

Xcel Energy/ City of Northfield AUAR Scoping Environmental Assessment Worksheet

Proposer: Xcel Energy
RGU: City of Northfield

January 2023

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DRAFT, Revised

Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at: <https://www.eqb.state.mn.us/> The EAW form provides information about a proposed project's potential environmental effects, and also used as the basis for scoping an Environmental Impact Statement. Guidance documents provide additional detail and links to resources for completing the EAW form.

Introduction

The revised EAW form (December 2022 version) was used to conduct and document the scope of an Alternative Urban Areawide Review (AUAR) for potential industrial development in Northfield, Minnesota. An AUAR is an alternative to an Environmental Impact Statement (EIS) that responds to the items in the EAW form to the level of analysis similar to an EIS. Minnesota Rules Chapter 4410.3610, subp. 4 states that "the content and format [of an AUAR document] must be similar to that of an EAW but must provide for a level of analysis comparable to that of an EIS for impacts typical of urban residential, commercial warehousing, and light industrial development and associated infrastructure."

The twenty-two items in the EAW form provide information about proposed development scenarios within the AUAR area, existing conditions, existing plans, potential issues to explore through the AUAR process, and specific methodologies for special studies that will be conducted for the AUAR (i.e., the scope of the Traffic Impact Study). The EAW and AUAR Guidelines provide additional details and resources for completing the EAW form for an AUAR and conducting the AUAR review process.

Cumulative potential effects can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. Project Title

Xcel Energy/ City of Northfield AUAR

2. Proposer

Proposer:	Xcel Energy
Contact person:	Jacob Andre
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Address:	401 Nicollet Mall
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3. Responsible Governmental Unit (RGU)

RGU Agency:	City of Northfield
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Contact person:	Mikayla Schmidt
Title:	City Planner
Address:	801 Washington Street
City, State, ZIP:	Northfield, MN 55057
Phone:	(507) 645 - 3059
Email:	Mikayla.Schmidt@ci.northfield.mn.us

4. Reason for EAW Preparation

Required:	Discretionary:
X EIS Scoping (AUAR)	<input type="checkbox"/> Citizen petition
<input type="checkbox"/> Mandatory EAW	<input type="checkbox"/> RGU discretion
	<input type="checkbox"/> Proposer initiated

The 2009 Minnesota Rule amendments added additional required steps at the beginning of the AUAR process if the review will cover any specific projects that meet mandatory Environmental Impact Statement (EIS) requirements or comprise at least 50 percent of the geographic area to be reviewed. These steps include a public comment period on the scope of the AUAR review, specifically on the development scenarios and relevant issues to be covered. These steps must occur before a final order for review can be adopted.

The EQB Rules do not allow AUARs to satisfy the mandatory environmental review for many heavy industrial uses. These include the uses exceeding mandatory EAW thresholds per Minnesota Rules 4410.4300, subparts 2 to 13, 15 to 17, 18 (item C, D, or E), or 24; and mandatory Environmental Impact Statement (EIS) thresholds per 4410.4400, subparts 2 to 10, 12, 13, or 25. For many of these uses, the Minnesota Rules assign an RGU other than the local governmental unit. If any of these uses are proposed within the AUAR area, they would be subject to the completion of the appropriate environmental review, conducted by the RGU listed in the rules.

5. Project Location

County: Dakota

City/Township: City of Northfield, Greenvale Township

PLS Location (¼, ¼, Section, Township, Range): Township 112 North, Range 20 West, Sections 26, 27, 28

Watershed (81 major watershed scale): Cannon River (07040002)

GPS Coordinates: Latitude 44.476010, Longitude -93.215279

Tax Parcel Number: 160280078010, 160280077010, 160280076013, 160280079010, 160280076012, 160270026011, 430270026020, 430270054010, 430270050030, 430270050020, 160270025011, 430270025020, 430270027010, 3027002801, 430270029010, 430270053010, 43270051010, 430270052010, 160270004014, 160270004012, 160270004021, 430270004013, 430270005021, 430270005011, 430270075010, 160270003010, 160270002010, 160270001012, 160270001011, 160270009011, 430270008010, 430270076010, 430270078010, 430270079010, 430260053010

At a minimum attach each of the following to the EAW:

- County map showing the general location of the project;
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and

- Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience).

6. Project Description

- a. Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).**

Xcel Energy and the City of Northfield are partnering to conduct an Alternative Urban Areawide Review (AUAR) for an approximately 787-acre area in the northwestern portion of the City of Northfield. Portions of the AUAR area include land within Greenvale Township. Two development scenarios will be evaluated as part of the AUAR which primarily consist of technology center and industrial park uses.

- b. Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities**

Existing Conditions

The AUAR area encompasses approximately 787 acres of land in the northwestern corner of the City of Northfield in Dakota County, Minnesota. Approximately 259 acres of land with the AUAR area is within the Township of Greenvale. Figure 1 (USGS Topographic Map) and Figure 2 (Project Location Aerial Map) in Appendix A show the AUAR area. The AUAR area is characterized by existing agricultural and rural residential uses. Solar facilities are also present within the AUAR area.

Project Background

Development of the AUAR area has been studied as part of past economic development and land use plans. The City of Northfield's *Comprehensive Economic Development Plan* (dated June 2006)¹, identified a need to increase the availability of business and industrial land in the City of Northfield to stimulate economic development. Land near the Northfield Hospital located along State Highway 19 (North Avenue) was identified as a priority business and industrial development area.

In 2011, the City's *Business and Industrial Master Plan* (dated January 2011)², was prepared to provide a vision for future growth of two sites identified for economic development based on recommendations from the *Comprehensive Economic Development Plan*. One of these sites, referred to as the North Site, encompassed a majority of the AUAR area. The concept plan developed as part of the master plan guided the majority of the North Site for industrial and office/institutional develop. Other mixed use and residential uses were identified for the North Site primarily near the Northfield Hospital. The master plan vision proposed a more flexible development pattern suitable for larger-scaled, industrial and corporate office use.

¹City of Northfield. Prepared by TIP Strategies, Inc. for the Northfield Economic Development Authority. *Comprehensive Economic Development Plan*. June 2006. <https://www.northfieldmn.gov/DocumentCenter/View/575/CEDP---TIP-Plan-EconDev-2006?bidId=>

² City of Northfield. Business & Industrial Park Master Plan. January 2011. https://www.northfieldmn.gov/DocumentCenter/View/645/INDEX-8---Northfield-Business-and-Industrial-Park-Master-Plan_Jaunary-2011?bidId=

The City's Comprehensive Plan (dated November 2008) established a Framework Map that guidance future development in the City of Northfield.³ The majority of the AUAR area is within the Urban Expansion Area and Priority Growth Area. The AUAR area is entirely within the District Context Zone based on the City's Framework Map. The District Context Zone is defined as a special use area composed of large business or industrial structures, typically of a single use, and primarily located along collectors and arterial roadways.

Proposed AUAR Development Scenarios

The development scenarios propose that the majority of the AUAR area is developed to technology center and industrial uses consistent with the past economic development plans for the area. Two development scenarios will be considered as part of the AUAR which are focused on industrial development, with the exception of the northwestern corner of the AUAR area. This approximately 79-acre area that includes floodplain and wetland areas is assumed to remain as undeveloped, open space for both development scenarios. The development scenarios differ in type of industrial development. No specific projects or end users are identified in this AUAR. The AUAR will be based on the estimated acreage and types of industrial development, rather than specific building areas. The development scenarios include the following types of technology and industrial development:

- **Technology Center:** Technology center development would primarily consist of data center facilities, technology services, research and development facilities, and other similar uses. Data centers are defined as free-standing warehouse type of facility that is primarily used for off-site storage of computer systems and associated components including applications and secure data. Research and development centers include a range of uses and may contain light fabrication and office facilities.
- **Industrial Park:** Industrial parks are defined as facilities containing several individual or related facilities characterized by a mix of manufacturing, service, and warehouse facilities.

The EQB Rules do not allow AUARs to satisfy the mandatory environmental review for many heavy industrial uses. These include the uses exceeding mandatory EAW thresholds per Minnesota Rules 4410.4300, subparts 2 to 13, 15 to 17, 18 (item C, D, or E), or 24; and mandatory Environmental Impact Statement (EIS) thresholds per 4410.4400, subparts 2 to 10, 12, 13, or 25. For many of these uses, the Minnesota Rules assign an RGU other than the local governmental unit. If any of these uses are proposed within the AUAR area, they would be subject to the completion of the appropriate environmental review, conducted by the RGU listed in the rules.

The City of Northfield, as the RGU for this AUAR, intends to prepare and adopt an AUAR based on the aforementioned development scenarios. While there is no specific project or end user identified in the AUAR area, the AUAR will answer as many questions as possible about the future use of this property and take full advantage of the value of an AUAR as a planning document.

1) Construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes

Both Development Scenarios would include construction of industrial and technology center buildings and associated access roadways, parking areas, and infrastructure improvements. Site preparation would include grading, excavation, and vegetation removal. It is anticipated that County

³ City of Northfield. Comprehensive Plan. November 17, 2008.
https://www.northfieldmn.gov/DocumentCenter/View/331/NfldCompPlan_2008_LoRes_20090615?bidId=

State Aid Highway (CSAH) 23 (Foliage Avenue) would be extended south from County Road (CR) 96 (320th Street West) to State Highway 19. The majority of the AUAR area is undeveloped and is not connected to the existing municipal sanitary sewer and water supply system. Future development will require an expansion of the City's sanitary sewer system and trunk water distribution system. Stormwater infrastructure would be constructed to accommodate the increase in impervious surfaces.

2) *Modifications to existing equipment or industrial processes*

No specific projects or end users are identified as part of this AUAR. Future projects would largely develop existing agricultural and undeveloped land, which would not require modifications to existing equipment or industrial processes.

3) *Significant demolition, removal, or remodeling of existing structures*

The majority of the AUAR area consists of agricultural and undeveloped land. Development of the AUAR for industrial purposes may require demolition and removal of existing buildings or structures within the AUAR area, which would be determined at the time that a future project is proposed.

4) *Timing and duration of construction activities*

The timing and duration of construction is not currently known as specific projects have not been identified for development. It is anticipated that full buildout of the AUAR area would occur over the course of several years. The timing of development would be driven by market conditions.

c. Project magnitude

Table 1 summarizes the project magnitude.

Table 1. Project Magnitude

Description	Scenario A	Scenario B
Total Project Acreage	787	787
Linear project length Proposed Road Extension (miles)	1.3	1.3
Number and type of residential units	Not applicable (N/A)	N/A
Residential building area	N/A	N/A
Commercial building area	N/A	N/A
Industrial building area (acres)		
Technology Center	538	0
Industrial Park	170	708
Institutional building area	N/A	N/A
Other uses – Open Space (acres)	79	79
Maximum Structure height(s)	3 stories	3 stories

Development Scenario A: Technology Center

Development Scenario A (Technology Center) proposes 538 acres to be developed as a technology center, which encompasses the majority of the AUAR area (approximately 68 percent). Approximately 170 acres of the AUAR area is identified as industrial park, which comprises approximately 22 percent of the AUAR area. Approximately 79 acres, ten percent of the AUAR area, is designated as open space or undeveloped land, which includes wetlands and areas within the 100-year floodplain and floodway. Exhibit 1 depicts Development Scenario A.

Development Scenario B: Industrial Park

Development Scenario B (Industrial Park) proposes 708 acres to be developed as an industrial park, which encompasses the majority of the AUAR area (approximately 90 percent). No other industrial uses are considered for Development Scenario B. Approximately 79 acres, ten percent of the AUAR area, is designated as open space or undeveloped land, which includes wetlands and areas within the 100-year floodplain and floodway. Exhibit 2 illustrates Development Scenario B.

Exhibit 1. Development Scenario A (Technology Center)

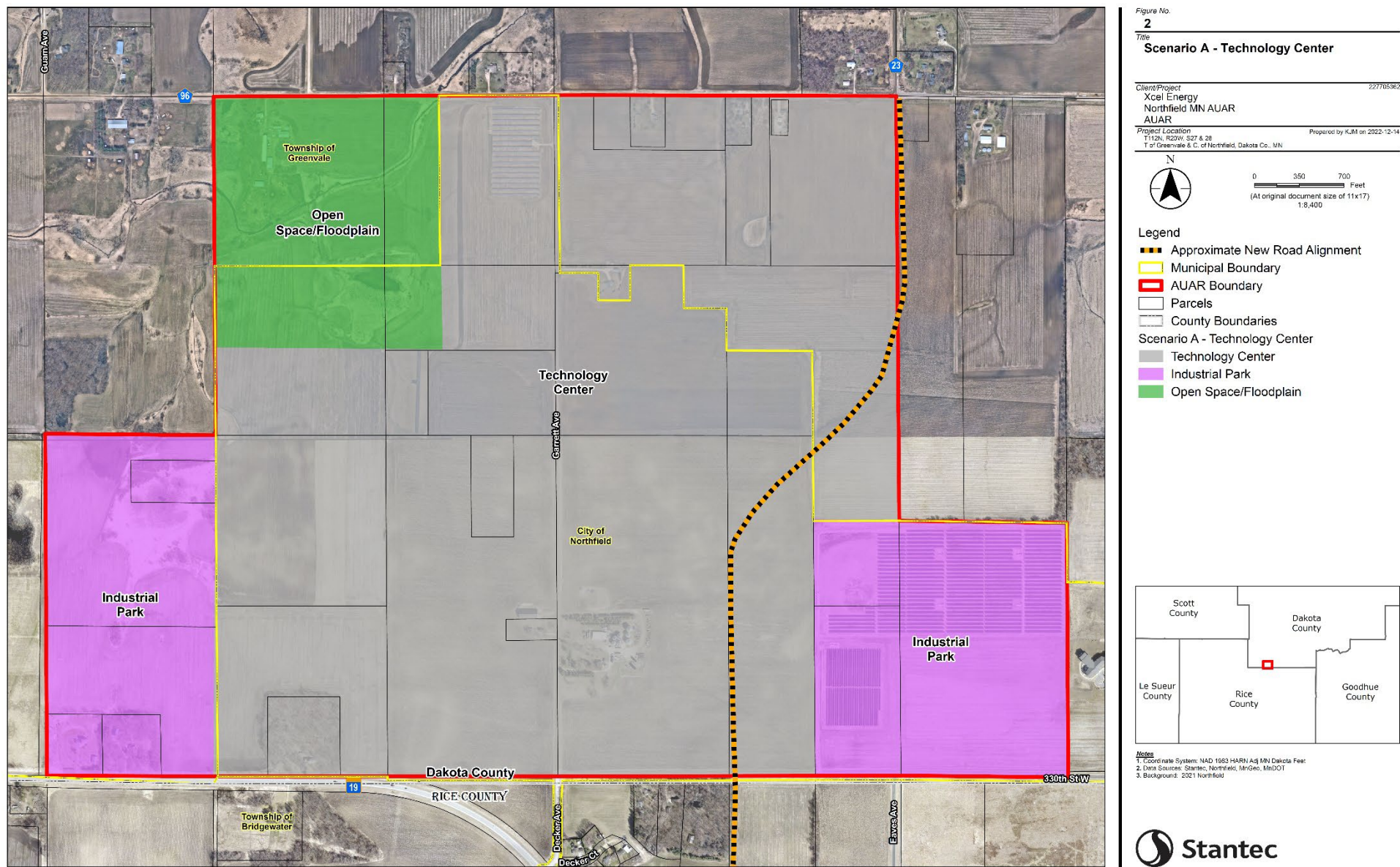
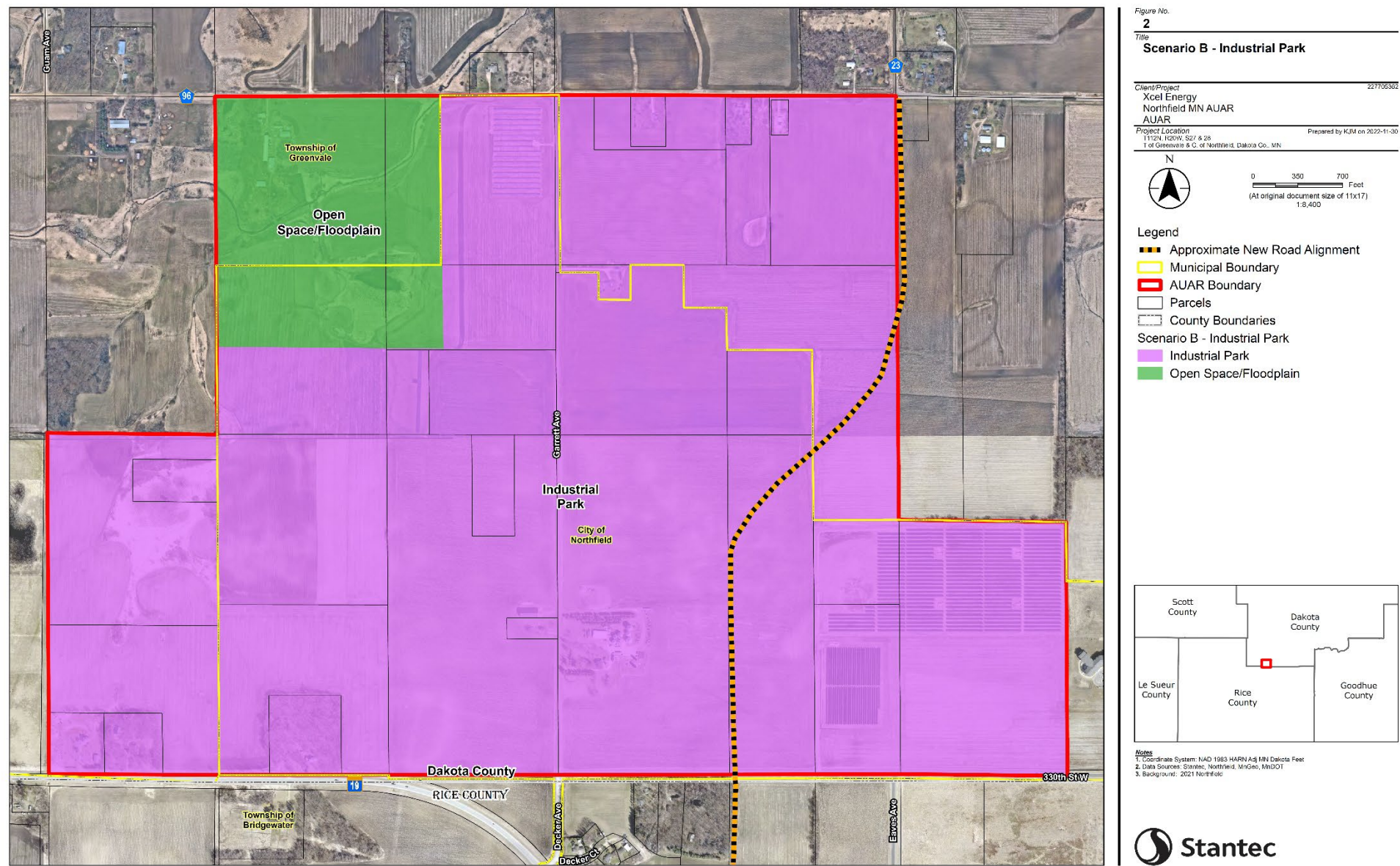


Exhibit 2. Development Scenario B (Industrial Park)



- d. ***Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.***

The purpose of completing this AUAR is to remove some of the barriers that land within the AUAR area may have for future development, primarily as it relates to anticipated environmental review, and foster economic development in the City of Northfield. While there is no specific project or end user proposed in this AUAR, this document will be made available to and can be used by future projects or end users that are considering property within the AUAR area for development.

- e. ***Are future stages of this development including development on any other property planned or likely to happen?*** X Yes ☐ No

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

The purpose of this AUAR is to evaluate future development. It is anticipated that development will occur in phases based on market conditions. No specific projects or end users have been identified as part of this AUAR.

- f. ***Is this project a subsequent stage of an earlier project?*** ☐ Yes X No

If yes, briefly describe the past development, timeline and any past environmental review.

7. Climate Adaptation and Resilience

- a. ***Describe the climate trends in the general location of the project (see guidance: Climate Adaptation and Resilience) and how climate change is anticipated to affect that location during the life of the project.***

In general, Minnesota is anticipated to experience an increase in temperature, precipitation, and more frequent extreme precipitation events resulting from climate change. In Minnesota, annual average temperatures have risen two degrees over the past century and up to three degrees in the northern part of the state. The highest average temperature increases have occurred during the winter. Since 1895, temperatures during the winter have increased at a rate two to three times higher than during the summer. In particular, winter warming rates have risen more sharply in recent decades.⁴ Current climate warming trends, most notably during the winter, are anticipated to continue.⁵

Heavy rain events have become more frequent in Minnesota and more intense. From 1973 to 2020, Minnesota experienced 17 mega-rain events⁶ with a notable increase since 2000. Of these 17 events, three occurred in the 1970s, two in the 1980s, one in the 1990s, six mega-rain events occurred in the 2000s, four in the 2010s, and one in 2020. Thus, in the past 21 years (2000 to 2020), almost two times as many mega rain events occurred compared to the prior 27 years (1973 to 1999).⁷

Climate trends for Dakota County parallel the overall statewide trends, indicating Minnesota's climate is becoming warmer and wetter. Exhibits 3 and 4 illustrate historical average annual temperature and

⁴ MNDNR. Climate Trends. https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html

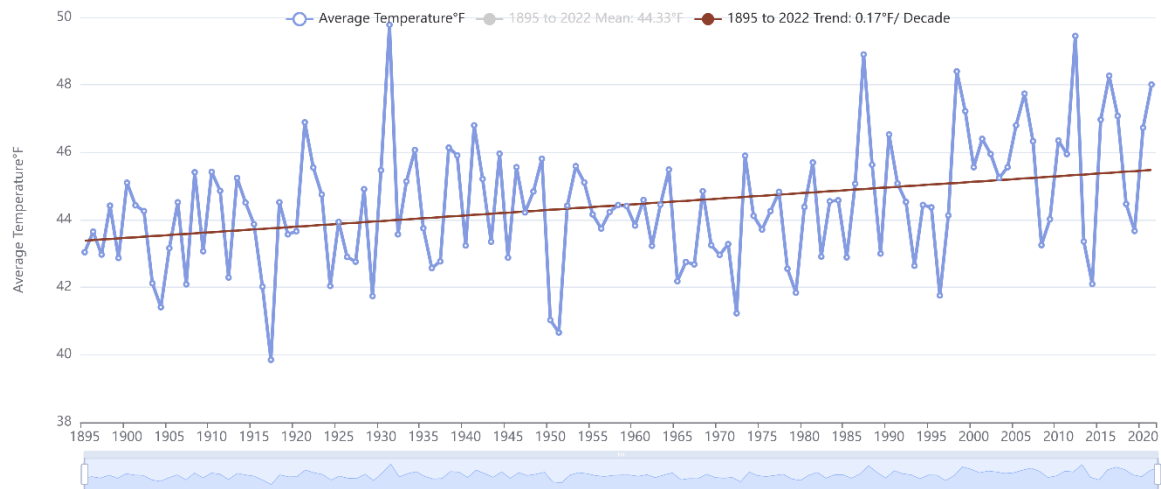
⁵ MnDOT. Minnesota Go Climate Change Report. 2021. <https://www.minnesotago.org/trends/climate-change>

⁶ Mega-rain events are defined as events in which six inches of rain covers more than 1,000 square miles and the core of the event tops eight inches.

⁷ Minnesota Department of Natural Resources. Historic Mega-Rain Events in Minnesota. https://www.dnr.state.mn.us/climate/summaries_and_publications/mega_rain_events.html

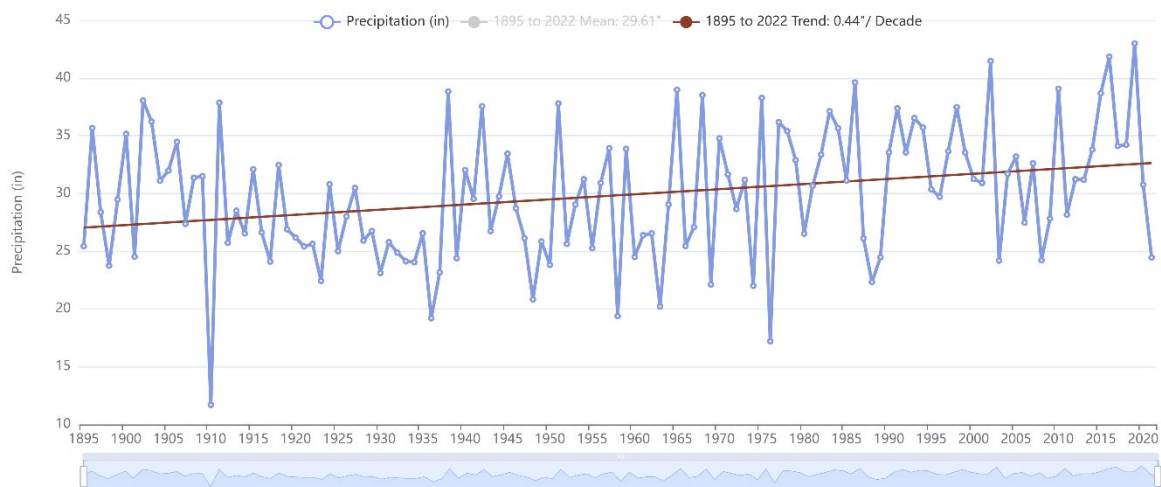
precipitation trends from 1895 to 2022. During this time period, the County experienced an average annual temperature increase of 0.17 degrees Fahrenheit (°F) per decade and annual precipitation increase of 0.44 inches per decade.

Exhibit 3. Historical Annual Average Temperature in Dakota County (1895 – 2022)



Source: Minnesota Department of Natural Resources. <https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical>

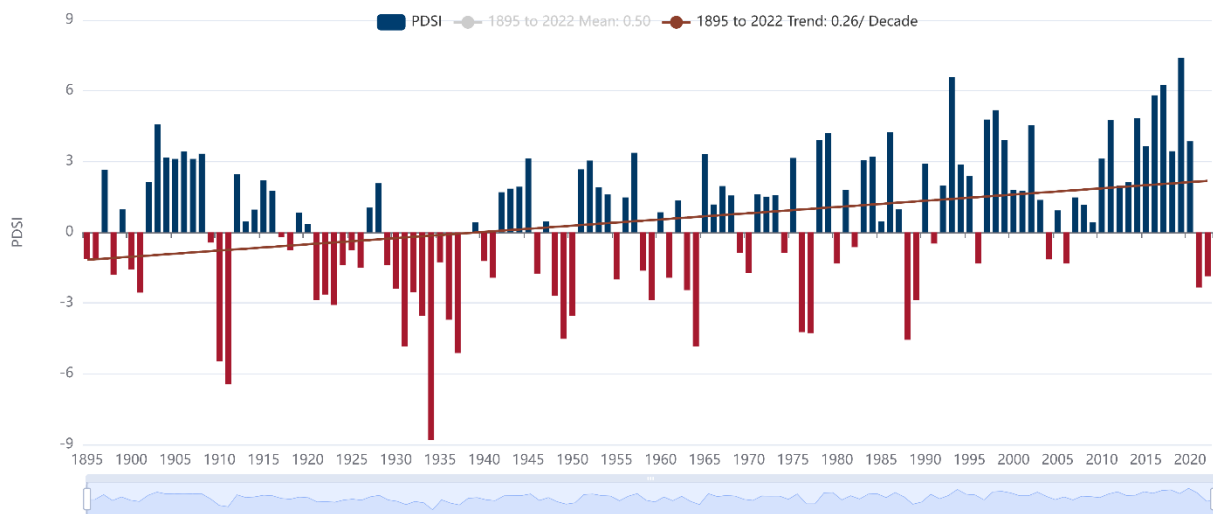
Exhibit 4. Historical Annual Precipitation in Dakota County (1895 – 2022)



Source: Minnesota Department of Natural Resources. <https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical>

The Palmer Drought Severity Index (PDSI) utilizes temperature and precipitation data to estimate relative soil moisture conditions and serve as an indicator of long-term drought conditions. The index ranges from -5 to +5 indicating dry and wet conditions, respectively. PDSI values are reported on a monthly basis. Exhibit 5 shows historic PDSI values for the month of August from 1895 to 2022 for Dakota County, which indicates an increase of 0.26 per decade. Generally, the PSDI historical data indicates that the region is experiencing a wetter climate.

Exhibit 5. Historical PDSI Values for Dakota County (1895 – 2022)



Projected climate trends indicate that temperatures within the County will continue to increase. Exhibit 4 illustrates projected temperatures for the County. Several climate models are shown in the projected temperature analysis. The model mean, shown in blue, illustrates the average of all models included in the analysis. Exhibit 6 shows the modeled present condition, mid-century (2040-2059) at Representative Concentration Pathway (RCP) 4.5, late-century (2080-2099) at RCP 4.5, and late-century (2080-2099) at RCP 8.5. RCP is a greenhouse gas concentration scenario used by the Intergovernmental Panel on Climate Change in the fifth assessment report. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040 and RCP 8.5 represents a worst-case scenario in which emissions continue rising through the 21st century.

Under the RCP 4.5 scenario, the annual temperature is anticipated to increase within the County from a modeled present mean of 45.4°F (1980-1999) to a mid-century (2040-2059) model mean of 49.0°F and a late-century (2080-2099) model mean of 51.4°F. Under the RCP 8.5 worst-case scenario, the County would experience a late-century (2080-2099) model mean temperature of 55.1°F.

Exhibit 6. Projected Temperatures in Dakota County

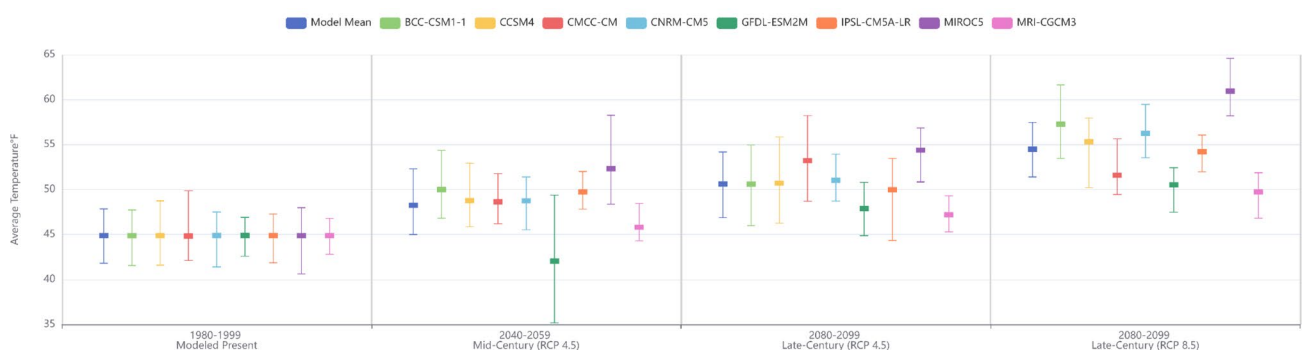
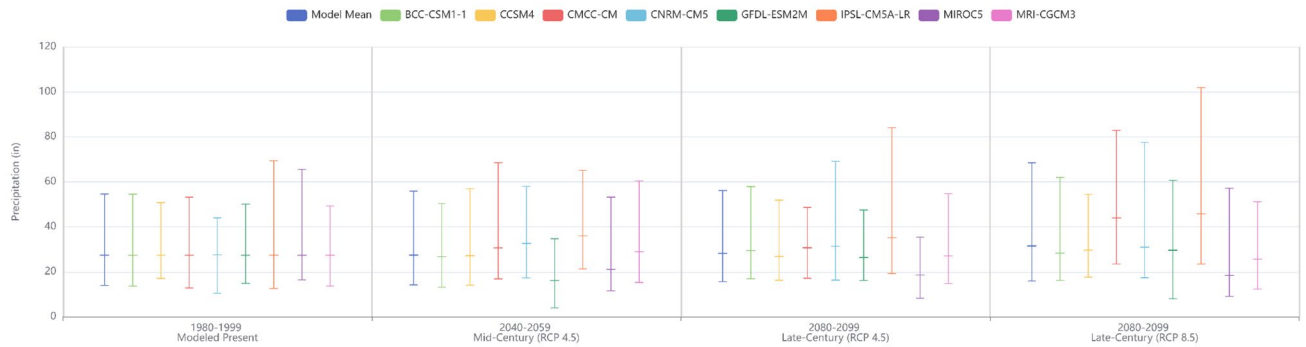


Exhibit 7 presents projected average annual precipitation for Dakota County. Under the RCP 4.5 scenario, the annual precipitation is anticipated to increase within the County from a modeled present mean of 32.0 inches (1980-1999) to a mid-century (2040-2059) model mean of 32.3 inches and a late-century (2080-2099) model mean of 32.6 inches. Under the RCP 8.5 worst-case scenario, the County would experience a

late-century (2080-2099) model mean precipitation of 35.3 inches. In comparison to the modeled present mean (1980-1999), the late-century (2080-2099) modeled mean annual precipitation would increase by approximately 1.8 percent under the RCP 4.5 scenario and increase by approximately 10.2 percent under the RCP 8.5 scenario.

Exhibit 7. Projected Precipitation in Dakota County



- b. *For each Resource Category in the table below: Describe how the project's proposed activities and how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified.*

AUAR Scope

The Draft AUAR will include an evaluation of climate considerations for the development scenarios and potential adaptations. Table 2 provide an example of the table to be completed as part of the AUAR. This table will summarize climate considerations, climate change risks and vulnerabilities for the proposed development scenarios, and potential adaptations.

Table 2. Climate Considerations and Adaptations

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design			
Land Use			
Water Resources	Address in item 12		
Contamination/ Hazardous Materials/ Wastes			
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Address in item 14.		

8. Cover Types

Estimate the acreage of the site with each of the following cover types before and after development.

Land cover in the AUAR area was determined based on the Twin Cities Metropolitan Area (TCMA) one-meter land cover classification geospatial data from 2016. The majority of the AUAR area, approximately 642 acres, consists of agriculture land, which represents approximately 81.6 percent of the total AUAR area. Table 3 summarize cover types within the AUAR area. Figure 3, Appendix A illustrates land cover types within the AUAR area.

AUAR Scope

The cover type analysis will be augmented with aerial photographs and other desktop resources as part of the AUAR. Future land cover for both development scenarios will be evaluated in the AUAR. Existing conditions information is included in the following Tables 3 through 5. These tables will be completed for each development scenario as part of the draft AUAR.

Table 3. Cover Types

Cover Types	Before (acres)	After (acres)	
		Scenario A	Scenario B
Wetlands and shallow lakes (<2 meters deep)	33.6	To be determined (TBD)	TBD
Deep lakes (>2 meters deep)	0	TBD	TBD
Wooded/forest	17.4	TBD	TBD
Rivers/streams	1.3	TBD	TBD
Brush/grassland	73.3	TBD	TBD
Cropland	642.6	TBD	TBD
Livestock rangeland/pastureland	0	TBD	TBD
Lawn/landscaping	0	TBD	TBD
Green infrastructure TOTAL (from table below*)	0	TBD	TBD
Impervious surface	19.1	TBD	TBD
Stormwater Pond (wet sedimentation basin)	0	TBD	TBD
Other (describe)	0	TBD	TBD
TOTAL	787.2	TBD	TBD

Table 4. Green Infrastructure

Green Infrastructure*	Before (acreage)	After (acreage)
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	TBD
Constructed tree trenches and tree boxes	0	TBD
Constructed wetlands	0	TBD
Constructed green roofs	0	TBD
Constructed permeable pavements	0	TBD
Other (describe) Landfill-based geothermal system	0	TBD
TOTAL*	0	TBD

Table 5. Tree Canopy

Trees	Percent	Number
Percent tree canopy removed or number of mature trees removed during development	TBD	TBD
Number of new trees planted	TBD	TBD

9. Permits and Approvals Required

List all known local, state, and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

Table 6 lists anticipated permits for the construction of the proposed development scenarios. Potential permits will be reviewed and confirmed as part of the preparation of the Draft AUAR.

Table 6. Permits and Approvals

Unit of Government	Type of Application	Status
Federal		
U.S. Army Corps of Engineers (USACE)	Section 404 Permit	To be submitted, if required
U.S. Fish and Wildlife Service (USFWS)	Section 7 ESA Consultation	To be completed, if required
State		
Minnesota Department of Transportation (MnDOT)	Drainage Permit	To be submitted, if required

Unit of Government	Type of Application	Status
MnDOT	Right-of-way permit for work within or affecting MnDOT right-of-way	To be submitted, if required
Minnesota Department of Health (MDH)	Water Main Plan Review	To be submitted, if required
MDH	Notification or Permit for Well Construction or Alteration	To be submitted, if required
MDH	Notification or Permit for Well Sealing	To be submitted, if required
Minnesota Department of Natural Resources (DNR)	Public Waters Work Permit	To be submitted, if required
DNR	Water appropriation permit and pre-construction permit (for new municipal well, if well needed)	To be submitted, if required
DNR	Temporary Water Appropriation Permit for construction dewatering	To be submitted, if required
DNR	Utility Crossing Permit	To be submitted, if required
DNR	Natural Heritage Information System (NHIS) concurrence	To be submitted, if required
Minnesota Pollution Control Agency (MPCA)	401 Water Quality Certification	To be submitted, if required
MPCA	National Pollutant Discharge Elimination System (NPDES) MS4 Stormwater Discharge Permit	To be submitted, if required
MPCA	Construction Site Stormwater Permit	To be submitted, if required
MPCA	Industrial Stormwater Permit	To be submitted, if required
MPCA	Sanitary Sewer Extension Permit	To be submitted, if required
MPCA	Air Emission Facility Permit	To be submitted, if required
County		
Dakota County	General Permit for Work in the Right of Way	To be submitted, if required
Dakota County	Floodplain Permit	To be submitted, if required
Local		
City of Northfield	Comprehensive Plan Updates and/or Amendments	To be submitted, if required
City of Northfield	Rezoning	To be submitted, if required
City of Northfield	Preliminary and Final Plat	To be submitted, if required
City of Northfield	Sign Permits	To be submitted, if required
City of Northfield	Park Dedication	To be submitted, if required
City of Northfield	Site Plan Review	To be submitted, if required
City of Northfield	Certificate of Occupancy	To be submitted, if required
City of Northfield	Conditional Use Permit	To be submitted, if required
City of Northfield	Planned Unit Development Approval	To be submitted, if required

Unit of Government	Type of Application	Status
City of Northfield	Subdivision Approval	To be submitted, if required
City of Northfield	Excavation and Grading Permits	To be submitted, if required
City of Northfield	Sewer Connection Permits	To be submitted, if required
City of Northfield	Water Connection Permits	To be submitted, if required
City of Northfield	Utility Permits	To be submitted, if required
City of Northfield	Building Permits	To be submitted, if required
City of Northfield	Floodplain Development Permit	To be submitted, if required
City of Northfield/Dakota County Soil and Water Conservation District	Wetland Conservation Act (Boundary Approval/Replacement Plan)	To be submitted, if required

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No.22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land use

a. Describe:

i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.

Existing land use within the AUAR area is primarily agricultural land and associated large-lot rural residential, as well as several existing solar garden facilities. Most of the 787-acre site is within the City of Northfield, and approximately 259 acres of land is located in the adjacent Township of Greenvale. Figure 2, Appendix A illustrates the existing land use and Figure 3, Appendix A shows the existing land cover. Figure 4, Appendix A illustrates the existing land use for the AUAR area and surrounding land.

- **South of the AUAR area:** The land south of the AUAR area is located in the Township of Bridgewater in Rice County and is primarily agricultural and rural residential. State Highway 19 curves to the south of the site. The St. Olaf College is to the southeast and there are natural prairie lands, a trail and soccer fields southeast of the site associated with the College.
- **East of the AUAR area:** East of the AUAR area is the City of Northfield. Immediately east of the site is Northfield Hospital, with residential development further east. CSAH 23 abuts the northeast corner of the site. There are several City Parks and the George Rysgaard Nature Preserve within the residential development to the east of the site.
- **North of the AUAR area:** North of the AUAR area is primarily agricultural land located in the Township of Greenvale. County Road 96 is directly north of the site.
- **West of the AUAR area:** Land west of the AUAR area is primarily agricultural. Interstate 35 is located about 3 miles west of the site.

In addition to the trails mentioned above associated with St. Olaf College, an existing trail extends along State Highway 19, and planned trails are identified running north-south across the site. Figure

6, Appendix A shows existing and planned trails.

Areas of prime farmland, farmland of statewide importance and prime farmland, if drained are located within the AUAR area based on U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils data. Figure 7, Appendix A shows farmland classification.

- ii. ***Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.***

Comprehensive Economic Development Plan (2006)

The City of Northfield's *Comprehensive Economic Development Plan* identified a need to increase the availability of business and industrial land in the City of Northfield to stimulate economic development. Land near the Northfield Hospital located along State Highway 19 was identified as a priority business and industrial development area.

Comprehensive Plan (2008)

The City's Comprehensive Plan⁸ establishes a Framework Map, shown in Figure 5 in Appendix A, which guides future development in the City of Northfield. The majority of the AUAR area is within the Urban Expansion Area and Priority Growth Area. The AUAR area is entirely within the District Context Zone based on the City's Framework Map. The District Context Zone is defined as a special use area composed of large business or industrial structures, typically of a single use, and primarily located along collectors and arterial roadways. The Plan identifies a Greenway Corridor on the west side of the site where there is floodplain along Mud Creek and wetland that could serve as a natural amenity. The City is currently in the process of updating its Comprehensive Plan. Figure 5, Appendix A depicts the planned land use for the AUAR area and surrounding land based on the City's Comprehensive Plan.

Business and Industrial Master Plan (2011)

In 2011, the City's *Business and Industrial Master Plan*, was prepared to provide a vision for future growth of two sites identified for economic development based on recommendations from the *Comprehensive Economic Development Plan*. One of these sites, referred to as the North Site, encompassed a majority of the AUAR area. The concept plan developed as part of the master plan guided the majority of the North Site for industrial and office/institutional development. Other mixed use and residential uses were identified for the North Site primarily near the Northfield Hospital. The master plan vision proposed a more flexible development pattern suitable for larger-scaled, industrial and corporate office use.

Natural Resources Inventory Report (2005)

The City of Northfield prepared the Natural Resources Inventory (NRI) Report in 2005, which identified key natural areas and open space areas to guide current and future planning efforts. The NRI report identified a wooded area in the southwestern corner of the AUAR area. Given the proximity of this wooded area to the planned Greenway Corridor, the City's past natural resources planning initiatives have prioritized preserving this wooded area.

⁸ City of Northfield. Comprehensive Plan for Northfield. Dated November 17, 2008.
https://www.northfieldmn.gov/DocumentCenter/View/331/NfldCompPlan_2008_LoRes_20090615?bidId=

- iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.**

The portion of the site within the City of Northfield is zoned A-S Agricultural, as shown in Figure 8 in Appendix A. The surrounding land in the Township of Greenvale is also zoned A- Agricultural. Land in the northwest portion of the AUAR area is within the regulated floodway and 100-year floodplain. Appendix B includes the FEMA FIRMet for the northwestern portion of the AUAR area. Item 12, Water Resources, describes the floodplain and floodway within the AUAR area.

- iv. If any critical facilities (i.e., facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.**

No critical facilities or housing is proposed for the development scenarios within the floodplain areas.

- b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.**

This section will analyze the compatibility of development of the AUAR area with neighboring land uses and zoning. The development scenarios will be compared to surrounding areas to determine if the proposed uses are compatible. Related changes and impacts to the AUAR area including land cover, transportation and view sheds will be referenced, but discussed in detail in their respective sections.

- c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.**

This section will address any potential mitigation strategies needed to ensure compatibility between the two proposed development scenarios, the existing surrounding areas, and planned land use. Any necessary changes to the Comprehensive Plan could be completed as part of the update process that is planned or as a comprehensive plan amendment.

11. Geology, Soils and Topography/Land Forms

- a. Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.**

The surficial geology across the AUAR area has been mapped in the Minnesota Geological Survey's Geologic Atlas of Dakota County (1990)⁹ along with the area south of the proposed AUAR Area in the Geologic Atlas of Rice County (1995)¹⁰ as being sediments that were deposited by ice from the northwest (Des Moines lobe). The Des Moines lobe advanced from the northwest carrying sediment from southwestern Manitoba and North Dakota. The Des Moines lobe meltwaters flowed east resulting in a thin mantled till over the pre-Wisconsin drift adjacent to the east of the AUAR area. The AUAR area

⁹ Geologic atlas of Dakota County, Minnesota, C-6 Balaban, N.H. and Hobbs, H.C. (Minnesota Geological Survey, 1990).

¹⁰ Hobbs, H.C. (1995). C-09 Geologic atlas of Rice County, Minnesota [Part A]. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy, <https://hdl.handle.net/11299/58514>.

appears to consist of a Des Moines age comprised loamy textured till and the local well logs indicate the presence of clay from near surface to approximately 65 feet below grade. Several water well logs in the vicinity of the AUAR area indicate the presence of a water-bearing sand layer at approximately 65 feet below grade. Based on a review of well log reports available from the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) database, it appears that the thickness of the surficial glacial deposits varies from around 86 feet thick (Unique Well_719508) in the southwest corner of the AUAR area to between 126 and 136 feet thick in the southern, central, and north portions of the AUAR area (Unique Well ID Nos. 234037, 723479, and 747374). It would be anticipated that depth to bedrock would be between 86 and 136 feet below grade within the AUAR area.

The bedrock geology across the proposed AUAR Area has been mapped in the Minnesota Geological Survey's Geologic Atlas of Dakota County (1990) and the initial mapped bedrock unit was denoted as the Prairie du Chien Group bedrock of Ordovician age in the proposed AUAR Area. Underlying the Prairie du Chien Group are the Cambrian age Jordan Sandstone, St. Lawrence Formation, Tunnel City Group, and the Wonewoc Sandstone. The water well log reports indicate that the Prairie du Chien Group is approximately 218 to 239 feet thick and underlain by the Jordan Sandstone. The Prairie du Chien Group and Jordan Sandstone are the major drinking water aquifer in Dakota County. The water wells completed in the Prairie du Chien Group and Jordan Sandstone indicate that static water levels are within the glacial material overlying the Prairie du Chien Group. Figure 9, Appendix A illustrates the bedrock geology for the AUAR area. Figure 10, Appendix A identifies known wells within and in the vicinity of the AUAR area.

The Prairie du Chien Group bedrock is more susceptible to the formation of karst features. However, in order to have a higher likelihood of karst developing, the Prairie du Chien Group must usually be within 50 feet of the land surface and have the top of the water table within the Prairie du Chien Group. These conditions do not exist within the proposed AUAR area, with the Prairie du Chien Group being located over 86 feet below the land surface in the southwest corner (greater than 100 feet in the central portion of the property) and from the water well logs it appears that the Prairie du Chien Group is fully saturated.

AUAR Scope

The AUAR will discuss the susceptibility of karst features at the AUAR area and identify appropriate mitigation measures as needed.

- b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.***

According to the USDA NRCS Web Soil Survey¹¹, soil types within the Project Area are primarily comprised of loamy soils with some clay loam soils. Table 7 lists hydrologic soil groups within the AUAR area. Soils are predominantly classified as Group B, Group C, and Group D. The four hydrologic soil groups are:

- **Group A:** Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These

¹¹ USDA, Natural Resource Conservation Service. Web Soil Survey. Access December 2022. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- **Group B:** Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained, or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- **Group C:** Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- **Group D:** Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Table 7. NRCS Soil Types within the AUAR area

Map Symbol	Name	Percent Slopes	Hydrologic Soil Group	Acres	Approx. Percent of AUAR Area
382B	Blooming silt loam	1 to 6	B	152.0	19.3
106B	Lester loam	2 to 6	C	130.1	16.5
377B	Merton silt loam	1 to 6	B/D	113.9	14.5
113	Webster clay loam	0 to 2	C/D	67.8	8.6
239	Le Sueur loam	1 to 3	C/D	62.4	7.9
252	Marshan silty clay loam	N/A	B/D	58.6	7.4
253	Maxcreek silty clay loam	N/A	B/D	53.5	6.8
129	Cylinder loam	0 to 2	B/D	40.2	5.1
114	Glencoe silty clay loam	0 to 1	C/D	30.4	3.9
414	Hamel loam	0 to 2	C/D	24.5	3.1
41A	Estherville sandy loam	0 to 2	A	17.2	2.2
106C2	Lester loam	6 to 10	C	9.4	1.2
41B	Estherville sandy loam	2 to 6	A	8.3	1.1
176	Garwin silty clay loam	N/A	B/D	6.3	0.8
106C	Lester loam	6 to 10	C	4.9	0.6
109	Cordova clay loam	0 to 2	C/D	3.7	0.5
539	Klossner muck	0 to 1	C/D	3.8	0.5
Total				787.1	100.0

Source: USDA Natural Resources Conservation Service (NRCS) Dakota County Soil Survey

Topography within the AUAR area is generally flat with no slopes greater than 10 percent. According to United States Geological Survey (USGS) topography maps, the high points within the AUAR area are centrally located along Garrett Avenue as well as in the southeast corner near the solar facilities. Drainage is to the east and west towards the wetlands within and in the vicinity of the AUAR area.¹² The

¹² USGS. 2012. US Topo: Maps for America. Available at: <https://www.usgs.gov/programs/national-geospatial-program/us-topo-maps-america>. Accessed December 2022.

infiltration rate varies across soil types in the AUAR area; however, soils generally have moderate to slow infiltration rates.

AUAR Scope

The AUAR will address soil corrections and identify measures to mitigate soil limitations as needed

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 12 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 11.

12. Water Resources

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.**
- i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.**

Existing Conditions

Surface Waters

A review of DNR geospatial data determined that there are no lakes, state designated trout streams or lakes¹³, wildlife lakes¹⁴, migratory waterfowl feeding/resting lakes¹⁵, or lakes of biological significance¹⁶ within the AUAR area. One surface water, Mud Creek, runs through the northwest corner of the AUAR area. Figure 12, Appendix A identifies surface waters in the vicinity of the AUAR area.

DNR Public Waters

According to the DNR National Wetland Inventory (NWI) Wetland Finder¹⁷ and geospatial data, no DNR Public Waters or Watercourses are located within the AUAR area. Two unnamed DNR Public Waters, Public Water Wetland ID No. 19043300 and Public Water Wetland ID No. 19043100, are located approximately 0.5 mile and 0.9 miles north of the AUAR area, respectively. Heath Creek (M-

¹³ DNR. 2020. State Designated Trout Streams, Minnesota. Available at: <https://gisdata.mn.gov/dataset/env-trout-stream-designations>. Accessed December 2022.

¹⁴ DNR. 2016. Designated Wildlife Lakes. Available at: <https://gisdata.mn.gov/dataset/env-designated-wildlife-lakes>. Accessed December 2022.

¹⁵ DNR. 2016. Migratory Waterfowl Feeding and Resting Areas. Available at: <https://gisdata.mn.gov/dataset/env-migratory-waterfowl-areas>. Accessed December 2022.

¹⁶ DNR. 2020. Lakes of Biological Significance. Available at: <https://gisdata.mn.gov/dataset/env-lakes-of-biological-significance>. Accessed December 2022.

¹⁷ DNR. 2022. NWI Wetland Finder. Available at: <https://arcgis.dnr.state.mn.us/ewr/wetlandfinder/>. Accessed December 2022.

048-019) is designated as a DNR Public Water Watercourse and is located approximately 2,000 feet south of the AUAR area. One DNR Public Water Watercourse associated with Mud Creek (M-048-017-004) is located approximately 0.5 miles north of the AUAR area. The section of Mud Creek located east of CSAH 23 is designated as a DNR Public Water Watercourse; the section of Mud Creek within the northwest portion of the Project Area is not designated as such. Figure 12, Appendix A identifies DNR Public Waters within and in close proximity to the AUAR area.

Wetland Resources

Based on DNR NWI geospatial data, ten wetland resources and three ponds (PUBFx) are within the AUAR area, most of which are located in the western portion of the AUAR area. The wetlands present include freshwater emergent wetlands (PEM1A and PEM1C), freshwater forested wetlands (PFO1A), and wetland complexes consisting of a variety of wetland types such as PEM1, PFO1, and scrub-shrub wetlands (PSS1). A riverine wetland (R2UBFx) associated with Mud Creek and a PSS1 are adjacent to the western boundary of the AUAR area. A PEM1Ad wetland is adjacent to the eastern boundary of the AUAR area. Figure 12, Appendix A identifies wetland features within and in the vicinity of the AUAR area.

MPCA 303d Impaired Waters List

A review of the MPCA's 2022 Impaired Waters List¹⁸ identified no impaired waters within the AUAR area. A section of Mud Creek, Assessment Unit Identification (AUID) 07040002-558), approximately 1.2 miles northeast of the AUAR area is impaired for aquatic recreation due to fecal coliform. Heath Creek, AUID: 07040002-521, located approximately 2,000 feet south of the AUAR area, is impaired for aquatic recreation due to *Escherichia coli* (*E. coli*) and aquatic life based on fish bioassessments and benthic macroinvertebrates bioassessments. A Total Maximum Daily Load (TMDL) for aquatic life has been established for the Cannon River Watershed, including Heath Creek.

Floodway/Floodplain

A Federal Emergency Management Agency (FEMA) FIRMette was generated through the National Flood Hazard Layer (NFHL) mapping tool¹⁹, indicating that the majority of the AUAR area is within Zone X, or an area of minimal flood hazard. Portions of the northwest corner of the AUAR area are within the regulated 100-year floodplain (Zone AE) and floodway associated with Mud Creek. Appendix B provides the FEMA FIRMette for the northwestern portion of the AUAR area.

AUAR Scope

As part of the Draft AUAR, further analysis of the identified water resources will be conducted as needed. Avoidance, minimization, and mitigation strategies will also be identified to address potential impacts to the identified water resources.

- ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or***

¹⁸ MPCA. 2022. Impaired Waters Viewer (IWAV). Available at:

<https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=fcfc5a12d2fd4b16bc95bb535d09ae82>. Accessed December 2022.

¹⁹ FEMA. 2021. National Flood Hazard Layer FIRMette. Available at: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>.

<https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>. Accessed December 2022.

nearby, explain the methodology used to determine this.

A review of the Minnesota Well Index database²⁰ for the AUAR area identified four bedrock water wells are located within the AUAR area. The domestic water wells identified within the AUAR area (Unique Well ID Nos. 234037, 719508, 723479, and 747374) are located throughout the central portion of the property and are completed in the Prairie Du Chien Group at surface elevations ranging from approximately 1001 to 1020 feet msl with a static water elevations between 916 and 969 feet mean sea level (msl). Table 8 identifies verified wells within the AUAR area. Figure 10, Appendix A identifies documented wells within and in the vicinity of the AUAR area.

Table 8. Verified Wells Adjacent to the AUAR area

Well ID	Well Type	Location and Elevation (MSL)	Well Depth (ft.)	Depth to Bedrock (ft.)	Static Water Level (ft.)
234037	Domestic	Southwest Corner, 1020	135	126	71
719508	Domestic	Southwest Corner, 1015	120	86	46
723479	Domestic	North Central, 1012	160	136	96
747374	Domestic	North Property, 1001	160	126	50

The Minnesota Well Index database was reviewed for the adjacent properties to a one-half mile radius from the AUAR area property boundaries and identified fourteen domestic bedrock water wells and two domestic quaternary wells. The domestic water wells identified within the one-half mile radius are included on the table below and are completed in the Quaternary deposits, Prairie Du Chien Group, and Jordan Sandstone with surface elevations ranging from approximately 958 to 1015 feet msl with a static water elevations between 898 and 975 feet msl. Table 9 identifies verified wells adjacent to the AUAR area.

Table 9. Verified Wells Adjacent to the AUAR area

Well ID	Well Type	Location and Elevation (MSL)	Well Depth (ft.)	Depth to Bedrock (ft.)	Static Water Level (ft.)
191502	Domestic	South, 982	88	88	33
193329	Domestic	South, 991*	76	NA	31
427133	Domestic	South, 993*	67	NA	31
451140	Domestic	North, 973*	160	65	23
451178	Domestic	Northwest, 982	170	56	18
509102	Domestic	South, 989*	355	96	39
509154	Domestic	South, 958	355	75	60
518781	Domestic	North, 978	100	60	50
522659	Domestic	East, 991*	340	60	44
625970	Domestic	Southwest, 1015*	135	81	40
737288	Domestic	North, 993*	160	79	20
747369	Domestic	Northwest, 991	140	63	30

²⁰ Minnesota Well Index, Minnesota Department of Health, Version 2.0.62. Accessed December 2022. <https://mnwellindex.web.health.state.mn.us/>

Well ID	Well Type	Location and Elevation (MSL)	Well Depth (ft.)	Depth to Bedrock (ft.)	Static Water Level (ft.)
747381	Domestic	North, 962	320	43	30
747401	Domestic	Northwest, 984	240	62	26
788202	Domestic	Northwest, 984*	120	64	20
788204	Domestic	Southwest, 999*	120	70	20

* Adjacent to the proposed AUAR Area.

The AUAR Area is located over the Prairie Du Chien-Jordan aquifer. The Minnesota Geological Survey classifies the AUAR area as having a low-moderate to high-moderate sensitivity to pollution of the Prairie Du Chien-Jordan aquifer. High-moderate sensitivity does not indicate that water quality has been or will become degraded. The estimated travel time of water-borne surface contaminants to reach the aquifer is years to several decades. It should be noted that the static water level was taken at the time of well installation and does not always correlate with the current static water conditions.

The City of Northfield Drinking Water Supply Management Areas (DWSMA) was reviewed on the MDH Source Water Protection Area Web Map Viewer, and the AUAR area is not located within the boundaries. The DWSMA is located approximately one mile southeast of the AUAR area on the east side of the Cannon River and is considered to have a high vulnerability. However, the DWSMA would not be considered in the same watershed as the AUAR area. Additionally, the DWSMA for the Webster Water Association is located over six miles northwest of the AUAR Area and has a low vulnerability. The Webster Water Association DWSMA would not be considered to be affected by development in the AUAR area. Figure 11, Appendix A shows DWSMAs in the vicinity of the AUAR area.

AUAR Scope

The AUAR will address the potential of the development scenarios to impact to groundwater resources.

- b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.**
 - i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.**
 - 1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.**
 - 2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.**
 - 3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.**

AUAR Scope

Currently, the AUAR area is undeveloped, and the site is not connected to municipal water or sewer services. It is anticipated that the AUAR area would connect to the City of Northfield's sanitary sewer collection system. The AUAR will discuss projected wastewater flows and loads for the area will be utilized in planning any new wastewater collection and/or treatment infrastructure. Mitigation strategies included in the AUAR will describe mitigation required for the sanitary sewer system.

Any new wastewater systems would be constructed in accordance with the City of Northfield's current Sanitary Sewer Master Plan or Comprehensive Plan.

- ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.***

Existing Conditions

Currently, the AUAR area is mostly agricultural land, with some wetlands/water resource features as described in Item 12.a.i. The eastern portion of the AUAR area drains south to Heath Creek and the western portion drains west to Mud Creek and its tributary. Heath Creek is impaired for *E. coli* and Biotics (fisheries and invertebrates). Figure 12, Appendix A provides an overview of the AUAR area, water resources and drainage patterns. These impairments for Heath Creek are considered to be construction related parameters and require additional best management practices (BMPs) such as stabilized exposed soil within seven days after construction activity temporarily or permanently ceases and temporary sediment basins for common drainage locations that serve an area with five or more acres disturbed at one time.

Proposed Conditions

Proposed conditions include a change in land use from agriculture to industrial development as described in Item 6. It is anticipated that stormwater management will be needed to meet temporary and permanent volume, rate control and water quality requirements associated with local (City, County and Watershed) and State (NPDES/SDS Construction Stormwater permit) stormwater requirements. Stormwater modeling will be conducted to determine the requirements and the BMP sizing to meet those requirements. As part of the modeling process, opportunities to incorporate climate change and resiliency will be performed.

AUAR Scope

The Draft AUAR will explore opportunities for innovative natural resource-based stormwater management and alignment with the Cannon River Comprehensive Watershed Management Plan. Potential BMP locations will be identified, and construction site stormwater management (e.g., erosion and sediment control) will also be addressed, including BMPs requirements associated with impaired waters as noted above.

- iii. *Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.***

Currently, there are four verified existing wells within the AUAR area as described in Item 12.a.ii. The AUAR area is not connected to municipal water services. It is anticipated that the area will connect to the City of Northfield's existing water distribution system. Projected water demands for the area will be utilized in planning any new water supply, treatment, storage, and distribution infrastructure.

Any new water systems will be constructed in accordance with the City of Northfield's current Water Master Plan or Comprehensive Plan.

If additional municipal wells are required in order to support development of the site, the following three permits must be obtained:

1. DNR Pre-construction Permit – This permit application proposes a new well location to the DNR, so that any potential conflicts with existing wells or natural resources (such as calcareous fens) can be identified. If it is believed that no conflicts are expected, the City is then allowed to proceed with well construction. If potential impacts are identified, it will be necessary to work with DNR staff to ensure that any impacts are minimized. If the DNR does not approve of well construction at the proposed site, an alternative site (or water source) will need to be identified.
2. MDH Design Review – The plans and specifications for the new municipal well must be submitted to the Minnesota Department of Health (MDH) prior to drilling to ensure that the proposed well design meets Well Code requirements and will not negatively impact the aquifer(s) that the well intersects.
3. DNR Water Appropriation Permit – Once the well is constructed, the City will need to obtain an amendment to their existing Appropriation Permit in order to pump the new well. The DNR will outline any requirements necessary for amending the permit. These requirements may include aquifer testing and aquifer monitoring, to ensure that no negative impacts are occurring with other

wells or natural resources.

AUAR Scope

Projected water demands for the development scenarios and the capacity of the City's water system will be further evaluated and addressed in the Draft AUAR. The AUAR will include a discussion of the influence of climate change and resiliency of the water use associated with the development scenarios.

iv. Surface Waters

- a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.**

Impacts to wetlands are regulated by the Minnesota Wetland Conservation Act (WCA) and the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. The Dakota county Soil and Water Conservation District is the WCA local governmental unit (LGU) for the AUAR area. If wetland impacts associated with future development of the AUAR area are unavoidable, then the Proposer would be required to minimize and avoid wetland impacts to the greatest practicable extent. The USACE, LGU, and other appropriate stakeholders would be consulted during this process. The AUAR area is located within Bank Service Area (BSA) 8. On-site wetland mitigation may be considered if there are wetland restoration opportunities located within the AUAR area that would yield wetland mitigation credit. Wetland banking will be used if on-site locations are not available and/or if agencies recommend the use of a wetland bank.

AUAR Scope

The Draft AUAR will identify and quantify anticipated impacts to wetlands within the AUAR area resulting from the development scenarios. Mitigation strategies will identify measures for avoidance, minimization, and mitigation for potential wetland impacts in accordance with local, state, and federal regulations.

- b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicialditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/ sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.**

AUAR Scope

As part of the Draft AUAR, potential impacts to surface waters resulting from the development scenarios will be quantified and measures to avoid, minimize, or mitigate impacts will be identified. BMPs will be proposed that are consistent with the requirements of the local and state regulations. The AUAR will include a discussion of the potential for climate change to influence the impacts of the development scenarios.

13. Contamination/Hazardous Materials/Wastes

- a. *Pre-project site conditions - Describe existing contamination or potential environmental hazardson or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.*

The MPCA's What's In My Neighborhood (WIMN) online database²¹ to identify potentially contaminated sites within the AUAR area and within one-half mile of the AUAR area. Three sites were identified within the AUAR area and 16 were identified with one-half mile of the AUAR area. These sites are identified in Table 10 and Figure 13, Appendix A. A review of the Minnesota Department of Agriculture (MDA) WIMN database²² did not identify any sites within the AUAR area or within one-half mile of the AUAR area.

Table 10. MPCA WIMN Sites within the AUAR and within a One-Half Mile of the AUAR Area

Site ID	Site Name	MPCA Program
Within the AUAR area		
69415	Tom Sorem Farm	Feedlots
234491	Hyacinth Solar Project	Construction Stormwater
69488	John Peter Fink Farm	Feedlots
Within One-Half Mile of the AUAR area		
250015	CP 101-01/CP 96-07	Construction Stormwater
225142	Northfield Senior Housing	Construction Stormwater
232165	Northfield Hospital and Clinics Birthing Center and Clinic Expansion	Construction Stormwater
58058	Northfield Hospital	Above ground and underground tanks, air quality, construction stormwater, hazardous waste, and a small quantity generator
119462	Mayo Clinic Radiation Therapy	Construction stormwater, hazardous waste,

²¹ MPCA. 2022. What's In My Neighborhood. Available at: <https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=9d45793c75644e05bac197525f633f87>. Accessed December 2022.

²² MDA. 2022. What's In My Neighborhood. Available at: <https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=9d45793c75644e05bac197525f633f87>. Accessed December 2022.

Site ID	Site Name	MPCA Program
		and a minimal quantity generator
69962	Ardeth J Livermore Farm	Feedlots
69627	Wayne C & Jean M Bollum Farm	Feedlots
86187	Vance Norgaard Farm	Feedlots
100773	Cody-Cooke-Geisler Sec 33	Feedlots
69487	Georg A & Carol Fischer Farm	Feedlots
69481	Gregory & Victoria Langer Farm	Feedlots
83995	Raymond Larson Farm	Feedlots
205602	Greenvale Township	Subsurface sewage treatment system (SSTS)
69489	George J & Beverly M Fink Farm	Feedlots
69425	Don Malecha Farms	Feedlots
231162	Chub Garden	Construction Stormwater

AUAR Scope

As part of the Draft AUAR, further review of available desktop resources will be conducted including the MPCA Institutional Controls Interactive (IC) online maps and the MPCA Petroleum Remediation Program (PRP) online maps. The potential to encounter contamination and hazardous materials during site demolition and construction activities will be evaluated. Mitigation strategies consistent with state and federal laws will be developed for the Draft AUAR.

- b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solidwaste including source reduction and recycling.***

The Draft AUAR will identify potential project related generation and storage of solid wastes as well as requirements for storing and disposing of the materials in accordance with state and federal laws.

- c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.***

The Draft AUAR will identify potential project related use and storage of hazardous materials as well as requirements for using and storing materials in accordance with state and federal laws.

- d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential***

environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling

The Draft AUAR will identify potential project related generation and storage of hazardous wastes as well as requirements for generating and storing materials in accordance with state and federal laws.

14. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

The land cover with the AUAR area was reviewed and is described in Item 8. Agriculture is the predominant land cover type within the AUAR area, comprising approximately 643 acres or 82 percent of the total AUAR area. As discussed in Item 10 (Land Use), a wooded area is present in the southwest corner of the AUAR area, which the City intends to preserve. Figure 3, Appendix A illustrates land cover types within the AUAR area based on TCMA geospatial data. Table 3 in Item 6 details land cover types identified within the AUAR area.

A 100-year floodplain and floodway associated with Mud Creek is also located in the northwest corner of the AUAR area. Wetlands are present primarily within the western portion of the AUAR area. These areas could provide foraging or roaming habitat for a variety of urban wildlife species, including squirrels, rabbits, deer, coyotes, foxes, passerine birds, raptors, and other small mammals. Open water features may provide suitable habitat for aquatic species, including fish, frogs, and toads. It is anticipated that no significant fish or wildlife resources are present within the AUAR area due to the isolation of habitat and extent of past disturbance from agricultural development.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-___) and/or correspondence number (ERDB_____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

Under Stantec's Limited License to Use Copyrighted Material (LA-1005) related to Rare Features Data, the DNR Natural Heritage Information System (NHIS) was searched in December 2022 to identify significant communities and species within a one-mile radius of the AUAR area.

Native Plant Communities and Sites of Biodiversity Significance

No DNR native plant communities, sites of biodiversity significance, or regionally significant ecological areas are located within the AUAR area based on a review of NHIS data. One site of biodiversity significance ranked as "below" is located approximately 0.35 miles southwest of the AUAR area.

State – Listed Species

The NHIS search did not indicate any records within the AUAR area. Records of three rare species were identified within one mile of the AUAR area:

- Rusty patched bumble bee (*Bombus affinis*) - Watchlist
- Wood turtle (*Glyptemys insculpta*) - Threatened

- Narrow-leaved pinweed (*Lechea tenuifolia* var. *tenuifolia*) – Endangered

Rusty patched bumble bee (RPBB) records were identified immediately outside of the AUAR area.

Federally – Listed Species

Review of the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool²³, identified three federally listed species and one candidate for federal listing with the potential to occur within the AUAR area:

- Northern long-eared bat (*Myotis septentrionalis*) – Endangered²⁴
- Rusty patched bumble bee (*Bombus affinis*) – Endangered
- Monarch butterfly (*Danaus plexippus*) – Candidate
- Prairie bush clover (*Lespedeza leptostachya*) – Threatened

The southeast corner of the AUAR area is located within a RPBB high potential zone (HPZ) and the remainder of the AUAR area is within a RPBB low potential zone (LPZ)²⁵.

Thirteen migratory species have the potential to occur within the AUAR area. Suitable nesting habitat and construction timing will be considered when preparing the Draft AUAR to determine whether the development scenarios may affect nesting migratory Birds of Conservation Concern (BCC) in accordance with the Migratory Bird Treaty Act.

AUAR Scope

As part of the Draft AUAR, potential suitable habitat for the identified species will be identified within and in the vicinity of the AUAR area. Determinations will be made for each species, indicating the likelihood that the development scenarios may impact a given species. The following sections (14c and 14d) will detail how species, if any, will be impacted by the development scenarios and recommend measures to avoid, minimize, and/or mitigate adverse impacts as applicable.

- c. ***Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.***

AUAR Scope

As part of the Draft AUAR, a comprehensive desktop assessment (i.e., aerial photographs, tree species inventory, and publicly available information) will be completed to evaluate the potential for the development scenarios to impact fish, wildlife, plant communities, threatened and endangered species, rare features and ecosystems. In addition, the Draft AUAR will determine the acreage of natural communities or special ecosystems, based on state or local designations, to be disturbed as a result of the

²³ USFWS. 2022. Information for Planning and Consultation. Available at: <https://ipac.ecosphere.fws.gov/>. Accessed December 2022.

²⁴ Per an announcement from the USFWS on November 29, 2022, the northern long-eared bat is being up-listed from threatened to endangered. The rule takes effect on January 30, 2023.

²⁵ ArcGIS. 2022. Rusty Patched Bumble Bee Map. Available at: <https://www.arcgis.com/home/webmap/viewer.html?webmap=2716d871f88042a2a56b8001a1flacae&extent=-100.6667%2c29.7389%2c-48.8551%2c50.9676>. Accessed December 2022.

development scenarios.

The Draft AUAR will identify habitat requirements for the NLEB, RPBB, monarch butterfly, wood turtle, prairie bush clover, and narrow-leaved pinweed. The draft AUAR will assess potential impacts to these species and determine if suitable habitat for these species would be potentially removed or disturbed by development within the AUAR area. The Draft AUAR will also discuss how climate trends may influence the effects of future development on these species.

Construction activities that involve soil disturbance can result in the introduction and spread of invasive species. The Draft AUAR will identify permit requirements related to noxious weeds and invasive species management and will provide a discussion of recommended BMPs during construction and operation.

- d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.***

AUAR Scope

Potential impacts to waterways within the AUAR area will be examined as part of the Draft AUAR to determine whether the wood turtle or other aquatic species may be impacted. Mitigation strategies included in the Draft AUAR will include measures to avoid, minimize, or mitigate potential impacts as applicable.

Based upon aerial imagery, limited potential wooded summer habitat for the NLEB likely exists within the AUAR area. However, more information on potential tree clearing requirements and other activities within the AUAR area will be needed to assess impacts. Potential impacts to bat habitat, the presence or absence of white-nose syndrome (WNS), and the proximity to any known maternity roost trees or hibernacula will be further examined as part of the Draft AUAR to determine whether the NLEB has the potential to be impacted by the development scenarios. Potential avoidance and minimization measures will be recommended to reach a determination of no effect for the NLEB, such as clearing trees outside of the active season (April 1 to October 31), if required.

The Draft AUAR will develop a mitigation strategy for the RPBB that may include field surveys based on the anticipated impacts and current USFWS regulations.

A review of land cover and aerial imagery suggests that native prairie to support the life cycle of the prairie bush clover, narrow-leaved pinweed, and monarch butterfly is not present in the AUAR area. Further information will be reviewed during preparation of the Draft AUAR to determine the potential for the development scenarios to affect these species and identify avoidance, minimization, and mitigation strategies as applicable.

15. Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

AUAR Scope

The Draft AUAR will include a review of the Minnesota State Historic Preservation Office's (SHPO) cultural resources inventory database for the AUAR area and a one-mile buffer indicating both historic structures and archaeological sites to determine if there are historic properties that would potentially be affected by development within the AUAR area. Anticipated impacts to identified historic resources will be evaluated and mitigation measures will be identified to avoid and minimize impacts during construction of future development projects in the AUAR area.

16. Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

AUAR Scope

The analysis in the Draft AUAR will focus on views of the AUAR area from surrounding sites and significant views inside the AUAR area to surrounding properties. The AUAR area largely encompasses an agricultural area, with State Highway 19 to the south. The heart of the City of Northfield is to the southeast of the site, including St. Olaf College, which has natural areas that are near the site.

Visual effects of land use within the AUAR area will be identified in the Draft AUAR for both Development Scenario A and Development Scenario B. Both Scenario A and B propose industrial uses, which could have a visual impact on the surrounding agricultural areas. Mitigation measures may include recommendations for landscape screening and adjustment of lighting.

17. Air

- a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.***

In accordance with the EQB's AUAR guidance document²⁶, this item is not applicable to an AUAR as any stationary air emission sources large enough to merit environmental review would require individual review.

AUAR Scope

The Draft AUAR will include a qualitative discussion of potential sources of low-level air emissions typically associated with industrial development.

- b. Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.***

²⁶ EQB. Alternative Urban Areawide Review Documents: Recommended Content and Format. Updated September 2008. <https://www.eqb.state.mn.us/sites/default/files/documents/AUAR%20guidance%20%28form%29%20-9-09.pdf>

Motorized vehicles affect air quality by emitting air borne pollutants. The changes in traffic volumes, travel patterns, and roadway locations for either development scenario may affect air quality by changing the number of vehicles and the congestion levels in the AUAR area. It is not anticipated that the development scenarios would include transportation improvement projects that would be considered regionally significant per 40 CFR Part 93.

Criteria pollutants identified by the U.S. Environmental Protection Agency (EPA) are ozone, particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO₂), lead, and sulfur dioxide (SO₂). In Minnesota, air quality analysis for transportation project primarily addresses localized CO emissions and Mobile Source Air Toxics (MSATs). The AUAR area is not located within a nonattainment or maintenance area for criteria pollutants. The Twin Cities CO Maintenance Area includes portions to Dakota County, however, the AUAR area is outside of this Maintenance Area. Furthermore, the 20-year maintenance period for this area ended on November 29, 2019, and a CO project level conformity analysis is no longer needed. The EPA has approved a CO hot spot screening method designed to identify intersections that may result in CO emissions that exceed air quality standards. This screening method assumes that intersections with a total daily traffic volume exceeding 82,300 vehicles per day may result in potential CO impacts that exceed air quality standards. A traffic study will be completed as part of the Draft AUAR to confirm that traffic volumes generated by the development scenarios would not exceed this threshold.

AUAR Scope

A qualitative vehicle emission analysis will be conducted in accordance with MnDOT air quality analysis guidance.²⁷ It is not anticipated that a quantitative air quality analysis for CO or MSATs would be required.

- c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.*

AUAR Scope

Dust and odors may be of concern during construction of future development projects. The Draft AUAR will document City Ordinances and Codes pertaining to dust and odors and identify sensitive receptors in the vicinity of the AUAR area. Minimization and mitigation strategies for the AUAR area will be developed.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

- a. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation.*

²⁷ MnDOT. Air Quality Process. <http://www.dot.state.mn.us/project-development/subject-guidance/air-quality/process.html>

AUAR Scope

The Minnesota Environmental Quality Board's (EQB's) Revised EAW Guidance (January 2022)²⁸ will be used to develop the carbon footprint for the Draft AUAR. Greenhouse gas emissions will be calculated for existing conditions (baseline) the construction and operation of the two development options. Land use changes will also be included in the greenhouse gas quantification.

Readily available emission calculation tools such as U.S. EPA's Simplified Greenhouse Gas Emissions Calculator (SGEC) Tool or other acceptable methods will be used for the calculations. The SGEC Tool uses building square footage to estimate natural gas and electricity usage for various building types. Construction emissions will be calculated for each development scenario based on the number and type of mobile equipment needed. Greenhouse gas emissions from the equipment exhaust will be calculated using U.S. EPA emission factors.

Summary tables will be provided for the baseline and development scenarios. The following tables (Tables 11 and 12) are examples of tables summarizing GHG quantification results to be included in the Draft AUAR.

Table 11. Construction Emissions

Scope	Type of Emission	Emission Sub-type	Project-related CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment		
Scope 1	Land Use	Conversion		
Scope 1	Land Use	Carbon Sink		
TOTAL				

Table 12. Operational Emissions

Scope	Type of Emission	Emission Sub-type	Existing Facility CO ₂ e Emissions (tons/year)	Project-related CO ₂ e Emissions (tons/year)	Total CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment				
Scope 1	Combustion	Stationary Equipment				
Scope 1	Combustion	Area				
Scope 1	Non-Combustion	Stationary Equipment				

²⁸ EQB. Revised Environmental Assessment Worksheet (EAW) Guidance. January 2022.

https://www.eqb.state.mn.us/sites/default/files/documents/EQB_Revised%20EAW%20Form%20Guidance_Climate_Sept%202021_1.pdf

Scope	Type of Emission	Emission Sub-type	Existing Facility CO ₂ e Emissions (tons/year)	Project-related CO ₂ e Emissions (tons/year)	Total CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-Site Electricity	Grid-based				
Scope 2	Off-site Steam Production	Not applicable				
Scope 3	Off-site Waste Management	Area				
TOTAL						

b. GHG Assessment

i. Describe any mitigation considered to reduce the project's GHG emissions.

Reductions in greenhouse gas emissions associated with the development scenarios compared to baseline will be described. Any additional mitigation considered, such as the use of renewable energy sources, energy efficient lighting or other building efficiency specifications will be noted as well.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.

The selection of mitigation options will be described, including the reasoning behind the selection.

iii. Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

The net lifetime greenhouse gas emissions will be presented for both development scenarios, along with a discussion of how the scenarios affect the state's greenhouse gas reduction goals.

19. Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

In accordance with the EQB's AUAR guidance document²⁹, it is not required to address construction noise unless there is some unusual reason to do so. No unusual circumstances are anticipated for the development scenarios that would warrant conducting a quantitative noise analysis.

²⁹ EQB. Alternative Urban Areawide Review Documents: Recommended Content and Format. Updated September 2008. <https://www.eqb.state.mn.us/sites/default/files/documents/AUAR%20guidance%20%28form%29%20-9-09.pdf>

The State of Minnesota's noise rules (Minn. Rules Ch. 7030) establish noise limits by noise area classifications (NACs) based on land use at the location of the person that hears noise. The MPCA enforces noise standards at industrial facilities for which it has issued an air permit. MnDOT is responsible for state highway noise mitigation and coordinates with the Federal Highway Administration (FHWA) and the MPCA to evaluate road projects for noise impacts and possible mitigation measures.

Noise impacts in Minnesota are evaluated by measuring and/or modeling the noise levels that are exceeded 10 percent and 50 percent of the time during the hours of the day and/or night that have the loudest scenario. These numbers are identified as the L10 and L50 levels, respectively. The L10 value is the noise level that is exceeded for a total of 10 percent, or 6 minutes, of an hour. The L50 value is the noise level that is exceeded for a total of 50 percent, or 30 minutes, of an hour.

For traffic noise analyses, traffic volume, types of vehicles, operating speed, topography, and distance from the road to the receptor influences the traffic noise level at the receptor. The sound level decreases as distance from a source increases. A general rule regarding sound level decrease due to increasing distance from a line source (roadway) that is commonly used is: beyond approximately 50 feet from the sound source, each doubling of distance from the line source over hard ground (such as pavement or water) will reduce the sound level by 3 dBA, whereas each doubling of distance over soft ground (such as vegetated or grassy ground) results in a sound level decrease of 4.5 dBA.

1) Existing noise levels/sources in the area

Existing noise sources include vehicle traffic along State Highway 19, County Road 19, CSAH 23, and other connecting local roadways. Other existing noise sources would include noise generated by agricultural operations and equipment within the AUAR area.

2) Nearby sensitive receptors

The majority of the AUAR area consists of agricultural and undeveloped land. Nearby sensitive receptors would include rural residences present within and adjacent to the AUAR area. Additional sensitive receptors include the Benedictine Senior Living Community and Northfield Hospital local along North Avenue, east of the AUAR area.

3) Conformance to State noise standards

Minnesota's noise pollution rules³⁰ are based on statistical calculations that quantify noise levels over a one-hour monitoring period. The L₁₀ calculation is the noise level that is exceeded for 10 percent, or 6 minutes, of the hour, and the L₅₀ calculation is the noise level exceeded for 50 percent, or 30 minutes, of the hour. There is no limit on maximum noise.

The statutory limits for a residential location are L₁₀ = 65 dBA and L₅₀ = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L₁₀ = 55 dBA and L₅₀ = 50 dBA during the nighttime (10:00 p.m. – 7:00 a.m.). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time. Table 13 summarizes noise standard classifications by land use.

³⁰More information on Minnesota Noise rules, [Minn. Rules Ch. 7030](https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf), may be found at: <https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf>

Table 13. Noise Area Classifications (NAC)

NAC	Common land use associated with the Noise Area Classification	Daytime (dBA) L₁₀	Daytime (dBA) L₅₀	Nighttime (dBA) L₁₀	Nighttime (dBA) L₅₀
1	Residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services	65	60	55	50
2	Retail, business and government services, recreational activities, transit passenger terminals	70	65	70	65
3	Manufacturing, fairgrounds and amusement parks, agricultural and forestry activities	80	75	80	75

NACs are based on the land use at the location of the person who hears the noise, which does not always correspond with the zoning of an area. Therefore, noise from an industrial facility near a residential area is held to the NAC 1 standards if it can be heard on a residential property.

By state law, the future proposed industrial development in the AUAR area must comply with state noise standards. Future industrial uses must also comply with the local noise requirements pursuant to Section 50-90 of the City's Zoning Ordinance.

4) *Quality of life*

AUAR Scope

The Draft AUAR will evaluate the potential quality of life impacts resulting from operational noise generated by the development scenarios. Mitigation strategies will be identified as applicable.

20. Transportation

- a. *Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.*

AUAR Scope

The A.M. peak hour, P.M. peak hour, and daily trip generation for land uses within the AUAR area will be estimated using current trip generation information. A traffic impact study evaluating the impacts of the land uses within AUAR area will be completed for the AUAR. The traffic impact study will include intersection capacity analyses for intersections immediately adjacent to the AUAR area along State Highway 19 and CR 96. In addition, other intersections along roadways serving the study area such as Garrett Avenue, North Avenue, Decker Avenue, Eaves Avenue, and CSAH 23 will be evaluated. Figure

14, Appendix A identifies the existing roadway functional classification and annual average daily traffic (AADT) volumes for the AUAR area.

The proposed additional parking spaces, construction traffic, and the availability of transit and other transportation modes will be documented in the Draft AUAR.

- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>) or a similar local guidance.***

The traffic impact study will include the following intersections:

- TH 19/Decker Avenue
- Decker Avenue/Garrett Avenue/North Avenue
- North Avenue/Eveleth Avenue
- North Avenue/Eaves Avenue
- TH 19/Eaves Avenue
- CR 96 (320th Street)/Garrett Avenue
- CR 96/CSAH 23 (Foliage Avenue)
- CR 96/Eveleth Avenue
- Greenvale avenue/Lincoln Street

The analysis will include the no-build and build scenarios for the development completion year. A background growth rate will be determined and applied to account for any background developments. A.M. and P.M. peak hour models will be developed for both no-build and build scenarios. Traffic operations for the weekday A.M. and P.M. peak hours will be analyzed for each scenario. Traffic operations at the study intersections and the development access intersections will be reported. Areas of possible mitigation will be identified. Figure 15, Appendix A identifies intersections to be evaluated in the traffic impact study.

- c. Identify measures that will be taken to minimize or mitigate project related transportation effects.***

The AUAR will include mitigation measures identified through the traffic impact analysis.

21. Cumulative Potential Effects

(Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

- a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.***

The geographic scale considered in the cumulative potential effects analysis would include land adjacent to and within an approximately one-mile radius of the AUAR area. It is anticipated that the full buildout of the AUAR area would occur phases over several years based on market conditions. Reasonably foreseeable projects that are funded or planned to be constructed within the next ten years would be considered for the cumulative potential effects analysis.

- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.***

AUAR Scope

A comprehensive assessment of reasonably foreseeable projects will be conducted as part of the Draft AUAR. Desktop resources to be reviewed may include the *EQB Monitor*, City of Northfield's current and planned projects³¹, Dakota County's construction projects³², and Dakota County's five-year Capital Improvement Plan.³³ The Draft AUAR will include a summary of known projects funded or under construction in the general geographical area adjacent to the AUAR area.

- c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.***

AUAR Scope

If reasonably foreseeable future projects are identified as part of Item 21.a, the potential for the environmental effects of these projects and the AUAR development scenarios to interact will be discussed.

22. Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

No other potential environmental effects are anticipated to be included in the Draft AUAR.

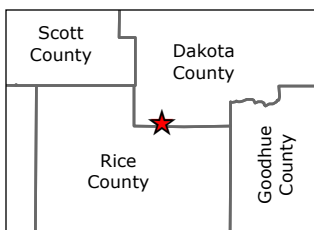
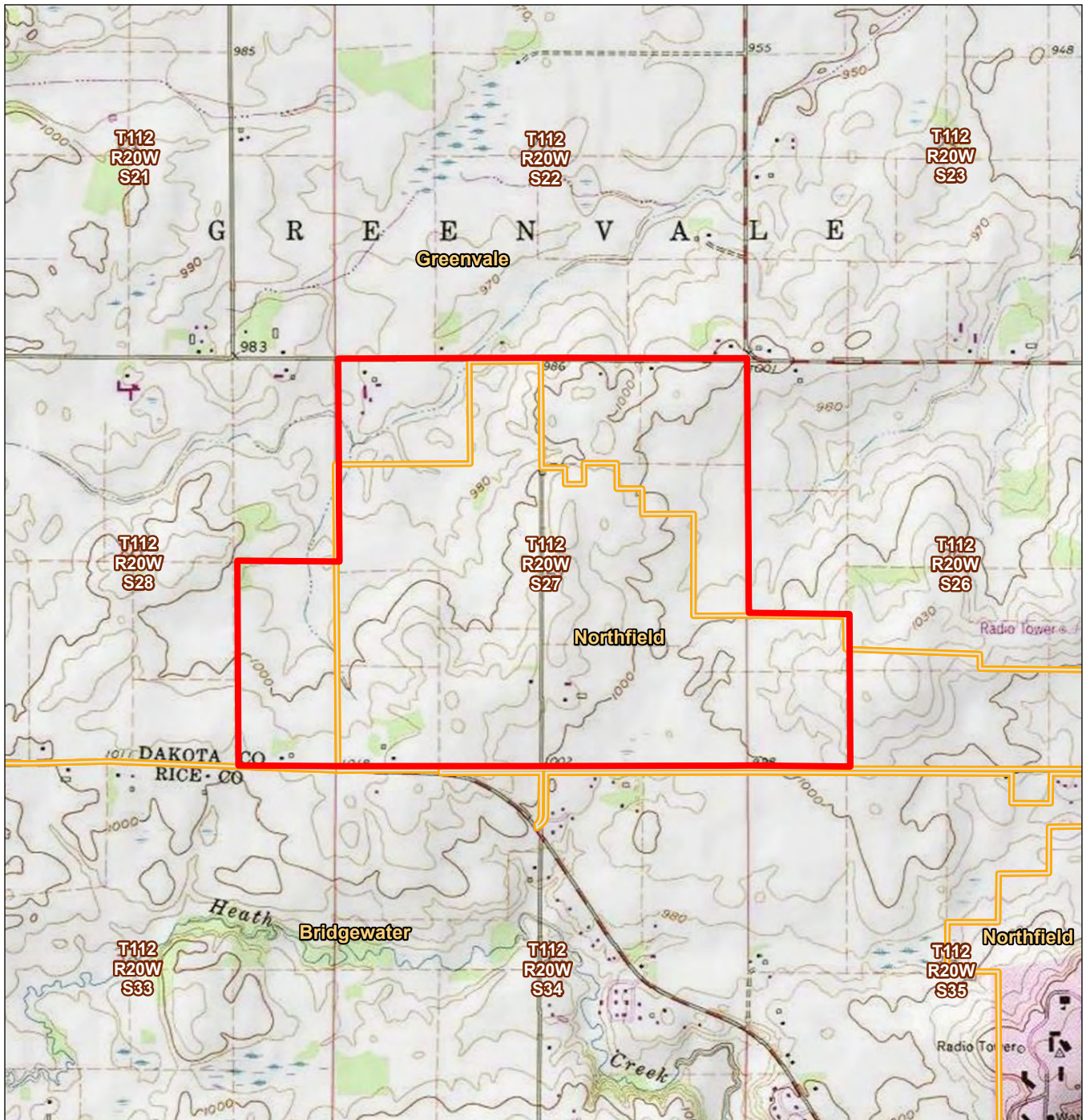
³¹ City of Northfield. Current and Future Projects. Accessed December 2022. <https://www.northfieldmn.gov/291/Current-and-Future-Projects>

³² Dakota County. Construction Projects. Accessed December 2022. <https://www.co.dakota.mn.us/parks/CurrentProjects/Construction/Pages/default.aspx>

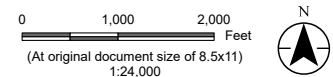
³³ Dakota County. Transportation Planning and Programs. Accessed December 2022. <https://www.co.dakota.mn.us/Transportation/PlanningPrograms/Pages/default.aspx>

Appendix A

Figures



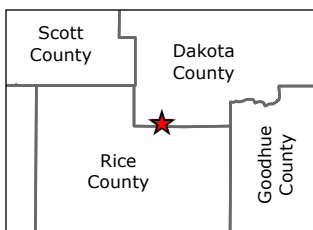
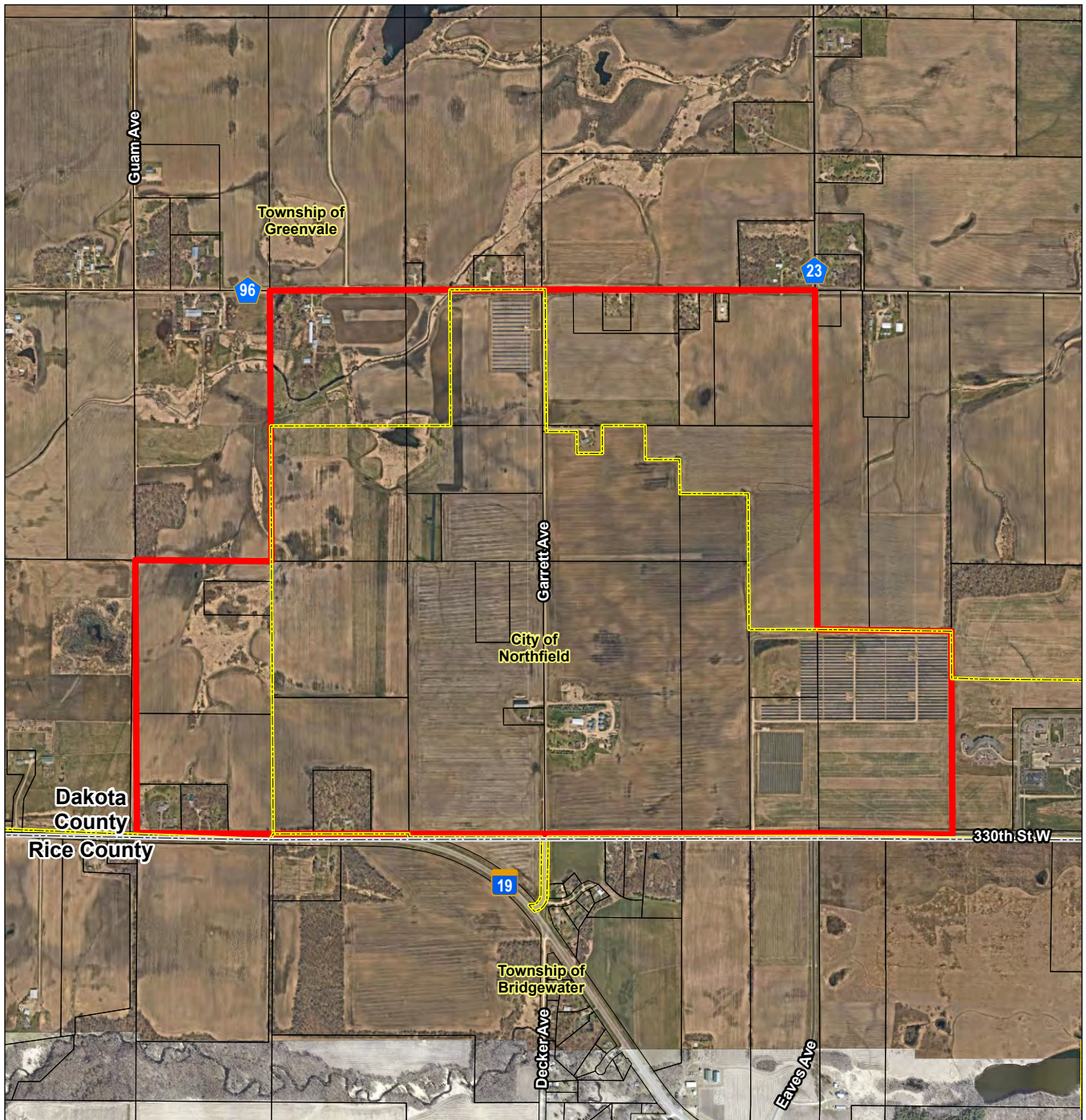
- Legend**
- Project Area
 - Municipal Boundary



Project Location: T112N, R20W, S27 & 28
 Prepared by KJM on 2022-12-22
 T of Greenville & C. of Northfield, Dakota Co., MN

Client/Project: Xcel Energy
 Northfield MN AUAR
 EAW
 227705362

Figure No. 1
 Title
Project Location USGS Topo Map



Legend

- Municipal Boundary
- Project Area
- Parcels

0 750 1,500
Feet
(At original document size of 8.5x11)
1:18,000

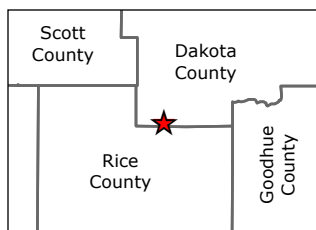
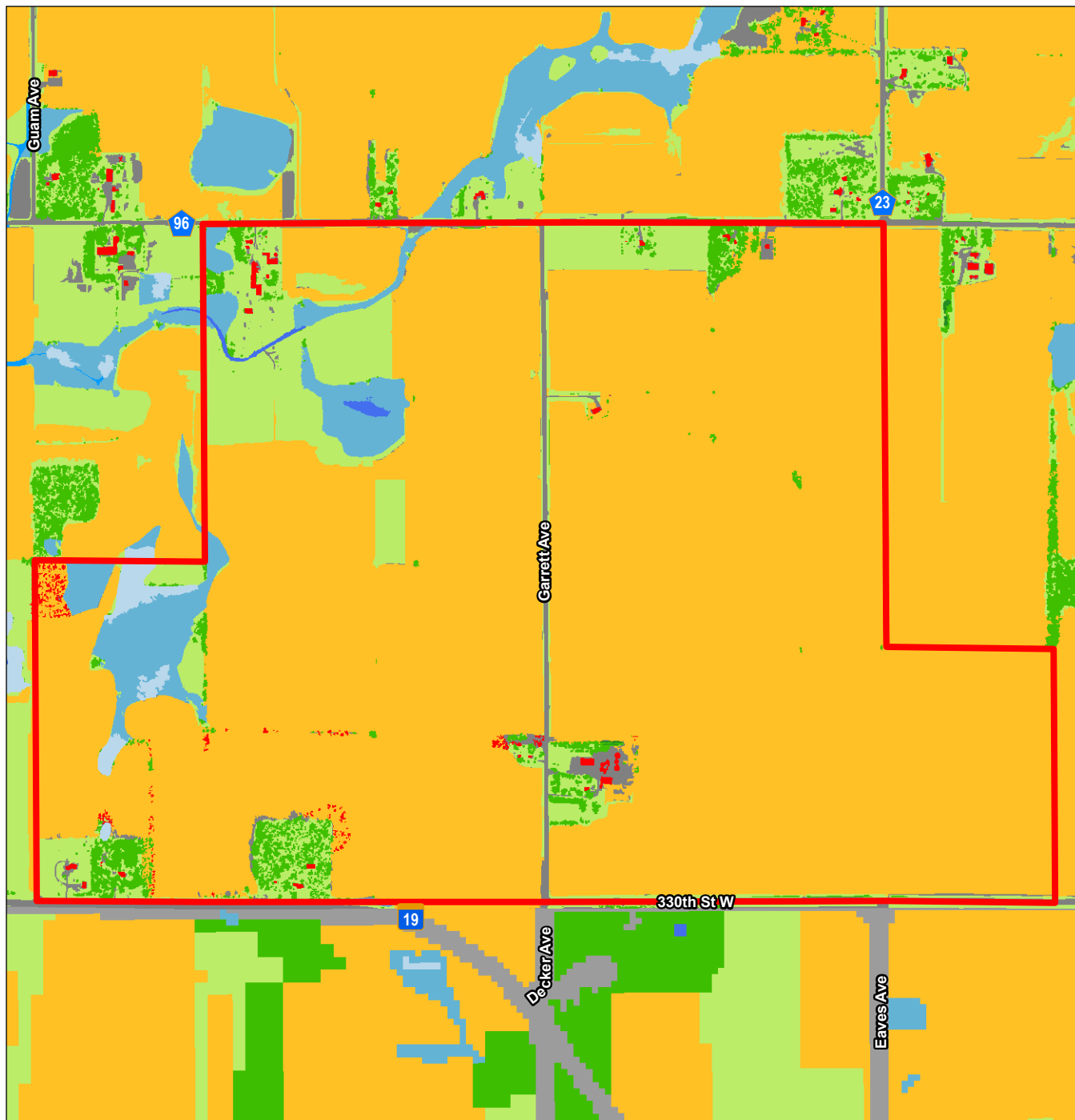


Project Location Prepared by KJM on 2022-12-08
T112N, R20W, S27 & 28
T of Greenville & C. of Northfield, Dakota Co., MN

Client/Project 227705362
Xcel Energy
Northfield MN AUAR

Figure No.
2

Title
Project Location Aerial Map



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
 2. Data Sources: Stantec, MnGeo, MnDOT, UMN - Twin Cities 1-Meter Land Cover (2016)
 3. Background: 2022 Dakota Co.

- Legend**
- Project Area
 - TCMA Land Cover 2016**
 - Grass/Shrub
 - Buildings
 - Roads/Paved Surfaces
 - Lakes/Ponds
 - Deciduous Tree Canopy
 - Coniferous Tree Canopy
 - Agriculture
 - Emergent Wetland
 - Forested/Shrub Wetland
 - River

0 600 1,200 Feet
 (At original document size of 8.5x11)
 1:14,400



Project Location Prepared by KJM on 2022-12-08
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

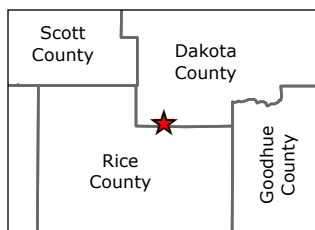
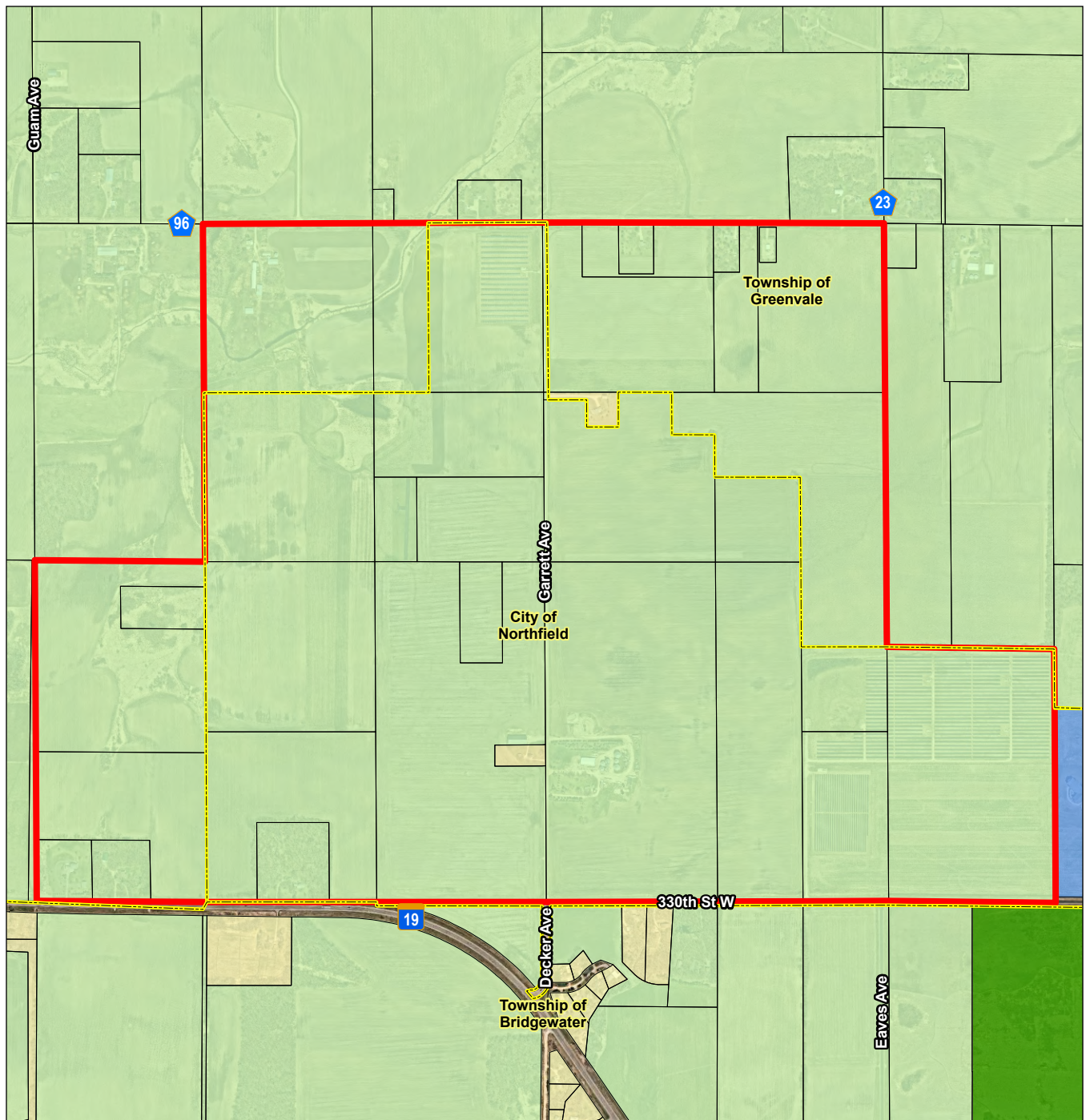
EAW

Figure No.
3

Title

Land Cover

V:\2277\active\227705362\03_data\gis_cad\gis\proj\leaw\leaw.aprx Revised: 2022-12-08 By: kjmueller



Notes
1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
2. Data Sources: Stantec, Dakota Co., Rice Co., MnGeo, MnDOT
3. Background: 2022 Dakota Co.

- Legend**
- Municipal Boundary
 - Project Area
 - Parcels
 - Existing Land Use**
 - Agricultural
 - Residential
 - Public/Semi-Public
 - Park/Open

0 600 1,200 Feet
(At original document size of 8.5x11)
1:14,400

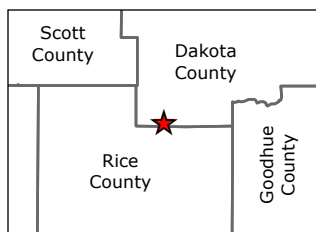
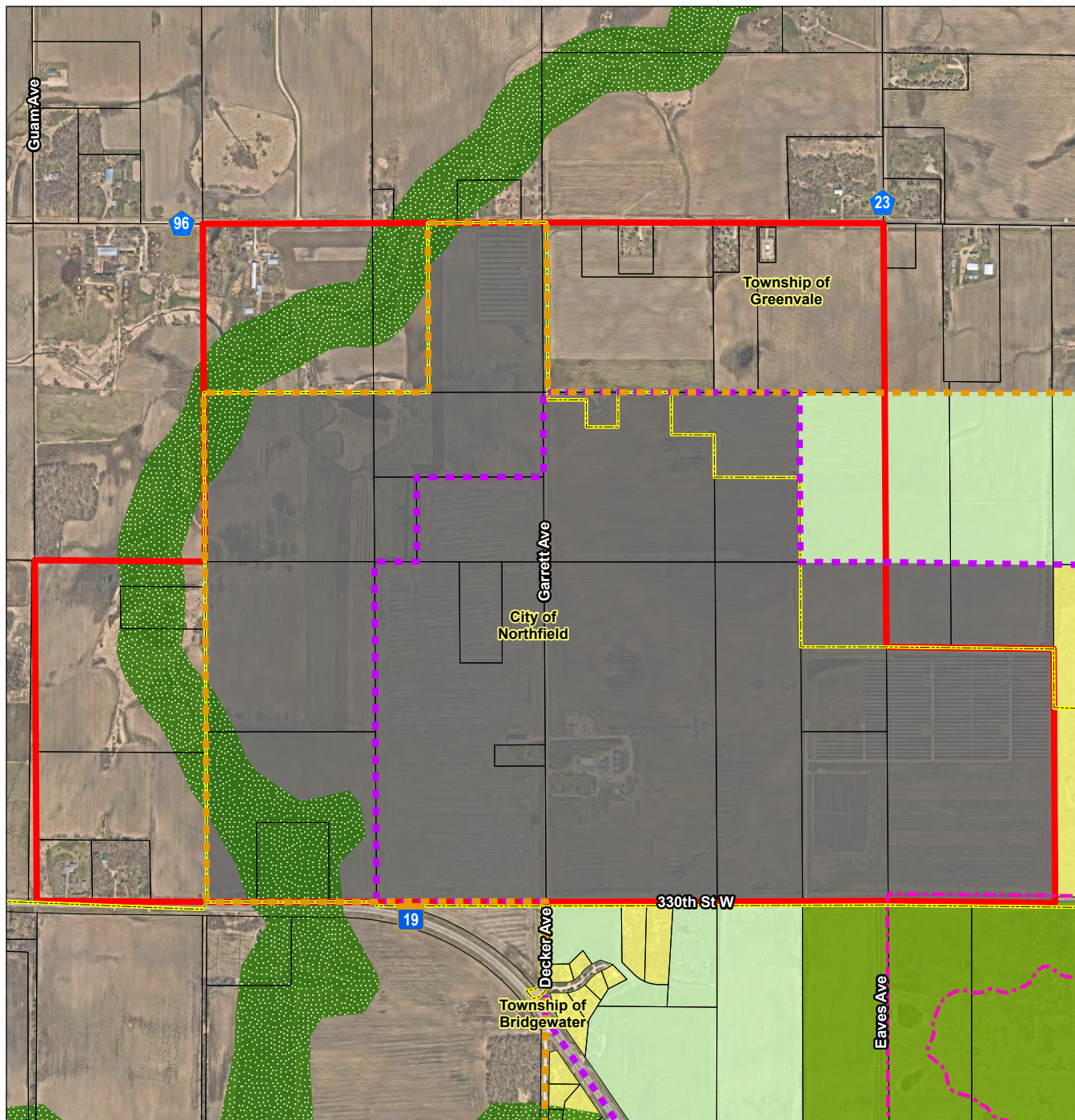


Project Location Prepared by KJM on 2022-12-08
T112N, R20W, S27 & 28
T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
Xcel Energy
Northfield MN AUAR

Figure No.
4

Title
Existing Land Use

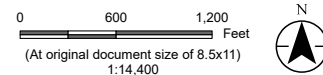


Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
 2. Data Sources: Stantec, Northfield, MnGeo, MnDOT
 3. Background: 2022 Dakota Co.

Legend

- Existing Trail
- Urban Expansion Area
- Priority Growth Area
- Municipal Boundary
- Project Area
- Greenway Corridors
- Parcels
- District
- Neighborhood General 1
- Preserve
- Rural

Framework Plan

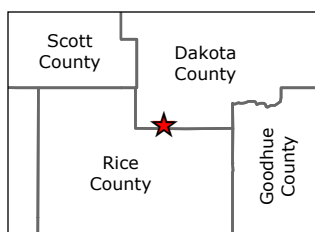
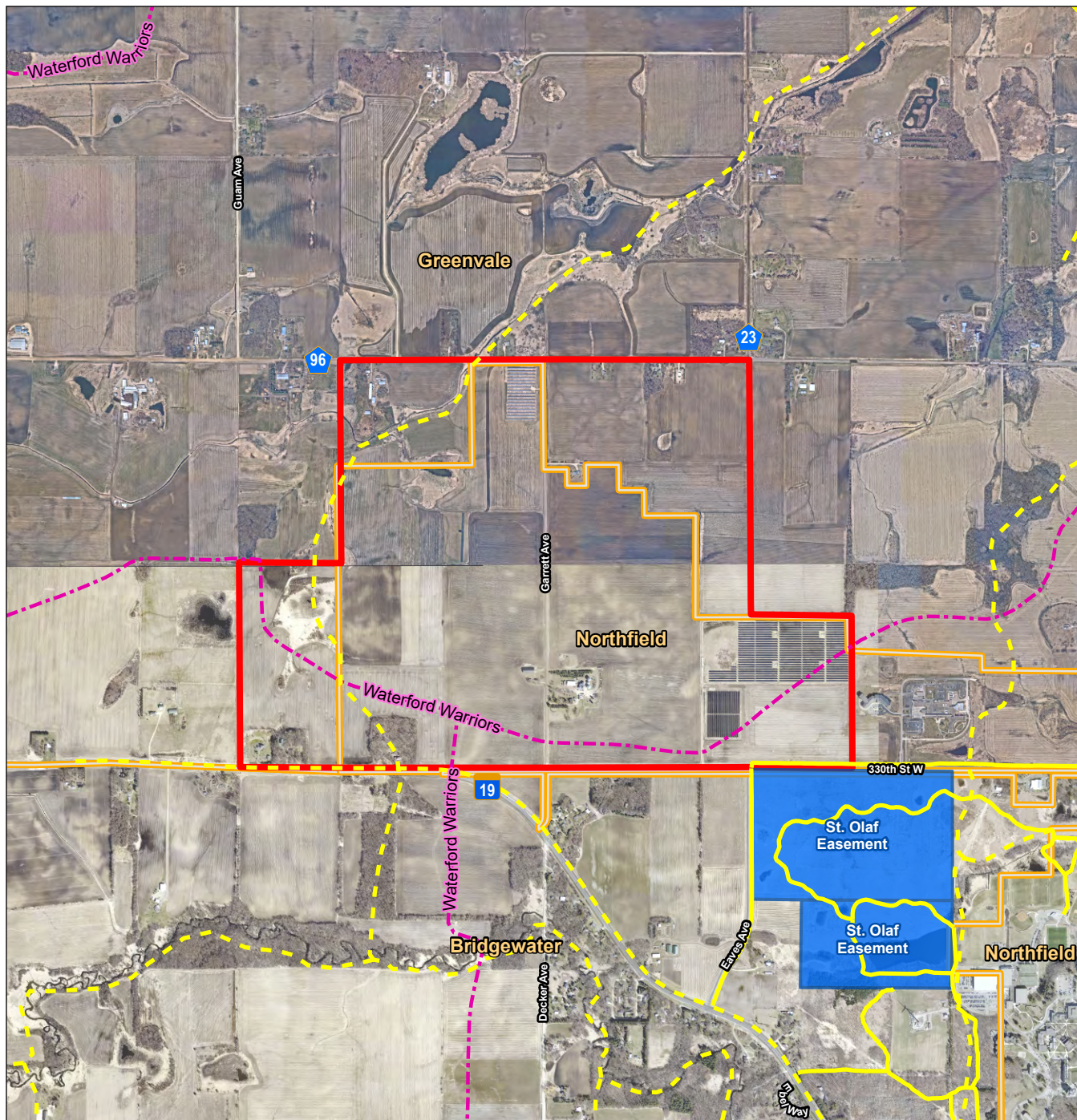


Project Location Prepared by KJM on 2022-12-08
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR
 EAW

Figure No.
 5

Title
Planned Land Use (Framework Map)



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN
 Dakota Feet
 2. Data Sources: Stantec, Northfield, Dakota Co.,
 MnGeo, MnDOT, MnDNR
 3. Background: 2021 Northfield

Legend

- Snowmobile Trail
- Existing Trail
- Future/Planning Trail
- Waterfowl Production Area
- Municipal Boundary
- Project Area

0 1,000 2,000 Feet
 (At original document size of 8.5x11)
 1:24,000



Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenville & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

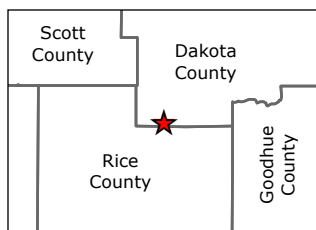
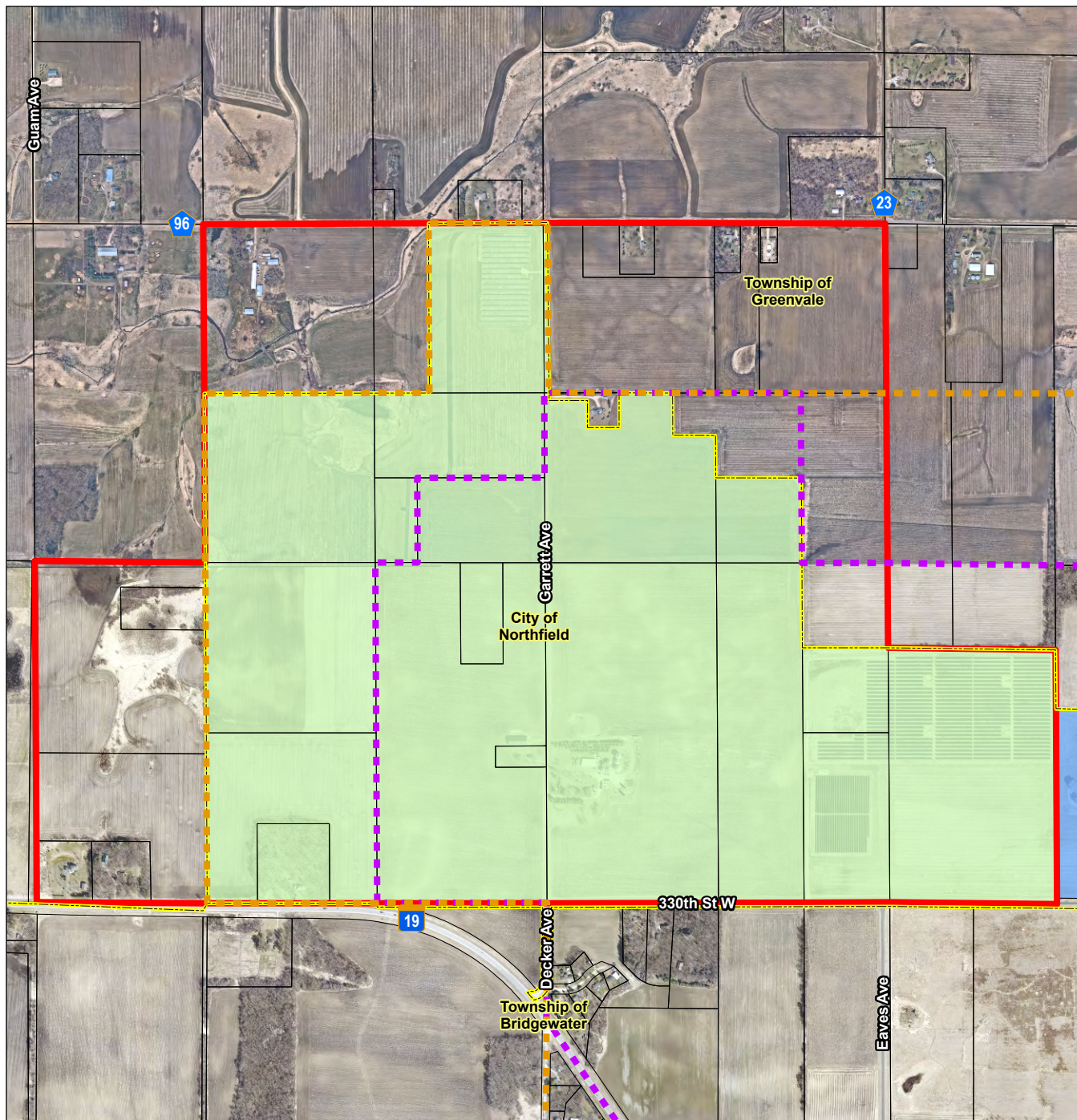
EAW

Figure No.

6

Title

**Parks Trails and Other Recreational
 Areas**



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
 2. Data Sources: Stantec, Northfield, MnGeo, MnDOT
 3. Background: 2021 Northfield

Legend

- Municipal Boundary
- Project Area
- Parcels
- Urban Expansion Area
- Priority Growth Area
- Northfield Zoning**
- A-S: Agricultural
- PI-S: Public Institutional

0 600 1,200 Feet
 (At original document size of 8.5x11)
 1:14,400

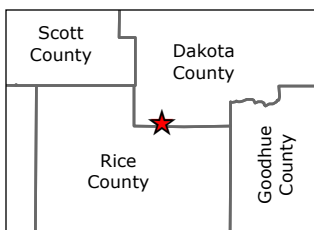
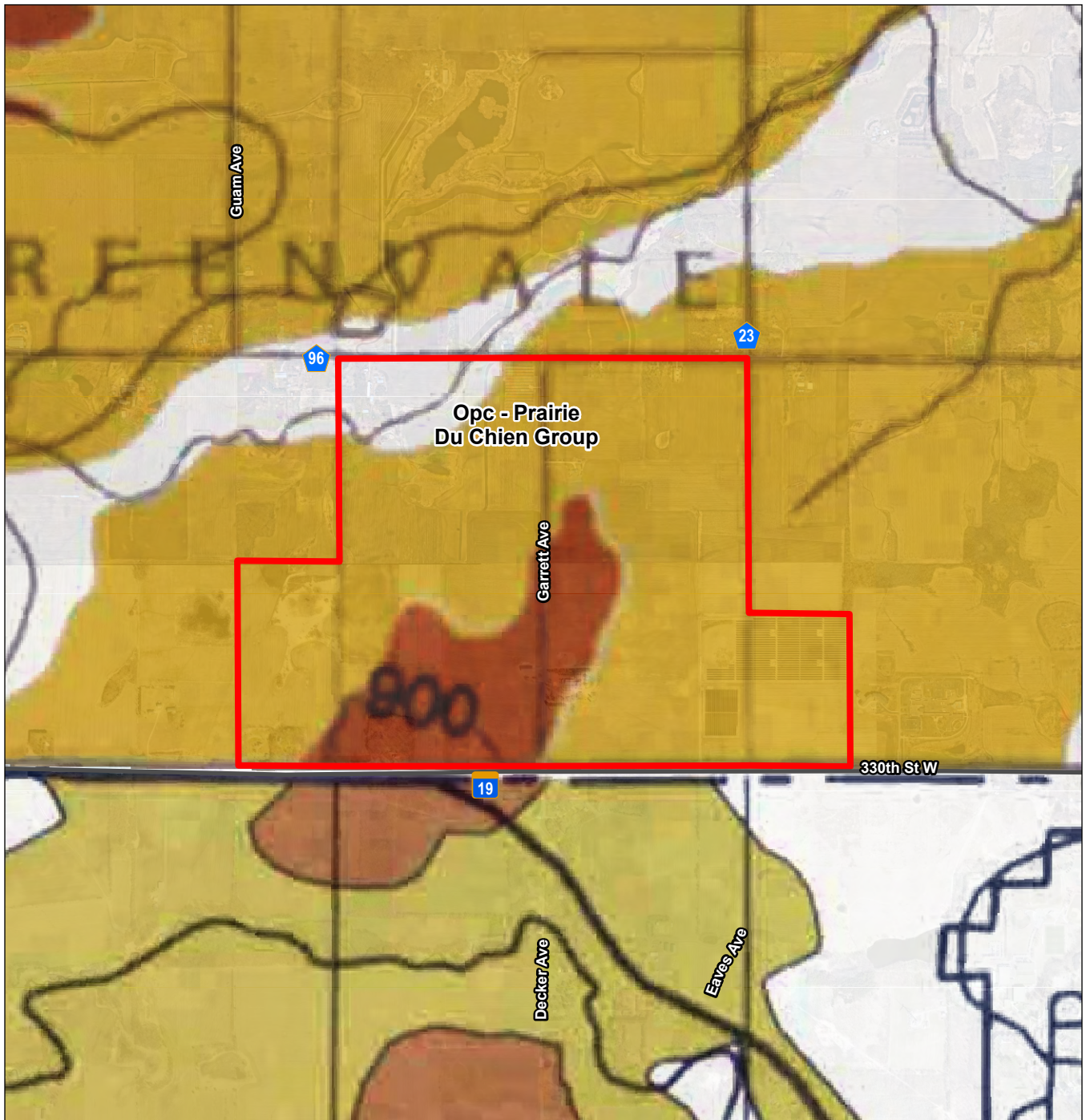


Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

Figure No.
 8

Title
 Zoning



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN
 Dakota Feet
 2. Data Sources: Stantec, Northfield, Dakota Co.,
 MnGeo, MnDOT, MnDNR, MGS
 3. Background: 2021 Northfield

Legend

- Project Area
- Dakota County Bedrock
- Geology Units
- Depth to Bedrock
- Less than 50 feet
- 51-100 feet
- 101-150 feet

0 1,000 2,000 Feet
 (At original document size of 8.5x11)
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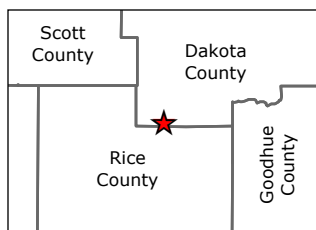
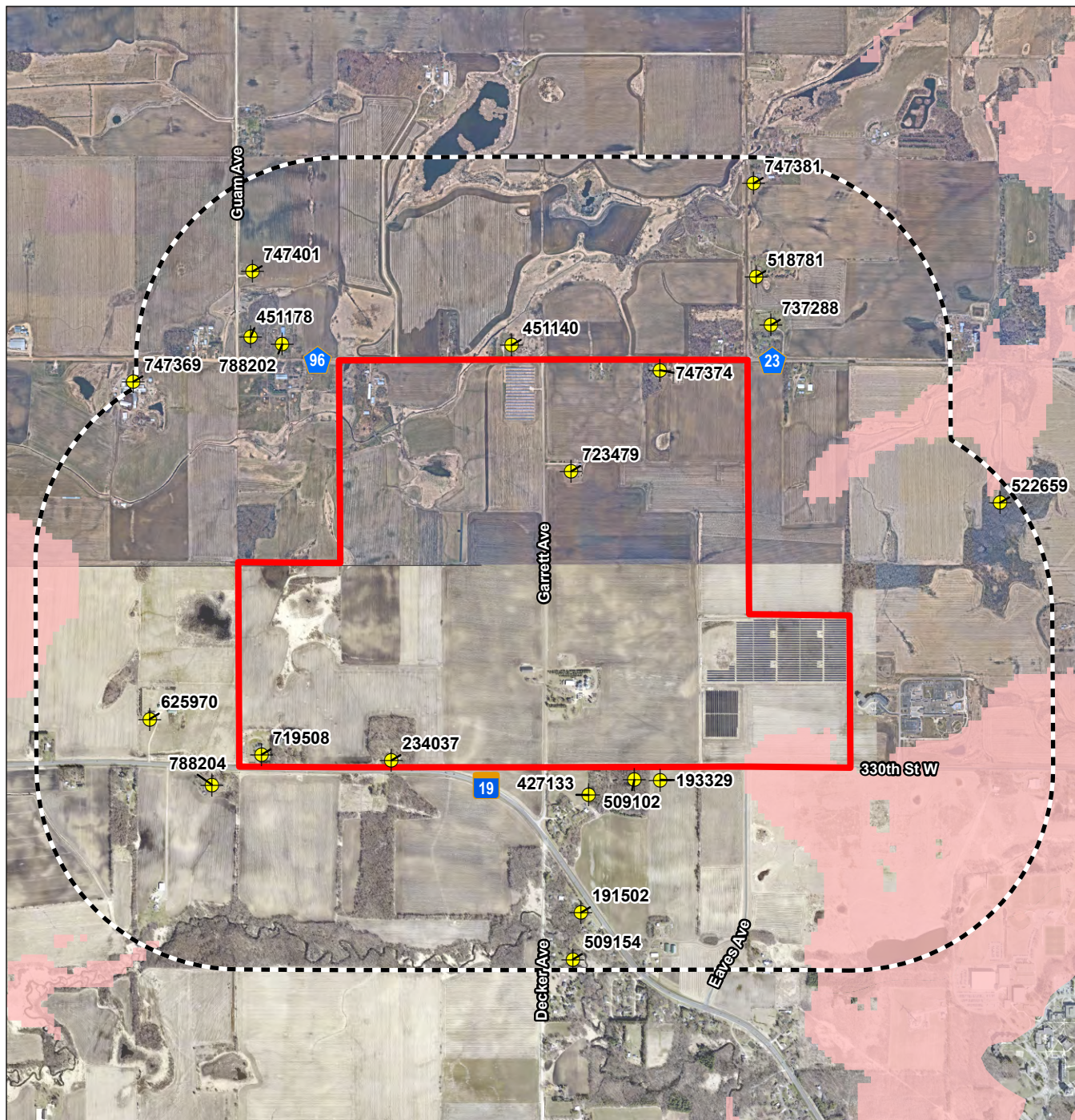


Project Location Prepared by KJM on 2022-12-14
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR
 EAW

Figure No.
 9

Title
 Bedrock Geology



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN
 Dakota Feet
 2. Data Sources: Stantec, MnGeo, MnDOT, MDA,
 MGS
 3. Background: 2021 Northfield

Legend
Project Area
1/2 Mile Radius
Field Verified Wells
Domestic
Regions Prone to Surface
Karst Feature Development
Carbonate and Sandstone

0 1,000 2,000 Feet
 (At original document size of 8.5x11)
 1:24,000

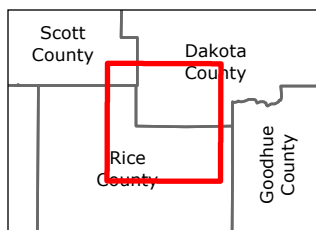
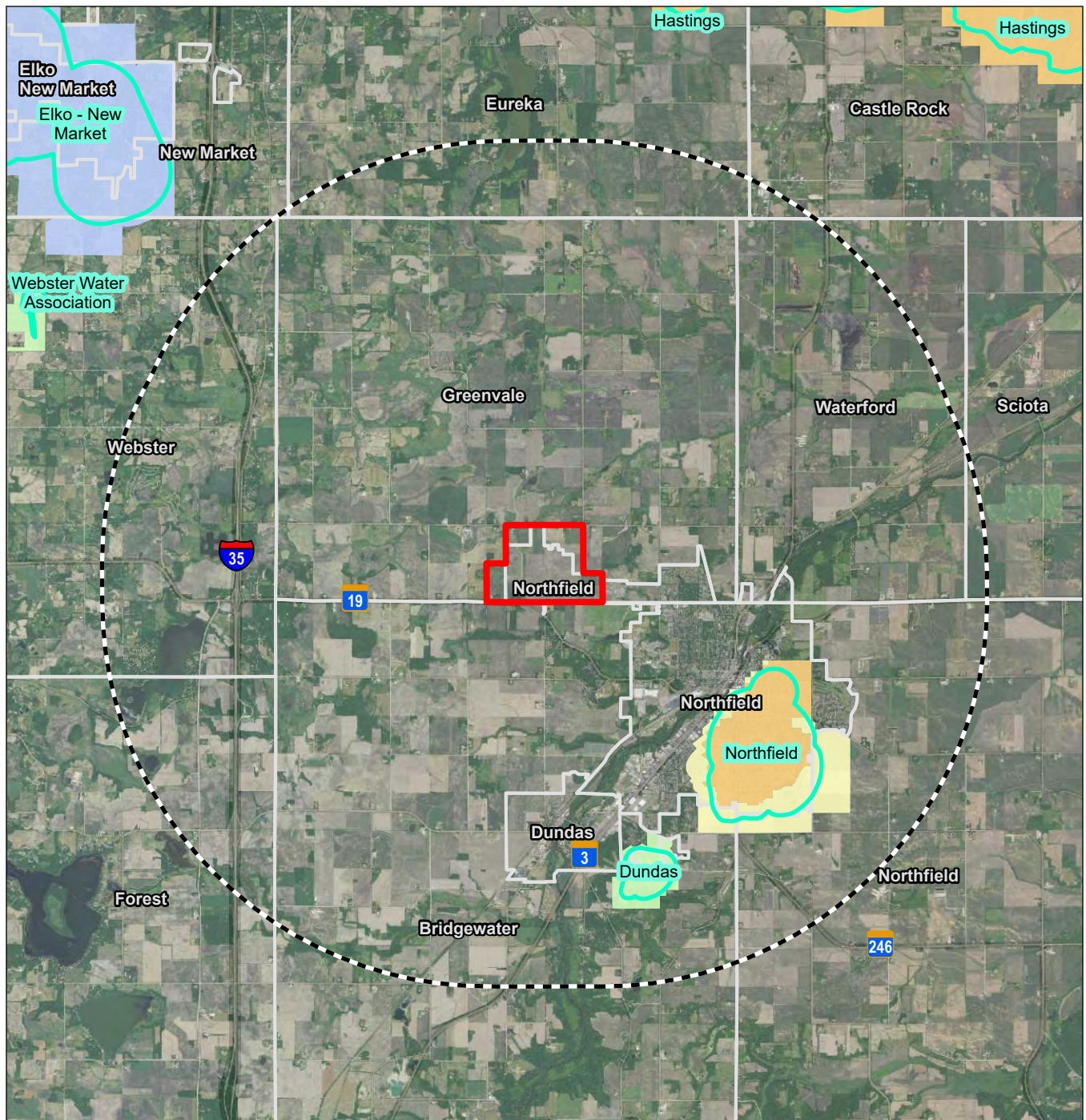


Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

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 Northfield MN AUAR
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Figure No.
 10
Title

Minnesota Well Index Map



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
 2. Data Sources: Stantec, MnGeo, MnDOT, MDA, MGS, MN State Health
 3. Background: 2019 NAIP

Legend

- Project Area
- 5 Mile Radius
- Wellhead Protection Areas

Drinking Water Supply Management Area Vulnerability

- High
- Moderate
- Low
- Very Low

0 1 2 Miles
 (At original document size of 8.5x11)
 1:126,720

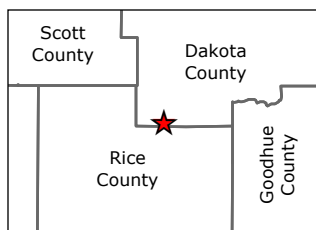
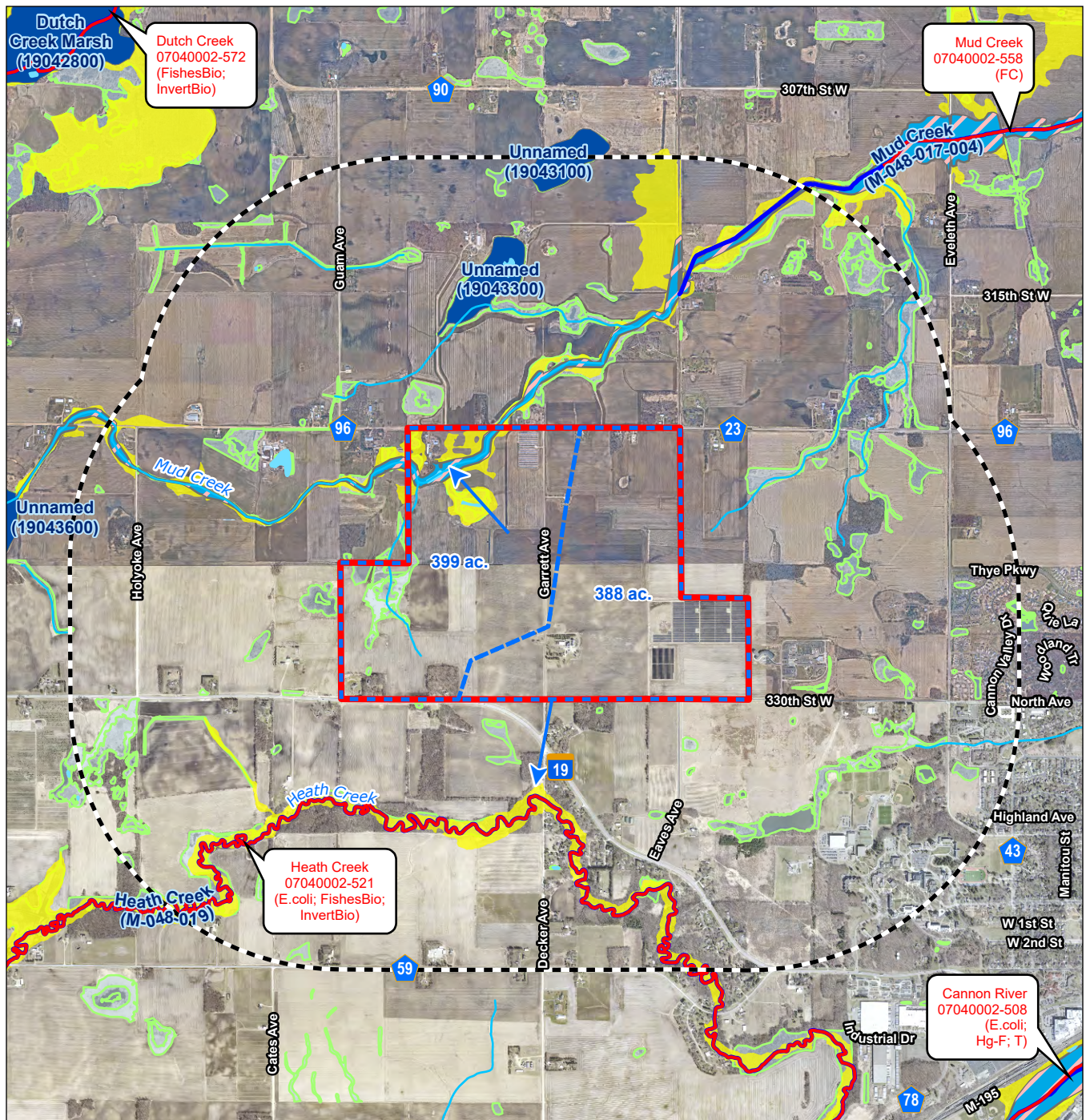


Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

Figure No.
 11

Title
 DWSMA and WPA Areas



- Legend**
- Project Area
 - 1 Mile Radius
 - 2022 MPCA Impaired Streams (Draft)
 - Drainage Flow Lines
 - Subwatershed
 - National Wetlands Inventory Feature
 - Minnesota Public Waters Delineations
 - Public Watercourses
 - Public Water Watercourse
 - Public Ditch/Altered Natural Watercourse
 - Public Waters Basins
 - National Hydrography Dataset
 - Stream
 - Waterbody
 - FEMA Floodplain Data
 - Floodway
 - 100 Year Floodplain

0 1,250 2,500 Feet
(At original document size of 8.5x11)
1:36,000



Project Location Prepared by KJM on 2022-12-20
T112N, R20W, S27 & 28
T of Greenville & C. of Northfield, Dakota Co., MN

Client/Project 227705362
Xcel Energy

Northfield MN AUAR

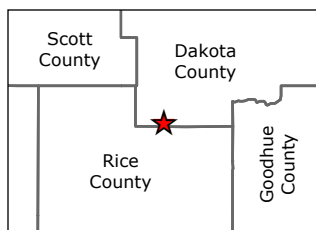
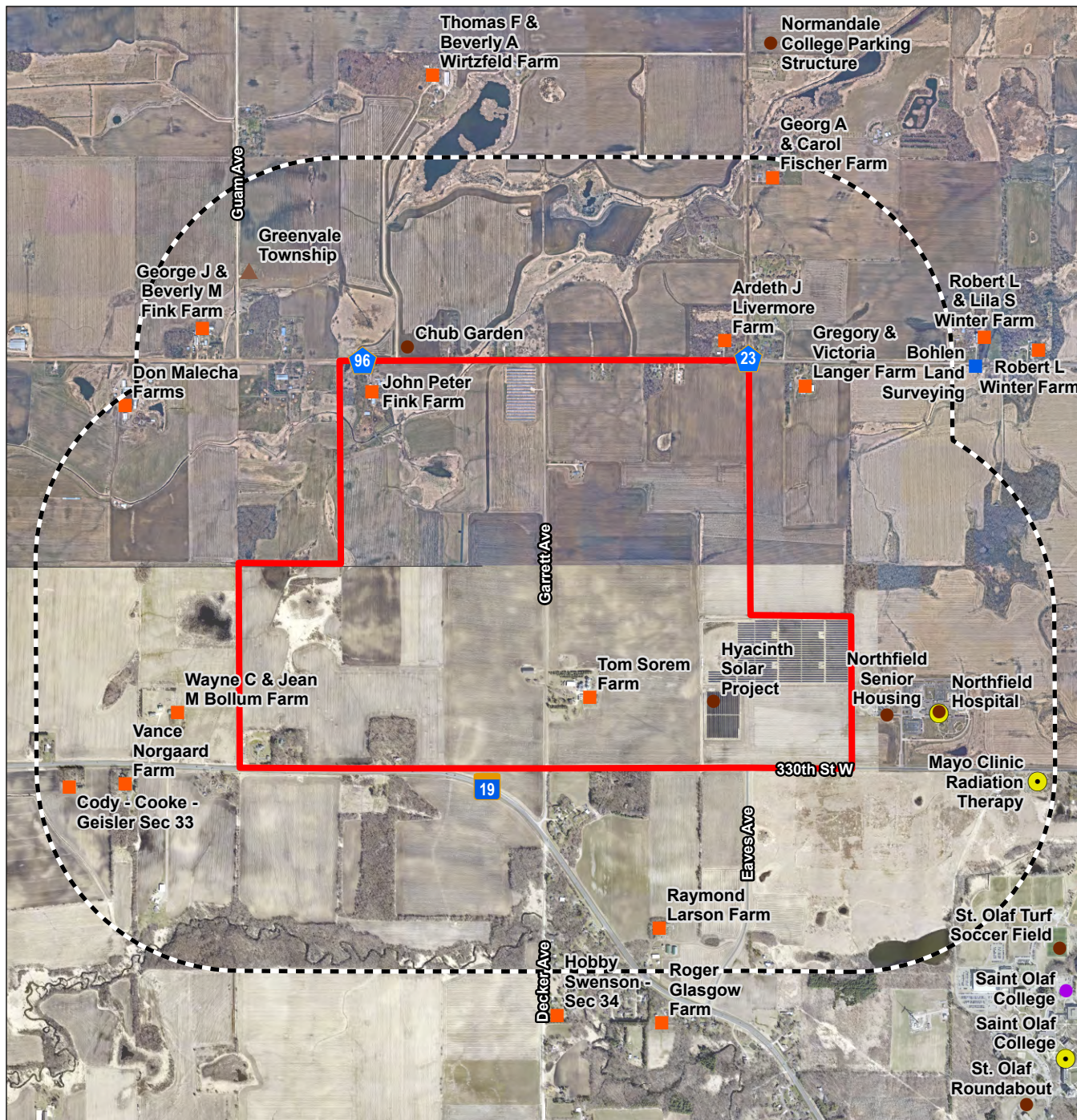
EAW

Figure No.

12

Title

Water Resources Map



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN
 Dakota Feet
 2. Data Sources: Stantec, MnGeo, MnDOT, MPCA
 3. Background: 2019 NAIP

Legend

- Project Area
- 1/2 Mile Radius
- MPCA Sites**
- Program Name**
- Multiple Programs
- Feedlots
- Hazardous Waste
- Investigation and Cleanup
- Stormwater
- ▲ SSTS

0 1,000 2,000 Feet
 (At original document size of 8.5x11)
 1:24,000



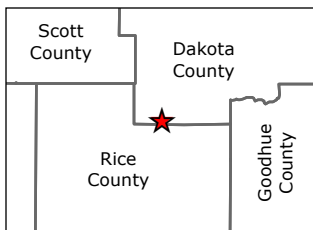
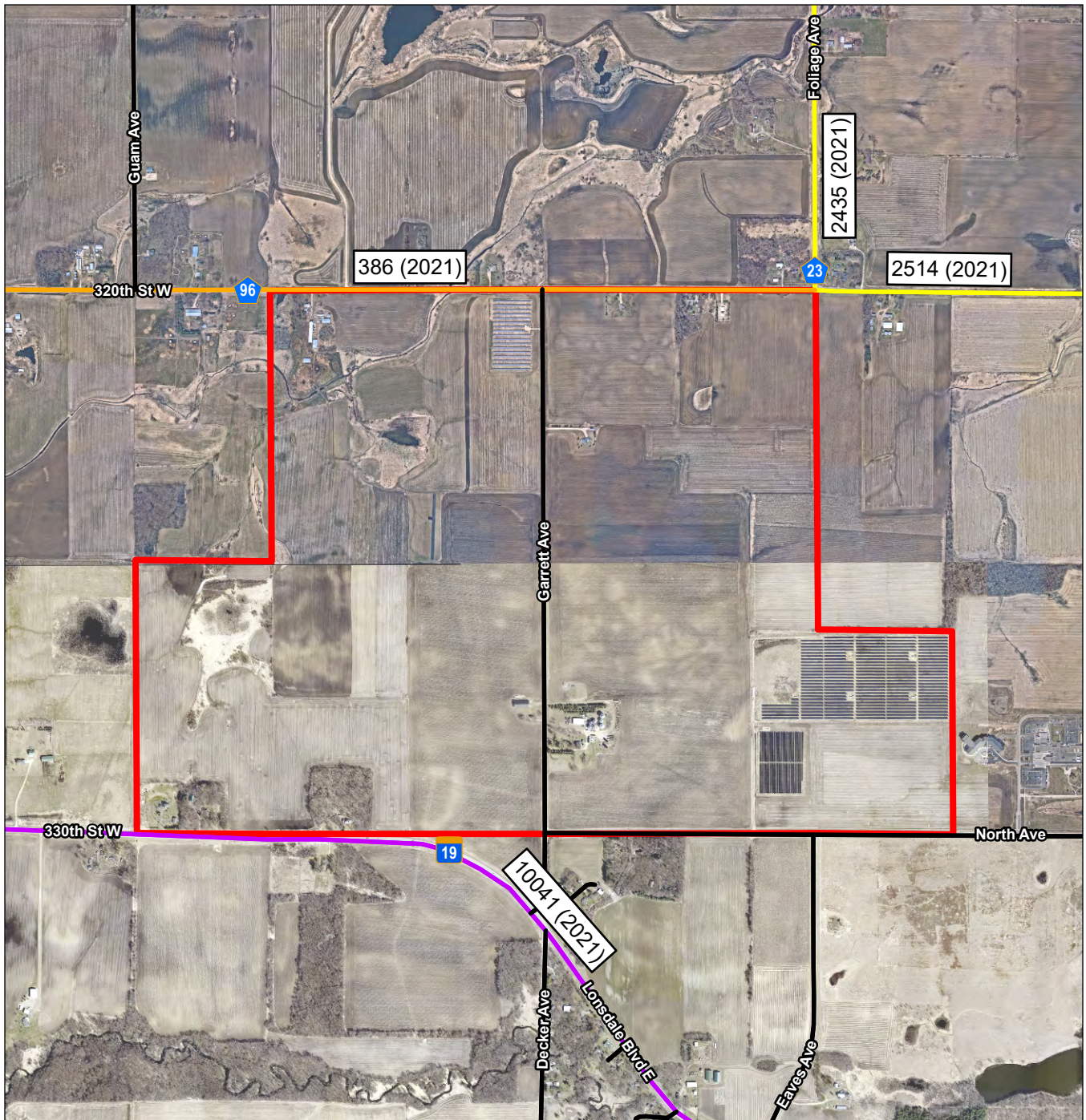
Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

EAW

Figure No.
 13

Title
 MPCA WIMN Potentially
 Contaminated Sites



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
 2. Data Sources: Stantec, Northfield, MnGeo, MnDOT
 3. Background: 2021 Northfield

Legend

Roadway Functional Classification

- Principal Arterial - Other
- Minor Arterial
- Major Collector
- Local
- Project Area

XXXX (2021) Annual Average Daily Traffic Volumes

0 750 1,500 Feet
 (At original document size of 8.5x11)
 1:18,000

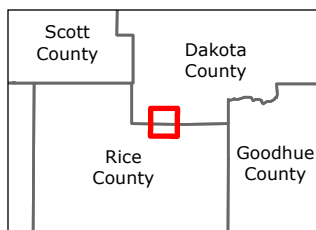
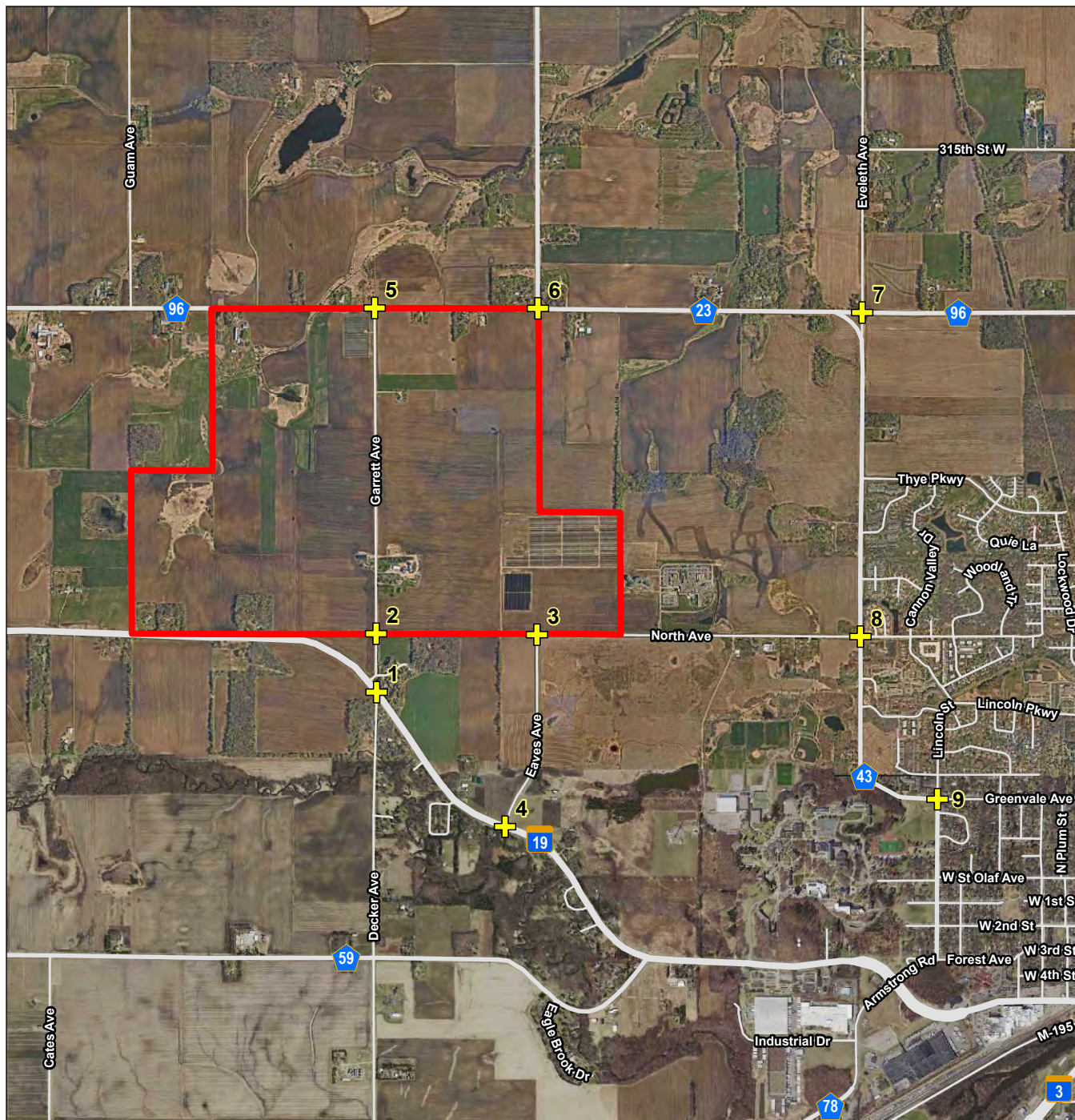


Project Location Prepared by KJM on 2022-12-09
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

Figure No.
 14

Title
 Existing Functional Classification



Notes
 1. Coordinate System: NAD 1983 HARN Adj MN
 Dakota Feet
 2. Data Sources: Stantec, Northfield, MnGeo,
 MnDOT
 3. Background: 2020 color 7-county

Legend

- + Traffic Study Intersections
- Project Area

Map ID	Intersection
1	TH 19/Decker Avenue
2	Decker Avenue/Garrett Avenue/North Avenue
3	North Avenue/Eaves Avenue
4	TH 19/Eaves Avenue
5	CR 96/Garrett Avenue
6	CR 96/Foliage Avenue
7	CR 96 (320th Street)/ Eveleth Avenue
8	North Avenue/ Eveleth Avenue
9	Greenvale Avenue/Lincoln Street

0 1,250 2,500
 Feet
 (At original document size of 8.5x11)
 1:30,000



Project Location Prepared by KJM on 2023-01-20
 T112N, R20W, S27 & 28
 T of Greenvale & C. of Northfield, Dakota Co., MN

Client/Project 227705362
 Xcel Energy
 Northfield MN AUAR

EAW
Figure No.
15
Title

Traffic Study Intersections

Appendix B

FEMA FIRMette

National Flood Hazard Layer FIRMMette



93°13'20"W 44°29'13"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

93°12'42"W 44°28'47"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **12/1/2022 at 10:29 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.