sent to recycling facility;
- Junction boxes, combiner boxes, external disconnect boxes, etc.: Sent to electronics recycler;
- Inverter/Transformer: Evaluate remaining operation life and resell or send to manufacturer and/or electronics recycler;
- Concrete pad(s): Sent to concrete recycler;
- Fence: Fence will be sent to metal recycling facility and wooden posts for the agricultural fence will be properly disposed; and
- Computers, monitors, hard drives, and other components: Sent to electronics recycler. Functioning parts can be reused.

2.4.2 Solar Array

Decommissioning consists of dismantling, processing, and transporting solar components off the Project site. The dismantling will entail disassembly of the array into the component parts: modules, racking components, and foundation pile. Cutting and sorting of scrap material from the array components will proceed in parallel. This processing includes draining fluid, cutting, disconnecting, and dismantling the equipment.

It is assumed that the materials will be sold as scrap, recycled, or disposed of rather than be sold for re-use in another location. It has also been assumed that the scrap materials will be transported off site to recycling facility, salvage yard, or a landfill. The following landfills and salvaged material yards have been identified near the Project.

Landfills

- Rapid Container service & Henkemeyer Demolition landfill - 6029 Lark Rd NW, Sauk Rapids, MN 56379, approximately 12 miles from the Project site

Salvage Yards (metals)

- EMR Northern Metal Recycling- 119 6th Ave NE, St. Cloud, MN 56304, approximately 18 miles from the Project site

Considering the lifespan of landfills, it is possible that one or more of the facilities identified above may be

closed in the future when the Project is decommissioned. Disposal facilities will continue to be needed in the future to serve the requirements of the general population and business activities in the Project area, and local government or other agencies will develop these future landfills as time passes and needs arise. The present and/or future facilities will serve the needs of the Project.

Considering the abundance of raw materials that are built into the entire array, it is assumed that most of the components can be salvaged through resale of reclaimed scrap metal. The racking components, foundation pile, cables, and other electrical equipment are considered scrap metals, and will be sorted by material type (e.g., steel, copper, and aluminum). The modules are also able to be recycled and sold as salvageable items. The remaining unsalvageable materials will be processed and transported to local landfills. All modules will be removed from the site via semi-trucks.

2.4.3 Electrical Collection System

The collector system is installed using AC and DC collection system cables. The AC collection cables will consist of medium voltage cable consisting of three cables per overhead line for the above-ground collection system, or three cables buried per below-ground line for the below-ground and hybrid collection system with a copper-clad steel conductor. The DC system cables will consist of a positive and negative phase in each cable tray (CAB). These cable configurations are identified as a circuit, and are used to identify the circuit cable length. The cables consist of an aluminum conductor, polyethylene insulation, a copper metallic shield, and an outer polymer jacket.

As part of decommissioning, AC cables will be removed from the utility poles and the poles will be removed. The void left by the removed foundation will be backfilled with on-site earthen materials. DC cables will be removed from the CAB system, unburied at the combiner and inverter locations and either re-spooled or cut into recyclable sections.

The area will then be restored by application of topsoil to match the surrounding grade and maintain existing drainage patterns. The topsoil will be de-compacted to a minimum depth of 12 inches and tilled to a farmable condition or re-vegetated depending upon the location and land use at the time of decommissioning.

The estimated total circuit cable length is 349,679 linear feet for the above-ground collection system, and 327,667 linear feet for the below-ground and hybrid collection system. The cost estimate herein assumes that all cable will be removed. The removal includes reeling cable, backfilling, compacting, and reseeding. Collection/substation components (cable, steel foundations, etc.) will be removed/disposed of via semi-trucks.

2.4.4 Roads

The Project estimates that the total length of Project roads will be about 66,311 linear feet. They will approximately be 16 feet wide. The access road width flares at intersections with connecting public roads and internal intersections.

The construction of the access roads will include the surfacing of an aggregate base. Some roads may consist of a cement stabilized subgrade, which will be comprised of native soil mixed with cement. On this subgrade, aggregate surfacing is applied. It is possible that in some locations geotextile fabric may be placed on the subgrade before the aggregate surfacing is applied to the road.

Following decommissioning of the portions of the Project served by each access road (power block), access road decommissioning will start with the removal and transportation of the aggregate materials to a nearby site where the aggregate can be processed for salvage. The local townships may accept this material without processing to use on their local roads. The access road removal will proceed from the onsite area to township/county roads to limit tracking and provide consistent access during removal activities.

Any cement-stabilized subgrade material will be processed in place by adding topsoil, fertilizer, and other required additives determined and dictated by the soil sample test results. The subgrade cement-stabilized layer will be returned to a mix of native soils.

Following removal of the road aggregate and processing of any cement-stabilized subgrade, the road area will be decompacted and graded and topsoil will be reapplied to the disturbed area. The elevations of the finished area will match the surrounding grade to maintain existing drainage patterns. The topsoil will be de-compacted to a minimum depth of 12 inches and tilled to a farmable condition or re-

vegetated depending upon the location and land use at the time of decommissioning.

2.4.5 Substation

To disconnect the Project from the grid, the switchyard will isolate the substation from the grid before dismantling the system. During this period, customers will experience short outages. The timing and duration of any service interruptions would be determined and communicated by the interconnecting utility (Minnesota Power).

The final disposition of the substation is unknown and will occur at the utility's discretion. Minnesota Power may decide to the leave the substation for future use. If the utility decides to not keep the substation, the system will be decommissioned. Electrical collection substation decommissioning requires deconstruction of the control house/switchgear, main power transformers, breakers, bus work, ground grid, steel supports, foundations, and yard rock base, as well as reclamation of the substation site.

Additionally, any permanent stormwater treatment facilities will be removed. Topsoil will be reapplied to match surrounding grade and maintain existing drainage patterns. The topsoil will be de-compacted to a minimum depth of 12 inches and tilled to a farmable condition or re-vegetated depending upon the location and land use at the time of decommissioning.

Much of the equipment is recycled, the main power transformers sold for refurbishing and re-use, and the remaining materials disposed of in a landfill. The substation's steel, copper ground grid, aluminum bus, and copper wire can be salvaged for scrap metal recycling. The typical transformer of this magnitude has a 40-year lifespan. All substation materials will be removed from the site via semi-trucks.

2.4.6 O&M Building

The O&M building will not be removed as part of the decommissioning of the Project as it can be repurposed for farm operations or other rural agri-business/light industrial/logistical uses. The Project will likely sell the O&M building and facility to a landowner or independent third party so that it can be utilized for another purpose.

2.4.7 Other

In addition to the decommissioning activities described above, all unexcavated areas compacted by equipment and activity during the decommissioning work will be de-compacted to a depth of 12 inches or to a depth as needed to ensure proper density of topsoil consistent and compatible with the surrounding area and land use. All materials and debris associated with Project decommissioning will be removed and properly recycled or disposed of at off-site facilities.

All areas that were traversed by vehicles or decommissioning equipment will be ripped at least 12 inches deep to the extent practicable. The existence of tile lines or underground utilities may necessitate less depth. The disturbed area will then be disked. Two passes will be made across any agricultural land that is ripped. To the extent practicable, all ripping and disking will be done at a time when the soil is dry enough for normal tillage operations to occur. All rutted land will be restored to a condition as close as possible to its original condition.

The following rock removal procedures only pertain to rocks found in the uppermost 12 inches of soil which were exposed or brought to the site as a result of decommissioning:

A. Before replacing any topsoil, every effort will be taken to remove all rocks greater than 5 inches in any dimension.

B. As topsoil is replaced, all rocks greater than 5 inches in any dimension will be removed from the topsoil.

C. If trenching, blasting, or boring operations are required through rocky terrain, precautions will be taken to minimize the potential for oversized rocks to become interspersed with adjacent soil material.

2.5 Erosion and Sediment Control

During decommissioning of the Project, erosion and sediment control Best Management Practices (BMPs) will be implemented, if necessary, to minimize potential for sedimentation of surface waters and waters of the state. BMPs will meet the current Minnesota EPA requirements for stormwater permitting. Given that the construction and operation of the project includes detailed erosion and sediment control measures, it is not expected that additional measures will be necessary during decommissioning, unless new ground disturbance is undertaken. Potential BMPs are described below.

Disturbed Area Stabilization: All disturbed areas without permanent impermeable or gravel surfaces will be vegetated for final stabilization. All slopes steeper than 3H:1V will be stabilized by seeding and mulching during the growing season, or if not within the growing season, by mulching with tack or netting and pinning on slopes, as practical. All slopes 3H:1V or flatter will be restored by seeding and mulching.

Project Phasing/Design BMP: Project phasing will minimize exposure of soils at any given time and allow for concurrent stabilization of soils following decommissioning activities.

Silt Fence BMP or Fiber Logs: Silt fences or fiber logs will be used as needed for perimeter controls down gradient from exposed soils during decommissioning to capture suspended sediment particles on site to the extent possible. The standard silt fence or fiber logs will also be used in smaller watershed areas where the contributing flow areas are typically less than ¼ acre of drainage per 100 feet of standard silt fence or fiber logs. The standard silt fence or fiber logs will also be used for stockpiles which are at least 8 feet high and have 3:1 or steeper side slopes, if the stockpiles are not already contained within perimeter controls. The silt fence or fiber logs should provide adequate protection if placed 3 – 5 feet from the toe of the stockpile. The standard silt fence or fiber logs will not be used in areas of highly erodible soils.

Rock Entrance/Exit Tracking Control BMP: Rock construction entrances will be installed where access to a decommissioning area is needed to minimize sediment tracking and may be used at the access roads, substation, and elsewhere.

Slope Protection: Erosion-control blankets (North American Green SC150BN or equivalent) may be used as temporary stabilization for areas of steep slopes (steeper than 3H:1V), where needed or practical. Seed will be applied in these areas with the blanket for temporary and/or permanent vegetative growth as necessary. Placed stone may be installed in cleared areas where slopes are a maximum 1H:1V. Slopes less than 3H:1V will be stabilized by seeding and mulching the exposed soils.

Surface Roughening: Surface roughening or track walking is the act of running a dozer or other heavy tracked equipment perpendicular to the grade of disturbed slopes with a grade of 3:1 and steeper with a continuous length of 75 feet or greater. The tracks will provide a rough surface to decrease erosion

potential during an interim period until a smooth grade, seed, and erosion-control blanket can be applied.

Temporary Mulch Cover and Seed BMP: Temporary mulch cover (hay mulch or equivalent) will be applied to provide temporary erosion protection of exposed soil areas with slopes flatter than or equal to 3:1. Seed will be applied with the mulch for temporary and/or permanent vegetative growth as necessary. Temporary mulch is used for all soil types where slopes are flatter than 3:1 and no significant concentrated flows are present. The mulch is disc-anchored to the soil to keep it from blowing away. The mulch inhibits the ability of rain drops to dislodge soil and subsequently carry soil away during sheet drainage. In sandy soils, the use of tackifier may be used to assist the disc anchoring if the mulch cannot be secured.

Soil Stockpiles: Topsoil and base materials that are stripped from the site will be stockpiled on site. Stockpiles will be located in areas that will not interfere with decommissioning, and will be located away from roads, site drainage routes, or other areas of concentrated flow. Stockpiles will also be located away from wetlands and surface waters. Perimeter controls such as silt fence will be installed around all stockpiles if not placed within existing silt fences or other sediment control where the potential exists for material to be eroded and transported to sensitive nature resources. Soils that are stockpiled for longer durations will be temporarily seeded and mulched, or stabilized with bonded fiber polymer emulsion (DirtGlue™ or equal).

Permanent Seed and Temporary Mulch and/or Erosion Control Blanket BMP: In non-agricultural areas of final grade, permanent seed will be applied to promote vegetative cover for permanent erosion control.

Removal of Ditch Crossing BMP: Ditch crossing locations may be removed. Perimeter controls (such as silt fence) will be used at crossing locations to minimize runoff from exposed soils and removal activities. Crossing removal will be done during dry conditions, or if the streams are wet/flowing, alternative BMPs such as a temporary dam and bypass pump to remove the crossing in dry conditions will be implemented.

Dewatering: If dewatering is needed, a temporary pump and rock base may be used to dewater an area of accumulated water. If a rock base cannot be used, pump intake will be elevated to draw water from the top of the water column to limit sedimentation. Energy dissipation (riprap) will be applied to the

discharge area of the pump hose. Water will be discharged to a large flat vegetated area for filtration/infiltration prior to flowing into receiving waters of conveyances/ditches. If discharge water is turbid, dewatering bags, temporary traps, and rock weepers or other adequate BMPs will be used to control sediment discharge.

Diversion Berms/Swales/Ditches: It may be necessary to direct diverted flow toward temporary settling basins via berms, swales, or ditches. If these are deemed necessary for decommissioning activities, they must be stabilized by installing temporary mulch and seeding, erosion control blankets, or riprap to protect the channel from erosive forces.

Stone Check Dams: It may be necessary to install temporary check dams within swales or ditches that may convey stormwater from areas disturbed by decommissioning activities. Stone check dams are effective for velocity control, sediment control, and to augment temporary stabilization of channels. In these situations, filter fabric can be utilized to help filter the flow, minimize the scour of the soil under the rock, and facilitate removal of the check dams once permanent stabilization is achieved. Dam height will be at least 2 feet and spacing depends upon slope; the placement of the subsequent rock check dams will have the top elevation at the same elevation as the bottom of the previous (up-slope) rock check.

Hay Bale Check Dams: Hay bale check dams may be used for velocity control within swales of the project to slow the water runoff within the drainage channels/swales. The bales will be 3 feet in length and anchored into the soil. The midpoint elevation of the top of the bale (i.e. ponding height) must be lower than the terminal end points of the bale where the bale meets the ground elevation to prohibit water from flowing around the bales, causing erosion and scour. If the bales cannot be applied properly in the field, the use of rock checks as a replacement is recommended.

Temporary Sedimentation Basins: Sedimentation basins serve to remove sediment from runoff from disturbed areas of the site. The basins allow runoff to be detained long enough to allow the majority of the sediment to settle out prior to discharge. The location and size of temporary sedimentation basins, if any are necessary, will be verified in accordance with NPDES permit requirements at the time of decommissioning.

2.6 Permitting

All decommissioning and restoration activities will comply with federal and state permit requirements. Decommissioning activity that will disturb more than one acre of soil may trigger the NPDES Construction General Permit process. A Storm Water Pollution Prevention Plan ("SWPPP") will be developed prior to filing a Notice of Intent. Permit(s), if required, shall be applied for and received prior to commencing with decommissioning activity.

If permanent crossings are not removed and no discharge of dredged or fill material takes place, a Section 404 permit from the U.S. Army Corps of Engineers (ACoE) will not be necessary for decommissioning. The Army Corps of Engineers will be notified in advance of the decommissioning work to verify the need for 404 permitting. If 404 permitting is required, a state Water Quality Certification permit will be required as well.

State of Minnesota air quality rules will also be reviewed at the time the work is scheduled to determine if an air quality permit will be required. Should any interim permits become needed, they will be closed out with documentation of compliance after decommissioning.

2.7 Estimated Decommissioning Costs

To estimate the Project's decommissioning costs and salvage revenues, Westwood utilized cost data from RS Means to obtain an industry-standard, November 2019 Midwest Costs Price for scrap metals, landfills, salvage yards, and recycling facilities in 563 Benton County, MN, a proxy for the Project area. The salvage revenue in the decommissioning cost estimate is based upon the scrap value of salvaged materials including material salvaged from the solar array, inverter, transformers, and other equipment rather than the sale and reuse of the equipment. Future salvage revenue from resale or reuse of all array equipment is an unknown. The estimated decommissioning costs and salvage revenues are expressed in present-day dollars and do not account for inflation or other future changes in costs or salvage values.

For the purposes of the estimate, $205.00 per metric ton was used as the value of scrap steel, $0.76 per pound was used for the value of aluminum wire, $0.98 per pound was used for the value of copper wire, and $0.37 per pound was used for the value of copper transformer scrap; these values were obtained from www.scrapmonster.com in November 2019.

3.0 Conclusion and Summary of Decommissioning Costs

For an above-ground electrical collection system, the estimated cost to decommission the Project and restore the Project site is $4,320,265 in present-day dollars. This total was determined by subtracting the estimated salvage revenue of $8,750,894 from the estimated decommissioning and site restoration cost of $13,071,159 . Division of this estimated cost by the anticipated 100 megawatts ("MW") in the project results in a decommissioning cost of approximately $43,203 per MW.

For a below-ground or hybrid electrical collection system, the estimated cost to decommission the Project and restore the Project site is $4,057,080 in present-day dollars. This total was determined by subtracting the estimated salvage revenue of $9,626,420 from the estimated decommissioning and site restoration cost of $13,683,500. Division of this estimated cost by the anticipated 100 megawatts ("MW") in the project results in a decommissioning cost of approximately $40,570 per MW.

The salvage revenue in the decommissioning cost estimate is based upon the scrap value of salvaged materials, including material salvaged from the inverters, transformers, and other equipment, rather than the sale and reuse of the equipment in other solar farm projects or other installations. The estimated decommissioning costs and salvage revenues are expressed in present day dollars and do not account for inflation or other, future changes in costs or salvage values.

Beginning in year fifteen of the project's operational life, Regal will either create a reserve fund, enter into a surety bond agreement, create an escrow account, or provide another form of security that will ultimately fund decommissioning and site restoration costs after project operations cease, to the extent that the salvage value does not cover decommissioning costs. The exact amount to be allocated for decommissioning will be determined by a third-party study in year fourteen that will assess the difference between estimated decommissioning costs and the salvage value.

Project Name: Regal Solar Project
WPS Project Number: 0015991.00
Date: 07/29/2020 **Project Size** 100 **MW-AC** **Net Cost Per MW** $42,058.74
Decommission Report Cost Summary Spreadsheet
By: BWV Checked: ADC

Westwood

	Dismantling/Removal Costs					Salvage Value					Estimated Decommission Cost
Mobilization/Demobilization/Permitting	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Mobilization/Demobilization	1	LS	$725,000.00	$725,000.00	$7,250.00	N/A					
State & County Permits	1	LS	$10,000.00	$10,000.00	$100.00	N/A					
						N/A					
subtotal - mobilization/demobilization/permitting				$735,000.00							$735,000.00

Mobilization was estimated to be approximately 7% of total cost of other items. This number was developed from communications with contractors and reviewing various agency guidelines.

Civil Infrastructure	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal Gravel Surfacing from Road	26,197	CY (BV)	$4.77	$125,070.12	$1,250.70						
Haul Gravel Removed from Road	32,746	CY (LV)	$9.26	$303,199.88	$3,032.00						
Disposal of Gravel Removal from Road	42,439	Tons	$0.00	$0.00	$0.00						
Grade Road Corridor (Re-spread Topsoil)	66,311	LF	$2.47	$163,908.00	$1,639.08						
Erosion and Sediment Control for Road Restoration	49,733	LF	$1.88	$93,498.54	$934.99						
Revegetation on Removed Road Area	36.53	AC	$4,750.00	$173,541.24	$1,735.41						
Removal of Security Fence	42,207	LF	$7.09	$299,246.57	$2,992.47	211	Tons	$153.75	$32,446.52	$324.47	
subtotal -Civil Infrastructure				$1,158,464.34	$11,584.64				$32,446.52	$324.47	$1,126,017.82

Civil removal costs are a combination of MNDOT unit costs where applicable, RS Means cost for project zip area 563 and industry standards provided to Westwood

Structural Infrastructure	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal Foundation Posts (Array, Motor, Inverter, CAB)	47,889	EA	$13.18	$631,222.91	$6,312.23						
Haul Steel Post	3,831	Tons	$5.22	$19,998.45	$199.98	3,831	Tons	$153.75	$589,034.70	$5,890.35	
Removal of Tracker Row Racking	4,026	EA	$136.19	$548,300.94	$5,483.01						
Haul Tracker Row Racking	7,654	Tons	$5.22	$39,956.14	$399.56	7,654	Tons	$153.75	$1,176,869.00	$11,768.69	
Remove and Load Metstation Foundation	5	EA	$779.90	$3,899.50	$39.00						
Haul Concrete	73	Tons	$14.22	$1,030.90	$10.31						
Disposal of Concrete from Foundation	73	Tons	$40.25	$2,918.13	$29.18						
subtotal - Structural Infrastructure				$1,247,326.96	$12,473.27				$1,765,903.70	$17,659.04	-$518,576.73

Steel removal costs were calculated by using information from array manufacturers for installation rates and using the same rates to calculate total days to remove equipment. Hauling calculations are based on the locations of metals recyclers.

Electrical Collection System	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal of PV Panels	301,140	EA	$12.07	$3,635,324.44	$36,353.24	286,083	EA (5% loss)	$23.87	$6,830,059.98	$68,300.60	
Removal of Combiner Boxes	503	EA	$60.00	$30,195.00	$301.95						
Remove and Load PCU Station (Inverters/Panelboard/Transformer)	40	EA	$2,029.56	$81,182.40	$811.82						
Haul Inverters and Transformers to Recycler	40	EA	$104.40	$4,176.00	$41.76	120	Tons	$0.37	$44.40	$0.44	
Removal and Disposal of Scada Equipment	1	System	$5,000.00	$5,000.00	$50.00	1	System	$1,000.00	$1,000.00	$10.00	
Removal of DC Collector System Cables in CAB	5,500	LF	$1.00	$5,500.55	$55.01	11,000	LBS	$0.49	$5,390.00	$53.90	
Removal of Above-Ground (AC) Collection Cables within PV Array	112,056	LF	$1.05	$117,670.01	$1,176.70	280,140	LBS	$0.19	$53,226.60	$532.27	
Removal of AC System 30' Utility Poles and Above-Ground Collection Poles	247	EA	$937.90	$231,661.30	$2,316.61						
Removal of Above-Ground Collection Line between PV Array and Project Substation	17,623	LF	$7.90	$139,221.70	$1,392.22						
Remove and Load Timber Transmission Poles	30	EA	$937.90	$28,137.00	$281.37						
Haul Timber Poles	315	Ton	$3.24	$1,022.15	$10.22						
Disposal of Timber Poles	315	Ton	$30.00	$9,464.33	$94.64						
Load and Haul Cables for Recycling	150	Ton	$5.22	$785.60	$7.86						
Removal of Fiber Optic Cable	37,352	LF	$0.31	$11,396.10	$113.96						
Removal of Grounding Wire	42,852	LF	$0.36	$15,495.28	$154.95	9,856	LBS	$1.79	$17,592.89	$175.93	
subtotal - electrical collection system removal				$4,177,010.14	$41,770.10				$6,907,313.86	$69,073.14	-$2,730,303.72

Electrical removal costs of PV Panels and Combiner Boxes were based industry standards on installation rates of a three man work crew. PCU Station, MV Equipment and Scada Equipment removal cost are based on removal of equipment, concrete pads, and conduits using a truck mounted crane and contractor provided information on installation rates. AV Cable to be removed from trench and DC Cable to be removed from CAB system using standard industry production rates from RS Means.

Site Restoration	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Stabilized Construction Entrance	4	EA	$2,000.00	$8,000.00	$80.00						
Restore Existing Landscaping Conditions	667	AC	$4,404.40	$2,936,743.82	$29,367.44						
subtotal - Site Restoration				$2,944,743.82	$29,447.44				$0.00	$0.00	$2,944,743.82

Site restoration costs are based on past solar project experience. Perimeter controls accounted for above in Erosion and Sediment Control for Road Restoration

Substation	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Drain and Dispose of Transformer Oil	1	LS	$11,000.00	$11,000.00	$110.00	1	LS	$3,500.00	$3,500.00	$35.00	
Disassembly and Removal of Transformer(s)	1	LS	$4,500.00	$4,500.00	$45.00						
Freight Transformer(s) Offsite	1	LS	$2,500.00	$2,500.00	$25.00						
Disposal of Transformer(s)	1	LS	$0.00			1	LS	$33,300.00	$33,300.00	$333.00	
Excavate Around Transformer Foundation(s)	1	LS	$40,000.00	$40,000.00	$400.00						
Remove Complete Transformer Foundation(s)	1	LS	$4,900.00	$4,900.00	$49.00						
Backfill Excavation Area from Transformer Foundation Removal	1	LS	$55,000.00	$55,000.00	$550.00						
Haul scrap reinforcing steel (Transformer Foundation)	6	Tons	$10.00	$60.00	$0.60						
Disposal of scrap reinforcing steel from Transformer Foundation	6	Tons	$0.00			6	Tons	$80.00	$480.00	$4.80	
Haul Concrete (Transformer Foundation)	140	CY	$18.00	$2,520.00	$25.20						
Crush Concrete (Transformer Foundation)	140	CY	$0.00	$0.00	$0.00						
Disposal of Crushed Concrete from Transformer Foundation	140	CY	$0.00	$0.00	$0.00						
subtotal - substation transformer removal				$120,480.00	$1,204.80				$37,280.00	$372.80	$83,200.00
Demolish Substation Site Improvements (fences, etc)	1	LS	$3,500.00	$3,500.00	$35.00						

	Dismantling/Removal Costs					Salvage Value					Estimated Decommission Cost
Demolish Control Building and Foundation	1	LS	$12,000.00	$12,000.00	$120.00						
Remove Medium/High Voltage Equipment	1	LS	$3,500.00	$3,500.00	$35.00						
Remove Structural Steel Substation Frame	1	LS	$3,500.00	$3,500.00	$35.00						
Freight - Demolition Materials, Removed Equipment & Structural Steel Offsite	1	LS	$1,250.00	$1,250.00	$12.50						
Disposal of Demolition Materials, Removed Equipment and Structural Steel	1	LS	$0.00		$0.00	1	LS	$1,750.00	$1,750.00	$17.50	
subtotal - demolition/disposal of imp materials				$23,750.00	$237.50				$1,750.00	$17.50	$22,000.00
Remove Gravel Surfacing from Substation Site	6,200	CY	$8.00	$49,600.00	$496.00						
Disposal of Gravel from Substation Site	6,200	CY	$6.00	$37,200.00	$372.00	6,200	CY	$1.00	$6,200.00	$62.00	
Grade Substation Site	1	LS	$25,000.00	$25,000.00	$250.00						
Erosion and Sediment Control at Substation Site	1	LS	$12,000.00	$12,000.00	$120.00						
Topsoil and Revegetation at Substation Site	1	LS	$16,000.00	$16,000.00	$160.00						
subtotal - substation site gravel removal & restoration				$139,800.00	$1,398.00				$6,200.00	$62.00	$133,600.00

Project Management	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Project Manager	25	weeks	$3,800.00	$95,000.00	$950.00						
Superintendent	50	weeks	$3,525.00	$176,250.00	$1,762.50						
Field Engineer	100	weeks	$2,325.00	$232,500.00	$2,325.00						
Clerk	50	weeks	$750.00	$37,500.00	$375.00						
subtotal -Project Management				$541,250.00	$5,412.50				$0.00	$0.00	$541,250.00

Project Management costs are based on past solar project experience. Half-time Project Manager, one superintendent and two field engineer. Standard industry weekly rates from RS Means.

Removal Subtotal	**$11,087,825.27**

Contingency **$1,552,923.79**

15% of construction subtotal (minus Mobilization/Demobilization/Permitting) based on previous project estimations

County Administration Costs (2.5% of Contingency + Subtotal) **$316,018.73**

Removal Total	**$12,956,767.79**	**Salvage Total**	**$8,750,894.08**	**$4,205,873.71**

Salvage

Salvage values are a combination of the following factors; current market metal salvage prices, current secondary market for solar panelmodule recycling, discussions with national companies that specialize in recycling and reselling electrical transformers and inverters, and the assumption that care is taken to prevent any damage or breakage of equipment.

Notes:

1. Prices used in analysis are estimated based on research of current average costs and salvage values.
2. Prices provided are estimates and may fluctuate over the life of the project.
3. Contractor means and methods may vary and price will be affected by these.

Project Name: Regal Solar Project
WPS Project Number: 0015991.00
Date: 07/29/2020 **Project Size** 100 **MW-AC** **Net Cost Per MW** $40,801.36
Decommission Report Cost Summary Spreadsheet
By: BWV Checked: ADC

Westwood

	Dismantling/Removal Costs					Salvage Value					Estimated Decommission Cost
Mobilization/Demobilization/Permitting	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Mobilization/Demobilization	1	LS	$767,000.00	$767,000.00	$7,670.00	N/A					
State & County Permits	1	LS	$10,000.00	$10,000.00	$100.00	N/A					
						N/A					
subtotal - mobilization/demobilization/permitting				$777,000.00							$777,000.00

Mobilization was estimated to be approximately 7% of total cost of other items. This number was developed from communications with contractors and reviewing various agency guidelines.

Civil Infrastructure	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal Gravel Surfacing from Road	26,197	CY (BV)	$4.77	$125,070.12	$1,250.70						
Haul Gravel Removed from Road	32,746	CY (LV)	$9.26	$303,199.88	$3,032.00						
Disposal of Gravel Removal from Road	42,439	Tons	$0.00	$0.00	$0.00						
Grade Road Corridor (Re-spread Topsoil)	66,311	LF	$2.47	$163,908.00	$1,639.08						
Erosion and Sediment Control for Road Restoration	49,733	LF	$1.88	$93,498.54	$934.99						
Revegetation on Removed Road Area	36.53	AC	$4,750.00	$173,541.24	$1,735.41						
Removal of Security Fence	42,207	LF	$7.09	$299,246.57	$2,992.47	211	Tons	$153.75	$32,446.52	$324.47	
subtotal -Civil Infrastructure				$1,158,464.34	$11,584.64				$32,446.52	$324.47	$1,126,017.82

Civil removal costs are a combination of MNDOT unit costs where applicable, RS Means cost for project zip area 563 and industry standards provided to Westwood

Structural Infrastructure	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal Foundation Posts (Array, Motor, Inverter, CAB)	52,698	EA	$13.18	$694,610.14	$6,946.10						
Haul Steel Post	4,216	Tons	$5.22	$22,006.68	$220.07	4,216	Tons	$153.75	$648,185.40	$6,481.85	
Removal of Tracker Row Racking	4,026	EA	$136.19	$548,300.94	$5,483.01						
Haul Tracker Row Racking	7,654	Tons	$5.22	$39,956.14	$399.56	7,654	Tons	$153.75	$1,176,869.00	$11,768.69	
Remove and Load Metstation Foundation	5	EA	$779.90	$3,899.50	$39.00						
Haul Concrete	73	Tons	$14.22	$1,030.90	$10.31						
Disposal of Concrete from Foundation	73	Tons	$40.25	$2,918.13	$29.18						
subtotal - Structural Infrastructure				$1,312,722.43	$13,127.22				$1,825,054.40	$18,250.54	-$512,331.97

Steel removal costs were calculated by using information from array manufacturers for installation rates and using the same rates to calculate total days to remove equipment. Hauling calculations are based on the locations of metals recyclers.

Electrical Collection System	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Removal of PV Panels	337,680	EA	$12.07	$4,076,430.75	$40,764.31	320,796	EA (5% loss)	$23.87	$7,658,812.02	$76,588.12	
Removal of Combiner Boxes	503	EA	$60.00	$30,195.00	$301.95						
Remove and Load PCU Station (Inverters/Panelboard/Transformer)	40	EA	$2,029.56	$81,182.40	$811.82						
Haul Inverters and Transformers to Recycler	40	EA	$104.40	$4,176.00	$41.76	120	Tons	$0.37	$44.40	$0.44	
Removal and Disposal of Scada Equipment	1	System	$5,000.00	$5,000.00	$50.00	1	System	$1,000.00	$1,000.00	$10.00	
Removal of DC Collector System Cables in CAB	5,500	LF	$1.00	$5,500.55	$55.01	11,000	LBS	$0.49	$5,390.00	$53.90	
Removal of Underground (AC) Medium Voltage System Cables	91,827	LF	$3.17	$291,422.17	$2,914.22	229,568	LBS	$0.19	$43,617.83	$436.18	
Removal of Overhead Transmission Line Cables including Above-Ground Collection Line	17,623	LF	$7.90	$139,221.70	$1,392.22						
Removal of Above-Ground Collection Poles	49	EA	$937.90	$45,957.10	$459.57						
Haul Timber Poles	272	Ton	$3.24	$882.04	$8.82						
Disposal of Timber Poles	272	Ton	$30.00	$8,167.05	$81.67						
Load and Haul Cables for Recycling	124	Ton	$5.22	$649.56	$6.50						
Removal of Fiber Optic Cable	30,609	LF	$0.31	$9,338.81	$93.39						
Removal of Grounding Wire	36,109	LF	$0.36	$13,057.01	$130.57	8,305	LBS	$1.79	$14,824.55	$148.25	
subtotal - electrical collection system removal				$4,711,180.14	$47,111.80				$7,723,688.80	$77,236.89	-$3,012,508.66

Electrical removal costs of PV Panels and Combiner Boxes were based industry standards on installation rates of a three man work crew. PCU Station, MV Equipment and Scada Equipment removal cost are based on removal of equipment, concrete pads, and conduits using a truck mounted crane and contractor provided information on installation rates. AV Cable to be removed from trench and DC Cable to be removed from CAB system using standard industry production rates from RS Means.

Site Restoration	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Stabilized Construction Entrance	4	EA	$2,000.00	$8,000.00	$80.00						
Restore Existing Landscaping Conditions	667	AC	$4,404.40	$2,936,743.82	$29,367.44						
subtotal - Site Restoration				$2,944,743.82	$29,447.44				$0.00	$0.00	$2,944,743.82

Site restoration costs are based on past solar project experience. Perimeter controls accounted for above in Erosion and Sediment Control for Road Restoration

Substation	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Drain and Dispose of Transformer Oil	1	LS	$11,000.00	$11,000.00	$110.00	1	LS	$3,500.00	$3,500.00	$35.00	
Disassembly and Removal of Transformer(s)	1	LS	$4,500.00	$4,500.00	$45.00						
Freight Transformer(s) Offsite	1	LS	$2,500.00	$2,500.00	$25.00						
Disposal of Transformer(s)	1	LS	$0.00			1	LS	$33,300.00	$33,300.00	$333.00	
Excavate Around Transformer Foundation(s)	1	LS	$40,000.00	$40,000.00	$400.00						
Remove Complete Transformer Foundation(s)	1	LS	$4,900.00	$4,900.00	$49.00						
Backfill Excavation Area from Transformer Foundation Removal	1	LS	$55,000.00	$55,000.00	$550.00						
Haul scrap reinforcing steel (Transformer Foundation)	6	Tons	$10.00	$60.00	$0.60						
Disposal of scrap reinforcing steel from Transformer Foundation	6	Tons	$0.00			6	Tons	$80.00	$480.00	$4.80	
Haul Concrete (Transformer Foundation)	140	CY	$18.00	$2,520.00	$25.20						
Crush Concrete (Transformer Foundation)	140	CY	$0.00	$0.00	$0.00						
Disposal of Crushed Concrete from Transformer Foundation	140	CY	$0.00	$0.00	$0.00						
subtotal - substation transformer removal				$120,480.00	$1,204.80				$37,280.00	$372.80	$83,200.00
Demolish Substation Site Improvements (fences, etc)	1	LS	$3,500.00	$3,500.00	$35.00						
Demolish Control Building and Foundation	1	LS	$12,000.00	$12,000.00	$120.00						
Remove Medium/High Voltage Equipment	1	LS	$3,500.00	$3,500.00	$35.00						
Remove Structural Steel Substation Frame	1	LS	$3,500.00	$3,500.00	$35.00						
Freight - Demolition Materials, Removed Equipment & Structural Steel Offsite	1	LS	$1,250.00	$1,250.00	$12.50						
Disposal of Demolition Materials, Removed Equipment and Structural Steel	1	LS	$0.00		$0.00	1	LS	$1,750.00	$1,750.00	$17.50	
subtotal - demolition/disposal of imp materials				$23,750.00	$237.50				$1,750.00	$17.50	$22,000.00

	Dismantling/Removal Costs					Salvage Value					Estimated Decommission Cost
Remove Gravel Surfacing from Substation Site	6,200	CY	$8.00	$49,600.00	$496.00						
Disposal of Gravel from Substation Site	6,200	CY	$6.00	$37,200.00	$372.00	6,200	CY	$1.00	$6,200.00	$62.00	
Grade Substation Site	1	LS	$25,000.00	$25,000.00	$250.00						
Erosion and Sediment Control at Substation Site	1	LS	$12,000.00	$12,000.00	$120.00						
Topsoil and Revegetation at Substation Site	1	LS	$16,000.00	$16,000.00	$160.00						
subtotal - substation site gravel removal & restoration				$139,800.00	$1,398.00				$6,200.00	$62.00	$133,600.00

Project Management	Quantity	Unit	Unit Cost	Total Cost	Cost Per MW	Quantity	Unit	Unit Price	Total Value	Value Per MW	Cost
Project Manager	25	weeks	$3,800.00	$95,000.00	$950.00						
Superintendent	50	weeks	$3,525.00	$176,250.00	$1,762.50						
Field Engineer	100	weeks	$2,325.00	$232,500.00	$2,325.00						
Clerk	50	weeks	$750.00	$37,500.00	$375.00						
subtotal -Project Management				$541,250.00	$5,412.50				$0.00	$0.00	$541,250.00

Project Management costs are based on past solar project experience. Half-time Project Manager, one superintendent and two field engineer. Standard industry weekly rates from RS Means.

Removal Subtotal	**$11,729,390.73**

Contingency **$1,642,858.61**

15% of construction subtotal (minus Mobilization/Demobilization/Permitting) based on previous project estimations

County Administration Costs (2.5% of Contingency + Subtotal) **$334,306.23**

Removal Total	**$13,706,555.57**	**Salvage Total**	**$9,626,419.71**	**$4,080,135.86**

Salvage

Salvage values are a combination of the following factors; current market metal salvage prices, current secondary market for solar panelmodule recycling, discussions with national companies that specialize in recycling and reselling electrical transformers and inverters, and the assumption that care is taken to prevent any damage or breakage of equipment.

Notes:

1. Prices used in analysis are estimated based on research of current average costs and salvage values.
2. Prices provided are estimates and may fluctuate over the life of the project.
3. Contractor means and methods may vary and price will be affected by these.

Appendix F Vegetation Management Plan

Vegetation Management Plan

Regal Solar, LLC

Prepared for

Regal Solar, LLC

Revised July 2020

Prepared by

Ben Staehlin, M.S. & Kim Chapman, Ph.D.

21938 Mushtown Road

Prior Lake, MN 55372

APPLIED ECOLOGICAL SERVICES

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Appendices

I. Goals and Objectives

Regal Solar, LLC ("Regal") is developing a solar energy facility (SEF) which is planned in Benton County, MN and will generate up to 100 megawatts (MW) of energy (Project). The Project includes an approximately 800-acre area of land that will contain the solar arrays, electrical collection system, inverters, step up transformers, security fencing, access roads, an operations and maintenance building, parking lot, laydown yards, and up to two weather stations (Land Control Area) and an approximately 3.3 mile above-ground 34.5 kilovolt collection line and substation area (Collection Line Corridor). Regal has developed this Vegetation Management Plan ("Plan") to guide site preparation, installation of prescribed seed mixes, management of invasive species and noxious weeds, and control of erosion/sedimentation. The goal of this Plan is to establish vegetative cover that complies with all permits and regulations. The required management in the Land Control Area is designed to continue for three years. Due to the limited construction disturbance that will occur in the Collection Line Corridor and the underlying landowners' ability to use the Collection Line Corridor in the future for agricultural, residential and other purposes, Regal's vegetation management after seeding will only be comprised of ongoing trimming of woody vegetation to maintain the clearances provided during construction

This document is intended to be a working document. Revisions will be made as new information is obtained with respect to vegetation management, site characteristics, and availability of management practices at the time of procurement of services.

II. Vegetation Installation Plan

After the solar panels and other infrastructure are installed in the Land Control Area, native seed mixes developed for the project in coordination with the Minnesota Department of Natural Resources (MNDNR) (Appendix 1) will be installed as described in the proposed planting plan for the site (in development). Three seed mixes have been developed for the Land Control Area. An array mix that will be planted within the panel footprint, an open mix that will be planted in the open space between the fence and array, and a wet mix that should be used in areas with hydric soils or areas anticipated to hold water. These seeds mixes are designed to be used with a vegetation management practice of traditional mowing. It is possible Regal could implement a vegetation management practice that uses sheep as grazers. Should Regal implement grazing as a long-term management technique within the Land Control Area, one or more separate seed mixes will need to be developed. A Minnesota Department of Transportation roadside seed mix will be planted within areas disturbed by Project construction in the Collection Line Corridor that are not otherwise subject to row crop agriculture. All plant material must be installed as instructed during the specified time of year, as described below. Any exceptions must be discussed with Regal and the Contractor shall receive written authorization from Regal prior to the start of work.

All seed mixes must adhere to the specifications described in the Plan. Genetic source origin of all native seed shall be local, preferably from within a 200-mile radius of the site, and the plant species should be native to the county where the site is located (considerations of range shifts due to climate

change may modify this guidance). Species shall be true to their scientific name as specified. Seed tags or nursery confirmation of the order must be provided to Regal prior to installation. Any species eliminations, substitutions, or source origin exceptions must be approved by Regal prior to installation. If planted in the spring, seeds shall have been properly stratified and/or scarified to break seed dormancy. All legumes shall be inoculated with proper rhizobia at the appropriate time prior to planting.

The preferred seeding timeframe is during the dormant season, after November 1 but before the soil starts to freeze. MNDNR recommends that a dormant seeding occur after soil temperatures fall below 50 degrees Fahrenheit for a consistent period of time. Seeding may be done in early spring if necessary, as soon as the soil is free of frost and in a workable condition, but no later than June 30. MNDNR recommends that a spring seeding occur after the soil temperature is 60 degrees Fahrenheit or higher. If seeding is done in the fall, seed mixes shall include 20 pounds per acre pure live seed (PLS) of winter wheat. If seeding is done in spring, seed mixes shall include 20 pounds per acre PLS of oats. If construction is completed between June 30 and November 1, the Land Control Area shall be seeded with 20 pounds per acre PLS of oats to stabilize the soil and prevent erosion. The following fall, the native seed mixes shall be installed during the time described above but no additional cover crop shall be added to the seed mixes.

Seeding may be conducted with a seed drill (preferred) and/or by broadcast seeding; the Contractor shall evaluate the site and determine which technique will produce the best results. However, seed installed over a previous cover crop must be installed with a seed drill. Prior to installation in the Land Control Area, seed shall be divided into two equal parts. The first half shall be installed in one pass, and the second half installed in a second pass (perpendicular to the first pass, where possible). Seeding in the Collection Line Corridor will be broadcast in one pass. When broadcast seeding is used, gentle raking of seeded areas may be needed to ensure good seed-to-soil contact.

III. Vegetation Management Tasks

After the land is cleared and the panels are installed, a range of invasive plants will take advantage of the open soil and abundant light and germinate across the Land Control Area. For the purpose of this Plan, “invasive plants” refers to both non-native species and native species that grow in an invasive manner or have the potential to negatively affect the success of the project (Appendices 2 and 3). These invasive plants must be managed effectively in the Land Control Area during the first three years to ensure that the planted native species are given the opportunity to flourish. The care taken in the first three years after installation strongly determines the quality of the resulting plantings. The work done during this initial period is referred to as the “establishment phase,” while management after that period is called “perpetual maintenance.” The establishment phase will only be required in the Land Control Area. Perpetual maintenance for the Collection Line Corridor is detailed below.

A. Establishment Phase

The first three years of vegetation management are a concerted effort to remove invasive vegetation from the Land Control Area while also helping the planted native vegetation establish. General tasks

described below will be applied as directed, while other management techniques will be used only if required by the unique conditions at the Regal solar facility.

1. General Tasks

The first year of establishment is focused on consistent invasive plant control on a Land Control Area -wide basis. Mowing during the first year should prevent invasive plants from adding new seeds to the soil and begin to exhaust the soil seed bank (a process that often requires several years to complete). From June 1 of the first establishment year, Land Control Area -wide mowing to a height of 6-9 inches shall occur every four weeks, or whenever vegetation reaches a height of 18-24 inches, whichever comes first. Care shall be taken during the nesting season (April 1 to August 1) to not destroy the nests of upland grassland birds. Repeated mowings may produce a buildup of organic thatch, which discourages the development and persistence of diverse native vegetation. In order to help prevent thatch buildup onsite, either mowing shall be conducted with a flail-type mower or the Land Control Area shall be hayed so that biomass is removed. A swing arm specifically designed for mowing under solar panels is recommended for cutting beneath panels, but spot-mowing with brush saws, weed whips, and similar equipment is also permitted. It may be possible to coordinate with Regal to adjust the orientation of the panels to increase the ease of mowing, but the Contractor should not depend on this coordination to complete their work. Any other techniques must be approved by Regal prior to installation. Mowing equipment shall be cleaned prior to use on site to prevent the introduction and spread of invasive and non-native species. This mowing regime will prevent annual and perennial weeds from flowering and setting seed, prevent weeds from shading out the solar panels, and help control woody plant growth onsite. Additionally, noxious and perennial weeds shall be treated by spot-herbiciding, as described below, to prevent roots from resprouting.

The second year of establishment continues invasive plant control but generally employs more targeted techniques. Land Control Area -wide mowing shall occur when vegetation height reaches 18-24 inches; expected frequency is twice in the growing season, once in mid-June and once in mid-August, but additional mowing may be required as vegetation height and weed development dictates. Again, care shall be taken during the nesting season (April 1 to August 1) to not destroy the nests of upland grassland birds. Spot-mowing may be employed to treat specific problem areas as needed. Noxious and perennial weeds shall be treated at least twice with spot-herbiciding, with the focus on achieving the required performance standards (described below).

In the third year of the establishment phase, invasive plant control should consist of spot-herbiciding to control the remaining small patches of persistent weeds. Efforts should be focused on achieving the required performance standards (described below). Additional onsite treatment with spot-mowing or hand weeding can be employed at the discretion of the contractor.

2. Prescribed Treatment for Common Invasive Species

Every SEF will express a suite of invasive plant species determined by the makeup of the seed bank and the seed inputs from the surrounding environment, so management must be flexible and respond to the specific needs of the Regal site. This Plan describes common techniques to manage a variety of invasive plants and common weeds growing in Minnesota, but not every technique will be required. During the

establishment period, monthly evaluations of the plantings during the growing season (May to September) shall be conducted to help determine which techniques are needed, as well as the timing of treatments. Management techniques for five categories of weeds are described below.

a. Annual Weeds

Annual weeds include all unwanted species that grow for a single year, set seed, and die. Common annual weeds include grasses like barnyard grass (*Echinochloa crus-galli*), foxtails (*Setaria* spp.), and fall panicum (*Panicum dichotomiflorum*) and broadleaf weeds like lambsquarters (*Chenopodium* spp.), velvetleaf (*Abutilon theophrasti*), Pennsylvania smartweed (*Polygonum pensylvanicum*), and black nightshade (*Solanum nigrum*) (University of Minnesota, 2018). The most important purpose and result of treating annual weeds is preventing seed production. Beginning around June 1, the Land Control Area shall be mowed as described above to prevent annual weeds from flowering and setting seed.

b. Minnesota Department of Agriculture Noxious Weeds

The Minnesota Department of Agriculture maintains a list of noxious weeds in the state which must be controlled by Regal (Appendix 2). All species of noxious weeds on the Land Control Area shall be treated by mowing, herbiciding, or a combination of both methods, with the intention of preventing the weeds from setting seed or spreading by rhizomes, stolons, or other vegetative means.

c. Perennial Weeds

Perennial weeds include all unwanted species that persist for two or more years after germination, from biennials to those that live for many years. Many of these weeds greatly diminish during the vegetation establishment phase with proper maintenance, but several require special attention due to their highly competitive behavior. These include grasses like Kentucky bluegrass (*Poa pratensis*), reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), and several species of bromes, especially smooth brome (*Bromus inermis*). Broadleaf weeds in this category include sweet clovers (*Melilotus alba, M. officinalis*), cow vetch (*Vicia cracca*), crown vetch (*Securigera varia*), birdsfoot trefoil (*Lotus corniculatus*), Canada thistle (*Cirsium arvense*), and spotted knapweed (*Centaurea stoebe*). A list of common Minnesota perennial weeds that colonize former cropland and compete with native vegetation (in addition to the listed noxious weeds) is provided in Appendix 3.

Mowing is important to prevent seed production (as described above), but herbicide is generally required to prevent the spread of perennial weeds. Perennial grasses shall be treated by spot-spraying or boom spraying, as warranted, with glyphosate or comparably effective herbicide. Perennial broadleaf weeds shall be treated by spot-spraying or boom spraying, as warranted, with glyphosate, tryclopyr, clopyralid, or comparably effective herbicides. All herbicides shall be applied by a licensed applicator, following instructions provided by the manufacturer.

d. Problematic Native Plants

Several native species that are present in the soil seed bank or enter the Land Control Area by seed rain from neighboring properties have the potential to interfere with the functioning of the solar panels. Giant ragweed (*Ambrosia trifida*) grows tall enough to shade the panels. Several native vines have the potential to overgrow installations, including wild grape (*Vitis riparia*), wild cucumber (*Echinocystis lobata*), bur cucumber (*Sicyos angulatus*), and Woodbine/Virginia creeper (*Parthenocissus* spp.). Giant ragweed, or any other native species shading the arrays, should be controlled by mowing (see above). If growing under or near the solar panels, wild cucumber and bur cucumber can be pulled and removed manually, but woody vines such as wild grape and Woodbine/Virginia creeper shall be cut to within 1 inch of the ground and the stump treated with glyphosate, tryclopyr, or a comparable herbicide by a licensed applicator, following instructions provided by the manufacturer.

e. Woody Species

Almost all woody species on the Land Control Area can shade or otherwise interfere with the operation of solar panels. During the establishment phase, all woody plants must be removed. This can be done by mowing, herbiciding, or a combination of both methods. All woody plants over 0.5 inches dbh (diameter at breast height, about 4.5 feet) shall be cut to within 1 inch of the ground and the stump treated with triclopyr or a comparable herbicide by a licensed applicator, following instructions provided by the manufacturer. Cut brush shall be removed from the Land Control Area.

3. Re-seeding Bare Soil

Areas of bare soil are detrimental to successful establishment of native vegetation. Bare soil provides opportunities for the common invasive species described above to colonize and spread. Bare soil also contributes to soil loss by sheet erosion and prevents Regal from discharging its SWPPP permit in a timely fashion. If areas of bare soil greater than 75 ft^2 are found on site, the Contractor shall remedy the issue at their own expense by re-seeding the area, using the seed mix previously installed and following the timing instructions laid out in Section II (Vegetation Installation Plan).

B. Perpetual Maintenance

1. Mowing for Perpetual Maintenance

Following the end of the Establishment Phase of vegetation management in the Land Control Area, yearly management is still required in the Land Control Area to control the re-establishment and spread of invasive species, combat the establishment of undesirable and invading trees and shrubs, and reduce biomass/fuel load on the Land Control Area . This management may take the form of mowing or haying, depending on Regal preference and site feasibility. Some degree of hand weeding, spot-mowing, and/or spot-herbiciding may be warranted in the Land Control Area thereafter to maintain vegetation quality and achieve the project goals.

Annual site-wide haying or mowing in the Land Control Area shall occur each October, or when prairie plants have gone dormant, to a height of 6-9 inches. Where feasible, mowed vegetation shall be bagged and removed to prevent the buildup of organic thatch, which will discourage the development and

persistence of diverse native vegetation. If vegetation removal is not achievable, mowing shall be conducted with a flail-type mower to increase the rate of biomass decomposition.

2. Grazing for Perpetual Maintenance

Regal may decide to use grazing with sheep as a long-term vegetation management technique in the Land Control Area. Well-managed grazing can restrict woody vegetation and non-native species encroachment into grasslands, prevent excessive litter accumulation, improve forage production, and accelerate decomposition and nutrient cycling. Should grazing be selected as a management technique for some or all of the Land Control Area, an additional section for this Plan will be developed that addresses methodology, stocking rate, water sources, grazing objectives, and seed mixes more appropriate for grazing. Grazing SEFs with livestock is a developing management approach; the instructions in this plan should be considered a guide, but the actual practices must adapt year-to-year to evolving vegetation conditions at the Regal Solar project.

3. Woody Vegetation Control in the Collection Line Corridor

Regal anticipates using a chain saw for ongoing vertical tree trimming, limbing, and clearing along the above-ground collection line and around proposed poles in the Collection Line Corridor. Trimming, limbing and clearing will be limited to the minimal extent necessary to ensure the vegetation clearance meets the National Electric Safety Code standards.

IV. Vegetation Quality Targets

Vegetation management in the Land Control Area should result in a diverse plant community dominated by native species, as envisioned in the planting plans. Permits and regulations impose additional requirements on the final quality and performance of native plantings.

A. Native Vegetation Targets

By the end of the first growing season of the vegetation establishment phase, at least 60 percent of the Land Control Area shall be vegetated. In order to discharge the SWPPP permit for the site, at least 45 percent of the site must be covered with uniform perennial vegetation (see Appendix 4 for the determination of this vegetation target and note that the party responsible for obtaining the SWPPP permit should consult with the MPCA to confirm the vegetation target); the contractor shall endeavor to achieve this by the end of the first growing season and must achieve this in the second growing season. By the end of the vegetation establishment phase (approximately 36 months after vegetation installation), at least 80 percent of the Land Control Area shall be vegetated, and at least 80 percent of the cover shall be comprised of native species. Six or more species of planted native graminoids and 12 or more species of planted native forbs shall be well-established across the Land Control Area.

B. Noxious Weeds and Problem Plants

All Minnesota prohibited noxious weeds and other problem plants (Appendices 2 & 3) in the Land Control Area shall be treated repeatedly with herbicide and mowed where appropriate at a frequency sufficient to prevent seed set and remove target weeds over time. Each treatment shall show evidence of at least 90 percent of the target vegetation having been affected by herbicide or removed. Two

weeks after treatment, at least 95 percent of all herbicided plants shall be dead or dying within any 100 ft^2 area.

By the end of the vegetation establishment phase (approximately 36 months after vegetation installation), all prohibited noxious and other problem plants shall not exceed 5 percent aerial cover within any 100 ft^2 portion of the Land Control Area.

V. References

Minnesota Department of Agriculture. 2018. Minnesota Noxious Weed List. Accessed September 2018 at https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list

University of Minnesota. 2018. Common annual weeds. Accessed September 2018 at https://extension.umn.edu/weed-management/weed-identification

Minnesota Department of Natural Resources. Revised June 2018. Prairie Establishment & Maintenance Technical Guidance for Solar Projects. Accessed April 2019 at https://files.dnr.state.mn.us/publications/ewr/prairie_solar_tech_guidance.pdf

Appendix 1. Seed Mixes for Regal Solar

Array Mix

Common Name	Scientific Name	Rate (oz/ac)	% of Mix (w/w)
Side-oats grama	*Bouteloua curtipendula*	48.00	32.7%
Blue grama	*Bouteloua gracilis*	7.00	4.8%
Slender wheatgrass	*Elymus trachycaulus*	40.00	27.3%
June grass	*Koeleria macrantha*	1.50	1.0%
Western wheatgrass	*Pascopyrum smithii*	4.00	2.7%
Canada bluegrass	*Poa compressa*	1.50	1.0%
Little bluestem	*Schizachyrium scoparium*	20.00	13.6%
Prairie dropseed	*Sporobolus heterolepis*	2.00	1.4%
	Grasses	**124.00**	**84.5%**
Prairie onion	*Allium stellatum*	1.00	0.7%
Thimbleweed	*Anemone cylindrica*	0.50	0.3%
Butterfly milkweed	*Asclepias tuberosa*	1.00	0.7%
Whorled milkweed	*Asclepias verticillata*	0.50	0.3%
Prairie coreopsis	*Coreopsis palmata*	0.50	0.3%
White prairie clover	*Dalea candida*	1.00	0.7%
Purple prairie clover	*Dalea purpurea*	4.00	2.7%
Stiff goldenrod	*Oligoneuron rigidum*	1.00	0.7%
Large-flowered beardtongue	*Penstemon grandiflorus*	1.00	0.7%
Prairie ragwort	*Packera plattensis*	0.25	0.2%
Long-headed coneflower	*Ratibida columnifera*	3.00	2.0%
Black-eyed Susan	*Rudbeckia hirta*	4.00	2.7%
Heath aster	*Symphyotrichum ericoides*	0.25	0.2%
Sky blue aster	*Symphyotrichum oolentangiense*	0.50	0.3%
Smooth aster	*Symphyotrichum laeve*	0.75	0.5%
Long-bracted spiderwort	*Tradescantia bracteata*	0.50	0.3%
Hoary vervain	*Verbena stricta*	2.00	1.4%
Heart-leaved alexanders	*Zizia aptera*	1.00	0.7%
	Forbs	**22.75**	**15.5%**
	Total	**146.75**	

Open Mix

Common Name	Scientific Name	Rate (oz/ac)	% of Mix (w/w)
Big bluestem	*Andropogon gerardii*	12.00	7.9%
Side-oats grama	*Bouteloua curtipendula*	36.00	23.6%
Blue grama	*Bouteloua gracilis*	6.00	3.9%
Canada wild rye	*Elymus canadensis*	42.00	27.5%
June grass	*Koleria macrantha*	1.00	0.7%
Little bluestem	*Schizachyrium scoparium*	16.00	10.5%
Indiangrass	*Sorghastrum nutans*	12.00	7.9%
Prairie dropseed	*Sporobolus heterolepis*	3.00	2.0%
	Grasses	**128.00**	**83.8%**
Leadplant	*Amorpha canascens*	1.00	0.7%
Thimbleweed	*Anemone cylindrica*	0.50	0.3%
Butterfly milkweed	*Asclepias tuberosa*	1.00	0.7%
Common milkweed	*Asclepias syriaca*	1.00	0.7%
Canada milk vetch	*Astragalus canadensis*	4.00	2.6%
Prairie coreopsis	*Coreopsis palmata*	0.50	0.3%
White prairie clover	*Dalea candida*	1.00	0.7%
Purple prairie clover	*Dalea purpurea*	4.00	2.6%
Grass-leaved goldenrod	*Euthamia graminifolia*	0.25	0.2%
Western sunflower	*Helianthus occidentalis*	0.50	0.3%
Round-headed bush clover	*Lespedeza capitata*	1.00	0.7%
Rough blazing star	*Liatris aspera*	0.50	0.3%
Wild bergamot	*Monarda fistulosa*	1.00	0.7%
Stiff goldenrod	*Oligoneuron rigidum*	1.00	0.7%
Large-flowered beardtongue	*Penstemon grandiflorus*	1.00	0.7%
Black-eyed Susan	*Rudbeckia hirta*	4.00	2.6%
Gray goldenrod	*Solidago nemoralis*	0.25	0.2%
Heath aster	*Symphyotrichum ericoides*	0.25	0.2%
Sky blue aster	*Symphyotrichum oolentangiense*	0.50	0.3%
Hoary vervain	*Verbena stricta*	1.50	1.0%
	Forbs	**24.75**	**16.2%**
	Total	**152.75**	

Wet Mix

Common Name	Scientific Name	Rate (oz/ac)	% of Mix (w/w)
Big bluestem	*Andropogon gerardii*	12.00	8.0%
Fringed brome	*Bromus ciliatus*	4.00	2.7%
Bluejoint	*Calamagrostis canadensis*	0.50	0.3%
Canada wild rye	*Elymus canadensis*	36.00	24.1%
Virginia wild rye	*Elymus virginicus*	48.00	32.2%
Switchgrass	*Panicum virgatum*	12.00	8.0%
Indian grass	*Sorghastrum nutans*	12.00	8.0%
Prairie cordgrass	*Spartina pectinata*	3.50	2.3%
	Grasses	**128.00**	**85.7%**
Wooly sedge	*Carex pellita*	0.50	0.3%
Tussock sedge	*Carex stricta*	0.50	0.3%
Fox sedge	*Carex vulpinoidea*	1.00	0.7%
Dark green bulrush	*Scirpus atrovirens*	0.25	0.2%
Woolgrass	*Scirpus cyperinus*	0.10	0.1%
	Sedges and Rushes	**2.35**	**1.6%**
Canada anemone	*Anemone canadensis*	1.00	0.7%
Marsh milkweed	*Asclepias incarnata*	2.00	1.3%
Common beggarticks	*Bidens frondosa*	2.00	1.3%
Canada tick trefoil	*Desmodium canadense*	2.00	1.3%
Common boneset	*Eupatorium perfoliatum*	0.25	0.2%
Grass-leaved goldenrod	*Euthamia graminifolia*	0.25	0.2%
Spotted joe-pye weed	*Eutrochium maculatum*	0.50	0.3%
Pale-spiked lobelia	*Lobelia spicata*	0.10	0.1%
American water horehound	*Lycopus americanus*	0.50	0.3%
Wild bergamot	*Monarda fistulosa*	1.00	0.7%
Virginia mountain mint	*Pycnanthemum virginianum*	0.25	0.2%
Black-eyed Susan	*Rudbeckia hirta*	4.00	2.7%
Marsh hedgenettle	*Stachys palustris*	1.00	0.7%
Purple meadow-rue	*Thalictrum dasycarpum*	1.00	0.7%
Bunched ironweed	*Vernonia fasciculata*	1.00	0.7%
Culver's root	*Veronicastrum virginicum*	0.10	0.1%
Golden alexanders	*Zizia aurea*	2.00	1.3%
	Forbs	**18.95**	**12.7%**
	Total	**149.3**	

Minnesota DOT Agricultural Roadside Mix (25-142)

Common Name	Scientific Name	Rate (oz/ac)	% of Mix (w/w)
Perrenial Ryegrass	*Lolium perenne*	13.5	30.0%
Smooth brome	*Bromus inermis*	7.75	17.23%
Fowl bluegrass	*Poa palustris*	6.0	13.33%
Slender wheatgrass	*Elymus trachycaulus*	2.0	4.45%
Timothy	*Phleum pretense*	1.75	3.89%
switchgrass	*Panicum virgatum*	1.5	3.33%
	Grasses	**32.50**	**72.23%**
Alfalfa		12.5	27.77%
	Forbes	**12.5**	**27.77%**
	Total	**45.0**	
Source: MnDOT 2014 (https://www.dot.state.mn.us/environment/erosion/pdf/seedingmanual.pdf)			

Appendix 2. Minnesota Prohibited Noxious Weeds

Eradicate. *All above- and below-ground parts of the plant must be destroyed.*	
Common Name	**Scientific Name**
Palmer amaranth	*Amaranthus palmeri*
Oriental bittersweet	*Celastrus orbiculatus*
Diffuse knapweed	*Centaurea diffusa*
Brown knapweed	*Centaurea jacea*
Yellow star thistle	*Centaurea solstitialis*
Meadow knapweed	*Centaurea x moncktonii*
Poison hemlock	*Conium maculatum*
Black swallow-wort	*Cynanchum louiseae*
Grecian foxglove	*Digitalis lanata*
Common teasel	*Dipsacus fullonum*
Cut-leaved teasel	*Dipsacus laciniatus*
Giant hogweed	*Heracleum mantegazzianum*
Japanese hops	*Humulus japonicus*
Dalmatian toadflax	*Linaria dalmatica*
Control. *Effort must be made to prevent the spread, maturation, and dispersal of any propagating parts.*	
Common Name	**Scientific Name**
Common barberry	*Berberis vulgaris*
Narrowleaf bittercress	*Cardamine impatiens*
Plumeless thistle	*Carduus acanthoides*
Spotted knapweed	*Centaurea stoebe*
Canada thistle	*Cirsium arvense*
Leafy spurge	*Euphorbia esula*
Purple loosestrife	*Lythrum salicaria*
Wild parsnip	*Pastinaca sativa*
Common tansy	*Tanacetum vulgare*

Appendix 3. Additional Problem Weeds to Remove

Plant Group & Priority	Common Name	Scientific Name
Top Priority Grasses to Remove	Smooth brome grass	*Bromus inermis*
	Reed canary grass	*Phalaris arundinacea*
	Giant reed	*Phragmites australis*
	Kentucky bluegrass	*Poa pratensis*
Top Priority Forbs to Remove	Garlic mustard	*Alliaria petiolata*
	Musk thistle	*Carduus nutans*
	Bull thistle	*Cirsium vulgare*
	Crown vetch	*Securigera varia*
	Birds-foot trefoil	*Lotus corniculatus*
	White sweet clover	*Melilotus alba*
	Yellow sweet clover	*Melilotus officinalis*
Second Priority Grasses to Remove	Amur silver grass	*Miscanthus sacchariflorus*
Second Priority Forbs to Remove	Creeping Charlie	*Glechoma hederacea*
	Butter and eggs	*Linaria vulgaris*
	Japanese knotweed	*Polygonum cuspidatum*
	Perennial sow thistle	*Sonchus arvensis*
	Cow vetch	*Vicia cracca*
	Hairy vetch	*Vicia villosa*
Any Tree, Shrub, or Vine Outside the Screening Plantings		

Appendix 4. Native Background Vegetation Memorandum

MEMORANDUM

To: Melissa Schmit, Geronimo Energy

From: Benjamin Staehlin and Kim Chapman, Applied Ecological Services, Inc.

Date: April 22, 2019

Re: Regal Solar Energy Facility - Defining native background vegetative cover for site-appropriate vegetation and environmental conditions

Background Information

The Minnesota Pollution Control Agency (MPCA) has recently updated the language for their Stormwater Pollution Prevention Plan (SWPPP) guidance. In order for the Permittee to file a Notice of Termination, informing the MPCA that the SWPPP has been completed, one of the requirements states, "At least 90 percent (by area) of all originally proposed construction activity has been completed and permanent cover established on those areas." In Appendix B, under the definition of "permanent cover", the guidance says, "A uniform perennial vegetative cover (i.e. evenly distributed, without large bare areas) with a density of 70 percent of the native background vegetative cover for the area must be established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures." However, this guidance does not establish a standard for native background vegetative cover. Communications with the MPCA indicate that their assumption is that the default native background vegetative cover for any area is 100 percent, and any change to that number must be justified by the party submitting the permit. The intent of this memo is to examine the site conditions for the Regal Solar Energy Facility ("Regal") and determine the appropriate native background vegetative cover for the site.

The Regal Solar Energy Facility is proposed to be constructed in Benton County in central Minnesota. The proposed site is located just east of the Mississippi River floodplain on land that is currently used for agriculture. The predominant soils at the site, according to the USGS, are Isan sandy loams. Prior to widespread agricultural land clearing in the area, these soils support a thinly-treed plant community with brush and patchy to sparse ground layer vegetation. General Land Survey records describe the landscape on and around such soils as "barrens", "oak openings", and "brush prairie".

Based on information provided by the Natural Resources Conservation Service (NRCS) of Benton County and by the US Fish and Wildlife Service (USFWS), the historical plant community association in the area where Regal will be located is "Barrens Oak Savanna". Descriptions for the understory layer in this habitat include "The ground layer is mostly composed of prairie grasses and forbs, but their cover is

patchy, with bare ground in between…" (Wovcha et al., 1995) and "Vegetation is often less than 100 percent, with bare sand exposed among the plants" (MNDNR, 2005). This description is consistent with the historical records and the soils on site and indicates that, if historic conditions existed, the ground layer would consist of a mosaic of sand and dry prairie vegetation. Describing the Southern Dry Savannas, which include Barrens Oak Savannas, the Minnesota Department of Natural Resources (MNDNR) goes on to say, "Graminoid cover is patchy to continuous (25-100 percent)….Forb cover is sparse to patchy (5-50 percent)."

These representative photographs are from the Helen Allison Savanna SNA, located about 75 miles to the southeast in Anoka County. The first photo has a fairly uniform herbaceous layer of approximately

80-90 percent vegetation cover, but the second photo shows only patches of permanent vegetation with significant areas of exposed sand. Thus, the range of ground layer vegetation cover described in the publications cited above are consistent with the photos of actual locations where Barrens Oak Savanna occurs.

Recommended Target Native Background Vegetation Percent

According to the MNDNR, the percent of herbaceous ground cover in Southern Dry Savannas, including the Barrens Oak Savanna habitat native to Benton County, ranges from 30-100 percent. With no existing remnant habitat in the area to survey, we propose adopting 65 percent, the midpoint of this range, as the native background vegetative cover for the area. For attainment of permanent cover, as defined by the SWPPP guidance, the site would therefore be required to achieve a uniform perennial vegetative cover equal to 70 percent of the native background vegetative cover, which would be 45 percent (70 percent of 65 percent) for the Regal Solar Energy Facility.

References

Minnesota Department of Natural Resources. 2005. Field guide to the native plant communities of Minnesota: The eastern broadleaf forest province. Ecological Land Classification Program, Minnesota County Biological Survey, and Natural Heritage and Nongame Research Program. MNDNR, St. Paul, MN.

Wovcha, D.S, B.C. Delaney, G.E. Nordquist. 1995. Minnesota's St. Croix River Valley and Anoka Sandplain: A guide to native habitats. University of Minnesota Press, Minneapolis MN.

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Appendix 5. Revision Log

Date	Editor	Content
2019-05-08	Staehlin & Chapman – AES	Original VMP
2020-07-28	Melissa Schmit – Geronimo	Updated text to include over-head collection line and seed mix to be used in collection line ROW.