Hyacinth Solar, LLC

Application for a Conditional Use Permit and Site Plan Review

Applicants:

Hyacinth Solar, LLC

By: Melissa Schmit, Permitting Manager

Property Owners: St. Olaf College

Application Prepared by Geronimo Energy, LLC on behalf of Hyacinth Solar, LLC

Enclosed: Conditional Use Permit Application Fee- \$600 Conditional Use Permit Application Escrow- \$500 Conditional Use Permit Application Form

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1 Introduction

1.1 SUMMARY

Hyacinth Solar, LLC (Hyacinth or the Project), a wholly owned subsidiary of Geronimo Energy, LLC (Geronimo), a National Grid Company, respectfully submits this application for a Conditional Use Permit (CUP) and site plan review to City of Northfield. Hyacinth requests that City of Northfield Planning Commission motions for approval, and that City of Northfield Council approves for the Project to be permitted, constructed, owned, and operated by Hyacinth Solar, LLC. For review, the Project's application pages, and detailed legal description is included in Appendix A and preliminary site plan in Appendix B.

The Project will be located in Section 26, Township 112, Range 20 of Dakota County, Minnesota. The Project will consist of one, up to 1 MW solar project that will generate enough energy to power approximately 258 homes annually and avoid the emission of approximately 1,480 metric tons of carbon annually.¹ The Project will interconnect to Xcel Energy's existing distribution system.

Hyacinth is a wholly owned subsidiary of Geronimo, a National Grid Company. Geronimo is a full-service renewable energy company with a successful track record of executing renewable energy projects. Geronimo is headquartered in Minneapolis, Minnesota, with satellite offices located in southwest Minnesota, North Dakota, South Dakota, Colorado, Illinois, New York and Michigan. Geronimo has developed over 2,400 MWs of wind and solar projects that are either under construction or operational. Geronimo has a multi-gigawatt development pipeline of wind and solar projects in various stages of development throughout the United States and over 250 MW of solar development completed. With deep roots in agriculture, Geronimo prides itself on developing renewable energy projects that are farmer-friendly, community-driven, and beneficial for rural communities.

2 **Project Description**

2.1 SUMMARY AND LOCATION

The Project will be located in Section 26, Township 112, Range 20 of Dakota County, Minnesota. The Project area is zoned Agricultural District (A-S). Under City of Northfield's Land Development Code, community solar gardens are permitted and regulated as a Conditional Use in the A-S District.

Planned project design will be one, up to 1 MW solar facility owned as described in Section 2.2 of this application. It is proposed to utilize typical photovoltaic panels, inverters and *either a*

¹Based on EPA Greenhouse Gas Equivalencies Calculator and 2,090,000 kWh annual production PVSYST model

fixed tilt or linear axis tracking system. The Project's footprint is approximately 10 acres. The estimated start date for construction is as early as spring 2020.

2.2 **PROJECT OWNERSHIP**

Hyacinth Solar, LLC (Hyacinth or the Project) has a lease agreement for the Project site. Hyacinth Solar, LLC is the applicant.

2.3 PROJECT CONSULTANTS

Surveying, Preliminary Solar Array Design & Engineering:

Westwood Professional Services, Inc.

12701 Whitewater Drive, Suite 300, Minnetonka, MN 55343

Environmental Studies:

Tetra Tech, Inc.

2001 Killebrew Drive, Suite 141, Bloomington, MN 55425

2.4 SOLAR PROJECT FACILITY

The Project's primary facilities will include:

- Solar modules (or panels), inverters and racking;
- Fencing;
- Access roads as required;
- Temporary laydown yard;
- On-site underground electrical collection lines;
- Up to one weather station (up to 20 feet tall); and
- Interconnection Poles, to connect the Project to Xcel Energy's distribution system.

The Project footprint is approximately 10 acres. Hyacinth selected the specific development area based on available land use guidance, significant landowner interest, interconnection suitability, optimal solar resource, and minimal environmental impact.

Hyacinth has provided a site plan of existing conditions and a site plan of proposed conditions for the community solar garden in Appendix B. This proposed site plan will denote the general footprint and *preliminary layout* of the Project including proposed locations of facilities in accordance with City of Northfield's Land Development Code, Solar Energy Ordinance, and other applicable requirements.

The Project's final layout will optimize electrical generation and efficiency of the solar resource while avoiding and minimizing potential environmental, and cultural impacts. The Project's facilities will be sited so as to comply with the City of Northfield's setback requirements, where

applicable. To the extent applicable, the Project will also comply with all other local, state, and federal regulatory standards.

The city structure setback and height regulations in the A-S district and the Project's proposed setbacks and heights are found below in Table 1:

	City Requirements	Proposed Setbacks
Front Yard- 330 th St	50'	321.2'
Front Yard- Dedicated ROW	50'	50'
Side Yard	15'	69.6'
Rear Yard	15'	305.5'
Height	20'	≤20'
Lot Coverage	NA	NA

TABLE 1: SETBACK TABLE

The Project's proposed components include PV modules mounted on an *either a fixed tilt or linear axis tracking system*, with inverters. The modules vary in size, with approximate dimensions of 5 to 7 feet long by 3 to 5 feet wide, and 1 to 2 inches thick. The foundations of the racking system will likely be a driven steel pier and will unlikely require concrete, although some concrete foundations may be required. Geotechnical soil testing will be used to determine final ground conditions, engineer the foundations, and develop the installation process. Foundations will be certified by a manufacturer's engineer or another qualified engineer to ensure professional standards are met given the local soil and climate conditions. Areas of bare ground at the facility will be re-vegetated.

The modules will be electrically strung together to the inverters. The inverters will convert the DC power from the modules to AC power. Additionally, a transformer will step up the voltage of generated electricity to meet the local interconnection voltage of Xcel's Energy's distribution grid. From the inverters, electrical cable will be buried underground or suspended from the panels in a cable tray to the Point of Interconnection (POI). Here the system will interconnect to the existing distribution infrastructure. The POI is the electrical point at which the projects electrical equipment will connect to Xcel Energy's infrastructure. The design standards for interconnection are the full responsibility of and defined by Xcel Energy. The Project is required to comply with Xcel Energy specifications and will have a Project Owned riser pole in order to meet Xcel Energy's infrastructure which is located above ground. Xcel Energy will then own and operate their poles within the POI. Any permits and regulations related to these poles are Xcel Energy's responsibility. Hyacinth will secure all private easements for its facilities and will secure permits and other authorizations from the state, county and township governments as needed.

The Project will use a Data Acquisition System (DAS), which allows for remote monitoring of the Project. The monitoring system provides status views of electrical and mechanical data, operation and fault status, meteorological data, and grid station data. For security, the Project will be fenced and have site security cameras. Access to the Project area is through lockable gates.

2.4.1 Construction

Construction of the facility is ideally intended to start as early as spring 2020 with completion of the Project during 2020.

Traffic will include light pickup trucks/employee vehicles, semi-trailers for delivery of equipment, and other machinery. It is estimated there will be 15-25 worker vehicles per day, and 2-10 equipment deliveries per day. It is unexpected that any overweight or oversized loads will be used during construction. If overweight or oversized loads become necessary, they will be permitted with the applicable governing road authority per access routes.

2.4.2 Stormwater

The Project will adhere to the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Permit Requirements, including obtaining a NPDES stormwater permit, with that a Storm Water Pollution Prevention Plan (SWPPP).

2.4.3 **Project Components**

- Panel Type-
 - Photovoltaic panels
- Panel Size-
 - Varying in size approximately 5 to 7 feet long by 3 to 5 feet wide, and 1 to 2 inches thick
- Racking Type-
 - Linear axis tracking system or fixed-tilt racking system
 - Utilizes galvanized or ungalvanized steel for foundations and frame
- Panel Height-
 - Fixed-tilt: up to 20 feet
 - Tracking: up to 20 feet
- Typical Panel Material-
 - Aluminum frame
 - Glass
 - Weatherized plastic backing
- Inverter Skid and electrical cabinets
 - Enclosed inverter and transformer
 - Overhead shade will be 10 to 12 feet tall and the equipment enclosure, if used, will be up to approximately 45 feet long by 10 feet wide by 10 feet tall.
- Metering and Switching Gear
 - Electrical equipment required to connect to Xcel Energy's system
- Weather Station
 - Up to 20 feet tall to monitor temperatures, atmospheric pressure, rain, humidity,

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wind and irradiance, etc.

- Temporary Laydown Yard
 - Graveled area for the temporary storage of project components upon delivery, available for construction crew vehicles to park
- Access roads
 - Gravel roads within the fenced area leading to the inverter skids for repair
- Rated Power & Performance-
 - Volt system that steps up to local distribution facilities
- Safety-
 - Tempered glass, security fence (6-foot chain link, 1-foot barbed wire), security cameras, on-site cables above ground or buried underground.

Hyacinth is currently evaluating several systems for installation that include the following:

Linear Axis Tracking System:

A Linear axis tracking system tracks the solar resource throughout the day. The panels are generally aligned in rows north and south and face east in the morning, perpendicular to the ground during mid-day, and then west in the afternoon. The panels are adjusted by a small motor to slowly rotate throughout the day.

Fixed-tilt Racking System:

A fixed-tilt racking system does not rotate. It remains in a fixed position, facing a southerly direction.

Images 1-5 below visually show the general racking equipment and dimensions of both a fixedtilt racking system and a linear axis tracking system.

Image 1 – Fixed-Tilt System Racking



Image 2 – Fixed-Tilt System Dimensions



Image 3 – Tracking System Racking



Image 4 – Tracking System Dimensions



Image 5 – Standard Steel Pier Foundations



Images 6-8 demonstrate examples of typical signage on solar sites as required by National Electric Code (NEC).

Image 6 – Warning Sign





Image 8 – Project Site Layout



Image 9 demonstrates a typical weather station.



Image 9- Typical Weather Station.

2.4.4 Aesthetics

To limit reflection, solar PV panels are constructed of dark, light-absorbing materials. Hyacinth is not anticipated to cause any concentrated glare to nearby properties or adjacent roadways.

The solar array will occupy most of the Project site for the solar facilities. The electrical transformers and inverters, and access roads complete the solar project. Most of the facility, including the solar field, will be low-profile. In compliance with Section 3.5 of the City's Land Development Code, a landscaping buffer consisting of a row of vegetation will be planted along the south and east fence lines of the project to reduce possible visual impacts of the solar garden from North Avenue and the future dedicated right-of-way. Refer to Hyacinth's Preliminary Site Plans in Appendix B.

Final seed mixes can be submitted upon request prior to seeding installation. At the discretion of the Planning Commission and the City Council, the Project is willing to plant a pollinator friendly and prairie grass mix within the open and array areas, or more simply a fast-growing

shorter grass mix (about 12 inches), and plant with wetland/wet mixes as applicable in wetlands or stormwater basins. Prairie plantings offer habitat benefits to a parcel and adjacent land; however, establishment of a prairie is challenging and time consuming. During prairie establishment (first two to three growing seasons) the site is not as visually appealing as in the prairie's mature years. It should be noted that at the time of seed procurement the permitted and ideal seed choice may not be available. If this is the case an equivalent substitution by a professional will be made in its place.

The method of vegetation maintenance is yet to be determined and may take the form of mowing (traditional or haying), or sheep and/or lamb grazers depending on the Project's preference and site feasibility. Should the Project enter into a haying or grazing partnership, seed mixes will be developed to meet the local agricultural needs.

2.4.5 **Operations and Maintenance**

Hyacinth will be professionally maintained and operated. Primary tasks include scheduled monthly and quarterly inspection(s) of electrical equipment, vegetation management, as well as snow removal on access drives as needed.

3 Compliance with City of Northfield's Land Development Code

3.1 TABLE 2: COMPLIANCE WITH CITY OF NORTHFIELD LAND DEVELOPMENT CODE ARTICLE 2, SECTION 9.5: COMMERICAL SOLAR FARMS OR COMMUNITY SOLAR GARDENS

Ordinance Number	Requirement	Hyacinth's response in fulfilling requirement
Arti	icle 2, Section 9.5: Commercial Solar Farms or C	Community Solar Gardens
2.9.5. B.	The compliance of commercial solar farms and community solar gardens with the standards set forth in this section shall be reviewed through the site plan review process established in Section 8.5.6.	Refer to Appendix B.
2.9.5.C.	Setbacks	Refer to Table 1.
2.9.5. D.	Height	Refer to Table 1.
2.9.5.F.	Security fencing may be installed around commercial solar farms and community solar gardens. Security fencing installed around commercial solar farms and community solar	Hyacinth as proposed meets fencing standards applicable to community solar gardens.

	gardens shall be exempt from the ban on barbed wire fences set forth in Section 3.3.2(B)(4) and may be of chain link construction.	
2.9.5.G.	Support structures shall be constructed with quality materials and properly maintained to avoid signs of deterioration, rust or weathering.	Hyacinth as proposed meets support structure standards applicable to community solar gardens.
2.9.5.H.	All commercial solar farms and community solar gardens shall be subject to the requirements of Section 3.5, Landscaping, Screening, and Buffering Standards. The components of commercial solar farms and community solar gardens do not constitute "ground-mounted mechanical equipment," as such term is used in Section 3.5.10(B). Landscaping shall be installed and maintained along the portions of the project boundaries for commercial solar farms and community solar gardens that are adjacent to (a) public roadways, and (b) properties zoned for residential, commercial or public use for the purpose of mitigating visual impacts to the extent reasonably feasible considering the technological requirements of the systems and the solar access required for the systems.	Hyacinth will meet the Type B (Table 3.5-4) landscaping, screening, and buffering standards applicable to community solar gardens. Refer to Appendix B.
2.9.5.I.	Any electric lines accompanying a commercial solar farm or community solar garden, other than those attached to on-site structures by leads, shall be buried within the interior of the project footprint of the commercial solar farm or community solar garden, unless there are existing lines in the area to which the lines accompanying a solar energy system can be attached.	Hyacinth as proposed meets feeder line standards applicable to community solar gardens.
2.9.5.J.	Commercial solar farms and community solar gardens shall be located and installed so as to not create or cause unreasonable glare on aircraft, other property, or public roadways. For purposes of the LDC, "unreasonable glare" shall mean a public safety hazard as determined by the city council or the appropriate roadway authority.	Hyacinth as designed is not expected to cause unreasonable glare.

2.9.5.K.	All commercial solar farms and community solar gardens shall conform to the requirements of the Minnesota State Building Code, the Minnesota Electrical Act, and the National Electrical Code.	Hyacinth as proposed meets the requirements of the Minnesota State Building Code, the Minnesota Electrical Act, and the National Electric Code.
2.9.5.L.	Components of commercial solar farms and community solar gardens shall be certified by Underwriters Laboratories, Inc., and solar thermal systems shall be certified by the Solar Rating and Certification Corporation or other appropriate certification(s) as reasonably determined by the city.	Hyacinth can share necessary certifications for a community solar garden prior to construction.
2.9.5.M.	All grid inter-tie solar energy systems shall have an agreement with a local utility company prior to receiving a building permit. Off-grid solar energy systems are exempt from this requirement.	Hyacinth has an interconnection agreement with Xcel Energy.
2.9.5.N.	Commercial solar farms and community solar gardens shall comply with all federal and state wetland regulations and mitigation requirements.	Hyacinth meets all federal and state wetland regulations and mitigation requirements.
2.9.5.0.	No commercial solar farm or community solar garden shall be erected and maintained in the city without first securing a building permit from the city. Additionally, commercial solar farms and community solar gardens with a nameplate capacity greater than 100 kW AC shall also require the issuance of a conditional use permit in accordance with the requirements of the LDC.	Hyacinth will secure a building permit and conditional use permit before construction.
2.9.5.P.	If a commercial solar farm or community solar garden remains nonfunctional or inoperative for a continuous period longer than one year, and is thereafter not brought into operation within the time specified by the city, the system shall be presumed to be abandoned and shall constitute a public nuisance. The owner of the real property on which the commercial solar farm or community solar garden is located shall remove the abandoned system at the owner's expense after a demolition permit has been obtained from the city. Removal of the commercial solar farm or community solar	Hyacinth as proposed will meet all abandonment standards applicable to community solar gardens. Refer to Appendix C.

	garden shall include removal of all modules	
	and racking equipment and all structures	
	erected in connection with the system. As a	
	condition for the city's issuance of a	
	conditional use permit for a commercial solar	
	farm or community solar garden with a	
	nameplate capacity greater than 100 kW AC,	
	the applicant shall either	
2.9.5.P(i)	(i) provide evidence to the City that an escrow or other financial guarantee has been or will be created to secure the payment of the solar energy system removal costs, or	A financial plan to provide financial surety to the city is included in this application. Refer to Appendix C.
2.9.5.P(ii)	 (ii) furnish to the city a financial guarantee, in one of the forms listed in Section 3.10.4(E)(4), in the amount of the solar energy system removal costs, which financial guarantee must remain in full force and effect until removal of the commercial solar farm or community solar garden has been completed in accordance with the requirements of this section. 	Hyacinth will furnish a form of financial surety to the city prior to applying for a building permit.
2.9.5.Q.	If a commercial solar project is not built as per the timeline set in a Conditional Use Permit or is built and abandoned, then any Conditional Use Permit issued will terminate	Hyacinth will comply with permit termination standards as applicable.

Hyacinth responses to Section 505.1 Criteria for Granting Conditional Use Permits:

A. Approval Criteria

(1) In the approval of a conditional use permit, the city council may impose such conditions as necessary to make the use compatible with other uses allowed in the same district zone or vicinity.

(2) Criterion (a) below must be met and criteria (b) through (n) shall be considered in the review of conditional use permit applications:

- a. The proposed use is allowed as a conditional use in the district for which it is proposed as shown in Table 2.7-1;
 - Per Table 2.7-1, community solar gardens are a conditional use in the A-S District.
- b. The conditional use will be in accordance with the general objectives, or with any specific objective, of the city's comprehensive plan and this LDC;
 - Chapter 5 of the City's Comprehensive Plan discusses an energy task force that would assess opportunities for clean energy projects within the city.

Hyacinth will promote clean energy in the community. As proposed Hyacinth meets or exceeds the standards set forth in the Land Development Code.

- c. The conditional use will be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such use will not change the essential character of the same area;
 - The Project is compatible with the surrounding area as it is a conditionally permitted use in the district and will be sited adjacent to an existing solar facility. Solar is a low-impact, low-profile use. A vegetated buffer will be placed on the south and east side of the project to screen the project from North Avenue, the future dedicated right-of-way, and the senior living community. The Project is also setback approximately 321.2 feet from North Avenue.
- d. The conditional use will not be hazardous or reasonably disturbing to existing or future neighboring uses;
 - The Project is compatible with existing neighboring uses, such as the existing solar facility sited north and adjacent to the proposed project area. Hyacinth is not anticipated to disturb future neighboring uses. When the Project has reached the end of its useful life, the Project can be decommissioned and revert to traditional agricultural uses or other permitted or conditionally permitted uses in the district.
- e. The conditional use will be served adequately by essential public facilities and services such as, streets, police and fire protection, drainage structures, refuse disposal, water and sewer, and schools;
 - The Project will be adequately served by existing roads. Adequate utilities for Hyacinth are available for construction and operation. The Project does not require sewer or water. Hyacinth does not anticipate using public services, with the exception of police and fire, if needed in the event of an emergency, like any property. The Project will be adequately served by existing and proposed drainage structures.
- f. The benefits of the conditional use outweigh the potential negative effects to the surrounding area or community;
 - The benefits of the Project outweigh the potential negative effects to the surrounding area or community. Hyacinth will provide clean energy to local businesses and economic development to the community. The Project will be screened from view from the nearby road, ground level views from nearby buildings and no negative impacts are expected.
- g. The conditional use will not create excessive additional requirements at public cost for public facilities and services;
 - The Project does not anticipate creating excessive additional requirements at a public cost for public facilities and services. Hyacinth does not require public sewer or water facilities or services to construct or operate. Hyacinth will use existing public services similar to any other land use.

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- h. The conditional use will not involve uses, activities, processes, materials, equipment and conditions or operations that will be detrimental to any persons, property, or the general welfare by reason of excessive traffic, noise, smoke, fumes, glare, or odors;
 - Solar is low-impact, low-profile, virtually noiseless and odorless. Hyacinth does not anticipate becoming a nuisance to neighboring properties. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials. Hyacinth is not anticipated to cause any concentrated glare to nearby properties or adjacent roadways. Construction will take place during appropriate daylight hours and once operational the Project is virtually noiseless outside of the fenced area. Traffic will include light pickup trucks/employee vehicles, semi-trailers for delivery of equipment, and other machinery. It is estimated there will be 15-25 worker vehicles per day, and 2-10 equipment deliveries per day. It is unexpected that any overweight or oversized loads will be used during construction. If overweight or oversized loads become necessary, they will be permitted with the applicable governing road authority per access routes. Once the Project is operational, site visits will be infrequent and does not anticipate causing a burden on the existing road. Hyacinth will not produce any smoke or fumes.
- i. The conditional use will not result in the destruction, loss or damage of natural, scenic, or historic features of major importance as may be established in the comprehensive plan or other city plans related to natural, scenic, or historic features.
 - The Project does not anticipate impacting any natural, scenic, or historic features in the city. The Project will include a vegetated buffer to reduce possible visual impacts to nearby roads.
- j. The traffic and parking generated by the use will not lower the Levels of Services as described in the comprehensive transportation plan update of intersections within a quarter of a mile of the site.
 - The Project does not anticipate lowering the Levels of Services as described in the comprehensive transportation plan. Traffic will include light pickup trucks/employee vehicles, semi-trailers for delivery of equipment, and other machinery. It is estimated there will be 15-25 worker vehicles per day, and 2-10 equipment deliveries per day. A temporary laydown yard will provide space for employee vehicles, equipment and deliveries during construction. Once the Project is operational, site visits will be infrequent and does not anticipate causing a burden on the existing road. Employee vehicles will be able to park within the fenced area during operations site visits.
- k. In residential districts, the use is of a similar height, building orientation, massing, setback, and scale as to be compatible with surrounding uses in compliance with Section 3.5, Neighborhood Compatibility Standards.
 - The Project in not in a residential district.
- 1. In the Perimeter Transition Area (PTA) within the college development district (CD-S) that abut residential and commercial districts, height, building orientation, massing, setback and scale shall be considered in building renovation and/or new

construction in order to maintain compatibility with surrounding areas as described in Section 3.4, Neighborhood Compatibility Standards. These neighborhood compatibility standards are to be administered in order to maintain a harmonious neighborhood environment and absolute compliance with these standards is not intended.

- The Project is not within the Perimeter Transition Area within the college development district.
- m. Impacts such as noise, hours of activity, and outdoor lighting have been sufficiently addressed to mitigate negative impacts on nearby uses.
 - Construction will take place during appropriate daylight hours and once operational the Project is virtually noiseless outside of the fenced area. Permanent lights will be down lit and may be switch and motion activated for security and safety needs.
- n. Parking is adequately provided for the proposed conditional use, but an excessive number of parking spaces are not proposed. The following information shall be provided as part of the Conditional Use Permit application:

(i) Number of customers, patients, visitors, or other patrons of the proposed use. Information should also be included detailing the expected parking behavior of these persons (i.e., how long a customer may be expected to be at the facility);

(ii) Number of full time and part time employees;

(iii) Number and approximate timing of deliveries.

• The City's Land Development Code does not require parking spaces for community solar gardens. The Project will provide adequate parking for construction with a temporary laydown yard. During construction, it is estimated there will be 15-25 worker vehicles per day, and 2-10 equipment deliveries per day. During operations employee vehicles will be able to park within the fenced area. Since the Project does not have full time employees always on-site during operation, parking spaces are not necessary. Planned visits and deliveries will occur during daylight hours except in case of emergency.

Additional information on Hyacinth for the application process:

Site Plan of Existing and Proposed Conditions

Refer to Appendix B.

Compliance with MPCA Construction Stormwater Permit

The Project will adhere to applicable MPCA construction permit requirements, including a NPDES.

Compliance with State Electric Code

The Project will comply with all state electric code requirements.

Stormwater Management and Erosion Sediment Control

Hyacinth will meet the requirements of the MPCA Construction Stormwater Permit Requirements.

Wetlands

A wetland delineation has been completed and a Notice of Decision was received from Dakota County Soil and Water Conservation District. Furthermore, all applicable local, state, and federal wetland approvals and permits will be completed prior to construction. Refer to Appendix D, Dakota County WCA Notice of Decision and Appendix E, Wetland Delineation Survey.

Foundations

Construction plans signed by an engineer will be submitted prior to construction.

Other Standards and Codes

Hyacinth will be in compliance with any applicable local, state, and federal regulatory standards.

Power and Communication Lines

Powerlines within the fence line will be underground to the extent practical.

4 Conclusion

The Project as designed and planned complies with City of Northfield's Land Development Code conditional use standards for community solar gardens. Hyacinth is working in close coordination with the landowners of the Project site and will continue to engage as the Project develops. Hyacinth Solar, LLC respectfully requests that City of Northfield Council approve and permit the Project.

Appendix A

Memorandum of Lease and Legal Description

Receipt:# 606845

LEASE \$46.00 No Deliquent Taxes

Return to: GERONIMO ENERGY HOLDINGS LLC 7650 EDINBOROUGH WAY STE 725 EDINA MN 55435



Recorded on: 5/31/2019 9:00 AM By: DDW, Deputy

Office of the County Recorder Dakota County, Minnesota Army A. Koethe, County Recorder Army A. Koethe, Treasurer Auditor

Drafted By: Hyacinth Solar, LLC c/o Geronimo Solar Energy, LLC 7650 Edinborough Way, Suite 725 Edina, MN 55435

43-02700-79-010 43-02600-53-010

MEMORANDUM OF LAND LEASE AND SOLAR EASEMENT

THIS MEMORANDUM OF LAND LEASE AND SOLAR EASEMENT ("Memorandum of Lease") is entered into this <u>17</u> day of <u>April</u>, 201<u>9</u> by and between St. Olaf College, a Minnesota corporation ("Lessor") and Hyacinth Solar, LLC, a Minnesota limited liability company, and its successors and assigns ("Lessee").

RECITALS:

A. Lessor and Lessee have entered into a certain Land Lease and Solar Easement dated $\frac{A}{17}$, $\frac{1}{7}$,

B. The parties wish to give notice of the existence of such Lease Agreement.

IN CONSIDERATION of the sum of One and 00/100 Dollar (\$1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto agree as follows:

1. Lessor and Lessee have entered into the Lease Agreement dated Agril 17^m, 20^c (the "Effective Date") to lease and demise the Premises for solar energy purposes and to grant access and solar easements. Pursuant to the Lease Agreement, Lessee has the exclusive right to use the Premises for commercial solar energy purposes, together with certain related solar, access and other easement rights and other rights related to the Premises, all as more fully described in the Lease Agreement. Commercial solar energy purposes means converting solar energy into

electrical energy and collecting and transmitting the electrical energy so converted, together with any and all activities related thereto.

2. The initial term of the Lease Agreement is for a period of three (3) years, commencing on the Effective Date and ending on the <u>17</u>^m day of <u>49</u>^m day

3. Lessor shall have no ownership and other interest in any solar facilities installed on the Premises by Lessee, except as provided in Section 4.3 of the Lease and Lessee may remove any or all solar facilities at any time.

4. Lessee and any successor or assign of Lessee has the right under the Lease, without need for Lessor's consent, to do any of the following, conditionally or unconditionally, with respect to all or any portion of the Premises for solar energy purposes: grant co-leases, separate leases, subleases, easements, licenses or similar rights (however denominated) to one or more third parties; or sell, convey, lease, assign, mortgage, encumber or transfer to one or more third parties or to any affiliate of Lessee's this Lease, or any right or interest in this Lease, or any or all right or interest of Lessee in the Premises or in any or all of the solar power facilities that Lessee or any other party may now or hereafter install on the Premises provided that (i) any such assignment, transfer or conveyance shall not be for a period beyond the term of the Lease; (ii) the assignee or transferee shall be subject to all of the obligations, covenants and conditions applicable to the Lessee; and (iii) Lessee shall not be relieved from liability for any of its obligations under the Lease by virtue of the assignment or conveyance unless Lessee assigns or conveys all of its interests under the Lease to the assignee or transferee, in which event Lessee shall have no continuing liability.

5. The Lease Agreement and the easement and rights granted Lessee therein shall burden the Premises and shall run with the land. The Lease Agreement shall inure to the benefit of and be binding upon and Lessee and, to the extent provided in any assignment or other transfer under the Lease Agreement, any assignee or Lessee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them.

6. This Memorandum of Lease has been executed and delivered by the parties for the purpose of recording and giving notice of the lease and easement rights in accordance with the terms, covenants and conditions of the Lease Agreement.

7. The terms and conditions of the Lease Agreement are incorporated by reference into this Memorandum of Lease as if set forth fully herein at length. In the event of any conflict between the terms and provisions of the Lease Agreement and this Memorandum of Lease, the Lease Agreement shall control.

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LESSEE SIGNATURE PAGE

LESSEE Hyacinth Solar, LLC By:_ Jeff Ringblom, Chief Financial Officer

STATE OF MINNESOTA)

COUNTY OF HENNEPIN)

The foregoing instrument was acknowledged before me this <u>17</u>th day of <u>4911</u>, 20<u>19</u> by Jeff Ringblom of Hyacinth Solar, LLC, a Minnesota limited liability company on behalf of the limited liability company.

) ss.

Jehn

Notary Public

BRIANA MEGHAN SCHNAIBLE Notary Public State of Minnesota My Commission Expires January 31, 2020

LESSOR SIGNATURE PAGE

.

St. Olaf College

Janes da By_

Janet Hanson, VP and CFO

STATE OF MINNESOTA)) ss. COUNTY OF Rice

The foregoing instrument was acknowledged before me this 27 day of <u>march</u>, $20 \underbrace{19}_{11}$, by Janet Hanson, the Vice President and CFO of St. Olaf College, a Minnesota corporation on behalf of the corporation.

Notary Public



EXHIBIT A TO MEMORANDUM

DESCRIPTION OF PREMISES

Tax Parcel Nos.: 037-43-02700-79-010 and 037-43-02600-53-010

The East Half of the Southeast Quarter of the Southeast Quarter of Section 27, Township 112, Range 20, Dakota County, Minnesota.

AND

The Southwest Quarter of the Southwest Quarter and the South Half of the Northwest Quarter of the Southwest Quarter of Section 26, Township 112, Range 20, Dakota County, Minnesota.

EXHIBIT A-1 TO MEMORANDUM

014

SITE PLAN



Appendix B

Preliminary Site Plans

Hyacinth Solar, LLC City of Northfield, MN

Conditional Use Permit Plans

REGIONAL MAP



CONTACT INFORMATION						
TITLE	TITLE COMPANY NAME ADDRESS PHONE					
OWNER	HYACINTH SOLAR, LLC	MARTA JENSEN	7650 EDINBOROUGH WAY, SUITE 725, EDINA, MN 55436	952-988-9000		
PROJECT MANAGER/ENGINEER OF RECORD	WESTWOOD PROFESSIONAL SERVICES	AUGUST CHRISTENSEN	12701 WHITEWATER DRIVE, SUITE 300 MINNETONKA, MN 55343	952-906-7430		

VICINITY MAP



Sheet	List lable			
Sheet Number	Sheet Title			
C.100	Cover			
C.200	Overall Site Plan			
C.201	Existing Conditions			
C.300	Site Plan			
C.302	Drainage Plan			
C.400	Landscape Plan			
C.401	Landscape Details			
C.500	Construction Details			
C.501	Construction Details			



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Hyacinth Solar, LLC

City of Northfield, MN

Cover

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PROJECT BOUNDARY PROPERTY BOUNDARY SECTION LINES RIGHT-OF-WAY LINES EASEMENT LINES FUTURE RIGHT-OF-WAY LINES FUTURE ROAD CENTERLINE EX. PAVED ROAD EX. GRAVEL ROAD EX. CULVERT EX. FIBER OPTIC LINE EX. GAS PIPELINE PROPOSED SOLAR ARRAY PROPOSED MODULE SETBACK PROPOSED ACCESS ROAD PROPOSED SECURITY FENCE PROPOSED UNDERGROUND COLLECTOR PROPOSED ELECTRICAL EQUIPMENT PROPOSED LAYDOWN YARD PROPOSED LIGHTING PROPOSED UTILITY POLE PROPOSED LANDSCAPING BUFFER

PROJECT SETBACKS					
ITEM	REQUIRED	DESIGNED			
FRONT YARD	50' 321.2'				
REAR YARD	15'	305.5'			
SIDE YARD	15'	69.6'			
HEIGHT	<20'	NA			

Westw
 (952)
 937-5150
 12701
 Whitewater
 Drive, Suite
 #300

 (952)
 937-5822
 Minnetonka, MN
 55343
 westwoodps.com
 Phone Fax

PREPARED FOR:

Tol Free

Westwood Professional Services, Inc.



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Hyacinth Solar, LLC City of Northfield, MN

Overall Site Plan

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	EX. (GRAVEL ROAD		
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	EX. I	NTERVAL CONTOUR		
7.73%	EX. (GROUND SLOPE		
	EX. S	Soils Boundary		
	EX. S	SOILS DATA		
EM			ACRES	%
9-CYLINDER LOAN OPES: B/D	М, 0 ⁻	TO 2 PERCENT	0.1	0.9
7B-MERTON SILT RCENT SLOPES: B	LOA /D	M ,1 TO 6	2.9	29.0
2B-BLOOMING SI		DAM, 1 TO 6	6.9	70.1

EX. LAND USE				
ITEM	ACRES	%		
AGRICULTURAL	9.8	100		
TOTAL	9.8	100		

9.8 100



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Hyacinth Solar, LLC City of Northfield, MN

Existing Conditions

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END:	
	PROJECT BOUNDARY
	PROPERTY BOUNDARY
	SECTION LINES
<u> </u>	RIGHT-OF-WAY LINES
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	PROPOSED SOLAR ARRAY
	PROPOSED MODULE SETBACK
	PROPOSED ACCESS ROAD
x	PROPOSED SECURITY FENCE
UMV	PROPOSED UNDERGROUND COLLECTOR
	PROPOSED ELECTRICAL EQUIPMENT
	PROPOSED LAYDOWN YARD
¥	PROPOSED LIGHTING
Ş	PROPOSED UTILITY POLE
<u> </u>	PROPOSED INDEX CONTOUR
	PROPOSED INTERVAL CONTOUR
	PROPOSED CULVERT

1. ENTIRE PROJECT WITHIN FENCE LINE IS TO BE DISTURBED. 2. ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO ANY UP SLOPE GROUND

PROPOSED LANDSCAPING BUFFER

DISTURBANCE COMMENCEMENT. 3. SITE PREPARATION INCLUDES BUT IS NOT LIMITED TO CLEARING/GRUBBING, MINOR GRADING, COMPACTION, MOWING OF VEGETATION, AND RESTABILIZATION OF DISTURBED AREA.

4. ALL POWER AND COMMUNICATION LINES SHALL BE BURIED UNDERGROUND, BETWEEN THE INVERTER SKID AND THE MODULE ARRAYS.

5. AREAS THAT DO NOT SHOW PROPOSED CONTOURS MAY REQUIRE SURFACE SMOOTHING TO ENSURE A UNIFORM SURFACE FOR THE INSTALLATION OF SOLAR EQUIPMENT. 6. FINAL POI LAYOUT AND LOCATION TO BE DETERMINED BASED ON XCEL REQUIREMENTS.

PROJECT SETBACKS					
ITEM	REQUIRED	DESIGNED			
ONT YARD	50'	321.2'			
EAR YARD	15'	305.5'			
IDE YARD	15'	69.6'			
HEIGHT	<20'	<20'			

Westwood
 Phone
 (952) 937-5150
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 Minnetonka, MN 55343

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Hyacinth Solar, LLC

City of Northfield, MN

Site Plan

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DATE:

12/31/2019

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LEGEND:

	PROJECT BOUNDARY
	PROPERTY BOUNDARY
	SECTION LINES
	RIGHT-OF-WAY LINES
	EASEMENT LINES
· ·	FUTURE RIGHT-OF-WAY LINES FUTURE ROAD CENTERLINE
	EX. PAVED ROAD
<u> 1997 - 1997 - 1997 - 1997 - 1997 - 1997</u>	EX. GRAVEL ROAD
]	EX. CULVERT
FO	EX. FIBER OPTIC LINE
GAS	EX. GAS PIPELINE
000	EX. INDEX CONTOUR
	EX. INTERVAL CONTOUR
	PROPOSED SOLAR ARRAY
	PROPOSED MODULE SETBACK
	PROPOSED ACCESS ROAD
x	PROPOSED SECURITY FENCE
UMV	PROPOSED UNDERGROUND COLLECTOR
	PROPOSED ELECTRICAL EQUIPMENT
	PROPOSED LAYDOWN YARD
*	PROPOSED LIGHTING
Ş	PROPOSED UTILITY POLE
<u> </u>	PROPOSED INDEX CONTOUR
	PROPOSED INTERVAL CONTOUR
	PROPOSED CULVERT
SF	PROPOSED SILT FENCE
-7.73%	EX. GROUND SLOPE
	DRAINAGE AREA
·····	PROPOSED STORMWATER STORAGE AREA

9

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Hyacinth Solar, LLC

City of Northfield, MN

Drainage Plan

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BUFFER PLANTING SCHEDULE

KEY	QTY.	COMMON/BOTANICAL NAME	SIZE	SPACING O.C.	MATURE HEIGHT
\bigcirc	37	Techny Arborvitae / Thuja occidentalis 'Techny'	4' HT BB	33'-4" O.C. TYP.	12-15'
\mathbf{x}	113	Cardinal Dogwood / Cornus sericea 'Cardinal'	#1 CONT.	11'-0" O.C. TYP.	8'-10'

NOTE: QUANTITIES ON PLAN SUPERSEDE LIST QUANTITIES IN THE EVENT OF A DISCREPANCY.

BUFFER PLANTING MATERIALS



Cardinal Dogwood (Winter)



SEEDING LEGEND



ARRAY GRASS MIX (6.46 AC) OPEN AREA GRASS MIX (1.75 AC)

9

WET AREA GRASS MIX (0.11 AC)

SEEDING NOTES:

- NOTES: 1. SEEDING TO BE COMPLETED USING A DRILL SEEDING, COMPLETED USING OR ANOTHER METHO BROADCASTIN, HYDROSEEDING, OR ANOTHER METHOD DEEMED VIABLE.
- 2. BROADCAST SEEDING SHALL BE COMPLETED IF AMBIENT SOIL TEMPERATURE IS CONSISTENTLY 60 DEGREES F OR LOWER
- 3. IF NOT FROST SEEDING, DRILLING SHOULD OCCUR BETWEEN APRIL 1ST AND JUNE 1ST 4. THE CONTRACTOR SHALL NOT TILL OR FERTILIZE THE FIELDS,
- IF THE GROUND NEEDS TO TO BE TILLED, CONTRACTOR SHALL USE A VERTICAL PLOW 5. ALL DISTURBED AREAS TO BE SEEDED. HATCHED AREAS ARE
- ESTIMATED BASED UPON AERIAL IMAGERY. ACTUAL SEEDING LIMITS TO BE DETERMINED IN FIELD.
- 6. IF AT THE TIME OF PROCUREMENT SEEDS LISTED ARE NOT AVAILABLE THEN AN EQUIVALENT SUBSTITUTION WILL BE MADE BY A QUALIFIED PROFESSIONAL.



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Hyacinth Solar, LLC

City of Northfield, MN

Landscape Plan

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PLANTING NOTES

PLANTING DETAILS

4

1. CONTRACTOR SHALL CONTACT COMMON GROUND ALLIANCE AT 811 OR CALL811.COM TO VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY PLANTS OR LANDSCAPE MATERIAL. 2. ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO FIELD AND SITE CONDITIONS. 3. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. 4. ALL SUBSTITUTIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO SUBMISSION OF ANY BID AND/OR QUOTE BY THE LANDSCAPE CONTRACTOR. CONTRACTOR SHALL PROVIDE TWO YEAR GUARANTEE OF ALL PLANT MATERIALS. THE GUARANTEE BEGINS ON THE DATE OF THE LANDSCAPE ARCHITECT'S OR OWNER'S WRITTEN ACCEPTANCE OF THE INITIAL PLANTING. REPLACEMENT PLANT MATERIAL SHALL HAVE A ONE YEAR GUARANTEE COMMENCING UPON PLANTING. ALL PLANTS TO BE SPECIMEN GRADE, MINNESOTA-GROWN AND/OR HARDY. SPECIMEN GRADE SHALL ADHERE TO, BUT IS NOT LIMITED BY, THE FOLLOWING STANDARDS: ALL PLANTS SHALL BE FREE FROM DISEASE, PESTS, WOUNDS, SCARS, ETC. ALL PLANTS SHALL BE FREE FROM NOTICEABLE GAPS, HOLES, OR DEFORMITIES. ALL PLANTS SHALL BE FREE FROM BROKEN OR DEAD BRANCHES. ALL PLANTS SHALL HAVE HEAVY, HEALTHY BRANCHING AND LEAFING. CONIFEROUS TREES SHALL HAVE AN ESTABLISHED MAIN LEADER AND A HEIGHT TO WIDTH RATIO OF NO LESS THAN 5:3. 7. PLANTS TO MEET AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE SPECIFIED. 8. PLANTS TO BE INSTALLED AS PER MNLA & ANSI STANDARD PLANTING PRACTICES. 9. PLANTS SHALL BE IMMEDIATELY PLANTED UPON ARRIVAL AT SITE. PROPERLY HEEL-IN MATERIALS IF NECESSARY; TEMPORARY ONLY. 10. PRIOR TO PLANTING, FIELD VERIFY THAT THE ROOT COLLAR/ROOT FLAIR IS LOCATED AT THE TOP OF THE BALLED & BURLAP TREE. IF THIS IS NOT THE CASE, SOIL SHALL BE REMOVED DOWN TO THE ROOT COLLAR/ROOT FLAIR. WHEN THE BALLED & BURLAP TREE IS PLANTED, THE ROOT COLLAR/ROOT FLAIR SHALL BE EVEN OR SLIGHTLY ABOVE FINISHED GRADE. 11. OPEN TOP OF BURLAP ON BB MATERIALS; REMOVE POT ON POTTED PLANTS; SPLIT AND BREAK APART PEAT POTS. 12. PRUNE PLANTS AS NECESSARY - PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES. 13. WRAP ALL SMOOTH-BARKED TREES - FASTEN TOP AND BOTTOM. REMOVE BY APRIL 1ST. 14. STAKING OF TREES AS REQUIRED; REPOSITION, PLUMB AND STAKE IF NOT PLUMB AFTER ONE YEAR. 15. THE NEED FOR SOIL AMENDMENTS SHALL BE DETERMINED UPON SITE SOIL CONDITIONS PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR THE NEED OF ANY SOIL AMENDMENTS. 16. BACKFILL SOIL AND TOPSOIL TO ADHERE TO MN/DOT STANDARD SPECIFICATION 3877 (SELECT TOPSOIL BORROW) AND TO BE EXISTING TOP SOIL FROM SITE FREE OF ROOTS, ROCKS LARGER THAN ONE INCH, SUBSOIL DEBRIS, AND LARGE WEEDS UNLESS SPECIFIED OTHERWISE. MINIMUM 4" DEPTH TOPSOIL FOR ALL LAWN GRASS AREAS AND 12" DEPTH TOPSOIL FOR TREE, SHRUBS, AND PERENNIALS. 17. MULCH TO BE AT ALL TREE, SHRUB, PERENNIAL, AND MAINTENANCE AREAS. TREE AND SHRUB PLANTING BEDS SHALL HAVE 4" DEPTH OF SHREDDED HARDWOOD MULCH. SHREDDED HARDWOOD MULCH TO BE USED AROUND ALL PLANTS WITHIN TURF AREAS. PERENNIAL AND ORNAMENTAL GRASS BEDS SHALL HAVE 2" DEPTH SHREDDED HARDWOOD MULCH. MULCH TO BE FREE OF DELETERIOUS MATERIAL AND COLORED RED, OR APPROVED EQUAL. ROCK MULCH TO BE BUFF LIMESTONE, 1 1/2" TO 3" DIAMETER, AT MINIMUM 3" DEPTH, OR APPROVED EQUAL. ROCK MULCH TO BE ON COMMERCIAL GRADE FILTER FABRIC, BY TYPAR, OR APPROVED EQUAL WITH NO EXPOSURE. MULCH AND FABRIC TO BE APPROVED BY OWNER PRIOR TO INSTALLATION. MULCH TO MATCH EXISTING CONDITIONS (WHERE APPLICABLE). 18. EDGING TO BE COMMERCIAL GRADE VALLEY-VIEW BLACK DIAMOND (OR EQUAL) POLY EDGING OR SPADED EDGE, AS INDICATED. POLY EDGING SHALL BE PLACED WITH SMOOTH CURVES AND STAKED WITH METAL SPIKES NO GREATER THAN 4 FOOT ON CENTER WITH BASE OF TOP BEAD AT GRADE, FOR MOWERS TO CUT ABOVE WITHOUT DAMAGE. UTILIZE CURBS AND SIDEWALKS FOR EDGING WHERE POSSIBLE. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. INDIVIDUAL TREE, SHRUB, OR RAIN-GARDEN BEDS TO BE SPADED EDGE, UNLESS NOTED OTHERWISE. EDGING TO MATCH EXISTING CONDITIONS (WHERE APPLICABLE). ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. PARKING LOT ISLANDS TO BE SODDED WITH SHREDDED HARDWOOD MULCH AROUND ALL TREES AND SHRUBS. SOD TO BE STANDARD MINNESOTA GROWN AND HARDY BLUEGRASS MIX, FREE OF LAWN WEEDS. ALL TOPSOIL AREAS TO BE RAKED TO REMOVE DEBRIS AND ENSURE DRAINAGE. SLOPES OF 3:1 OR GREATER SHALL BE STAKED. SEED AS SPECIFIED AND PER MN/DOT SPECIFICATIONS. IF NOT INDICATED ON LANDSCAPE PLAN, SEE EROSION CONTROL PLAN. 20. PROVIDE IRRIGATION TO ALL PLANTED AREAS ON SITE. IRRIGATION SYSTEM TO BE DESIGN/BUILD BY LANDSCAPE CONTRACTOR. LANDSCAPE CONTRACTOR TO PROVIDE SHOP DRAWINGS TO LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION OF IRRIGATION SYSTEM. CONTRACTOR TO PROVIDE OPERATION MANUALS, AS-BUILT PLANS, AND NORMAL PROGRAMMING. SYSTEM SHALL BE WINTERIZED AND HAVE SPRING STARTUP DURING FIRST YEAR OF OPERATION. SYSTEM SHALL HAVE ONE-YEAR WARRANTY ON ALL PARTS AND LABOR. ALL INFORMATION ABOUT INSTALLATION AND SCHEDULING CAN BE OBTAINED FROM THE GENERAL CONTRACTOR. 21. CONTRACTOR SHALL PROVIDE NECESSARY WATERING OF PLANT MATERIALS UNTIL THE PLANT IS FULLY ESTABLISHED OR IRRIGATION SYSTEM IS OPERATIONAL. OWNER WILL NOT PROVIDE WATER FOR CONTRACTOR. 22. REPAIR, REPLACE, OR PROVIDE SOD/SEED AS REQUIRED FOR ANY ROADWAY BOULEVARD AREAS ADJACENT TO THE SITE DISTURBED DURING CONSTRUCTION. 23. REPAIR ALL DAMAGE TO PROPERTY FROM PLANTING OPERATIONS AT NO COST TO OWNER. 24. RAIN GARDEN NOTE: PROVIDE AND INSTALL EROSION CONTROL BLANKET AT RAIN GARDEN AREA SIDE SLOPES AFTER ALL PLANTING HAVE BEEN INSTALLED. BLANKET TO BE ONE SEASON GEOJUTE, MN/DOT CATEGORY 2 (STRAW 1S, WOOD FIBER 1S), OR APPROVED EQUAL. BLANKET TO BE OVERLAPPED BY 4" AND ANCHORED BY SOD STAPLES. PLACE BLANKET PERPENDICULAR TO THE SLOPE. TRENCH IN EDGES OF BLANKET AREA TO PREVENT UNDER MINING. PROVIDE SILT FENCE AT TOP OF SLOPE AS NEEDED. SHREDDED HARDWOOD MULCH TO MATCH OTHER PROJECT PLANTING MULCH. PLACE 4" DEPTH OF MULCH AT ALL PLANTING AND EROSION CONTROL BLANKET AREA (NO FILTER FABRIC). SEE RAIN GARDEN DETAIL FOR FURTHER INFORMATION. RAIN GARDEN TO PROVIDE PROPER INFILTRATION AND DRAINAGE REQUIREMENTS PER ENGINEERS APPROVAL.



	- PRUNE OUT MISI PROVIDE ONE CE	DIRECTED BRANCHES. INTRAL LEADER.
	- GUYING AND ST/ ONE (1) YEAR ON CONIFEROUS TRI TOP STAKES OR TO FIRST STAKE 3' (MI STAKING PC WOOD OR F POSTS. PLA AROUND AN SECURE TRE POLYPROPY MIL., 1.5" WI	AKING, AS REQUIRED, FOR I ALL DECIDUOUS AND EES: 5' ABOVE GROUND (MAX.) BRANCH. BOTTOM OF IN.) BELOW GROUND. IN.) BELOW GROUND. IN.) BELOW GROUND. STS TO BE 2"X2" STAINED PAINTED STEEL DELINEATOR CE 3 POSTS EQUIDISTANT ND OUTSIDE ROOT BALL. E TO POSTS WITH 16" LONG LENE OR POLYETHYLENE, 40 DE STRAP.
Le la	- PLACE MULCH, D PLANT PITS - DO	EPTH AS SPECIFIED, OVER NOT PILE AGAINST TRUNK.
	 FORM 3" DEEP W BACKFILL PLANT BACKFILL SOIL. REFER TO AMERI NURSERY STOCK ROOT FLARE TO FINISHED GROUP SCARIFY SIDES A 	VATERING BASIN. PIT WITH SPECIFIED CAN STANDARD FOR FOR MINIMUM BALL SIZE. BE PLANTED AT OR NEAR NDLINE. ND BOTTOM OF HOLE.
	 SET ROOT BALL C OR COMPACTED TREES NATURAL FINISHED SITE GF 	DN UNDISTURBED SUBSOIL SOIL MOUND MATCHING GROUNDLINE WITH RADE. N.T.S.
		LAST REVISED:
NG		LA29
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHIN GROUNDLINE WIT	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHII GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED)	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC,
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHII GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHII GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV SCARIFY SIDES AN DEPTH PER CONTA	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS D BOTTOM OF HOLE. INER SOIL DEPTH
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHII GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV SCARIFY SIDES AN DEPTH PER CONTA BACKFILL PLANT P. PLANTING SOIL OF	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS D BOTTOM OF HOLE. INER SOIL DEPTH IT WITH SPECIFIED R AS APPROVED
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHII GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV SCARIFY SIDES AN DEPTH PER CONTA BACKFILL PLANT P. PLANTING SOIL OF SET CONTAINER R UNDISTURBED SUE COMPACTED SOIL FINISH GRADE	IER, SCARIFY SIDES, AND I COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS D BOTTOM OF HOLE. JINER SOIL DEPTH IT WITH SPECIFIED AS APPROVED OOT SOIL ON 3SOIL OR MILD FOR DEPTH TO MATCH
	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHIR GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV SCARIFY SIDES AN DEPTH PER CONTA BACKFILL PLANT PP PLANTING SOIL OF SET CONTAINER R UNDISTURBED SUI COMPACTED SOIL FINISH GRADE	IER, SCARIFY SIDES, AND COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS D BOTTOM OF HOLE. VINER SOIL DEPTH IT WITH SPECIFIED AS APPROVED OOT SOIL ON 3SOIL OR MILD FOR DEPTH TO MATCH N.T.S.
RENNIAL	REMOVE CONTAIN SET SOIL MASS ON MOUND, MATCHIN GROUNDLINE WIT MULCH AS SPECIFI AS INDICATED) EDGING AT PLANT ADJACENT TO LAV SCARIFY SIDES AN DEPTH PER CONTA BACKFILL PLANT PP PLANTING SOIL OF SET CONTAINER R UNDISTURBED SUI COMPACTED SOIL FINISH GRADE	IER, SCARIFY SIDES, AND COMPACTED SOIL BASE NG SHRUBS NATURAL H FINISHED GRADE IED (AND FILTER FABRIC, ING BEDS, AS SPECIFIED, VN AREAS D BOTTOM OF HOLE. INRE SOIL DEPTH IT WITH SPECIFIED AS APPROVED OOT SOIL ON 3SOIL OR MILD FOR DEPTH TO MATCH N.T.S. LAST REVISED: 10/23/18



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7650 Edinborough Way, Suite 725 Edina, MN 55435

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Hyacinth Solar, LLC

City of Northfield, MN

Landscape Details

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DATE:

01/02/2020

SHEET:

C.401







PREPARED FOR:

9



a nationalgrid company

7650 Edinborough Way, Suite 725 Edina, MN 55435

COMMENT # DATE

REVISIONS:

– 8" AGGREGATE BASE, SEE CONSTRUCTION SPECIFICATIONS FOR TYPE OF AGGREGATE AND REQUIREMENTS

-MIRAFI HP270 OR APPROVED EQUAL

8" OF SCARIFIED AND COMPACTED SUBGRADE

LAST REVISED 11/07/14 RD02

Hyacinth Solar, LLC

City of Northfield, MN

Construction Details

NOT FOR CONSTRUCTION

DATE:

C.501

01/02/2020

SHEET

Appendix C

Decommissioning Plan



Hyacinth Decommissioning Plan

Timeline

The decommissioning will occur at the end of the photovoltaic system's useful life or when the system has not been in use for twelve (12) consecutive months. Decommissioning is estimated to take four weeks per MW, weather permitting, to complete. This time frame estimate excludes time needed to secure permits and hire a contractor to perform the work. The decommissioning crew will ensure that all equipment is recycled or disposed of properly.

Financial Resource Plan

Based on current recycling costs and salvage values, the cost of decommissioning the project will be \$25,000 per MW. Hyacinth will post a letter of credit or another form of surety prior to construction.

Shutdown/Disconnection

Shut down system at all disconnect points (disconnect switch within fence and disconnect at switch gear). NOTE: Per contract, utility has the ability to disconnect solar array from the utility's power grid for emergency purposes.

Removal and Disposal of Site Components

The removal and disposal details of the site components are found below, underground/buried equipment/facilities recovered to a depth of 48 inches. All removal and disposal of equipment shall meet the requirements of the City of Northfield's Solid Waste Ordinance.

- **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 packed and palletized and sent to the manufacturer or a third party for recycling.
- **Racking:** Racking uninstalled, sorted, and sent to metal recycling facility.
- **Poles:** Steel poles removed to a depth of 48 inches and sent to a recycling facility. Holes backfilled.
- Wire: Wire removed to a depth of 48 inches and sent to facility for proper disposal and recycling.
- **Conduit:** Above-ground conduit disassembled onsite and sent to recycling facility.
- Junction boxes, combiner boxes, external disconnect boxes, etc.: Sent to electronics recycler.
- **Inverter:** Sent to manufacturer and/or electronics recycler. Functioning parts can be reused.
- Concrete pad(s): Sent to concrete recycler.



- Fence: Sent to metal recycling facility.
- **Computers, monitors, hard drives, and other components:** Sent to electronics recycler. Functioning parts can be reused.

Restoration/Reclamation of Site

After all equipment is removed the site will be restored to its pre-installation status. Holes created by poles, concrete pads, and other equipment will be filled in with soil to existing conditions and seeded. This will include the re-vegetation of the site.

Appendix D

Dakota County WCA Notice of Decision

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act Notice of Decision

Local Government Unit: City of Northfield	County: Dakota				
Applicant Name: Hyacinth Solar, LLC, Marta Jensen					
Applicant Representative: Area M, Jonathan Knudsen					
Project Name: Hyacinth Solar Project	LGU Project No. (if any): SWCD # 19-NRT-209				
Date Complete Application Received by LGU: 10/07/19					
Date of LGU Decision: 11/22/19					
Date this Notice was Sent: 11/25/19					
WCA Decision Type - check all that apply					
⊠Wetland Boundary/Type □Sequencing □Replacem	ient Plan 🛛 🗆 Bank Plan (not credit purchase)				
□No-Loss (8420.0415)	Exemption (8420.0420)				
Part: \Box A \Box B \Box C \Box D \Box E \Box F \Box G \Box H	Subpart: 🗆 2 🗖 3 🗆 4 🗆 5 🔲 6 🗆 7 🗔 8 🗆 9				
Replacement Plan Impacts (replacement plan decisions only)					
Total WCA Wetland Impact Area:					
Wetland Replacement Type: Project Specific Credits:					
Bank Credits:					
Bank Account Number(s):					
Technical Evaluation Panel Findings and Recommendations ((attach if any)				
□ Approve □ Approve w/Conditions □ Deny ⊠ No	TEP Recommendation				
LGU Decision					
□ Approved with Conditions (specify below) ¹ ⊠ A List Conditions:	Approved ¹ Denied				
Decision-Maker for this Application: Staff Governing Decision is valid for: 5 years (default) Other (specify):	Board/Council 🗆 Other:				
<u>Wetland Replacement Plan</u> approval is not valid until BWSR confirms the v specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 the title of the property on which the replacement wetland is located must b LGU Findings – Attach document(s) and/or insert narrative pr	withdrawal of any required wetland bank credits. For project- and evidence that all required forms have been recorded on be provided to the LGU for the approval to be valid. Toviding the basis for the LGU decision ¹ .				
	V				

□ Attachment(s) (specify):

Summary: The Notice of Application was sent out October 7, 2019 and the comment period ended on November 8, 2019. No comments were received during the comment period. The SWCD conducted a field review of the project site on October 16, 2019 and verified no wetlands present in the project area.

¹ Findings must consider any TEP recommendations.

Attached Project Documents

Site Location Map Project Plan(s)/Descriptions/Reports (specify):

Appeals of LGU Decisions

If you wish to <u>appeal</u> this decision, you must provide a written request <u>within 30 calendar days of the date you</u> <u>received the notice</u>. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for \$500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator Minnesota Board of Water & Soils Resources 520 Lafayette Road North St. Paul, MN 55155 travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

☑ Yes¹
 □ No
 ¹If yes, all appeals must first be considered via the local appeals process.

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Send petition within 30 calendar days of date receive notice and \$500 fee to: Cole Johnson, 801 Washington Street, Northfield, MN 55057

Notice Distribution (include name)

Required on all notices:

SWCD TEP Member: David Holmen
 LGU TEP Member (if different than LGU contact): Cole Johnson, City of Northfield
 DNR Representative: Jennie Skancke, Leslie Parris
 Watershed District or Watershed Mgmt. Org.: Ashley Gallagher, North Cannon River WMO
 Applicant (notice only): Marta Jensen, Hyacinth Solar, LLC
 Agent/Consultant (notice only): Jonathan Knudsen, Area M

Optional or As Applicable:

□ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):					
□ Members of the Public (notice only): □ Other:					

Signature:

VAA.

Date: 11/22/19

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.





Appendix E

Wetland Delineation Survey

Level 2 Wetland Delineation Report Hyacinth Solar Project Dakota County, Minnesota



Prepared for:

Hyacinth Solar,, LLC 7650 Edinborough Way Suite 725 Edina, MN 55435

Prepared by:

Area M Consulting, LLC Environmental Consultants 2023 Alameda Street Roseville, MN 55113 www.areamconsulting.com



July 2019

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I certify that, to the best of my knowledge, this wetland delineation and report were completed following current wetland standards as set forth by the USACE and BWSR. Findings in this report represent Area M's best judgement based on conditions and information available at the time of the wetland delineation.

Joth Kula

Jonathan Knudsen, WDC, MS Principal Biologist/Wetland Specialist MN Certified Wetland Delineator 1307





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APPENDICES

Appendix A. Maps
Appendix B: Soils Report - Hydric Rating by Soils Unit and Hydric Soil List - All components
Appendix C: Aerial Imagery Review
Appendix D: Wetland Hydrology from Aerial Imagery – Recording Form Exhibits 1 and 2
Appendix E: Field Photographs
Appendix F: Wetland Data Forms

Area M Consulting (Area M), on behalf of Hyacinth Solar, LLC, a wholly owned subsidiary of Geronimo Energy, LLC (Client), a National Grid Company, conducted a wetland delineation for the Hyacinth Solar Project (Project) located within Dakota County, Minnesota. The Area M biologist conducted a routine Level 2 Delineation, as defined by the Board of Water and Soil Resources (BWSR), within the entire project boundaries following procedures and methods outlined by the United States Army Core of Engineers (USACE) Wetland Delineation Manual (USACE, 1987), Midwest Regional Supplement (USACE, 2012), and BWSR Guidance for Offsite Hydrology/Wetland Determinations (2016). This wetland delineation report is assembled to assist the Client with meeting regulatory requirements necessary for permitting a community solar garden (CSG) in Dakota County.

PROJECT DESCRIPTION

The Project, encompassing approximately 13.3 acres, is located 2.0 miles northwest of Northfield, MN in Sections 27 and 28, T112N:R19W (Study Area) (Appendix A). The entire Project Site is under cultivation (soybean/corn rotation). A large, operating CSG occurs along the northern boundary of the Study Area. A gravel driveway accesses the existing CSG from the south via HWY 19. The proposed Project will utilize the existing access road. The surrounding landscape is dominated by cropland intermixed with farmsteads, ditched waterways, woodlots, and residential development associated with Northfield.

OFF-SITE REVIEW

Prior to fieldwork, Area M conducted a comprehensive desktop review of data sources available within the public domain to identify the presence/absence and extent of wetlands that could occur within the Study Area. Areas with hydric signatures, suggesting potential wetland conditions, were evaluated in greater detail during the field investigation. The following data sources were reviewed; the analysis of each data set is discussed in greater detail later in this section.

- □ Hydrologic soil data
- Antecedent precipitation data
- □ Mapped Wetlands/Waterbodies
 - U.S. Fish and Wildlife Services (USFWS) National Wetland Inventory (NWI)
 - MNDNR updated NWI
 - MNDNR Public Waters Inventory (PWI)
 - National Hydrography Dataset (NHD)
- Elevation Data
 - MN Department of Natural Resources (MNDNR) Light Detection and Ranging (LiDAR) Data
 - United States Geological Survey (USGS) topographic maps

Historic and current aerial photographs

Soils

The Web Soil Survey (NRCS, 2019) was accessed to summarize mapped soil types which occur within the Study Area. These soils and associated hydric attributes are presented in Table 1.

Map Unit	Soil type		Ponding/ Flooding Frequency	Hydrologic Group/ Hydric Rating	Acres within Study Area
129	Cylinder loam	0-2	None/None	B/D/5	0.1
377B	Merton silt loam	1-6	None/None	B/D/5	5.2
382B	Blooming silt loam	1-6	None/None	B/0	8.0

Source: (NRCS, 2019)

Soil units with partially hydric ratings (Hydric Rating>0) occur throughout the entire Study Area (Appendix A). The full list of hydric soils components and attributes are listed in Appendix B.

Mapped Wetland Data

The NWI (USFWS, 2019), MN NWI update (MNDNR, 2019a), PWI (MNDNR, 2019b) and NHD data sets were reviewed for the presence of mapped wetlands and/or waterbodies within the Study Area. Area M confirmed the absence of all mapped aquatic features within the Study Area (Appendix A).

Topographic Data

Elevation and topographic data from the USGS and MNDNR were reviewed within the Study Area to identify potential basins and depressional areas which could be indicative of wetlands. The Study Area occurs on a gentle hillside, sloping slightly westward towards the existing access road (Appendix A). The total topographic relief of the Study Area is 36 feet. No conspicuous depressional areas were identified.

Historic Aerial Photography Review

Historic aerial photographs were analyzed for hydric signatures in conjunction with antecedent precipitation, following the procedures outlined in the Guidance for Offsite Hydrology/Wetland Determinations (BWSR and USACE 2016). Upon review, two areas (Area 1 and Area 2) showing potential wetland signatures in the historic imagery were identified within or adjacent to the Study Area (Appendix C). Area 1 is located adjacent to the access road, but outside of the area of proposed disturbance. Area 2 occurs in the northwestern corner of the Study Area (Appendix A). Exhibit 1 and Exhibit 2, which summarize the data reviewed for the offsite evaluation, are presented in Appendix D. Based on the Decision Matrix in Exhibit 2, Area 1 is a wetland and Area 2 is upland. The access road was built through Area 1 in 2017/2018, and the remaining portion of the feature is located outside of the Study Area.

Off-site Summary

Overall, the off-site review suggests one wetland (within Area 1) occurs adjacent to the access road proposed to service the Project. The entire Study Area was investigated in greater detail during the field survey.

FIELD DELINEATION

Methodology

Suspected wetlands identified during the off-site analysis were investigated in the field using routine onsite delineation methods in accordance with the USACE Wetlands Delineation Manual (USACE, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (USACE, 2010). This included the characterization of vegetation, soils, and hydrology onsite. Wetlands are defined by the USACE as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." For an area to be delineated as a regulated wetland, the vegetative, hydrologic, and soil characteristics must all be present and consistent with federal and state classification criteria.

Transects were established in representative transition zones, perpendicular between suspected wetland and upland areas. Survey Points were recorded along each transect, moving from upland to wetland in order to identify the wetland boundary. Wetland criteria were evaluated at each Survey Point and a Wetland Determination Form – Midwest Region (Form) was completed. Additional Survey Points were collected within unique vegetation communities (if present) to document and characterize baseline hydrology, soils, and vegetation within the Study Area. Determination of wetland type was based on the classification system developed by Cowardin et al. (1979) and the USFWS Circular 39 system (Shaw & Fredine 1956). The entire Study Area was surveyed in the field to confirm the absence of additional wetlands.

The location and boundaries of wetland features identified by Area M during field surveys were recorded in the field using a Trimble Geoexplorer 6000 which typically achieves accuracy within 2 feet. A map depicting wetland boundaries, survey points, and transects is included in Appendix A. Representative photographs of the Study Area are included in Appendix E. Field Forms are included in Appendix F.

Field Conditions

Area M conducted a field delineation on July 24, 2019. Field conditions were dry with clear skies and a temperature of approximately 75 degrees Fahrenheit. Antecedent climate conditions were wetter than normal (Table 2). The Study Area, which is typically fully cropped, was mostly cropped with corn in 2019. Due to the extremely wet April, it appears crops were not planted in some areas (e.g. Area 2), likely due to inundation. Drain tiles were not identified during the field delineation.

Antecedent Precipitation Analysis

Antecedent Precipitation conditions were evaluated using the NRCS Method for Evaluating Antecedent Moisture Conditions. Data from the Minnesota Climatology Working Group and Natural Resources Conservation Service. WETS Tables suggest moisture conditions were wetter than normal during the field survey on June 24, 2019. These conditions were taken into consideration when conducting the delineation.

	Long-t R	erm Rainfall Records					
Month	30%	70%	Estimated Rainfall	Condition	Value	Weight	Product
April	1.94	3.20	5.78	Wet	3	1	3
May	2.78	4.61	6.70	Wet	3	2	6
June	3.11	4.57	3.55	Normal	2	3	6
							15 (Wet)

Table 2. Study Area precipitation data.

Field Review Summary

Based upon this routine Level 2 Wetland Delineation, it is the professional opinion of Area M that wetlands do not occur within the Study Area. However, Area 1, located adjacent to the access road, is a wetland.

Wetland 1: PEMf-0.4 acres

Wetland 1, located within Area 1, is a wetland based on the off-site Hydrology Determination procedure (BWSR 2016). Soils were saturated to the surface during the field visit and corn had either been drownedout or not planted due to standing water during planting in April. The access road spans across the western edge of Area 1. Because the Project will utilize this existing access road, Wetland 1 is entirely outside of the Study Area.

Area 2: Upland

Area 2, located in the northwest corner of the Study Area, was determined to be upland based on the offsite Hydrology Determination procedure (BWSR 2016) along with a subsequent field visit. During the onsite investigation, SP-1 was recorded within the center Area 2. At SP-1, soils were hydric with a depleted stratum under dark soils (A11). No primary hydrology indicators were observed at this location, but corn was absent (not cropped), indicating this area was too wet to plant in April. Vegetation was not evaluated at this point due to plowing and the general presence of corn. Due to antecedent conditions being wetter than normal, the wetland determination for this location was heavily dependent on the off-site guidance and aerial photo review.

RESULTS AND RECOMMENDATIONS

Based upon this routine Level 2 Wetland Delineation, it is the professional opinion of Area M that the Study Area does not contain features that satisfy the criteria to be wetlands pursuant to the Army Corps of Engineers' 1987 Manual with subsequent clarification memoranda and pursuant to confirmation by the USACE (Appendix A). Note that Wetland 1 occurs adjacent to the existing access road. Activities impacting wetlands and waterways are regulated through both the Local Government Unit (LGU) and USACE, which administer the Wetland Conservation Act and Clean Water Act, respectively. Wetlands and

_



waterways are subject to verification by state, federal, and local agencies, which have final authority over wetland presence, extent, and jurisdictional status.

REFERENCES

Board of Water and Soil Resources. 2010. Wetland Conservation Act: Choosing the Appropriate Method. BWSR Technical Guidance July 1, 2010.

BWSR and USACE. 2016. Guidance for Offsite Hydrology/Wetland Determination. St. Paul District.

Environmental Laboratory. 1987. Corp of Engineers Wetlands Delineation Manual. Wetlands Research Program. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, US Army Corp of Engineers. Vicksburg, Mississippi, USA.

Environmental Laboratory. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

Natural Resources Conservation Service (NRCS). 2016. Web Soil Survey. (United States Department of Agriculture) Retrieved from <u>http://www.websoilsurvey.nrcs.usda.gov</u>

Minnesota Department of Natural Resources. 2019a. National Wetland Inventory Update: Wetlands online map viewer. Downloaded from: <u>http://mndnr.maps.arcgis.com/apps/OnePane/basicviewer/index.html</u>

Minnesota Department of Natural Resources. 2019b. Public Waters Inventory Shapefiles. Downloaded from: https://gisdata.mn.gov/dataset/water-mn-public-waters

Minnesota Department of Natural Resources (MNDNR). 2019c. MN State Climatology Website. MNDNR Ecological and Water Resources Division. State Climatology Office. Retrieved from: <u>http://climate.umn.edu/gridded_data/precip/monthly/monthly_gridded_precip.asp</u>

United States Fish and Wildlife Service (USFWS). 2019. National Wetland Inventory: Wetlands Online Mapper. Retrieved from http://www.fws.gov/wetlands/data/mapper.HTML

Appendix A: Maps

AREAM











Appendix B: Soils Report

Hydric Rating by Soils Unit and Hydric Soil List – All components

AREA^{M}



USDA Natural Resources

Conservation Service

Web Soil Survey National Cooperative Soil Survey 7/22/2019 Page 1 of 5



Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
129	Cylinder loam, 0 to 2 percent slopes	15	0.1	0.8%
377B	Merton silt loam, 1 to 6 percent slopes	5	4.3	37.9%
382B	Blooming silt loam, 1 to 6 percent slopes	0	7.0	61.3%
Totals for Area of Intere	st	11.5	100.0%	

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States. Federal Register. September 18, 2002. Hydric soils of the United States. Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present Component Percent Cutoff: None Specified Tie-break Rule: Lower

Hydric Soil List - All Components

This table lists the map unit components and their hydric status in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

- 1. All Histels except for Folistels, and Histosols except for Folists.
- 2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;
- 3. Soils that are frequently ponded for long or very long duration during the growing season.
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;
- 4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
 - A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 - B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

- Federal Register. July 13, 1994. Changes in hydric soils of the United States.Federal Register. Doc. 2012-4733 Filed 2-28-12. February, 28, 2012. Hydric soils of the United States.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
- Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.
Report—Hydric Soil List - All Components

Hydric Soil List - All Components–MN037-Dakota County, Minnesota									
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)				
129: Cylinder loam, 0 to 2 percent slopes	Cylinder	75-95	Outwash plains,terraces	No	—				
	Biscay	5-15	Terraces,outwash plains	Yes	2				
	Biscay-Depressional	0-10	Depressions on outwash plains	Yes	2				
377B: Merton silt loam, 1 to 6 percent slopes	Merton	90	Moraines	No	—				
	Blooming	5	—	No	-				
	Maxcreek	5	Swales on moraines	Yes	2				
382B: Blooming silt loam, 1 to 6 percent slopes	Blooming	90	Moraines	No	—				
	Merton	10	-	No	-				

Data Source Information

Soil Survey Area: Dakota County, Minnesota Survey Area Data: Version 14, Sep 13, 2018 **Appendix C: Aerial Imagery Slides**

AREAM



October 1964





April 1991



May 2003





August 2004



November 2004

AREAM



May 2006



May 2008





June 2009



June 2010





August 2012



April 2015





November 2015



May 2017



Appendix D: Wetland Hydrology from Aerial Imagery – Recording Form

Exhibits 1 & 2

AREA^{M}

Wetland Hydrology from Aerial Imagery – Recording Form

Project Name:	Hyacinth	Date:	7/14/2019	County:	Dakota	
Investigator: J	Knudsen	Legal Des	cription (T, R, S):	112N	20W	26 & 27

Summary Table

Date Image	Imaga Sauraa	Climate Condition	Image Interpretation(s)						
Taken (M-D-Y)	image source	(wet, dry, normal) ⁱ	Area: 1	Area: 2	Area:	Area:	Area:		
10/64	FSA	Wet	NSS	NSS					
4/91	USGS	Normal	NSS	NSS					
5/03	USDA FSA	Normal	DO	NSS					
8/04	USDA FSA	Wet	SS	WS					
11/04	USDA FSA	Normal	SS	NSS					
5/06	USDA FSA	Normal	CS	CS					
5/08	USDA FSA	Normal	CS	NSS					
6/09	USDA FSA	Dry	NSS	NSS					
6/10	USDA FSA	Dry	CS	NSS					
8/12	USDA FSA	Wet	CS	CS					
4/15	Google Earth	Dry	NSS	NSS					
11/15	Google Earth	Normal	NSS	NSS					
5/17	Google Earth	Normal	NSS	NSS					
N	ormal Climate C	Condition	Area: 1	Area: 2	Area:	Area:	Area:		
Numb	er		7	7					
Numb	er with wet sign	atures	4	1					
Percer	nt with wet signa	atures	57%	14%					

	KEY	
WS - wetland signature	SS - soil wetness signature	CS - crop stress
NC - not cropped	AP - altered pattern	NV - normal vegetative cover
DO - drowned out	SW - standing water	NSS – no soil wetness signature
Other labels or comments:	NA=Could not review due to obscured imagery	

• Use above keyto label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.

• If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.

 $^{^{\}rm i}$ Use $\underline{\rm MN}$ State Climatology website to determine climate condition when image was taken.

Wetland Determination from Aerial Imagery – Recording Form

Project Name:	Hyacinth	Date: 7/14/2019	County:	Dakota	
Investigator:	J Knudsen	Legal Description (T, R, S):	112N	20W	26 & 27

Use the Decision Matrix below to complete Table 1.

Hydric Soils present ¹	Identified on NWI or other wetland map ²	Percent with wet signatures from Exhibit 1	Field verification required ³	Wetland?
Yes	Yes	>50%	No	Yes
Yes	Yes	30-50%	No	Yes
Yes	Yes	<30%	Yes	Yes, if other hydrology indicators present
Yes	No	>50%	No	Yes
Yes	No	30-50%	Yes	Yes, if other hydrology indicators present
Yes	No	<30%	No	No
No	Yes	>50%	No	Yes
No	Yes	30-50%	No	Yes
No	Yes	<30%	No	No
No	No	>50%	Yes	Yes, if other hydrology indicators present
No	No	30-50%	Yes	Yes, if other hydrology indicators present
No	No	<30%	No	No

¹ The presence of hydric soils can be determined from the "Hydric Rating by Map Unit Feature" under "Land Classifications" from the Web Soil Survey. "Not Hydric" is the only category considered to not have hydric soils. Field sampling for the presence/absence of hydric soil indicators can be used in lieu of the hydric rating if appropriately documented by providing completed field data sheets.

² At minimum, the most updated NWI data available for the area must be reviewed for this step. Any and all other local or regional wetland maps that are publically available should be reviewed.

³ Area should be reviewed in the field for the presence/absence of wetland hydrology indicators per the applicable 87 Manual Regional Supplement, including the D2 indicator (geomorphic position).

Table 1.

Area	Hydric Soils Present	Identified on NWI or other wetland map	Percent with wet signatures from Exhibit 1	Other hydrology indicators present ¹	Wetland?
1	Yes	No	57%	Yes	Yes
2	Yes	No	14%	No	No

¹ Answer "N/A" if field verification is not required and was not conducted.

Appendix E: Field Photographs

AREAM



General upland landscape viewed southeast from northwest corner of Study Area



Established access road viewd to north from MN 19





Wetland 1 (within Area 1), viewed east from access road



Culvert under access road connected to Wetland 1





Area 2 viewed west form northwest corner of Study Area



Area 2 viewed south from northern extent of Study Area



Appendix F: Wetland Data Sheets

$\mathsf{AREA}M$

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Hyacing	Project/Site: Hyacinth				unty: Dakota	Sampling Date:	7/24/2019			
Applicant/Owner:	Нуасі	nth Solar, LLC				State:	MN	Sampling Point:	SP 1	
Investigator(s): J Kn	udsen		s	Section,	Township, Range:	27 & 2	8, 112N, ⁻	19W		
Landform (hillside, te	errace,	etc.): Flat field			Local relief (conca	ve, conv	/ex, none)	: None		
Slope (%): 3	Lat:	-93.203108		Long:	Long: 44.474013			Datum: NAD 83		
Soil Map Unit Name	: 377B	- Merton silt loam, 1-6 p	ercent slopes			I	VWI class	sification: None		
Are climatic / hydrole	ogic cor	nditions on the site typica	al for this time of yea	ar?	Yes No	<u> </u>	(If no, ex	kplain in Remarks.)		
Are Vegetation X	, Soil	, or Hydrology	significantly distu	rbed?	Are "Normal Circur	nstances	s" present	? Yes No	<u>х</u>	
Are Vegetation	, Soil	, or Hydrology	naturally problem	atic?	(If needed, explain	any ans	wers in R	emarks.)		
SUMMARY OF	FINDI	NGS – Attach site	map showing s	ampli	ng point locati	ons, tr	ansect	s, important fea	tures, etc.	

Hydrophytic Vegetation Present?	Yes		No		Is the Sampled Area			
Hydric Soil Present?	Yes	Х	No		within a Wetland?	Yes	No	Х
Wetland Hydrology Present?	Yes		No	Х			_	

Remarks:

SP in cornfield adjacent to access road with wetland signatures in some years. Aerial imagery analysis indicated this area is upland. Cropland is not normal circumstances. Antecedent precipitation was wetter than normal.

VEGETATION – Use scientific names of plants.

			Absolute	Dominant	Indicator	
Tree Stratum	(Plot size:	30ft)	% Cover	Species?	Status	Dominance Test worksheet:
1						Number of Dominant Species That
2						Are OBL, FACW, or FAC: (A)
3				. <u> </u>		Total Number of Dominant Species
4.						Across All Strata: (B)
5.						Percent of Dominant Species That
				=Total Cover		Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Strat	tum (Plot	size: 15ft	_)			
1						Prevalence Index worksheet:
2.						Total % Cover of: Multiply by:
3.						OBL species x 1 =
4.						FACW species x 2 =
5.						FAC species x 3 =
				=Total Cover		FACU species x 4 =
Herb Stratum	(Plot size:	5ft)				UPL species x 5 =
1.	·				FACU	Column Totals: (A) (B)
2.				·		Prevalence Index = B/A =
3.						
4.						Hydrophytic Vegetation Indicators:
5.						1 - Rapid Test for Hydrophytic Vegetation
6.						2 - Dominance Test is >50%
7.						3 - Prevalence Index is ≤ 3.01
8.						4 - Morphological Adaptations ¹ (Provide supporting
9.						data in Remarks or on a separate sheet)
10.						Problematic Hydrophytic Vegetation ¹ (Explain)
				=Total Cover		¹ Indicators of hydric soil and watend hydrology must
Woody Vine Stratur	<u>m</u> (Plot	size: 30ft	_)			be present, unless disturbed or problematic.
1						Hydrophytic
2.						Vegetation
				=Total Cover		Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation was not evaluated or used as wetland criteria due to presence of cropped corn. SP in area that was not planted, likely due to inundation during extremely wet spring.

SOIL								Sam	pling Point:	SP 1
Profile Desc	ription: (Describe	to the dep	th needed to doc	ument t	he indica	ator or o	confirm the absence	of indicators.))	
Depth	Matrix		Redo	x Featur	es					
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-18	10YR 3/1	100					Silt loam	D	ark, compact	
18-25	10YR 2/1	100					Silt clay loam		Hard	
25-30	10YR 4/2	85	10YR 5/2	5	D	М	Clay loam		Softer clay	
	10VP 3/1	10	1011(0/2				oldy loann		Conter oldy	
	101K 5/1							Distinct		
30-35	10YR 5/2	95	10YR 5/4	5	0	M	Clay loam	Distinct r	redox concent	trations
¹ Type: C=Co	oncentration, D=Dep	oletion, RM=	Reduced Matrix, I	MS=Mas	ked Sand	d Grains	. ² Location	: PL=Pore Lin	ing, M=Matrix	ί.
Hydric Soil	Indicators:						Indicator	s for Problem	natic Hydric S	Soils ³ :
Histosol	(A1)		Sandy Gle	eyed Mat	rix (S4)		Coas	t Prairie Redox	x (A16)	
Histic Ep	pipedon (A2)		Sandy Re	dox (S5)			Iron-	Manganese Ma	asses (F12)	
Black His	stic (A3)		Stripped N	Aatrix (Se	6)		Red	Parent Materia	l (F21)	
Hydroger	n Sulfide (A4)		Dark Surfa	ace (S7)			Very	Shallow Dark	Surface (F22)	1
Stratified	I Layers (A5)		Loamy Mu	icky Min	eral (F1)		Othe	r (Explain in Re	emarks)	
2 cm Mu	ck (A10)		Loamy Gle	eyed Ma	trix (F2)					
X Depleted	Below Dark Surfac	e (A11)	Depleted I	Matrix (F	3)		3			
Thick Da	ark Surface (A12)		Redox Da	rk Surfac	ce (F6)		Indicator	s of hydrophyt	ic vegetation	and
Sandy M	lucky Mineral (S1)	Depleted I	Jark Sur	face (F7)		wetla	wetland hydrology must be present,			
	cky Peat of Peat (S	3)	Redox De	pression	S (F8)		unies	is disturbed or	problematic.	
Restrictive I	Layer (if observed)									
Type:									V V	NI -
Depth (Ir	icnes):						Hydric Soll Present		Yes X	NO
HYDROLO	GY									
Wetland Hyd	drology Indicators:									
Primary India	cators (minimum of	one is requi	red; check all that	apply)			Seconda	ry Indicators (n	ninimum of tw	vo required)
Surface	Water (A1)		Water-Sta	ined Lea	aves (B9)		X Surfa	ace Soil Cracks	s (B6)	
High Wa	ter Table (A2)		Aquatic Fa	auna (B1	3)		Drainage Patterns (B10)			
Saturatio	on (A3)		True Aqua	tic Plant	s (B14)		Dry-S	Season Water	Table (C2)	
Water M	arks (B1)		Hydrogen	Sulfide (Odor (C1)	Cray	fish Burrows (C	C8)	
Sedimen	t Deposits (B2)		Oxidized F	Rhizosph	eres on l	Living R	oots (C3) Satu	ration Visible o	n Aerial Imag	ery (C9)
Drift Dep	oosits (B3)		Presence	of Redu	ced Iron ((C4)	Stun	ted or Stressed	d Plants (D1)	
Algal Ma	t or Crust (B4)		Recent Irc	n Reduc	tion in Ti	lled Soil	s (C6) Geor	norphic Positio	on (D2)	
Iron Dep	osits (B5)		Thin Muck	Surface	e (C7)		FAC·	Neutral Test (I	D5)	
	on Visible on Aerial I	magery (B7) Gauge or	Well Dat	a (D9)					
Sparsely	Vegetated Concave	e Surface (E	88)Other (Exp	plain in F	(emarks)		-			
Field Obser	vations:									
Surface Wat	er Present? Ye	es	No <u>X</u>	Depth (i	nches):					
Water Table	Present? Ye	es	No <u>X</u>	Depth (i	nches):					
Saturation P	resent? Ye	es	No <u>X</u>	Depth (i	nches):		Wetland Hydrolog	gy Present?	Yes	No <u>X</u>
(includes cap	onary minge)			h nhoto-	nroview	o inono-	tions) if availables			
Describe Re	corded Data (stream	i gauge, mo	mitoring well, aeria	ai priotos	, previou	s inspec	suons), ir available:			
Remarks [.]										
Aerial image	ry review indicated t	his area as	Upland.							
. 3-										