

# ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at: <http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm>.

The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.

**Cumulative potential effects** can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.

**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: Pioneer Trail Industrial Park**

**2. Proposer: Landspec Fund II, LLC**

Contact person: Jon Rausch  
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City, State, ZIP: Minnetonka, MN 55343  
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**3. Responsible Governmental Unit: City of Corcoran**

Contact person: Kendra Lindahl, AICP  
Title: City Planner  
Address: 8200 County Road 116  
City, State, ZIP: Corcoran, MN 55340  
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**4. Reason for EAW Preparation**

<u>Required:</u>	<u>Discretionary:</u>
<input type="checkbox"/> EIS Scoping	<input type="checkbox"/> Citizen petition
<input checked="" type="checkbox"/> Mandatory EAW	<input type="checkbox"/> RGU discretion
	<input type="checkbox"/> Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):  
[EAW, Minnesota Rules 4410.4300, Subpart 14 Industrial, Commercial and Institutional Facilities](#)

**5. Project Location:**

**6210 Pioneer Trail**

County:	Hennepin
City/Township:	Corcoran
PLS Location (¼, ¼, Section, Township, Range):	SE ¼, SW ¼, Township 23, Range 19
Watershed (81 major watershed scale):	Mississippi River (20)
GPS Coordinates:	45.06668366654562, -93.61842390950972
Tax Parcel Numbers:	32-119-23-34-0013, 32-119-23-34-0007 32-119-23-43-0005, 32-119-23-43-0006

**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.

***Attachments:***

Appendix A: Figures

- Figure 1: Concept Plan
- Figure 2: Soil Classifications
- Figure 3: Water Resources Map
- Figure 4: County Well Index
- Figure 5: Potential Wetland Impacts
- Figure 6: Hennepin County Location Map
- Figure 7: Cover Type Map
- Figure 8: USGS Topographic Map
- Figure 9: 2040 Comprehensive Plan Future Land Use Map

Appendix B: Wetland Delineation and WCA Notice of Decision

Appendix C: FEMA FIRMette

Appendix D: Phase I ESA Executive Summary

Appendix E: DNR NHIS Request for Concurrence Letter

Appendix F: Traffic Impact Study

Appendix G: Feasibility Study

Appendix H: SHPO Response Letter

## 6. Project Description

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

The Pioneer Trail Business Park is a proposed five lot industrial/business park with 10 buildings and a new public road located on 56.54 acres at the northeast corner of Highway 55 and Pioneer Trail.

- 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.*

Landspec Fund II, LLC propose a new industrial park named “Pioneer Trail Business Park”. The project will be located in the City of Corcoran on 56.65 acres, according to the proposer’s submitted documents. The project will create five lots and 10 buildings for gas/convenience, offices, retail, warehousing, light manufacturing, warehouse and mini storage/self storage uses. Six buildings are proposed for the mini storage/self storage use on one 27.3 acre lot, totaling 199,000 gross square feet of building area. Four buildings are proposed for light industrial, office and commercial uses totaling 187,600 gross square feet of building area. These four buildings are proposed on four lots ranging in size from 2.8 to 8.3 acres.

### Existing Site Conditions

A parcel tabulation is provided below and parcels will be referred to as Parcel A, Parcel B, Parcel C and Parcel D. The project is located on four separate parcels in the city of Corcoran. Parcel B is vacant and the remaining parcels are used for agricultural purposes. Wetlands are present on the site and shown the Concept Plan does not show plans for wetland preservation.

*Table 1: Pioneer Trail Business Park Parcel Areas*

<b>Parcel</b>	<b>PID</b>	<b>Address</b>	<b>Total Parcel Acres</b>
Parcel A	32-119-23-34-0013	6210 Pioneer Trail	9.81
Parcel B	32-119-23-34-0007	22733 Wagon Wheel Lane	0.99
Parcel C	32-119-23-43-0005	52 Address Unassigned	26.03
Parcel D	32-119-23-43-0006	52 Address Unassigned	19.71
<b>TOTAL</b>			<b>56.54</b>

### Concept Plan

Figure 1, Appendix A shows the Concept Plan for this project. The Concept Plan shows a preliminary concept for five lots, a new public street, stormwater ponds, buildings, drive aisles, loading docks, parking and septic pad locations. The proposer has applied to the City of Corcoran for a PUD Concept Plan Review and the City Council generally indicated support for the concept. The attached Concept Plan is consistent with the plan submitted to the City by the proposer.

The project will include multiple commercial and industrial businesses in addition to the mini storage/self storage facility. The mini storage/self storage facility will make up the majority of the development with six buildings totaling approximately 199,000 gross square feet of building area on a 27.3 acre parcel. Specific users have not been identified for the remaining four proposed buildings.

*Table 2: Lot Tabulation Description*

Proposed Lot	Lot Width	Description	Number of Buildings	Gross Building Area
1	545 ft.	Gas/Convenience	1	10,300 sq. ft.
2	335 ft.	Office/Retail	1	11,300 sq. ft.
3	785 ft.	Office Warehouse/Light Manufacturing/Distribution	1	66,000 sq. ft.
4	1,045 ft.	Office Warehouse/Light Manufacturing/Distribution	1	100,000 sq. ft.
5	1,890 ft.	Mini Storage/Self Storage	6	199,000 sq. ft.

Infrastructure and Site Improvements

A new public road is proposed with the development, providing access to the site from Pioneer Trail to the west. The public road is proposed in accordance with the City of Corcoran’s plans for the Southwest District. The Feasibility Study in Appendix A indicates a traffic signal control is required at the intersection of Pioneer Trail and Highway 55, in addition to dedicated turn lanes on southbound Pioneer Trail. Dedicated turn lane improvements are also required at the intersection of Pioneer Trail and the new public road.

The site is located within a future study area for a proposed trunk sanitary sewer system. Public water and sewer are not available to the site and are not likely to be available within two years. While development is typically restricted without access to these services, the Corcoran City Council indicated support for development in advance of these services being available to the site. The proposer plans to provide septic and well for the development until it can connect to municipal services when they are available in the future.

The Feasibility Study notes the site is in a future well exploration area as identified in the Comprehensive Plan. While the City has no plans to install a well in the near term, the Feasibility Study recommends that a lot within the site be platted and deeded to the City for future water well exploration.

The Concept Plan shows two large stormwater ponds for the development.

Construction and Timing of Site Development Activities

The site will be graded for the construction of streets, parking, buildings and stormwater ponds. Phases are anticipated to develop based on market conditions.

**c. Project magnitude**

*Table 3: Project Magnitude*

Description	Number
Total project acreage	56.54
Linear project length	Not applicable
Number and type of residential units	Not applicable
Residential building area (in square feet)	Not applicable
Commercial building area (in square feet)	21,600
Industrial building area (in square feet)	76,000
Institutional building area (in square feet)	Not applicable



<b>Description</b>	<b>Number</b>
Other uses – Self-Storage (in square feet)	199,000
Structure height(s)	Limited to 45 ft.

- 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 project will allow development of additional commercial and industrial businesses in Corcoran and bring a high quality business park to Corcoran.

- e. Are future stages of this development including development on any other property planned or likely to happen?  Yes  No  
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.
- f. Is this project a subsequent stage of an earlier project?  Yes  No  
If yes, briefly describe the past development, timeline and any past environmental review.

## 7. Cover Types

The before cover types in Table 4 correspond with the cover types shown in Figure 7 in Appendix A.

Table 4: Cover Types

<b>Cover Types</b>	<b>Before(acres)</b>	<b>After (acres)</b>
Wetlands (medium tall grass and short grasses)	12.94	2.55
Deep Water/Streams	N/A	0
Wooded/Forest	6.73	0
Brush/Grassland (grassland)(green short grasses)	5.25	0.5
Cropland (fallow)(hayfield)	31.52	0
Lawn/Landscaping	N/A	20.89
Impervious Surface (bldgs. Pavement)	0.03	29.3
Stormwater Pond	N/A	3.4
Other (describe)	N/A	N/A
<b>TOTAL</b>	<b>56.64 acres</b>	

## 8. Permits and Approvals

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 5: Permits and Approvals

Unit of Government	Type of Application	Status
<b>Federal</b>		
U.S. Army Corps of Engineers (USACE)	Section 404 Clean Waters Act – Wetland Permit	To be applied for, if required
<b>State</b>		
Minnesota Pollution Control Agency (MPCA)	Section 401 Water Quality Certification	To be applied for
	National Pollutant Discharge Elimination System (NPDES) Stormwater Construction Permit	To be applied for
	Demolition Notification Checklist	To be applied for
Minnesota Department of Health (MDH)	Abandonment of Water Wells	To be applied for
Minnesota Department of Natural Resources (MDNR)	Water Appropriation Permit	To be applied for, if needed
<b>Local</b>		
Hennepin County	Right-of-way Excavation Permit	To be applied for, if needed
City of Corcoran	EAW / EIS Need Decision	Draft prepared
	Planned Unit Development (PUD) Sketch Plan	Reviewed
	Wetland Conservation Act (Boundary Approval/Replacement Plan)	Wetland delineation approved, mitigation plan to be applied for
	Rezoning	Not Applicable
	Preliminary PUD Development Plan	To be applied for
	Preliminary Plat	To be applied for
	Final PUD Development Plan	To be applied for
	Final Plat	To be applied for
	Erosion Control, Grading, and Stormwater Permit	To be applied for, if needed
Building Permits	To be applied for	
Elm Creek Watershed Management Commission	Stormwater Permit, Erosion Control, and Site Plan Approval	To be applied for

*Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19*

**9. Land Use**

**a. Describe:**

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

The existing land use of the project site is agricultural. A small portion of the site consists of wetlands. Adjacent parcels north of the site have agricultural and farm homestead land uses. There are single family residential land uses to the northeast and northwest of the site, and to the west across Pioneer Trail. Properties adjacent to the east of the site have light-industrial land uses. Properties to the south are located across Highway 55 in the City of Medina and have vacant or residential land uses. Table 6 below provides an inventory of existing land uses adjacent to the project site.

*Table 6: Adjacent Area Land Uses*

<b>Adjacent Use</b>	<b>Location</b>
Agricultural	North of the Parcels C and D
Residential Homes	North of Parcel A and B Northeast of Parcel D
Light Industrial	East of Parcel D
Highway 55	South of the development

- 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.**

The City of Corcoran’s 2040 Comprehensive Plan Future Land Use Map (Figure 9, Appendix A) designates the project parcels as Light Industrial. The Light Industrial category is intended to provide areas for manufacturing, warehousing, automotive, trucking, office and other related industrial uses. The project consists of commercial and light-industrial uses. Parcel A is proposed for a gas/convenience use which may require a Comprehensive Plan amendment to guide the parcel as Commercial.

The City’s Comprehensive Plan includes maps that identify wetlands and ecologically significant areas and a set of goals and policies that focus on preservation and protection of important and high-quality areas as development occurs. The Wetland Locations and Classifications map from the Introduction and Community Background chapter in the Comprehensive Plan the indicates that Parcels B and C contain wetlands but the site does not contain any ecologically significant natural areas. The Comprehensive Plan also shows the site within the Metropolitan Urban Service Area (MUSA) and is part of the Future Study Area for the sanitary sewer staging plan.

The City’s Comprehensive Plan also identifies a potential future well exploration area in the vicinity of the site. The Feasibility Study in Appendix G indicates that the City does not have near term plans to install a well in this area but may eventually install a municipal well in southwest Corcoran. The Feasibility Study requests an individual lot be platted and dedicated to the City for future water well exploration.

Stormwater ponds will be required to comply with State, watershed and local stormwater standards.

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

Parcels A, C and D are zoned Light Industrial (I-1) district and Parcel B is zoned Urban Reserve (UR) district.

The site is located within the City of Corcoran’s Southwest District that establishes a “gateway” to the City around the intersection of Highway 55 and County Road 19 west of this site. The Southwest District plan provides direction for site development, streets and public amenities in the area surrounding the intersection of Highway 55 and County Road 19 to the west of this site. The Southwest District plan guides that access for both business and industrial uses shall be from a new public road, which the proposer has provided in their Concept Plan.

There are four wetlands on the site which are regulated by the Wetland Overlay District. The Wetland Overlay District provides standards for wetland protection and buffering.

*Table 7: Project Parcel Zoning*

<b>Parcel</b>	<b>Zoning</b>
Parcel A	Light Industrial (I-1)
Parcel B	Urban Reserve (UR)
Parcel C	Light Industrial (I-1)
Parcel D	Light Industrial (I-1)

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

The project is consistent with the goals and policies stated in the 2040 Comprehensive Plan which guides the site for light industrial uses. The proposed project is consistent with the guiding for Parcels B, C and D. Proposed Lots 1 and 2 on Parcel A are planned for gas/convenience and office/retail uses which may not be compatible with the light industrial designation.

As shown on the Concept Plan, the project appears to preserve two wetlands but will impact the other two wetlands. Where wetlands are altered or destroyed, the mitigation must be provided to recreate the functions and values of the wetland.

The development is within Stage 3 (2030-2035) of the sanitary sewer staging plan and in the Future Study Area for sanitary sewer. Development in the MUSA is deemed premature until sanitary sewer and water are available. The City Council will need to grant either a variance or waiver through the PUD process to allow development in advance of these services.

The Zoning Ordinance regulates that off-street loading areas be screened from adjacent residentially zoned or guided property and will impact the loading areas on proposed Lots 3 and 4.

The Southwest District Design Guidelines indicate that future driveways and other direct access from new developments to Highway 55 shall not be permitted. Access to the business park is provided through the new public road that connects with Pioneer Trail. The Southwest District Guidelines show the public road extending through the site to a connection with Rolling Hills Road to the east.

- c. **Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.**

The project will not extend sanitary sewer and water which are not yet available to the site and development is considered premature without access to these services. Well and septic systems will be provided to proposed Lots 1, 2, 3 and 4 until the development is able to connect with municipal services.

Preserved wetlands on this site will be consistent with City ordinances pertaining to wetland protection and buffering.

The gas/convenience and office/retail uses may require a comprehensive plan amendment from Light Industrial to Commercial. The comprehensive plan amendment is required when a user is determined and the need for change is confirmed.

## 10. 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 and bedrock geology for Hennepin County has been mapped in the Minnesota Geological Survey's Geologic Atlas of Hennepin County<sup>1</sup>. Surficial deposits in the Project Area are comprised of loam to clay loam diamict with scattered pebbles, cobbles, and rare boulders. On average, the composition of this very coarse-grained sand fraction is 41 percent shale. The surrounding area is also comprised of patchy sections of organic detritus and organic clayey silt to sand. The bedrock geology of the western portion of the Project Area consists of St. Lawrence Formation, which is dolomitic, feldspathic siltstone with interbedded, very fine-grained sandstone and shale. The eastern portion of the Project Area consists of Jordan Sandstone, a medium- to coarse-grained, friable quartzose sandstone, and Mazomanie Formation, a fine- to medium-grained, cross-stratified, generally friable, quartzose sandstone. The estimated depth from the land surface to the bedrock surface is approximately 326 to 400 in the west portion of the Project Area and approximately 300 to 325 in the eastern portion of the Project Area.

According to the surrounding water well logs on the Minnesota Department of Health (MDH) Minnesota Well Index (MWI)<sup>2</sup>, no wellhead protection areas or drinking water supply management areas are within the Project Area. The Loretto Wellhead Protection Area (WHPA) and Drinking Water Supply Management Area (DWSMA) are located approximately 1.5 miles southwest of the Project Area and would not be affected by the Project. The drinking water supply management area vulnerability ranking is classified as low. No known karst or sinkhole features are present within the Project Area.

- 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**

<sup>1</sup> Steenberg, Julia R.; Bauer, Emily J; Chandler, V.W.; Retzler, Andrew J; Berthold, Angela J; Lively, Richard S. (2018). C-45, Geologic Atlas of Hennepin County, Minnesota. Minnesota Geological Survey. Retrieved from the University of Minnesota Digital Conservancy, <https://hdl.handle.net/11299/200919>.

<sup>2</sup> MDH. Minnesota Well Index. July 15, 2019. <https://mnwellindex.web.health.state.mn.us/mwi/>

**stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.**

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the Project Area is comprised of six soil types. Soil within the Project Area is associated mainly with moraines, hillslopes, and lake plains. The soil types include Lerdal loam (moraines, somewhat poorly drained), Hamel/overwash-Hamel complex (ground moraines, somewhat poorly drained to poorly drained), Angus-Kilkenny complex (Hills on moraines, moderately well drained to well drained), and Lester-Kilkenny complex (Hillslopes, moraines, ground moraines, and lake plains; moderately well drained to well drained). Figure 2, Appendix A identifies soil classifications within and in the vicinity of the Project Area.

Table 8 lists hydrologic soil groups. The four hydrologic soil groups are:

- **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 8: NRCS Soils within the Project Area*

Map Unit Symbol	Map Unit Name	Percent Slopes	Hydrologic Soil Group	Erosion Rating	Acres	Approx. Percent of Project Area
L40B	Angus-Kilkenny complex	2-6	B/C/D	Not Rated	21.6	38.3
L41C2	Lester-Kilkenny complex	6-10	C/D	Moderate	15.5	27.4
L36A	Hamel, overwash-Hamel complex	0-3	C/D	Not Rated	8.5	15.1
L41D2	Lester-Kilkenny complex	10-16	C	Moderate	6.7	11.8
L35A	Lerdal loam	1-3	C/D	Not Rated	4.2	7.4
L41E	Lester-Kilkenny complex	16-22	C	Not Rated	0.0	0.1

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

Topography within the Project Area is generally flat with no slopes greater than 22 percent identified. The soil composition overall has a slower infiltration rate, resulting in a higher runoff potential. In areas with steep slopes, special consideration will be given to prevent erosion during construction, such as erosion control blankets, along with vegetation establishment to permanently stabilize side slopes and any areas impacted as a result of construction.

*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 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.*

## 11. 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, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include 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.**

### Surface Waters

A review of Minnesota Department of Natural Resources (DNR) geospatial data determined that no lakes, trout streams or trout lakes<sup>3</sup>, wildlife lakes<sup>4</sup>, migratory waterfowl feeding/resting lakes<sup>5</sup>, or outstanding resource value waters<sup>6</sup> are present within the Project Area. Based on a review of Hennepin County geospatial data, no county ditches are located within the project area. Peter Lake (North Bay) is located approximately 0.25 miles southeast of the Project Area, south of Highway 55, and Jubert Lake is located approximately 0.25 miles north of the Project Area. Figure 3, Appendix A identifies surface waters in the vicinity of the Project Area.

### DNR Public Waters

No DNR Public Waters and Watercourses are located within the Project Area (Figure 3, Appendix A). Table 9 lists DNR Public Waters and Public Watercourses within one mile of the Project Area<sup>7</sup>. The proposed project would not encroach into these DNR Public Waters and Watercourses.

*Table 9: DNR Public Waters within One Mile of the Project Area*

Name	Public Water ID	Type
Jubert	27016500	Public Water Basin
Morin	27042300	Public Water Basin
Peter (Main Basin)	27014701	Public Water Basin
Peter (North Bay)	27014702	Public Water Basin
Scott	27110200	Public Water Wetland
Unnamed Basin	27042200	Public Water Wetland
Unnamed Basin	27049400	Public Water Wetland
Unnamed Basin	27049500	Public Water Wetland
Unnamed Basin	27049700	Public Water Wetland

<sup>3</sup> DNR. State Designated Trout Streams, Minnesota. Date of content: May 14, 2020. <https://gisdata.mn.gov/dataset/env-trout-stream-designations>

<sup>4</sup> DNR. Designated Wildlife Lakes. Date of content: December 8, 2016. <https://gisdata.mn.gov/dataset/env-designated-wildlife-lakes>

<sup>5</sup> DNR Migratory Waterfowl Feeding and Resting Areas. Date of content: December 30, 2016. <https://gisdata.mn.gov/dataset/env-migratory-waterfowl-areas>

<sup>6</sup> DNR. Lakes of Biological Significance. Date of content: July 7, 2020. <https://gisdata.mn.gov/dataset/env-lakes-of-biological-signific>

<sup>7</sup> DNR. Public Waters Basin and Watercourse Delineations. Date of content: June 10, 2020. <https://gisdata.mn.gov/dataset/water-mn-public-waters>



Name	Public Water ID	Type
Unnamed Basin	27049800	Public Water Wetland
Unnamed Basin	27049900	Public Water Wetland
Rush Creek, South Fork	M-062-004-002	Public Watercourse
Unnamed Watercourse	M-062-004-002-004-001	Public Watercourse
Unnamed Watercourse	M-064-0046-002	Public Watercourse

### Wetland Resources

Based on a review of the National Wetland Inventory (NWI) data, time-lapsed aerial imagery, and a wetland delineation performed by Kjolhaug Environmental Services on November 14, 2019, four wetlands are present within the Project Area (Figure 3, Appendix A). Wetland 1 is located along the western boundary of the Project Area and consists of a shallow marsh and partially farmed seasonally flooded basin wetland. Wetland 1 is classified as a temporarily flooded, emergent palustrine wetland (PEM1A) in the NWI database. Wetland 2 is located along the northern border of the Project Area and consists of a farmed seasonally flooded basin wetland. Wetland 2 is identified in the NWI database as a temporarily/seasonally flooded, emergent, farmed palustrine wetland PEM1Af/PEM1C wetland. Wetland 3 is located near the center of the Project Area and consists of a shallow marsh and partially farmed seasonally flooded basin wetland. Wetland 3 is classified in the NWI database as a PEM1A wetland. Wetland 4 is located along the southern border of the Project Area near Highway 55 and consists of a shallow marsh and partially farmed seasonally flooded basin wetland. Wetland 4 was not identified within the NWI. Table 10 summarizes wetlands delineated in the project area. Figure 3, Appendix A identifies wetlands and other aquatic resources within or in the vicinity of the Project Area. Appendix B includes the wetland delineation report and WCA Notice of Decision.

*Table 10: Wetlands within the Project Area*

Wetland ID	Circular 39*	Cowardin	Eggers & Reed	Dominant Vegetation	Size (Acres Onsite)
1	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Reed canary grass, cattail, smartweed, scattered sedges	1.75
2	1	PEM1Af	Seasonally Flooded Basin	Sparse vegetation, field nutsedge	0.60
3	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Cattail, reed canary grass, smartweed	0.33
4	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Cattail, reed canary grass, sedges	0.47

*\*Type 1 wetland types include seasonally flooded basins or flats; Type 3 wetlands indicate inland shallow fresh marshes.*



### MPCA 303d Impaired Waters List

No 303d impaired waters designated by the MPCA<sup>8</sup> were identified within the Project Area based on the draft 2022 impaired waters list. One impaired water, Peter Lake (North Bay), Assessment Unit Identification (AUID) 27-0147-02, is located within one mile of the site, approximately 0.25 miles southeast of the Project Area (Figure 3, Appendix A). Peter Lake (North Bay) is impaired for nutrients.

### Floodway/Floodplain

A FIRMette was generated through the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) mapping tool, which indicates that the project area is located with Zone X, an area of minimal flood hazard. Appendix C includes the FEMA FIRMette for the Project Area.

- 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 nearby, explain the methodology used to determine this.***

1) *Depth to groundwater*

Based on a review of domestic water wells located near the Project Area, the depth to static water level ranges from 78 feet and 140 feet.

2) *MDH Wellhead Protection Area*

The Project Area is not within a MDH Wellhead Protection Area (WHPA) or Drinking Water Supply Management Area (DWSMA)<sup>9</sup>. The Loretto DWSMA and WHPA are located approximately 0.75 miles southwest of the Project Area, south of Highway 55. The vulnerability ranking of this DWSMA is low. Figure 4 in Appendix A illustrates the location of the Loretto DWSMA and WHPA in relation to the Project Area.

3) *Onsite and/or nearby wells*

A search of the MDH MWI database indicates that there are no wells present within the Project Area<sup>10</sup>. Braun Intertec Corporation completed site reconnaissance as a part of the Phase I Environmental Site Assessment (ESA) and no indications of wells were observed at the site at the time of the site visit. If any wells are found during construction, they will be sealed and abandoned in compliance with MDH regulations by a licensed contractor. Eight wells within a 500-foot radius of the Project area. Table 11 tabulates documented wells within 500 feet of the Project Area based on the MDH CWI database. Figure 4 in Appendix A identifies the locations of wells in the vicinity of the project.

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<sup>8</sup> MPCA. Impaired Waters Viewer (IWAV). Data is based on Draft 2022 Impaired Waters List. <https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav>

<sup>9</sup> MDH. Source Water Protection Web Map Viewer. <https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4>

<sup>10</sup> MDH. Minnesota Well Index. July 15, 2019. <https://mnwellindex.web.health.state.mn.us/mwi/>

Table 11: CWI Wells within 500 feet of the Project Area

Well ID	Use Type	Status	Elevation (msl ft.)	Well Depth (ft.)	Static Water Level (ft.)
248501	Public supply/ non-community, non-transient	Active	1049	Unknown	Unknown
544660	Domestic	Active	1016	202	78
583329	Domestic	Active	1061	205	140
649309	Domestic	Active	1060	264	130
643977	Domestic	Active	1050	180	123
764194	Domestic	Active	1051	170	130
155069	Domestic	Active	1030	291	120
149424	Domestic	Active	1028	203	110

b. Describe surface water and groundwater features on or near the site in a.i. and a.ii. 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.

A feasibility study<sup>11</sup> was completed to evaluate the wastewater treatment options for the Project. Based on the findings of this study, it was determined that connecting the Project to the existing sanitary sewer and wastewater system would not be viable. The following paragraphs summarize the findings of the feasibility study.

The closest existing City of Corcoran sanitary sewer is located approximately three miles east of the Project Area. The distance alone would render connection to this system impractical and not cost effective. Furthermore, the sewer system at that location was not designed to include wastewater from this proposed development. In the City’s previous 2030 Comprehensive Plan, wastewater from this Project and the surrounding area of Southwest Corcoran was anticipated to be served via a connection into Medina, which borders Highway 55 to the south of the Project Area. However, during the time that the City prepared the 2040 Comprehensive Plan, it was determined that Medina had slowed their staging of sewer system development in areas towards southwest Corcoran, and that both Medina and the Metropolitan Council Environmental Services (MCES) no longer envisioned wastewater from southwest Corcoran being directed through Medina (and generally eastward along Highway 55). For this reason, the City of Corcoran’s 2040 Comprehensive Plan states that the method and timing of regional wastewater service to Southwest Corcoran would be determined through future study. The potential options for regional service would be longer-term (over ten years) and very high-cost options, resulting in the need for future study.

Another option that was considered was to connect to the City of Loretto’s wastewater system. The City of Loretto recently transitioned from operating their own permitted wastewater treatment facility to a regionalized connection, i.e., they connected into the Independence

<sup>11</sup> Stantec Consulting Services, Inc. DRAFT Highway 55 Infrastructure Feasibility Study. March 2022.

wastewater forcemain, which is part of a local regional system that ultimately discharges into the regional sewer system of the Twin Cities area (managed by MCES). Operation of the Independence forcemain and the local regional system is governed by a Quad-City Agreement amongst Loretto, Greenfield, Independence, and Medina. Connection of the proposed development into Loretto and the wider regional system was determined to not be viable for two reasons. First, the system was not designed to include significant future growth. Second, the infrastructure would need to reach the north edge of Loretto which would likely not be cost effective as it would require a lift station, approximately 1½ miles of forcemain, a directionally drilled/cased crossing of State Highway 55, as well as long-term operation and maintenance costs for the connecting infrastructure. Additionally, if the existing Loretto sewer system does not have enough available capacity to transfer this development-added flow to the south side of Loretto, additional force main length and a cased crossing of the railroad would also be required.

- 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.*

Given the limitations with connecting to the sewer system, it was determined that the most viable option for wastewater discharge generated by the Project would be to install an individual subsurface sewage treatment system (SSTS) for each parcel as currently proposed. Given the typically clayey soils in the area, these systems would utilize septic tank(s), with treated effluent being pumped to mound systems for further treatment/infiltration. The proposed gas station will have somewhat higher-strength wastewater discharge, which will likely require additional treatment unit(s) compared to the other lots. Hennepin County is the governing authority for permitting and tracking the installation, operation, maintenance, and enforcement of all SSTSs in the City of Corcoran.

At some point in the future, when the City of Corcoran's sewer and water systems are extended to the Project Area, the City will require all of the lots to connect to City water and sewer systems. Therefore, an 80-foot street right-of-way is required to accommodate a future watermain and gravity sewer to be installed along the proposed road.

- 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.*

The project would not result in wastewater discharges to surface waters.

- ii. ***Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.***

#### Pre-Construction Stormwater Runoff

Under existing conditions, the Project Area consists of agricultural land. Surface water runoff drains towards existing wetlands areas and roadway ditches. No existing stormwater features are present within the existing Project Area. Pollutants typically associated with agricultural areas

include pesticides, sediment, nutrients (nitrogen, phosphorus, and potassium) from fertilizers, and metals.

#### Post-Construction Stormwater Runoff

The proposed project will increase impervious surfaces consisting of proposed buildings, parking areas, and roadways. The increased impervious surface areas will result in higher runoff rates, volumes, and pollutants compared to the existing conditions. Stormwater best management practices (BMPs) will be constructed to mitigate stormwater runoff rate, volumes, and pollutant loading. It is anticipated that the project will include wet sedimentation ponds with filtration benches to provide stormwater treatment. Preliminary locations for the proposed stormwater BMPs in the conceptual plan (Figure 1, Appendix A). The proposed drainage design will be confirmed as the project design is developed and will comply with all applicable local and state regulatory requirements.

The MPCA will require a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater permit to be obtained for the project and all design since more than one acre of land will be disturbed by the proposed project. Project construction will adhere to NPDES permitting requirements. The project will also adhere to the City of Corcoran and Elm Creek Watershed Management Commission (ECWMC) stormwater requirements. A Construction Stormwater Pollution Prevention Plan (SWPPP) will be required in accordance with MPCA and City of Corcoran stormwater requirements. A SWPPP be prepared during final project design and submitted for approval prior to construction of the project. Erosion control will utilize temporary sediment basins with ditches and check dams (sized per permit guidance), temporary ground cover where construction has paused, and perimeter control to avoid erosion and sedimentation throughout the site. Stockpiles will be stabilized when not in use and have the stockpile perimeter controlled. All permanent slopes 4:1 or steeper will have erosion control blankets installed.

- 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. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.***

#### Dewatering

It is not anticipated that project construction would require dewatering and groundwater appropriation. If temporary dewatering is required during construction, a DNR Water Appropriation Permit would be required if dewatering activities exceed 10,000 gallons per day or one million gallons per year. The extent and duration of any potential dewatering requirements will be confirmed as the project design develops and all required permits will be obtained prior to project construction.

#### Water Supply

The closest existing City of Corcoran potable watermain is located approximately three miles east of the Project Area. The distance renders connection to this system impractical and would not be cost effective. Neighboring homes and businesses utilize private wells, and likewise, private wells

are the most viable option for the proposed development. Review of well logs for these neighboring homes and businesses suggest that wells located in this development would be completed in the quaternary buried aquifer (usually artesian). These wells are typically four-inch diameter wells, completed in sand layers. The well depths of adjacent private wells indicate that wells located in the proposed development would be approximately 150 to 200 feet deep. Test pumping is commonly indicated at 20 to 30 gallons per minute (gpm). Wells completed in the underlying bedrock would also be an option, though at a higher cost.

The developer will need to install fire protection systems in accordance with public safety requirements, as determined by the fire marshal. This may require installation of water storage tank that would serve as a reservoir to supply a building's fire suppression system.

Corcoran's 2040 Comprehensive Plan identified a potential future well exploration area in the vicinity of this site. Although there are no plans to install a municipal well in the near term, the City may eventually install municipal well(s) in southwest Corcoran. As such, the City may consider siting a potential municipal well in the upland area slightly west of Building F of Lot 5, at the northern edge of the property. Given various well setback requirements and the need for the City to own the property within 50 feet of the well, the City would need an outlot designated for this purpose at the northern property edge (approximately 110 by 110-foot area), which would allow for the possibility of siting a future municipal well near the center of the outlot, along with a small wellhouse. An easement for a narrow access road would also be required between the street and the well site. At some point in the future, the City would install a test well to verify the suitability of this location for a municipal well (or conversely, to rule it out). If suitable, installation of the municipal well, wellhouse, and access road would occur at that time.

As noted in the wastewater section, the developer must provide an 80-foot street right-of-way, which will provide an adequate width such that future City watermain can be installed along the south side of the road.

**iv. Surface Waters**

***b) 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. 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.***

Four wetlands are located within the Project Area covering a combined 3.15 acres. Complete avoidance of these wetland will not be feasible with the proposed project. Based on the preliminary project design, it is anticipated that the project will avoid impacts to Wetland 1 and Wetland 2. The project is anticipated to encroach into portions of Wetland 3 and Wetland 4. Minimization of impacts to wetlands will be evaluated as the project design advances. Figure 5 in Appendix A illustrates the potential impacts to wetlands resulting from the proposed project. Table 12 identifies the potential wetland impacts resulting from the proposed project.

Table 12: Wetlands within the Project Area

Wetland ID	Circular	Cowardin	Size (Acres Onsite)	Potential Impact (acres)
1	1/3	PEM1Af/ PEM1C	1.75	0
2	1	PEM1Af	0.60	0
3	1/3	PEM1Af/ PEM1C	0.33	0.33
4	1/3	PEM1Af/ PEM1C	0.47	0.47
<b>Total Potential Impact</b>				<b>0.8</b>

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 City of Corcoran is the WCA local governmental unit (LGU). It is anticipated that impacts to regulated wetlands will be mitigated through wetland banking credits within the same Wetland Bank Service Area. The Project Area is located in Wetland Bank Service Area 7. Current regulations require wetland impacts within this area of the state are replaced at a minimum ratio of 2:1. Mitigation for unavoidable permanent wetland impacts will be provided in accordance with all regulations and requirements in place at the time of final design and permitting. Wetlands that are avoided will be required to comply with the City of Corcoran’s wetland buffer requirements.

- c) ***Other surface waters - Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) 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. 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.***

No surface waters are present within the Project Area. Surface waters present in the vicinity of the Project area are separated by roads and existing development. The Project would not impact surface waters in the vicinity of the Project area.

## 12. Contamination/Hazardous Materials/Wastes

- a. ***Pre-project site conditions - Describe existing contamination or potential environmental hazards on 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.***

A Phase I Environmental Site Assessment (Phase I ESA) was completed in September 2018 by Braun Intertec Corporation to assess the presence of potential contamination. It should be noted that the Phase I ESA only covers the eastern portion of the Project Area, and thus only discusses contamination potential within and around this portion. The Phase I ESA included a records review, interviews, aerial



photographs, site reconnaissance, and a summary of land use activities. Appendix D includes the executive summary from the Phase I ESA.

Based on the results of the Phase I ESA, the eastern portion of the Project Area was historically utilized as cultivated agricultural land from at least 1947 to present day. The surrounding area has historically been agricultural land and rural residences except for one property to the southeast. This property was a farmstead from 1937 to 1947, and then, through various removals and rebuilds noted from aerial photographs taken in 1956, 1960, 1967-1974, and 1978-1984 converted to a commercial use. Today, this property is owned by an electric and lighting service company.

The Phase I ESA did not identify any recognized environmental conditions, controlled recognized environmental conditions, or historical recognized environmental conditions. No additional site investigations were recommended based on the findings of the Phase I ESA.

A review of the MPCA's *What's in My Neighborhood* (WIMN) database<sup>12</sup> was conducted to identify documented potentially contaminated sites within or in the vicinity of the entire Project Area. No WIMN records are located within the Project Area and no records are located within approximately 1,000 feet of the Project Area. Two tank sites are located northwest of the Project Area along Pioneer Trail including one underground storage tank site approximately 1,500 feet away, and a second aboveground storage tank site approximately 1,800 feet away. Additionally, two sites are located approximately 2,000 feet west of the Project Area along Highway 55 including a very small quantity hazardous waste generator and an aboveground tank site. None of the aforementioned sites have a history of leaks or spills.

The Phase I ESA and the review of the MPCA's *What's in My Neighborhood* (WIMN) did not identify any known potentially contaminated or hazardous materials within or in the vicinity of the Project Area that would be exposed or exacerbated by the construction of the proposed project. In the event that potentially contaminated soils or other potentially hazardous materials are encountered during construction, plans will be developed to properly handle and treat contaminated soil and/or groundwater. Any contaminated soils or other potentially hazardous materials encountered during construction will be handled and disposed of in accordance with MPCA and any other applicable requirements.

- 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 solid waste including source reduction and recycling.*

### **Construction Waste**

Construction wastes will be typical of office/light industrial developments. Construction wastes will be primarily non-hazardous and would be managed as municipal solid waste (MSW) or construction/demolition debris. Hazardous wastes in the form of used oils/lubricants, waste paints, or other materials may be generated during construction. The contractor will be required to manage and dispose of all construction-generated waste in accordance with MPCA requirements and all other applicable regulatory requirements. Construction wastes will either be recycled or stored in approved containers and disposed of in the proper facilities. Any excess soil material that is not suitable for use onsite would become the property of the contractor and would be disposed of properly. All solid waste will be managed according to MPCA and other regulatory requirements.

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<sup>12</sup> MPCA. *What's in My Neighborhood*. <https://www.pca.state.mn.us/data/whats-my-neighborhood>

The Project Area does not contain existing buildings or structures are present. No demolition of existing buildings or structures would be required during construction.

### **Operational Waste**

The project would generate solid waste during operation of the development, which is anticipated to include storage condominiums, office/showroom/retail, gas station/convenience store, and office warehouse/light manufacturing/distribution uses. Solid waste generated during operation of the development will be typical of waste generated by these office/light industrial uses and would be primarily managed as mixed municipal solid waste (MSW). CalRecycle provides a list of estimated solid waste generate rates for office, industrial, service, and other establishments for general planning purposes.<sup>13</sup> Based on estimated solid waste generate rates of 1.42 lbs. per 100 square feet per day for office/warehouse uses and 0.9 lbs. per 100 square feet per day for auto service station uses, it was estimated that the project may produces approximately 1,040 tons of MSW per year. The collection of MSW would be managed waste hauler licensed by the City of Corcoran. The project will adhere to all MPCA requirements and other regulations pertaining to the use, handling and disposal of solid waste. Recycling areas will be provided in compliance with the Minnesota State Building code.

- 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 above or below ground tanks to store petroleum or other materials. 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.*

It is anticipated fuel storage tanks will be installed as part of the proposed gas station/convenience store facility. The number and size of the tanks will be identified as the project design develops. Based on fuel storage tank requirements for gas stations of a similar size in the area, it is anticipated that approximately seven to eight fuel storage tanks will be installed at the facility ranging from 8,000 to 20,000 gallons in storage capacity. The tank owner will be required to register with the MPCA and adhere to the design and operating regulations pursuant to Minnesota Rules Chapter 7150. The owner will be required to register the fuel storage tanks with the MPCA and comply with periodic inspection requirements and spill control and countermeasures.

- 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.*

Construction equipment may require the limited use of potentially hazardous materials, such as gasoline or diesel fuels, motor oils, hydraulic fluids, and other lubricants. Vehicles responsible for the transportation of hazardous materials will be equipped with spill kits for rapid response to any spills and refueling procedures will be implemented to eliminate leakage. Additionally, all fuels, oils, and lubricants will be stored in containment apparatuses while not in use or when being stored. Construction staff will be trained to spot and appropriately respond to potential spills. In the event that a leak or spill incident occurs, the contractor will be required to respond in accordance with MPCA containment and remedial

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<sup>13</sup> California Department of Resources Recycling and Recovery (CalRecycle). Estimated Solid Waste Generation Rates. <https://www2.calrecycle.ca.gov/wastecharacterization/general/rates>



action procedures. A Spill Prevention, Control, and Countermeasures plan will be prepared by a Minnesota Professional Engineer pursuant to federal regulations.

Section 12.c describes the potential storage and use of hazardous materials during operation of the project.

### 13. 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 vegetative land cover within the Project Area primarily consists of active agricultural land with limited trees lining the northern and eastern borders. Due to the dominance of agricultural land throughout the Project Area, there is limited habitat available for use by wildlife. Although limited, the tree lines along the field edge could provide avian migration stopover habitat as well as suitable nesting habitat. Therefore, there is a slight potential for migratory birds to be present within the Project Area during the spring, summer, and fall as well as potential for avian species that winter in Central Minnesota. The limited vegetative land cover present within the Project Area and along the borders may provide habitat for urban wildlife species, such as mice, rabbits, raccoons, and squirrels, among others.

Four farmed wetlands (3.15 acres) were identified within the Project Area, but it is anticipated that the wetlands support a limited diversity of aquatic species due to their disturbed nature and their isolation from larger, less disturbed wetland communities.

**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.**

#### State-Listed Threatened and Endangered Species

Under Stantec's Limited License to Use Copyrighted Material (LA 1005) related to Rare Features Data, the Minnesota Department of Natural Resources (DNR) Natural Heritage Information System (NHIS) was searched in January 2022 to identify species within a one-mile radius of the Project Area. The NHIS search did not indicate any records within the proposed Project Area. Records of rare species were identified within in the one-mile review area including the trumpeter swan (*Cygnus buccinator*, *State special concern species*). A concurrence request was submitted to the DNR for review and is included in Appendix E.

#### *Trumpeter Swan (Cygnus buccinator)*

During the breeding season, trumpeter swans use small ponds and lakes or bays on larger water bodies that have approximately 100 meters of open water for take-off and have extensive beds of emergent vegetation such as cattails, bulrushes, and sedges. They will commonly use muskrat houses, beaver lodges, exposed hummocks, small islands, and floating platforms to construct their nests. Adult trumpeter swans are primarily herbivorous but will occasionally feed on small crustaceans, fish, and fish eggs. Due to over hunting, Trumpeter swans in Minnesota were declared extirpated in the state in the mid-1900s. Reintroduction efforts began in the 1960s and a survey conducted in 2015 estimated the breeding population to be more than 17,000 individuals. Currently, the leading threat to their population is lead poisoning from lead shot and fishing sinkers but degradation of wetland habitat, power line collisions, and

illegal hunting. Although repopulation efforts have continued to be successful, the trumpeter swam was included on Minnesota's List of Endangered and Threatened Species List with the status of special concern due to continued threats to their population.<sup>14</sup>

The Project Area consists of active agricultural land and does not contain suitable breeding or feeding habitat for the trumpeter swan. Based on a review of the NHIS data, occurrences of trumpeter swans were associated with Morin Lake which is approximately 0.85 miles northeast of the Project Area. Due to the lack of suitable habitat, the project is not anticipated to have an impact on the trumpeter swan.

#### Federally-Listed Threatened and Endangered Species

Per a review of the U.S Fish and Wildlife Service's Information for Planning and Consultation (IPaC) website, one federally listed species is within the Project Area, the northern long-eared bat (*Myotis septentrionalis*, federal threatened species) County:

##### *Northern long-eared bat (Myotis septentrionalis)*

During winter, the northern long-eared bat (NLEB) uses large caves and mines that have large passages and entrances, constant temperatures, and high humidity with no air currents. In summer, the NLEB roosts underneath bark, in cavities, and in crevices of live and dead trees that either retain their bark or provide suitable cavities or crevices.<sup>15</sup>

In Minnesota, the DNR maintains records of maternity roost trees or a hibernaculum within its NHIS database. Upon review of the DNR NHIS database under Stantec's license agreement LA-1005, there are no records of NLEB maternity roost trees or a hibernaculum within the Project Area or its vicinity. Additionally, no tree clearing is anticipated to be required as part of this project and there are only a few trees along the perimeter of the Project Area; therefore, the Project will have no effect on NLEB.

#### Migratory Birds

According to the USFWS IPaC, there are no migratory birds of concern with the potential to occur within the Project Area.

Construction activities and development within the Project Area have the potential to impact birds protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it illegal for anyone to take (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations.

Under the MBTA, construction activities in grassland, roadsides, wetland, riparian (stream), shrubland, or woodland habitats that would otherwise result in the taking of migratory birds, eggs, young and/or active nests should be avoided. Although the provisions of the MBTA are applicable throughout the entire year, most migratory bird nesting activity in Minnesota occurs approximately from mid-March to August 15, per the DNR.

#### Native Plant Communities and Biodiversity Sites

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<sup>14</sup> Stucker, S.P., DNR. Rare Species Guide. 2018.

<https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABNJB02030>

<sup>15</sup> USFWS. Northern Long-Eared Bat Fact Sheet. April 2015.

[https://www.fws.gov/sites/default/files/documents/508\\_NLEB%20fact%20sheet.pdf](https://www.fws.gov/sites/default/files/documents/508_NLEB%20fact%20sheet.pdf)

Native plant communities, biodiversity sites, and Central Region Regionally Significant Ecological Areas (RESA) were reviewed for the area within one mile of the proposed Project Area using the NHIS review through Stantec's license LA-1005. No native plant communities or biodiversity sites were noted within the Project Area however a few were noted within one mile of the Project Area.

A native plant community (forested rich peatland system) is located approximately 0.55 miles east of the Project Area. Three sites of biodiversity significance ranked as moderate and one ranked as below were identified within one mile of the Project Area. The three moderate ranked biodiversity sites are all located over 0.55 miles east and northeast of the Project Area and the one below ranked site is approximately 0.25 miles north of the Project Area. Four RESA sites extend into the one-mile review area. Of these, two are ranked as high and two ranked as moderate ecological areas. The closest moderate ranked RESA site is located on the south side of Highway 55 opposite of the Project Area but all work being performed is proposed on the north side. The other moderate ranked RESA site is located approximately 0.65 miles northeast of the Project Area. The two high ranked RESA sites are approximately 0.5 miles south and 0.32 miles southeast of the Project Area. All of these RESA sites are located outside of the Project Area and will not be encroached upon by the proposed project.

- c. ***Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. 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.***

The project is not anticipated to have impacts or adverse effects on federally or state-listed threatened and endangered species in the Project Area due to the lack of suitable habitat for the trumpeter swan, northern-long eared bat, migratory birds, native plant communities, and biodiversity sites.

Although the Project Area is unlikely to provide suitable summer habitat for the NLEB, under the Final 4(d) Rule of the ESA, tree clearing, although not expected, is not prohibited as there are no records of NLEB maternity roost trees or a hibernaculum within the Project Area or a 0.25-mile buffer.

Urban wildlife may be impacted with the removal of agricultural land, impacts to the land surrounding the agricultural land, and impacts to public road right-of-way within the Project Area; however, these habitat generalist species are typically adaptive to development activities and would likely relocate to similar undeveloped areas in the vicinity or continue to live in the remaining undeveloped areas within the Project Area.

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

It is not anticipated that tree removal will be required during construction of the project. If required, removal of vegetation will avoid the NLEB bat pupping season from June 1 through August 15, when possible.

The project will avoid and minimize impacts to wetlands to the extent possible. Based on the preliminary design, it is anticipated that the project may avoid impacts to two wetlands and may permanently impact two other wetlands. During construction, erosion control and runoff prevention measures will be implemented.

Construction activities that involve soil disturbance can result in the introduction and spread of invasive species. Minnesota statutes (Chapter 18) and local ordinances regulate management of noxious weeds and

invasive species. Best management practices during construction activities and operation within the Project Area should be implemented to minimize the introduction or spread of noxious weeds and invasive species at the site.

#### 14. 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.***

Appendix H includes a letter from the Minnesota State Historical Preservation Office with their determination that no known historical structures, archeological sites, or cultural properties are on or near the project site.

#### 15. 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.***

The Project Area currently consists primarily of agricultural land with wooded field edges. No designated scenic views or vistas are present in the vicinity of the Project. The landscape immediately surrounding the site consists of undeveloped agricultural land to the north, Highway 55 to the south, existing commercial and industrial facilities to the east, and residential uses to the northwest. The primary visual impact will be the transition of views from agricultural land to buildings, parking lots, and stormwater basins. The development is not expected to include industries that would emit vapor plumes. The Project Area is zoned by the City of Corcoran as light industrial. The project will be required to adhere to the City of Corcoran's ordinance requirements including building height and form, landscape screening, and lighting. The existing wooded tree line and vegetation along the northern boundary of the Project Area will continue to function as a visual buffer between Project and the residential lots to the northwest.

#### 16. 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, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used to 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.***

The project does not include heavy industrial uses that would have significant emissions. The project includes light industrial office warehouse, manufacturing, and distribution uses. These facilities may utilize natural gas and electric-powered equipment, which would emit low levels of greenhouse gas emissions (GHG) as well as hazardous air pollutants (HAPs) and criteria pollutants, such as Nitrogen Oxides (NO<sub>x</sub>), Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), and particulate matter (PM). An inventory of potential electric and natural gas equipment to be installed at these facilities is not known at this time as prospective tenants have not been finalized. Generally, air emissions associated by these types of office and light industrial uses are relatively low and the facilities would not require an air permit. However,

future tenants would be responsible for determining air permit applicability or exemption determinations based on the equipment to be installed with the facility prior to starting construction.

The project includes a gas station/convenience store with fuel pumps and would require the installation of underground fuel storage tanks. Gasoline and diesel fuel storage tanks generate low quantities of working and evaporative losses of volatile organic compounds (VOCs) and HAPS, typical of all retail fuel stations. Emissions primarily occur during vehicle fueling. Gasoline dispensing facilities are required to install vapor recovery systems to minimize emissions during tanker unloading.

A detailed quantitative analysis of stationary source emissions is not possible at this time. However, general estimates of potential emissions arising from the gas station operations and natural gas heating for the planned square footage of the development can be estimated. Table 13 presents estimated maximum potential emissions from the Project.

*Table 13: Maximum Potential Emissions from Gas Station Fueling and Heating the Proposed Development (tons per year)*

<b>Pollutant</b>	<b>Gas Station (tons per year)</b>	<b>Facility Heating (tons per year)</b>	<b>Total (tons per year)</b>
PM	0.00	0.67	0.67
PM <sub>10</sub>	0.00	0.67	0.67
PM <sub>2.5</sub>	0.00	0.67	0.67
SO <sub>2</sub>	0.00	0.05	0.05
NO <sub>x</sub>	0.00	8.76	8.76
VOC	17.67	0.48	18.15
CO	0.00	7.36	7.36
Lead	0.00	0.00	0.00
Mercury	0.00	0.00	0.00
HAPS	unknown	0.17	0.17

- 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.***

The Project Area is located in a CO maintenance area. The Project is expected to generate increased vehicular traffic, which will result in a relatively small increase in CO emissions and other vehicle related emissions. The Minnesota Department of Transportation (MnDOT) developed a CO hot spot screening method designed to identify intersections that may result in CO emissions that exceed air quality standards. MnDOT’s 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 impact study was completed for the Project, which is discussed in Section 18. Based on this study, intersections within the study area would not generate traffic exceeding 82,300 vehicles per day. Therefore, it is not anticipated that vehicle emissions generated by the project would have the potential to significantly impact CO air pollution.

- 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 16a). 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.***

The Project may generate temporary dust and odors during construction. Potential odors would likely be associated with exhaust from diesel engines and fuel storage. Dust generated during construction will be minimized through standard dust control measures such as applying water to exposed soils and limiting the duration of exposed soils to the extent possible. Dust levels after construction is complete would be minimal as all surfaces will be paved or revegetated.

## **17. 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.***

### *1) Existing noise levels/sources in the area*

Existing noise sources include traffic along Highway 55 and connecting roadways and existing commercial and industrial uses adjacent to Highway 55.

### *2) Nearby sensitive receptors*

The noise receptors nearest to the Project Area are the residential homes to the northwest of the Project Area. The homes are located approximately 115 to 300 feet northwest of the Project Area.

### *3) Conformance to state noise standards*

The project is expected to minimize noise disturbances caused by construction and operation of the project development and will adhere to the noise regulations outlined in Minnesota State Statute 7030.0030 and Corcoran City Ordinances 1060.090 and 82.03 subpart 5. The regulations state that construction activities are prohibited between 10:00 p.m. and 7:00 a.m. on weekdays and 9:00 p.m. and 9:00 a.m. on weekends. Furthermore, if the project includes a car wash operation it will comply with Corcoran City Ordinance 1040.100 subpart 4, which states car wash operations shall be limited to between 7:00 a.m. and 10:00 p.m. daily.

### *4) Quality of life*

Operation and construction of the Project will generate noise consistent with industrial uses and is not anticipated to affect the quality of life for nearby properties. The Project will be required to adhere to State and city noise regulations.



## 18. 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.**

1) *Existing and proposed parking spaces*

The existing project site consists of an undeveloped, agricultural area. No existing parking is available at the site. The Project would provide approximately 505 parking spaces to accommodate the proposed development.

2) *Estimated total average daily traffic generated*

It is anticipated that the proposed development will generate approximately 8,986 trips per day. Table 14 summarizes daily and peak hour traffic.

*Table 14: Weekday Trip Generation for Proposed Project*

Land Use	Size	Weekday AM Peak Hour Trips	Weekday PM Peak Hour Trips	Weekday Daily Total Trips
Light Industrial (Lot 4)	100,000 SF	74	65	487
Light Industrial (Lot 3)	66,000 SF	49	43	321
Retail (Lot 2)	11,300 SF	27	74	615
Storage Facility (Lot 5)	379,000 SF	64	68	648
Gas Station/ Convenience Store (Lot 1)	20 VFP	632	538	6,915
<b>Total</b>		<b>846</b>	<b>788</b>	<b>8,986</b>

*Notes: SF denotes square feet, VFP indicates vehicle fueling positions.*

3) *Maximum peak hour traffic generated and time of occurrence*

The proposed development is expected to generate 846 trips during the a.m. peak hour (7:30-8:30 a.m.) and 788 during the p.m. peak hour. (5:00 – 6:00 p.m.) Table 9, above, summarizes peak hour traffic generation estimates resulting from the Project.

4) *Source of trip generation rates*

Trip Generation, Eleventh Edition, published by the Institute of Transportation Engineers.

5) *Availability of transit and/or other alternative transportation modes*

No transit routes or pedestrian facilities are present in the Project Area.

- 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.**

A traffic impact study was completed to evaluate opening year (year 2027) and future (year 2040) traffic volumes and determine the effects of the proposed project on traffic congestion in the area. For the purposes of this study, it was assumed that the full development would be completed by 2026. The traffic impact study was completed using Synchro software for the following intersections:

- Trunk Highway (TH) 55 and Pioneer Trail
- TH 55 and Rolling Hills Road
- County State Aid Highway (CSAH) 19 and Pioneer Trail
- Pioneer Trail and the proposed development access road

Traffic capacity results are present in terms of level of service (LOS) which is defined in terms of traffic delay at the intersection. Intersections are ranked from LOS A through LOS F. LOS results are based on the average delay per vehicle. LOS A indicates the best traffic operation and LOS F denotes an intersection where demand exceeds capacity. Typically, intersection LOS A through D is considered to be acceptable traffic flow conditions. Table 15 and Table 16 summarize the results of the intersection operations analysis for the year 2027 and 2040 conditions, respectively. Appendix F includes the traffic impact study which provides additional details.

*Table 15: Year 2027 No Build and Build Intersection Operations Analysis*

Intersection	Traffic Control	2027 No Build LOS		2027 Build LOS	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
TH 55/ Pioneer Trail	NB/SB stop	A/E	A/E	F/F	F/F
TH 55/ Rolling Hills Road	SB stop	A/D	A/D	A/E	A/E
CSAH 19/ Pioneer Trail	EB/WB stop	A/B	A/B	A/C	A/C
Pioneer Trail/ proposed development access	WB stop	N/A	N/A	A/B	A/B

*Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.*

Results of the traffic operations analysis indicate that under year 2027 No Build conditions, all intersections and movements operate at LOS E or better during the a.m. and p.m. peak hours, indicating acceptable traffic operations. During the 2027 Build conditions, the TH 55/Pioneer Trail intersection operates at an overall LOS F during the a.m. and p.m. peak hours, indicating poor traffic conditions.



Table 16: Year 2040 No Build and Build Intersection Operations Analysis

Intersection	Traffic Control	2040 No Build LOS		2040 Build LOS	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
TH 55/ Pioneer Trail	NB/SB stop	A/F	A/E	F/F	F/F
TH 55/ Rolling Hills Road	SB stop	A/D	A/D	A/F	A/F
CSAH 19/ Pioneer Trail	EB/WB stop	A/B	A/C	A/C	A/C
Pioneer Trail/ proposed development access	WB stop	N/A	N/A	A/B	A/B

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

During the 2040 No Build conditions, southbound movements at the TH 55/Pioneer Trail intersection operate at LOS F during the a.m. peak hour. The overall intersections operate at LOS A at all other intersections and all other movements operate at LOS E or better. Under 2040 Build conditions, the TH 55/Pioneer Trail intersection operate at an overall LOS F during the a.m. and p.m. peak hours. The southbound movements at TH 55/Rolling Hills Road operate at LOS F during the a.m. and p.m. peak hours. The TH 55/Rolling Hills Road intersections operates at an overall LOS A. All other movements and intersections operate at LOS C or better during the a.m. and p.m. peak hours.

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

TH 55/ Pioneer Trail Intersection Improvements

The southbound movements at the TH 55/Pioneer Trail intersection operates at a LOS F during the 2027 and 2040 Build conditions. In order to accommodate traffic generated by the proposed development, traffic signal control was considered at this intersection. A signal warrants analysis was completed for the 2027 Build condition based on criteria outlined in the Minnesota Manual of Uniform Traffic Control Devices. The results of the signal warrant analysis indicate that warrants are met at the TH 55/ Pioneer Trail intersection for the 2027 Build condition. Any changes to signal control must be reviewed and approved by MnDOT. An intersection operations analysis was completed a potential traffic signal at the TH 55/Pioneer Trail intersection. Table 17 summarizes the results of this analysis.

Table 17: TH 55/Pioneer Trail Intersection Operations Analysis with Traffic Signal Control

2027 Build LOS		2040 Build LOS	
AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
B/C	B/C	B/D	B/D

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

The TH 55/Pioneer Trail intersection operations analysis indicates that under traffic signal control, all movements would operate at an acceptable LOS D or better during the a.m. and p.m. peak hours under both year 2027 and 2020 Build conditions.

Recommended Mitigation

Table 14 summarizes recommended measures to mitigate potential traffic impacts resulting from the proposed development.

*Table 18: Recommended Traffic Mitigation Measures*

<b>Intersection</b>	<b>Short-Term Measures</b>	<b>Long-Term Measures</b>
TH 55/ Pioneer Trail	<ul style="list-style-type: none"> <li>• Widen southbound approach to accommodate dedicated left turn lane and a thru/right turn lane.</li> <li>• Install traffic signal.</li> </ul>	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>
TH 55/ Rolling Hills Road	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>
CSAH 19/ Pioneer Trail	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>
Pioneer Trail/ proposed development access	<ul style="list-style-type: none"> <li>• Construct westbound approach with dedicated left and right turn lanes.</li> <li>• Construct a northbound right turn lane.</li> </ul>	<ul style="list-style-type: none"> <li>• No additional improvements.</li> </ul>

**19. 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.**

It is anticipated that individual lots will be constructed over the next few years and that the full build out will occur by 2026. Currently, it is anticipated that Lot 5 will be constructed first, which proposes a storage unit facility. The timeline of project construction will depend on market conditions and may vary from the current foreseeable construction timeline.

The project site is located in the City of Corcoran’s southwest Metropolitan Urban Services Area that has been planned for land uses and development as stated within the City’s 2040 Comprehensive Plan. Extension of services to the areas is planned to occur in 2030-2035 and, therefore, the City included estimated calculations within each section of the 2040 Comprehensive Plan that accounted for the increased demand for water, sanitary sewer and transportation improvements. The development is proposed in advance of these services being available to the site, however, septic and well will be provided to the development until a time they are able to connect with municipal services. This EAW considered potential cumulative impacts for future light industrial and commercial development as described in applicable items. Beyond the analysis conducted and provided, there are no known of project cumulative impacts as a result of the proposed project that were not reviewed and considered as part of this process.

- 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.**

As stated in previous items, the proposed project site was planned for development to connect to municipal water and wastewater services. Installation of the main trunk sanitary sewer line is not planned

with this development and is anticipated to be extended to this area in 2030-2035. The project will not require municipal services but is proposed at a density appropriate enough to be connected to municipal services when available. The construction of the public road is consistent with the Southwest District Plan. A light industrial self-storage facility is planned on a parcel immediately to the west of the site and is not expected to interact with the environmental effects of the proposed project.

Several residential and senior living development are currently under review by the City. These proposed developments are concentrated towards the eastern portion of the City of Corcoran along County Road 116. One other project is proposed in close proximity to the Project, the proposed Garages Too development located at 2240 Highway 55. An application for this project was submitted to the City of Corcoran in November 2021 requesting approval of a rezoning, site plan, conditional use permit, variance, and preliminary plat to allow for the development of four new buildings for a proposed mini storage/self storage facility adjacent to Highway 55. This proposed project is adjacent to the eastern boundary of the proposed Pioneer Trail Industrial Park. Proposed light industrial development within and immediately adjacent to the Project Area along Highway 55 is consistent with the City of Corcoran's 2040 Comprehensive Plan.

- 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.***

Potential impacts that were considered as part of the cumulative potential effects evaluation include waters resources, wetlands, public infrastructure, and loss of agricultural land, and transportation.

#### Water Resources

The project will convert undeveloped agricultural land into a proposed industrial park, which will increase impervious surfaces compared to existing conditions. As discussed in Section 11 of this EAW, the proposed additional impervious surface area is expected to result in higher runoff rates, volumes, and pollutants compared to the existing conditions. Other proposed developments in the area resulting in the conversion of agricultural and rural residential land to industrial and residential developments will similarly increase the area of impervious surfaces. These future developments will be required to implement stormwater BMPs to mitigate stormwater runoff impacts in accordance with all City, ECWMC, and MPCA approval and permitting requirements. Therefore, adverse cumulative impacts to water quality and quantity are not anticipated.

#### Public Infrastructure

As discussed in Section 11, currently the most viable option for water supply and wastewater, is to utilize private wells and a subsurface sewage treatment system. As future development occurs, sewer and water systems may be extended to the Project Area and the proposed development would be required to connect the City water and sewer systems. The Project will be required to accommodate an 80-foot right-of-way to accommodate future expansion to the watermain. The City of Corcoran regulates future development through its land use policies and zoning requirements. The City's 2040 Comprehensive Plan identified the potential for future municipal well exploration areas and future studies to evaluate sewer and water extension to Southwest Corcoran. The Project would not preclude future extension of the sewer and water systems and will connect to these systems when available. Therefore, adverse cumulative impacts related to public infrastructure are not anticipated.

### Wetlands

It is anticipated that the Project will impact approximately 0.8 acres of wetlands. Potential wetland impacts will be confirmed during final design and permitting of the Project. Planned development in the vicinity of the Project may also impact wetlands in the surrounding area. Wetlands are protected by state and federal laws, Section 404 of the Clean Water Act and WCA, which require avoidance of wetland impacts when possible, and when avoidance is not possible, impacts must be minimized and mitigated. Adverse cumulative impacts to wetlands are not anticipated given the federal and state regulations that mandate avoidance, minimization, and mitigation requirements for wetland impacts.

### Agricultural Land

The Project will convert existing agricultural land to an industrial development. Planned development along the Highway 55 and the surrounding areas may also convert agricultural land to other land uses. The City of Corcoran guides development through the City's land use plan and zoning codes. The Project is consistent with the City's 2040 Comprehensive Plan, which identifies the Project Area and adjacent properties along Highway 55 for future light industrial development. The City of Corcoran through their land use policies and zoning requirements, regulates future development and can protect agricultural land from future development as appropriate. Therefore, adverse cumulative impacts to agricultural land are not anticipated.

### Transportation

A Traffic Impact Study for the Project was completed that incorporated future traffic growth and recommended mitigation measures to address traffic impacts. Appendix F includes the Traffic Impact Study. Future developments in the surrounding area that are anticipated to increase traffic congestion, would be required to complete a traffic impact study and identify mitigation measures to address these impacts. Therefore, adverse cumulative impacts related to traffic congestion are not anticipated.

## **20. 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 additional environmental effects are anticipated as a result of the proposed project. Potential environmental effects have been addressed in Items 1 through 19.

**RGU CERTIFICATION.** *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

**I hereby certify that:**

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Jessica Paul Date 3/24/2022

Title Interim City Administrator

# **Appendix A**

## **Figures**



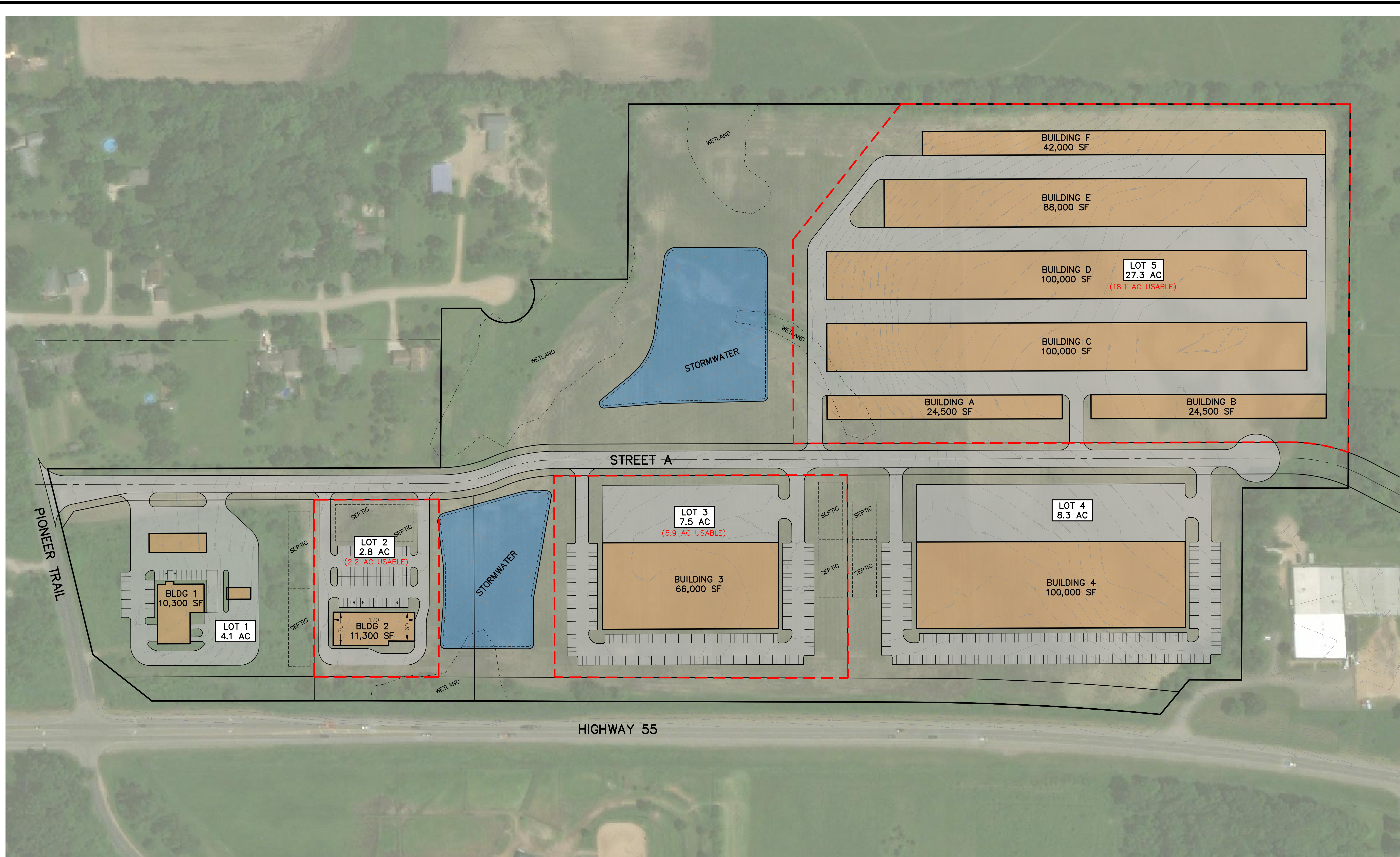
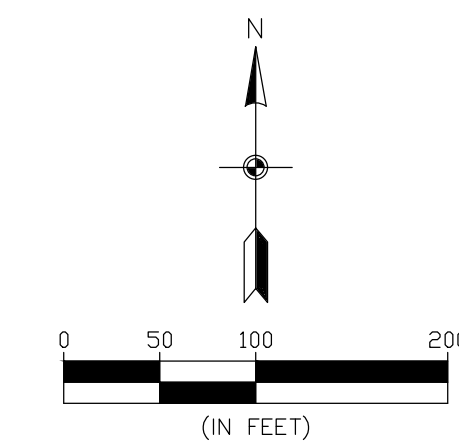


Figure 1. Concept Plan

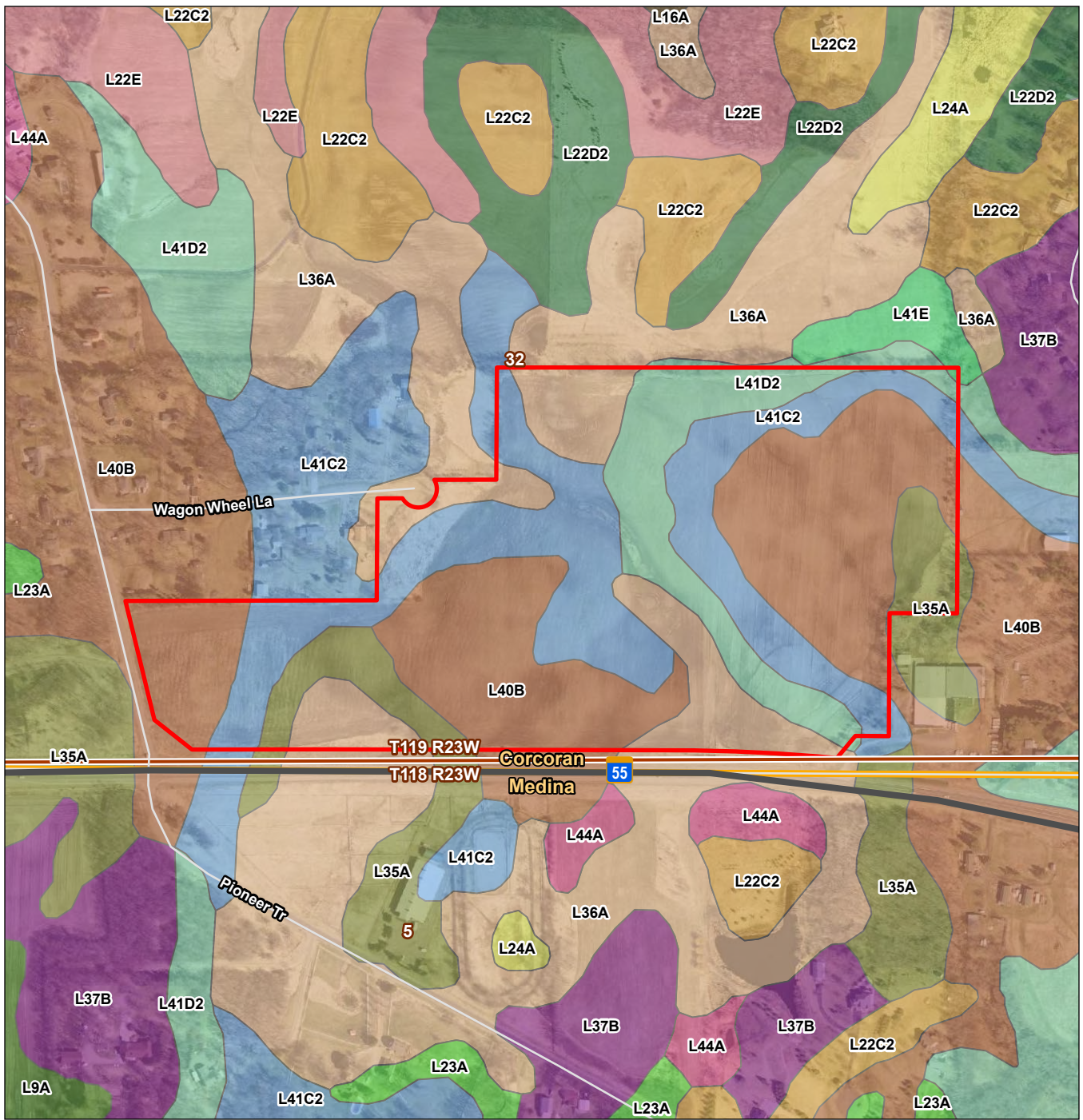


REVISIONS

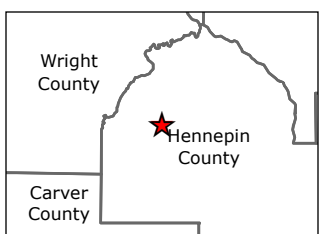

DRAWN BY: JTR  
 DESIGNED BY: JTR  
 ISSUE DATE: 10/05/21

Site: D:\1069721\community\yadach, je\temp\_projects\northman\corcoran - pioneer trail\concept\corcoran - concept\_n\_11104.dwg



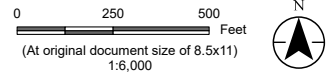


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**Notes**  
 1. Coordinate System: NAD 1983 HARN Adj MN Hennepin Feet  
 2. Data Sources: City of Corcoran, NRCS, MNDOT  
 3. Background: MnGeo 2020 7-county

<b>Legend</b>	
<span style="border: 2px solid red; display: inline-block; width: 10px; height: 10px;"></span> Project Area	<span style="background-color: #f0e68c; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L36A, Hamel, overwash-Hamel complex, 0 to 3 percent slopes
<b>NRCS Soils Classification</b>	
<span style="background-color: #808080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L16A, Muskego, Blue Earth, and Houghton soils, ponded, 0 to 1 percent slopes	<span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L37B, Angus loam, 2 to 6 percent slopes
<span style="background-color: #a0522d; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L22C2, Lester loam, 6 to 10 percent slopes, moderately eroded	<span style="background-color: #800000; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L40B, Angus-Kilkenny complex, 2 to 6 percent slopes
<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L22D2, Lester loam, 10 to 16 percent slopes, moderately eroded	<span style="background-color: #4682b4; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L41C2, Lester-Kilkenny complex, 6 to 10 percent slopes, moderately eroded
<span style="background-color: #f08080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L22E, Lester loam, 10 to 22 percent slopes	<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L41D2, Lester-Kilkenny complex, 10 to 16 percent slopes, moderately eroded
<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L23A, Cordova loam, 0 to 2 percent slopes	<span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L41E, Lester-Kilkenny complex, 16 to 22 percent slopes
<span style="background-color: #ffff00; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L24A, Glencoe clay loam, 0 to 1 percent slopes	<span style="background-color: #f08080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L44A, Nessel loam, 1 to 3 percent slopes
<span style="background-color: #808080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L35A, Lerdal loam, 1 to 3 percent slopes	<span style="background-color: #808080; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> L9A, Minnetonka silty clay loam, 0 to 2 percent slopes



**Project Location**  
 T119N, R23W, S32  
 C. of Corcoran, Hennepin Co., MN

**Prepared by** KJM on 2022-01-24  
 TR by XXX on 2020-XX-XX  
 IR by XXX on 2020-XX-XX

**Client/Project**  
 City of Corcoran, MN  
 EAW

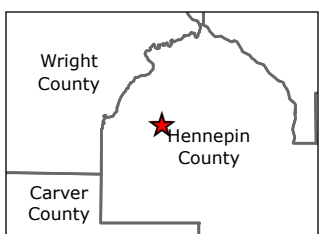
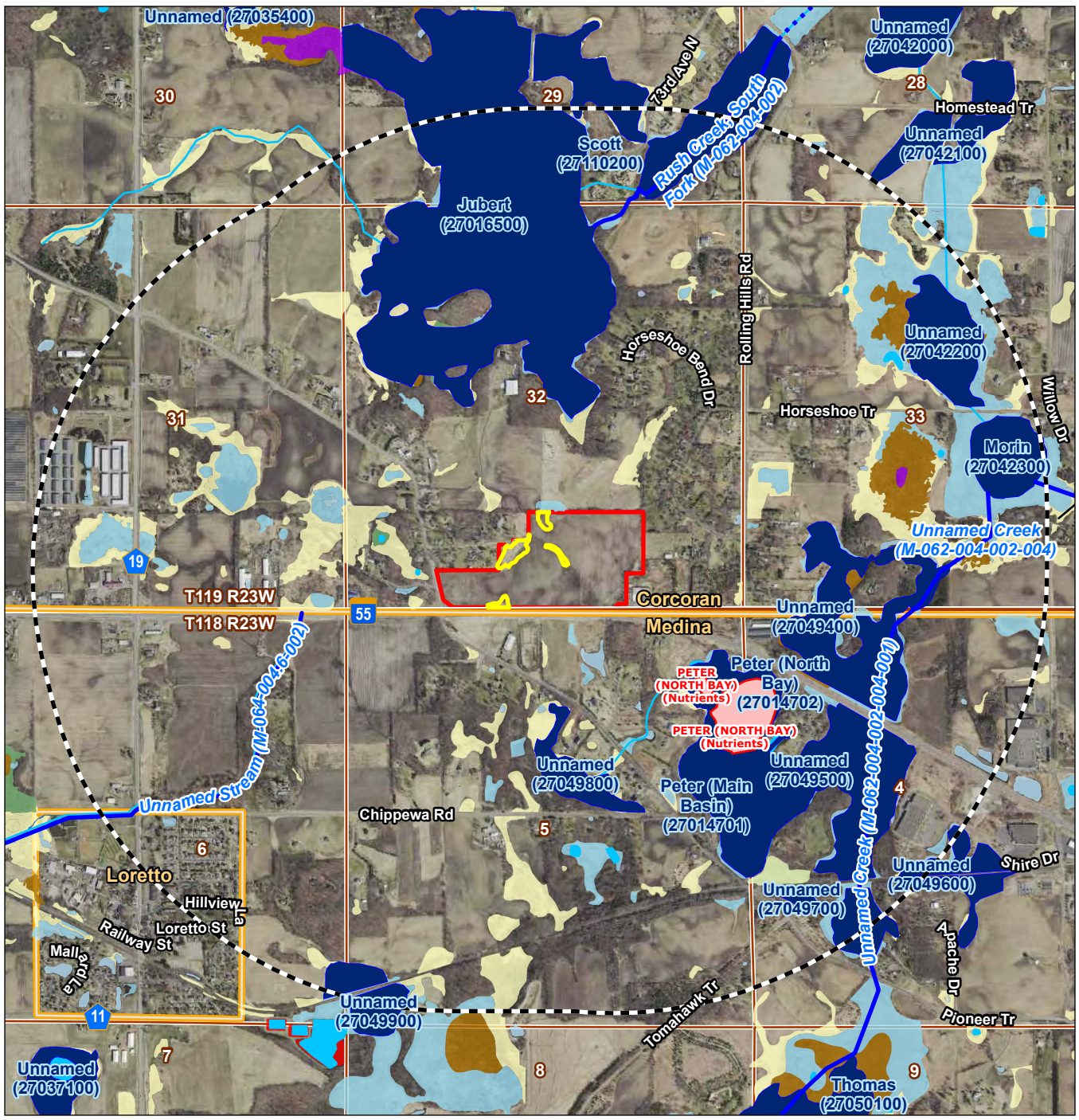
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**Figure No.**  
 2

**Title**  
 Soil Classifications

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

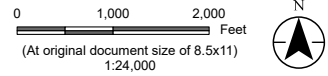




**Notes**  
 1. Coordinate System: NAD 1983 HARN Adj MN Hennepin Feet  
 2. Data Sources: City of Corcoran, MNDNR, MNDOT  
 3. Background: MnGeo 2020 7-county

- Legend**
- 1 Mile Radius
  - Project Area
  - Field Delineated Wetland
  - 2022 MPCA Impaired Lakes (Draft)
  - Minnesota Public Waters Delineations
  - Public Water Watercourse
  - Public Ditch/Altered Natural Watercourse
  - Public Waters Basins
  - NHD - Flowline
  - NHD - Waterbody

- NWI Circular 39 Class**
- 1 - Seasonally Flooded Basin or Flat
  - 2 - Wet Meadow
  - 3 - Shallow Marsh
  - 4 - Deep Marsh
  - 5 - Shallow Open Water
  - 6 - Shrub Swamp
  - 7 - Wooded Swamp
  - 8 - Bog
  - Municipal and Industrial Activities
  - Riverine Systems



**Project Location**  
 T119N, R23W, S32  
 C. of Corcoran, Hennepin Co., MN

**Client/Project**  
 City of Corcoran, MN  
 EAW

**Prepared by** KJM on 2022-03-03  
 TR by XXX on 2020-XX-XX  
 IR by XXX on 2020-XX-XX

227704712

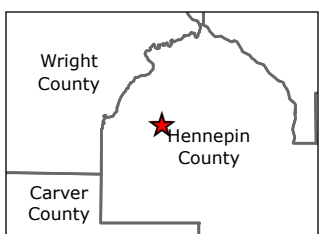
**Figure No.**  
 3

**Title**  
 Water Resources Map

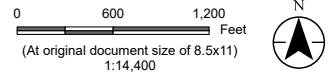
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- Legend**
- County Well Index
    - Unknown
    - Domestic
    - Irrigation
    - Public Supply
  - 500 ft Radius
  - 1/2 mi Radius
  - Project Area
  - Wellhead Protection Areas
  - Drinking Water Supply Management Area Vulnerability
    - Low



Project Location: T119N, R23W, S32  
 C. of Corcoran, Hennepin Co., MN

Prepared by KJM on 2022-01-24  
 TR by XXX on 2020-XX-XX  
 IR by XXX on 2020-XX-XX

Client/Project: City of Corcoran, MN  
 EAW

227704712

Figure No. 4  
 Title: County Well Index

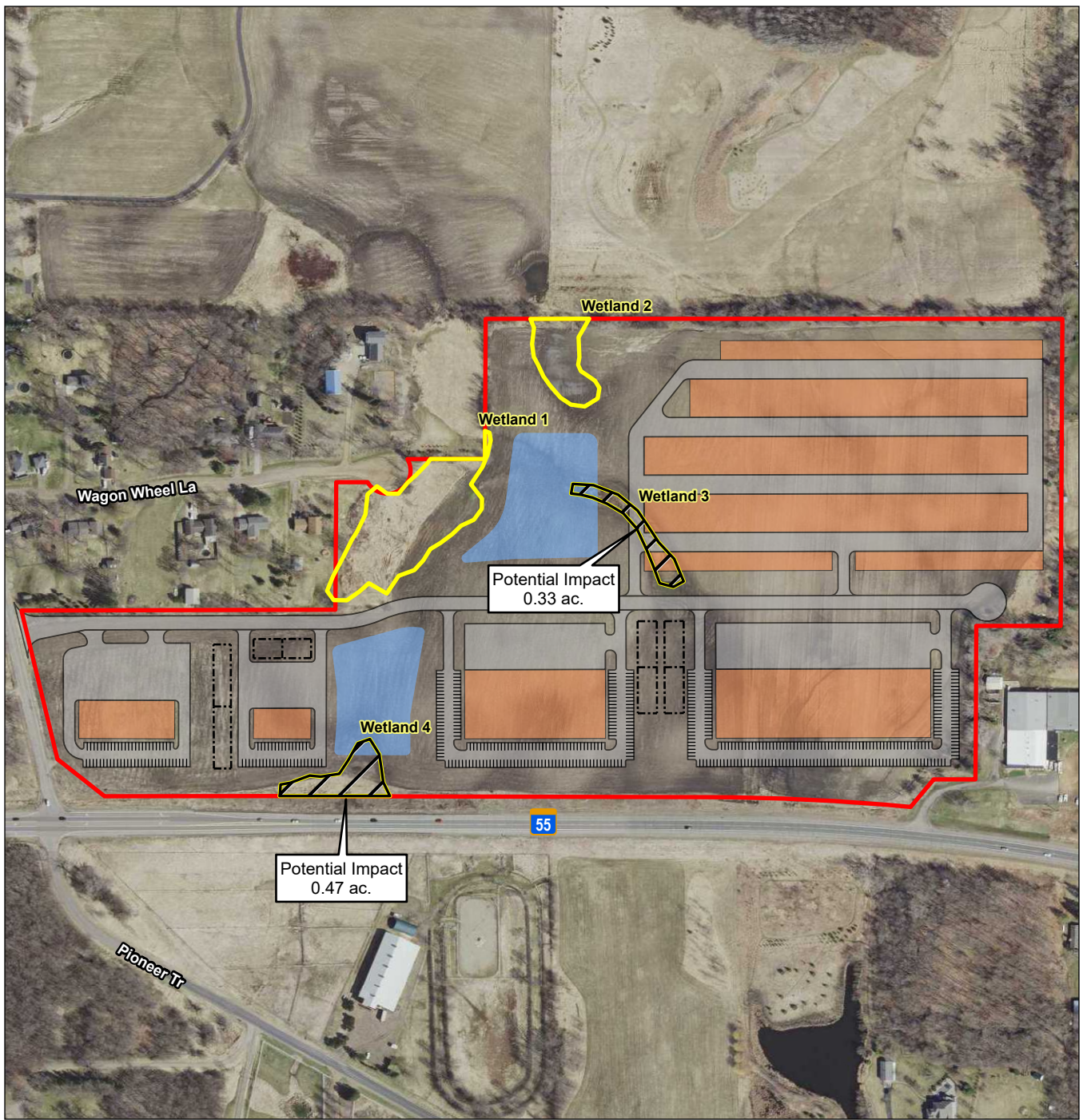
**Notes**

1. Coordinate System: NAD 1983 HARN Adj MN Hennepin Feet
2. Data Sources: City of Corcoran, NRCS, MNDOT, MNDOH
3. Background: MnGeo 2020 7-county

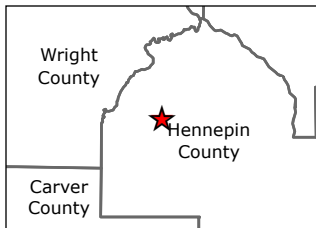
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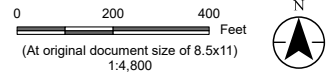


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**Notes**  
 1. Coordinate System: NAD 1983 HARN Adj MN Hennepin Feet  
 2. Data Sources: City of Corcoran, Carlson McCain  
 3. Background: MnGeo 2020 7-county

- Legend**
- Project Area
  - Potential Wetland Impact
  - Field Delineated Wetland
  - Site Septic
  - Stormwater Pond
  - Building Footprint
  - Road/Parking

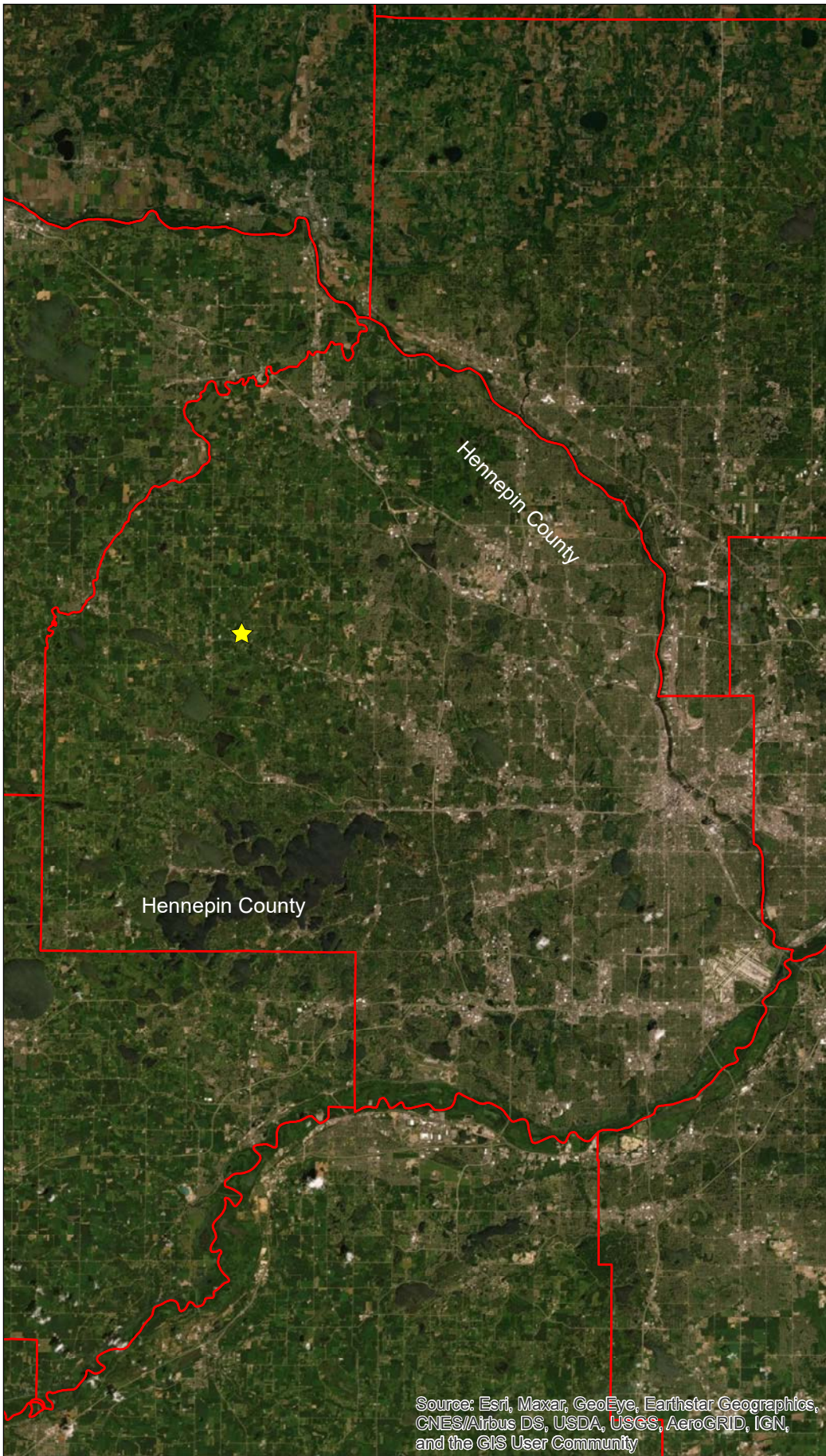


*Project Location* T119N, R23W, S32 C. of Corcoran, Hennepin Co., MN  
*Client/Project* City of Corcoran, MN  
 EAW  
 Prepared by KJM on 2022-03-03  
 TR by XXX on 2020-XX-XX  
 IR by XXX on 2020-XX-XX  
 227704712

*Figure No.* 5  
*Title* Potential Wetland Impacts

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### Legend

 County Boundary

 Project Location

0 2.5 5 7.5 Miles



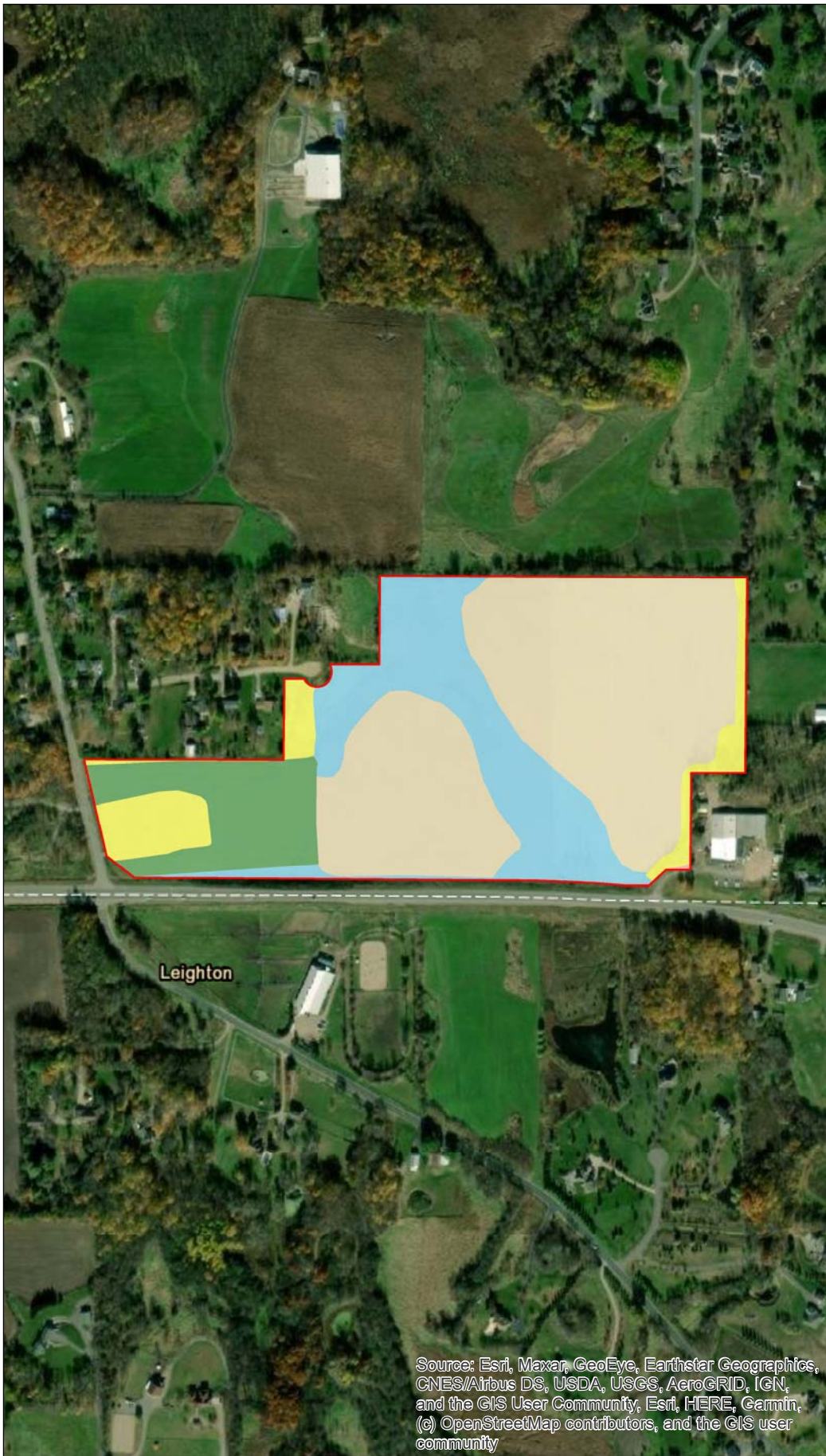
NORTH

## Figure 6: Hennepin County Location Map

Pioneer Trail EAW • Corcoran, MN

03.14.22







Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

### Legend


 Site Boundary


### Land Cover Type

 Impervious Surface

 Wooded/Forest

 Wetlands

 Cropland

 Brush/Grassland

0 250 500 750  
 Feet



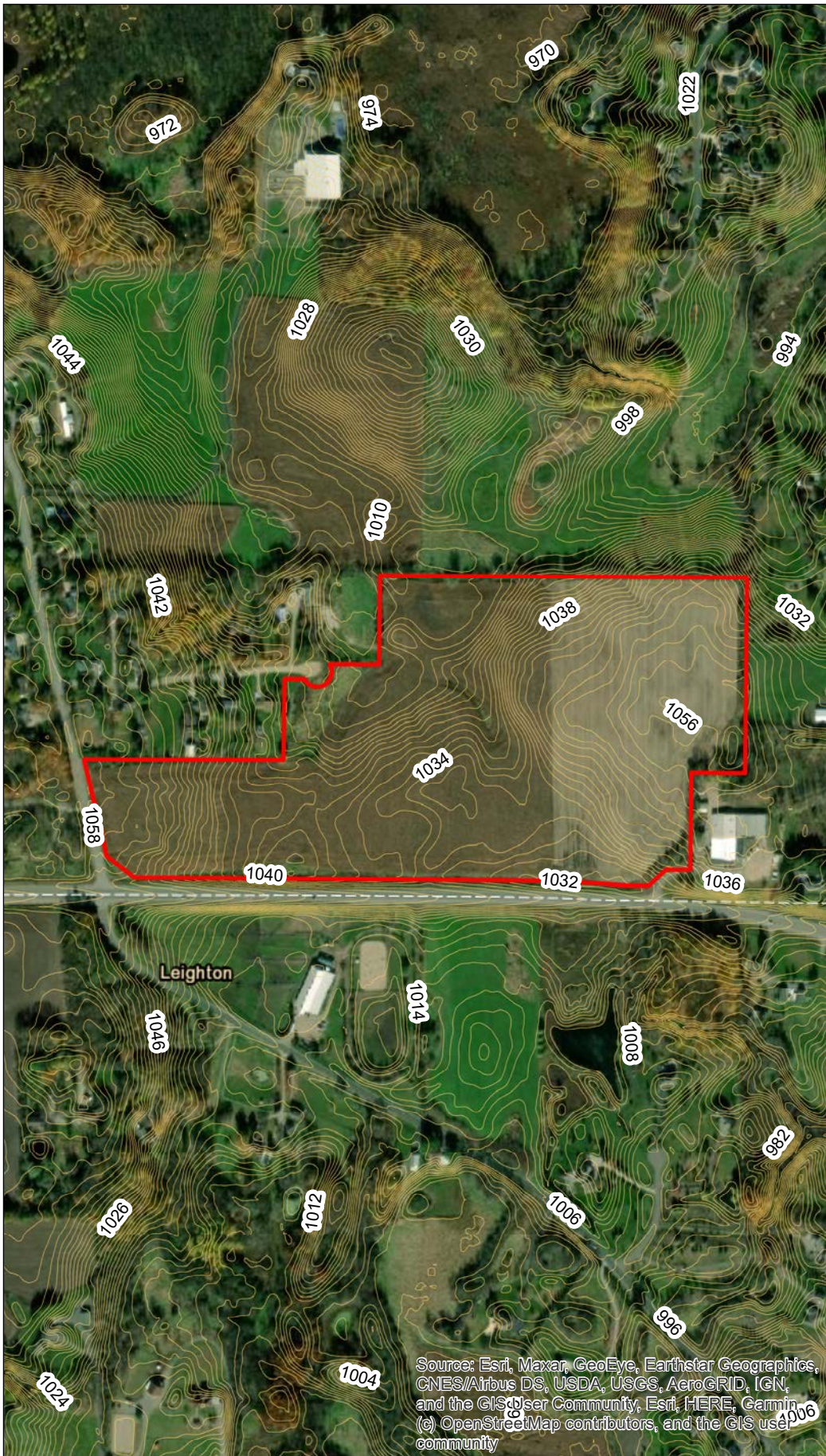
NORTH

## Figure 7: Cover Type Map



Pioneer Trail EAW • Corcoran, MN

03.14.22





## Legend

-  Site Boundary
-  2-foot Contours

0 250 500 750  
 Feet

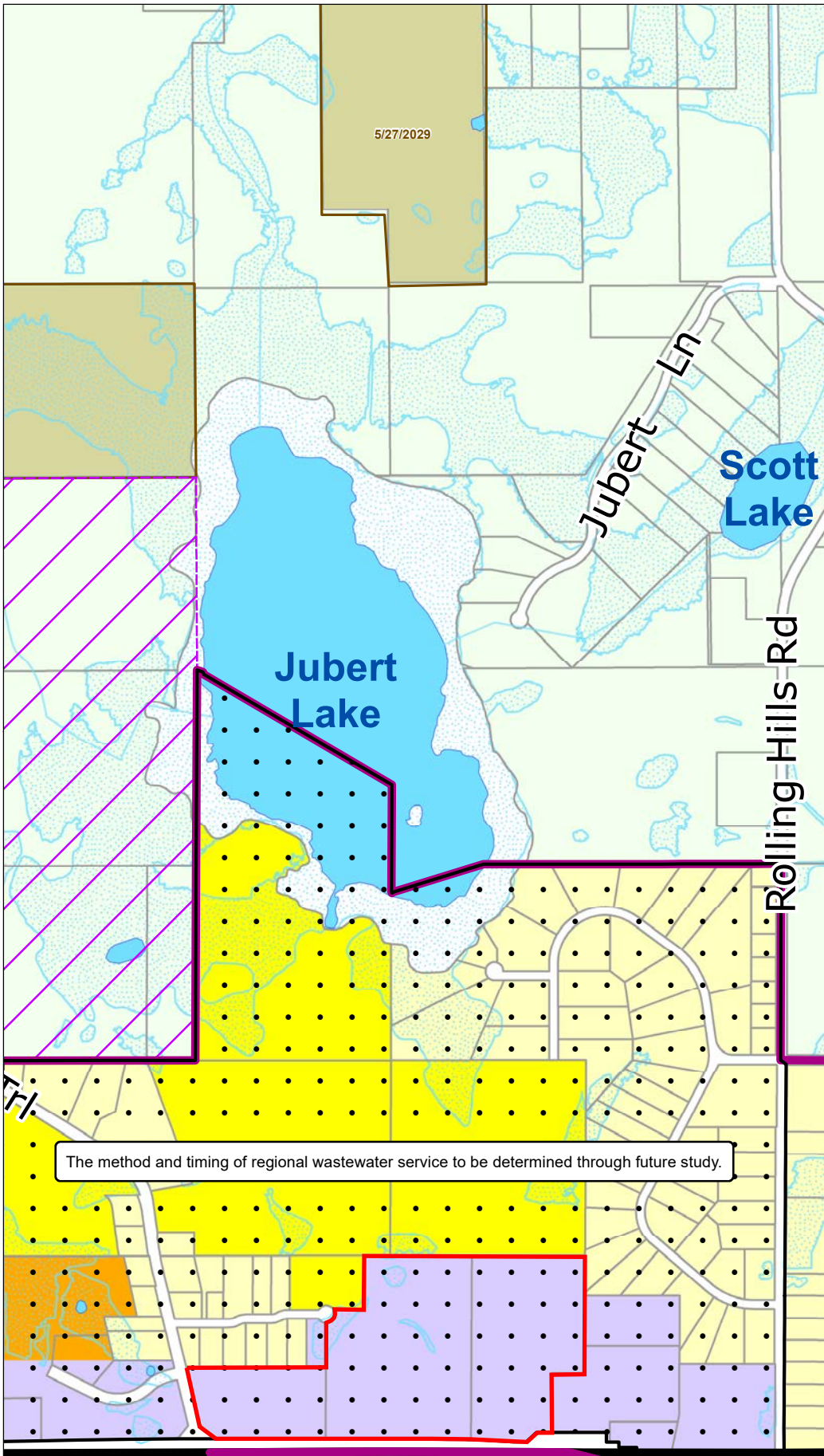


# Figure 8: USGS Topographic Map

Pioneer Trail EAW • Corcoran, MN

03.14.22





### Legend

- Future Study
  - 2040 MUSA
  - Future MUSA Expansion
  - Agricultural Reserve (Date of Expiration)
  - Municipal Boundary
  - Streams
  - Lake/Open Water
  - Parcel Boundaries
  - Wetlands
- ### Future Land Use
- Rural/Ag Residential
  - Existing Residential
  - Low Density Residential
  - Medium Density Residential
  - Mixed Residential
  - High Density Residential
  - Rural Service/Commercial
  - Commercial
  - Mixed Use
  - Business Park
  - Light Industrial
  - Public/Semi-Public
  - Parks/Open Space
  - Agricultural Preserve (Date of Expiration)
  - Open Water

0 500 1,000 Feet



**Figure 9: 2040 Future Land Use**

Pioneer Trail EAW • Corcoran, MN

03.15.22

**Appendix B**  
**Wetland Delineation and WCA Notice of Decision**

---

# **6210 Pioneer Trail Site**

**Corcoran, Hennepin County, Minnesota**

## **Wetland Delineation Report**

*Prepared for*

Landspec Fund 2 LLC

*by*

**Kjolhaug Environmental Services Company, Inc.**

(KES Project No. 2019-179)

January 6, 2020

---

# 6210 Pioneer Trail Site

*Corcoran, Hennepin County, Minnesota*

## Wetland Delineation Report

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7. Offsite Hydrology Assessment Areas

### APPENDICES

- A. Joint Application Form for Activities Affecting Water Resources in Minnesota
- B. Wetland Delineation Data Forms
- C. Precipitation Information
- D. Aerial Review for Offsite Hydrology Assessment

# 6210 Pioneer Trail Site

*Corcoran, Hennepin County, Minnesota*

## Wetland Delineation Report

### 1. WETLAND DELINEATION SUMMARY

- The 56.4-acre 6210 Pioneer Trail Site was inspected on November 14, 2019 for the presence and extent of wetland.
- The National Wetlands Inventory (NWI) map showed four wetlands mapped within the site boundaries.
- The soil survey showed Hamel (Partially Hydric) as the Hydric Soil Type mapped on the site.
- The DNR Public Waters Inventory did not show any DNR Public Waters, DNR Public Waterways or DNR Public Wetlands within 1000 feet of the site.
- The National Hydrography Dataset showed one Lake/Pond approximately 200 feet west of the site.
- Four wetlands delineated within the site boundaries are summarized in **Table 1** below.

**Table 1. Wetlands delineated on the 6210 Pioneer Trail Site**

Wetland ID	Wetland Type			Dominant Vegetation	Size (Acres Onsite)
	Circular 39	Cowardin	Eggers and Reed		
1	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Reed canary grass, cattail, smartweed, scattered sedges	1.75
2	1	PEM1Af	Seasonally Flooded Basin	Sparse vegetation, field nutsedge	0.60
3	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Cattail, reed canary grass, smartweed	0.33
4	1/3	PEM1Af/PEM1C	Seasonally Flooded Basin, Shallow Marsh	Cattail, reed canary grass, sedges	0.47

## 2. OVERVIEW

The 56.4-acre 6210 Pioneer Trail Site was inspected on November 14, 2019 for the presence and extent of wetland. The property was located in Section 32, Township 119 North, Range 23 West, Corcoran, Hennepin County, Minnesota. The site was situated north of Minnesota Highway 55, east of Pioneer Trail (**Figure 1**). The site boundaries corresponded to Hennepin County PID#'s: 3211923430006, 3211923430005, 3211923340007 and 3211923340013.

The 6210 Pioneer Trail Site consisted of a farm field that had been planted with corn on the western portion and soybeans on the eastern portion, with crops remaining to be harvested on the eastern portion of the site. The topography of the site sloped from an elevation of 1060 ft MSL on the eastern portion of the site down to a low of 1008 ft MSL on the northern portion. Surrounding land use consisted of single-family residential, farm land and rural residential.

Four wetlands were delineated within the site boundaries. The delineated wetland boundaries and existing conditions are shown on **Figure 2**.

**Appendix A** of this report includes a Joint Application Form for Activities Affecting Water Resources in Minnesota, which is submitted in request for: (1) a wetland boundary and type determination under the Minnesota Wetland Conservation Act (WCA), and (2) delineation concurrence under Section 404 of the Clean Water Act.

## 3. METHODS

### 3.1 Wetland Delineation

Wetlands were identified using the Routine Determination method described in the [Corps of Engineers Wetlands Delineation Manual](#) (Waterways Experiment Station, 1987) and the [Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region \(Version 2.0\)](#) as required under Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act.

Wetland boundaries were identified as the upper-most extent of wetland that met criteria for hydric soils, hydrophytic vegetation, and wetland hydrology. Wetland-upland boundaries were marked with pin flags that were located by land surveyors from Otto Associates.

Soils, vegetation, and hydrology were documented at a representative location along the wetland-upland boundary. Plant species dominance was estimated based on the percent aerial or basal coverage visually estimated within a 30-foot radius for trees and vines, a 15-foot radius for the shrub layer, and a 5-foot radius for the herbaceous layer within the community type sampled.

Soils were characterized to a minimum depth of 24 inches (unless otherwise noted) using a [Munsell Soil Color Book](#) and standard soil texturing methodology. Hydric soil indicators used are from [Field Indicators of Hydric Soils in the United States](#) (USDA Natural Resources



Conservation Service (NRCS) in cooperation with the National Technical Committee for Hydric Soils, Version 7, 2010).

Mapped soils are separated into five classes based on the composition of hydric components and the Hydric Rating by Map Unit color classes utilized on Web Soil Survey. The five classes include Hydric (100 percent hydric components), Predominantly Hydric (66 to 99 percent hydric components), Partially Hydric (33 to 65 percent hydric components), Predominantly Non-Hydric (1 to 32 percent hydric components), and Non-Hydric (less than one percent hydric components).

Plants were identified using standard regional plant keys. Taxonomy and indicator status of plant species was taken from the [2017 National Wetland Plant List](#) (U.S. Army Corps of Engineers 2017. National Wetland Plant List, version 3.3, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH).

### 3.2 Aerial Review for Offsite Hydrology Determinations

Areas in agricultural cropland that exhibited potential wetland signatures on aerial photography and with low or depressional topography were reviewed generally following methods described in [Using Aerial Imagery to Assess Wetland Hydrology](#) (Minnesota Board of Water and Soil Resources (BWSR) 2010) and [Guidance for Submittal of Delineation Reports to the St. Paul District Corps of Engineers and Wetland Conservation Act Local Governmental Units in Minnesota, Version 2.0](#) (USACE 2015). These methods use aerial photography and antecedent precipitation conditions to identify areas that have wetland hydrology signatures during periods of typical precipitation.

Available years of [Farm Service Agency](#) (FSA) aerial photography were reviewed for the site to determine long-term hydrology. In cases where additional aerial photography was relevant, available, and necessary to make hydrology determinations, we reviewed aerial photography from other sources such as the [Minnesota Geospatial Information Office](#) (MnGEO) and [Google Earth](#).

Signatures at locations of potential wetlands on aerial photographs were interpreted and classified using seven codes (**Table 2**). Wetland hydrology was assumed to be present within areas exhibiting wetland signatures in more than 50% of years with normal climatic conditions based on antecedent precipitation.

**Table 2. Aerial photograph interpretation codes**

Code	Classification
CS	Crop stress
DO	Drowned out
NC	Not cropped
SW	Standing water
WS	Wetland signature
AP	Altered pattern
NV	Normal vegetation

This analysis used only aerial photographs taken following periods of precipitation within the normal range as determined using the [Wetland Delineation Precipitation Data Retrieval](#) tool (Minnesota Climatology Office 2015). This tool classifies antecedent precipitation as Normal (N), Wet (W) or Dry (D) by comparing precipitation during the three months preceding the estimated date of aerial photography to the 30-year average from 1981-2010. July 1 was used as the estimated date of FSA aerial photography.

## 4. RESULTS

### 4.1 Review of NWI, Soils, Public Waters and NHD Information

The [National Wetlands Inventory \(NWI\)](#) (Minnesota Geospatial Commons 2009-2014 and [U.S. Fish and Wildlife Service](#)) showed four wetlands mapped within the site boundaries (**Figure 3**).

The [Soil Survey](#) (USDA NRCS 2015) showed Hamel (Partially Hydric) as the Hydric Soil type mapped on the site. Soil types mapped on the property are listed below in **Table 3** and a map showing soil types is included in **Figure 4**.

**Table 3. Soil types mapped on the 6210 Pioneer Trail Site**

Symbol	Soil Name	Acres	% of Area	% Hydric	Hydric Category
L40B	Angus-Kilkenny complex, 2 to 6 percent slopes	21.60	0.389	5	Predominantly Non-Hydric
L41C2	Lester-Kilkenny complex, 6 to 12 percent slopes, eroded	14.96	0.270	5	Predominantly Non-Hydric
L36A	Hamel, overwash-Hamel complex, 0 to 3 percent slopes	8.04	0.145	45	Partially Hydric
L41D2	Lester-Kilkenny complex, 12 to 18 percent slopes, eroded	6.68	0.120	5	Predominantly Non-Hydric
L35A	Lerdal loam, 1 to 3 percent slopes	4.20	0.076	15	Predominantly Non-Hydric
L41E	Lester-Kilkenny complex, 18 to 25 percent slopes	0.03	0.001	5	Predominantly Non-Hydric

The [Minnesota DNR Public Waters Inventory](#) (Minnesota Department of Natural Resources 2015) did not show any DNR Public Waters, DNR Public Waterways or DNR Public Wetlands within 1000 feet of the site (**Figure 5**).

The [National Hydrography Dataset](#) (U.S. Geological Survey 2015) showed one Lake/Pond approximately 200 feet west of the site (**Figure 6**).

### 4.2 Wetland Determinations and Delineations

Potential wetlands were evaluated during field observations on November 14, 2019. Four wetlands were identified and delineated on the property based on field observations and aerial photography (**Figure 2**). Corresponding data forms are included in **Appendix B**. The following descriptions of the wetlands and adjacent uplands reflects conditions observed at the time of the

field visit. Herbaceous vegetation was senesced at the time of the field visit. Precipitation conditions were wetter than typical based on the Precipitation Worksheet Using Gridded Database method, but were within the normal range based on the 30-day rolling total precipitation (**Appendix C**). The site experienced wetter than normal conditions for much of the 2019 growing season. Notably, between the preceding months of July, August, September and October the site received 25.16 inches of rainfall.

**Wetland 1** was a Type 1/3 (PEM1Af/PEM1C) shallow marsh and partially farmed seasonally flooded basin wetland. The wetland was dominated by cattail in the center, with a fringe dominated by reed canary grass, smartweed and scattered sedges. No saturation or inundation was observed within the wetland at the time of the November 14, 2019 field visit, however saturation and shallow inundation of 1-3” was observed during the November 25, 2019 TEP Meeting (0.67” precipitation between November 14 and November 25). The wetland covered 1.75 acres within the site boundaries.

Adjacent upland consisted of a farm field dominated by soybeans, which had been harvested by the time of the field visit. Primary and secondary hydrology indicators were not observed on the upland.

The delineated boundary followed a change in vegetation from a wetland plant community to farmed upland dominated by soybeans, as well as a distinct change in topography. Wetland 1 was shown as a PEM1A wetland on the NWI map, and was located within an area mapped as Hamel (Partially Hydric) on the soil survey. Wetland 1 extended offsite, sloping downhill to the north.

**Wetland 2** was a Type 1 (PEM1Af) farmed seasonally flooded basin wetland that was dominated by sparse cover of field nutsedge. No saturation or inundation was observed within the wetland at the time of the November 14, 2019 field visit, however saturation and shallow inundation of 1-3” was observed during the November 25, 2019 TEP Meeting (0.67” precipitation between November 14 and November 25). The wetland covered 0.60 acres within the site boundaries.

Adjacent upland consisted of a farm field dominated by soybeans, which had been harvested by the time of the field visit. Primary and secondary hydrology indicators were not observed on the upland.

The delineated boundary followed a change in vegetation from a wetland plant community to farmed upland dominated by soybeans, as well as a distinct change in topography. Wetland 2 was shown as a PEM1Af/PEM1C wetland on the NWI map, and was located within an area mapped as Hamel (Partially Hydric) on the soil survey. Wetland 2 extended offsite to the north.

**Wetland 3** was a Type 1/3 (PEM1Af/PEM1C) shallow marsh and partially farmed seasonally flooded basin wetland dominated by cattail, reed canary grass and smartweed. No saturation or inundation was observed within the wetland at the time of the November 14, 2019 field visit, however saturation and shallow inundation of 1-3” was observed during the November 25, 2019 TEP Meeting (0.67” precipitation between November 14 and November 25). The wetland covered 0.33 acres within the site boundaries.

Adjacent upland consisted of a farm field dominated by soybeans, which had been harvested by the time of the field visit. Primary and secondary hydrology indicators were not observed on the upland.

The delineated boundary followed a change in vegetation from a wetland plant community to farmed upland dominated by soybeans, as well as a distinct change in topography. Wetland 3 was shown as a PEM1A wetland on the NWI map, and was located within an area mapped as Lester-Kilkenny (Predominantly Non-Hydric) on the soil survey. Wetland 3 drained overland to the west towards Wetland 1.

**Wetland 4** was a Type 1/3 (PEM1Af/PEM1C) shallow marsh and partially farmed seasonally flooded basin wetland dominated by cattail, sedges and reed canary grass with a fringe of sparsely vegetated farmed wetland that contained field nutsedge. No saturation or inundation was observed within the wetland at the time of the November 14, 2019 field visit, however saturation and shallow inundation of 1-3” was observed during the November 25, 2019 TEP Meeting (0.67” precipitation between November 14 and November 25). The wetland covered 0.47 acres within the site boundaries.

Adjacent upland consisted of a farm field dominated by soybeans, which had been harvested by the time of the field visit. Primary and secondary hydrology indicators were not observed on the upland.

The delineated boundary followed a change in vegetation from a wetland plant community to farmed upland dominated by soybeans, as well as a distinct change in topography. Wetland 4 was not shown as a wetland on the NWI map, but was located within an area mapped as Hamel (Partially Hydric) on the soil survey. Wetland 4 drained to the south through a culvert beneath Minnesota State Highway 55.

### 4.3 Other Areas

Other areas were investigated because they were: (1) observed to support a hydrophytic plant community, (2) had visible wetland hydrology indicators, (3) were shown as wetland on the NWI map, or (4) were depressional and mapped as hydric soil. Field investigation led to the conclusion that these areas were not wetland.

A potential connection between Wetland 1 and Wetland 3 (**Area D, See Figure 2**) was evaluated based upon the presence of partially hydric soils (Hamel). This area was sloped, and showed washed out crops during some wetter than typical photo years, but did not show sufficient wetland hydrology signatures to be determined wetland. Wetland 1 and Wetland 3 were evaluated during the offsite hydrology review, and were determined not to extend far enough to form a connection. This area was also reviewed in the field and determined to be upland.

Area A, B and C are discussed in **Section 4.4** on the following page.

No other areas with hydrophytic vegetation or wetland hydrology were observed on the site. No other areas were shown as hydric soil on the soil survey or as wetland on the NWI map.

#### 4.4 Aerial Review for Offsite Hydrology Determinations

Aerial photography was reviewed for 12 years between 1997 and 2017 that were assessed for wet/normal/dry climatic conditions using the [Wetland Delineation Precipitation Data Retrieval](#) tool and an estimated photo date of July 1 for the FSA aerials. Five years (1997, 2006, 2010, 2012 and 2015) were determined have precipitation in the normal range during the three months preceding the estimated photo dates. Areas showing at least one wetland signature during a year with wetter than normal precipitation conditions were included in the aerial review. The results are summarized in **Table 5** below and review areas are shown on **Figure 7**. Aerial photographs showing review areas and interpretations are included in **Appendix D**.

Seven Areas (Wetlands 1 through 4 and Areas A, B and C) exhibited potential wetland signatures, were located in cropland, and were reviewed according to the [BWSR \(2010\) protocol](#). Areas exhibiting wetland signatures in more than 50% of the years with precipitation in the normal range are generally assumed to meet wetland hydrology criteria. Areas exhibiting wetland signatures in 30% to 50% of the years with precipitation in the normal range were reviewed in the field (**Table 5, Figures 2 and 7**). Field delineated wetlands were examined during the offsite hydrology assessment to confirm or adjust wetland boundaries to match the extent of consistent signatures on aerial imagery.

**Table 5. Offsite hydrology determinations summary**

Area	No. of Photo Years w/ Normal Precipitation	No. of Normal Precipitation Years w/ Wetland Signatures	% of Normal Precipitation Years w/ Wetland Signatures	Wetland Determination
WL 1	5	5	100	Yes
WL 2	5	4	80	Yes
WL 3	5	5	100	Yes
WL 4	5	5	100	Yes
Area A	5	1	20	No
Area B	5	2	40	No
Area C	5	2	40	No, Washout

**Wetland 1, 2, 3 and 4** showed sufficient wetland signatures on aerial imagery taken under normal precipitation conditions to meet offsite hydrology criteria. Boundaries for these wetlands were determined during fieldwork, and were confirmed based on the offsite hydrology review. Wetland descriptions have been provided in **Section 4.2** of the report.

**Area A (Sample Point A)** showed wetland signatures in 20% of years with normal precipitation conditions. This area was not shown as a wetland on the NWI map, and was located within an area shown as Lester-Kilkenny complex (Predominantly Non-Hydric) on the soil survey. This area was below the threshold for field verification, however a sample point was taken that

revealed a sloped area that did not meet wetland hydrology criteria. Therefore, this area was determined to be upland.

**Area B (Sample Point B)** showed wetland signatures in 40% of years with normal precipitation conditions. This area was not shown as a wetland on the NWI map, and was located within an area shown as Hamel Loam (Partially Hydric) on the soil survey. This area was reviewed in the field, and was dominated by healthy soybeans, that had partially been washed out along the hillslope. The adjacent hillslope contained erosional rills that drained through the subject area toward the road ditch offsite to the south. Notably, the road ditch to the south (offsite) contained shallow marsh wetland (See **Figure 2**), however the area between the road ditch wetland and SP-B contained a strip of upland plants including smooth brome and Canada thistle. The area surrounding SP-B contained deposited sediment from the adjacent hillslope, which is believed to be the reason that this area does not contain healthy crops during some photo years. This area was therefore determined to be upland.

**Areas C (Sample Point C)** showed wetland signatures in 40% of years with normal precipitation conditions. This area was not shown as a wetland on the NWI map, and was located within an area shown as Angus-Kilkenny (Predominantly Non-Hydric) on the soil survey. The area surrounding SP-C was reviewed in the field, and consisted of healthy crops. Given that the precipitation conditions were atypically wet during the 2019 growing season, this area was determined not to meet wetland hydrology criteria.

#### **4.5 Request for Wetland Boundary and Jurisdictional Determination**

**Appendix A** of this report includes a Joint Application Form for Activities Affecting Water Resources in Minnesota, which is submitted in request for: (1) a wetland boundary and type determination under the Minnesota Wetland Conservation Act (WCA), and (2) delineation concurrence under Section 404 of the Clean Water Act.



## 5. CERTIFICATION OF DELINEATION

The procedures utilized in the described delineation are based on the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual as required under Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act. This wetland delineation and report were prepared in compliance with the regulatory standards in place at the time the work was performed.

Site boundaries indicated on figures within this report are approximate and do not constitute an official survey product.

Delineation Completed by:

Adam Cameron, Wetland Ecologist  
Minnesota Certified Wetland Delineator No. 1321

Kyle Uhler, GIS Specialist  
Minnesota Certified Wetland Delineator No. 1353

Report Prepared by:

Adam Cameron, Wetland Ecologist  
Minnesota Certified Wetland Delineator No. 1321

Report reviewed by:



Date: January 6, 2020

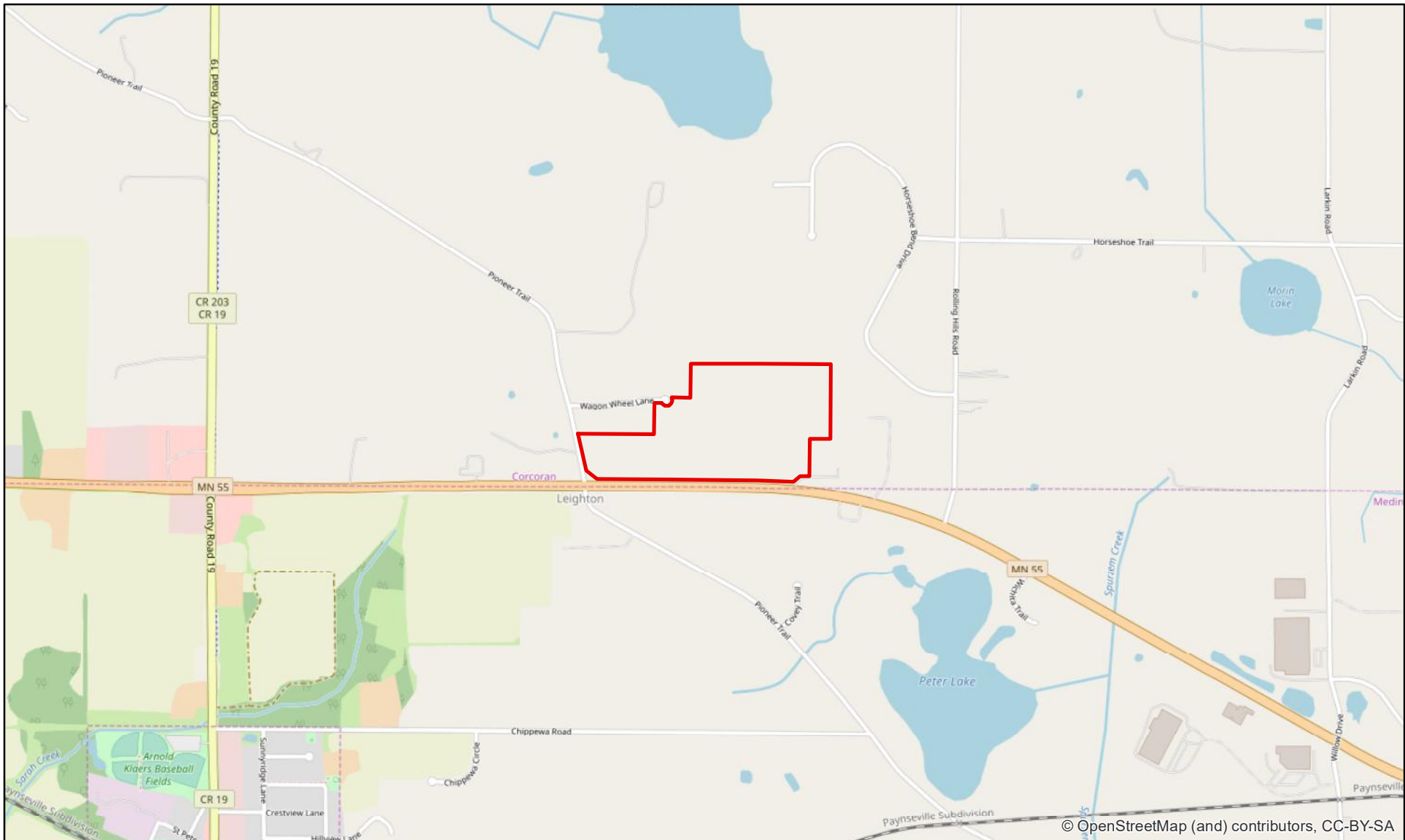
Mark Kjolhaug, Professional Wetland Scientist No. 000845

# **6210 Pioneer Trail Site**


## **Wetland Delineation Report**

### **FIGURES**

1. Site Location
2. Existing Conditions
3. National Wetlands Inventory
4. Soil Survey
5. DNR Protected Waters Inventory
6. National Hydrography Dataset
7. Offsite Hydrology Assessment Areas




**Figure 1 - Site Location**

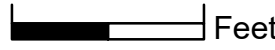



**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: ESRI Streets Basemap

N



0 1,500  
Feet



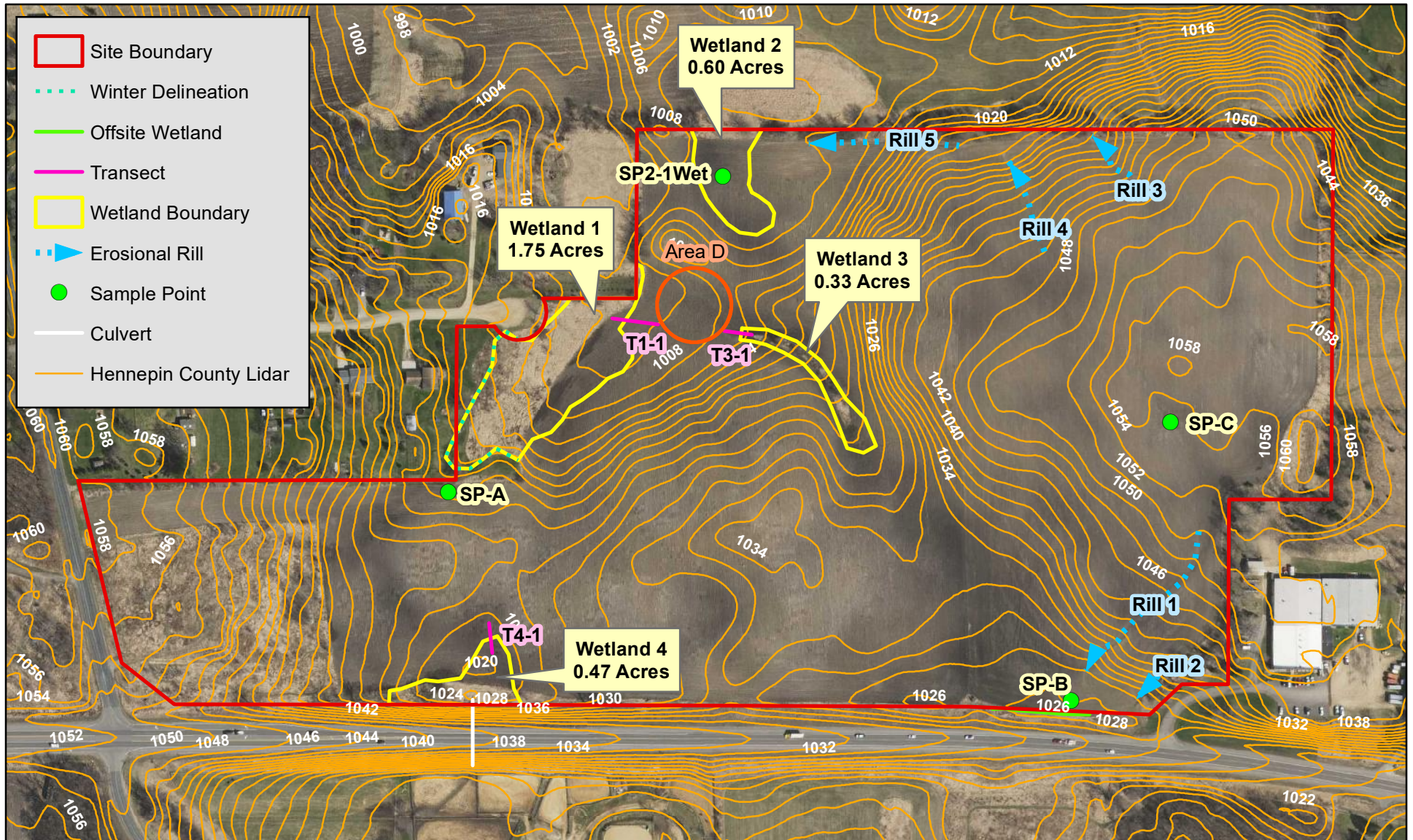


Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.





**Figure 2 - Existing Conditions (2016 MNGEO Photo)**



**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: MNGEO Spatial Commons

N



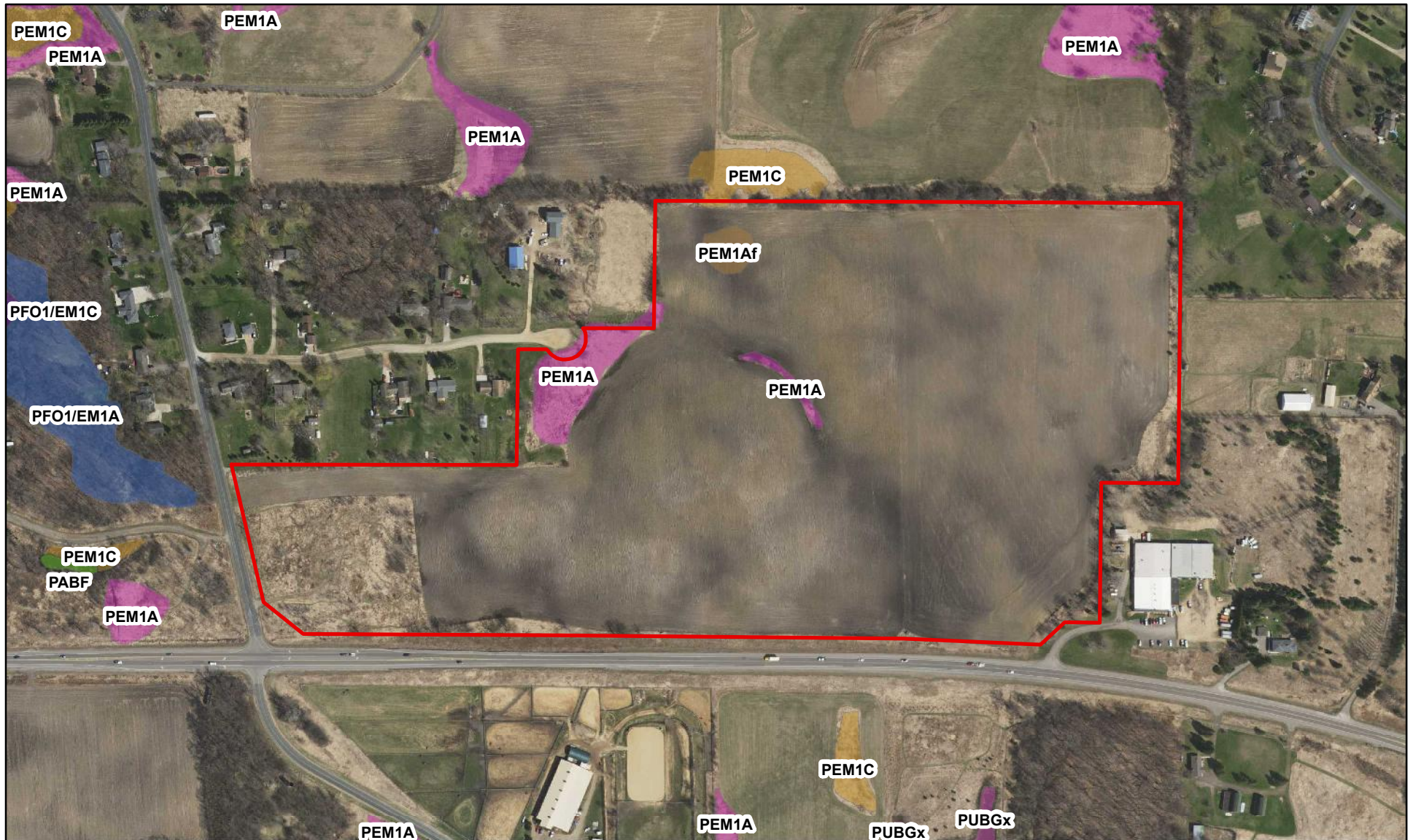
0 300 Feet




**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.







**Figure 3 - National Wetlands Inventory**




N



0 400 Feet





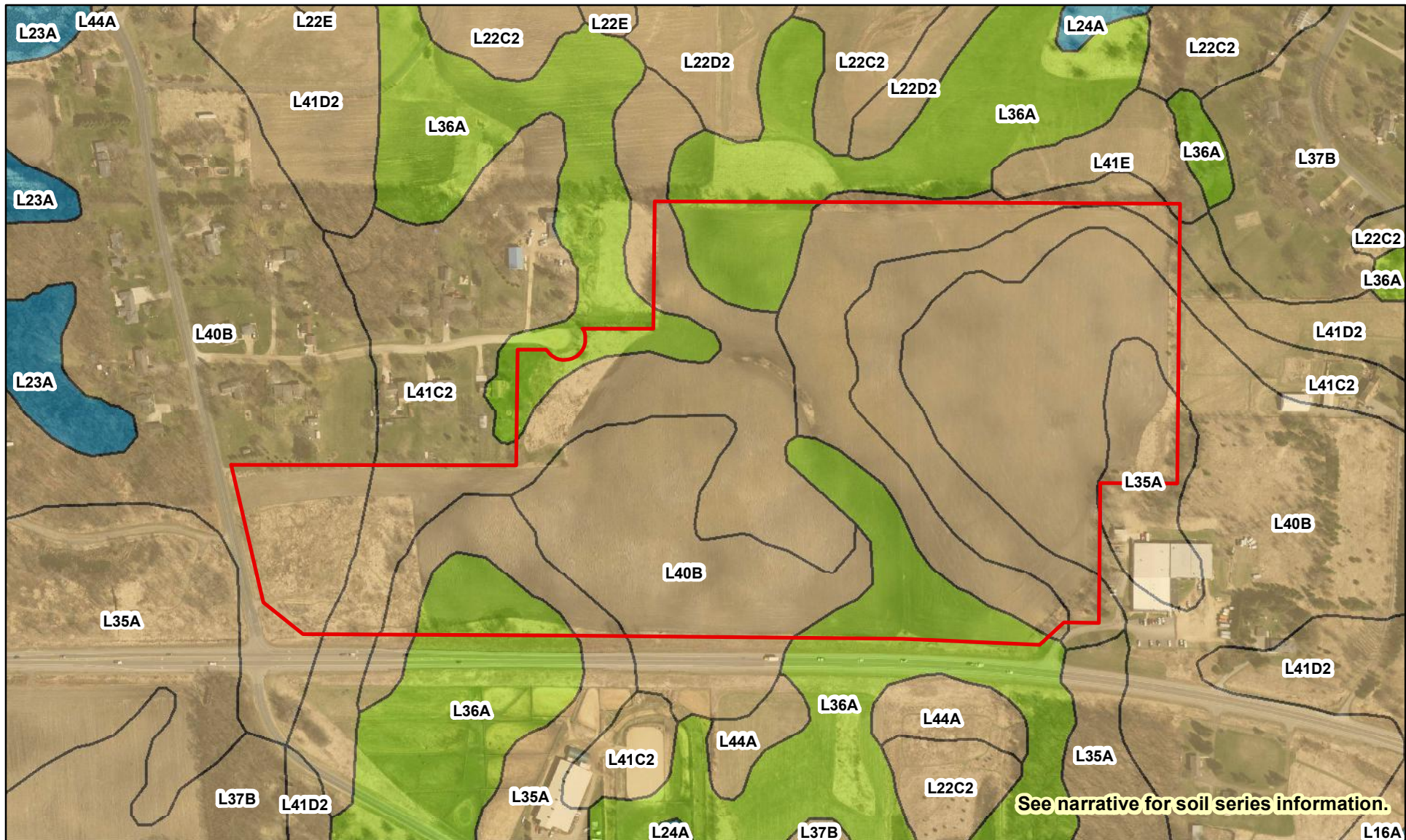
Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**


Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
 Source: MNGEO Spatial Commons, USFWS





**Figure 4 - Soil Survey**



**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: MNGEO Spatial Commons, USDA, NRCS

N

0 400 Feet

- Site Boundary
- Hydric/Predominantly Hydric
- Partially Hydric
- Predominantly Non-Hydric/Non-Hydric



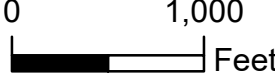




**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.





**Figure 5 - DNR Public Waters Inventory**

 <p><b>KJOLHAUG</b> ENVIRONMENTAL SERVICES COMPANY Source: MNGEO Spatial Commons, MN DNR</p>	<p>N</p>  <p>0 1,000 Feet</p> 	 Site Boundary	<p><b>6210 Pioneer Trail Site (KES 2019-179)</b> <b>Corcoran, Minnesota</b></p> <p>Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.</p>
		 Public Ditch/Altered Natural Watercourse	
		 Public Watercourse	
		 Public Waters	





- Site Boundary
- Hydro Junction
- Artificial Path
- Connector
- Stream/River
- Lake/Pond

**Figure 6 - National Hydrography Dataset**



N



0      1,000



Feet

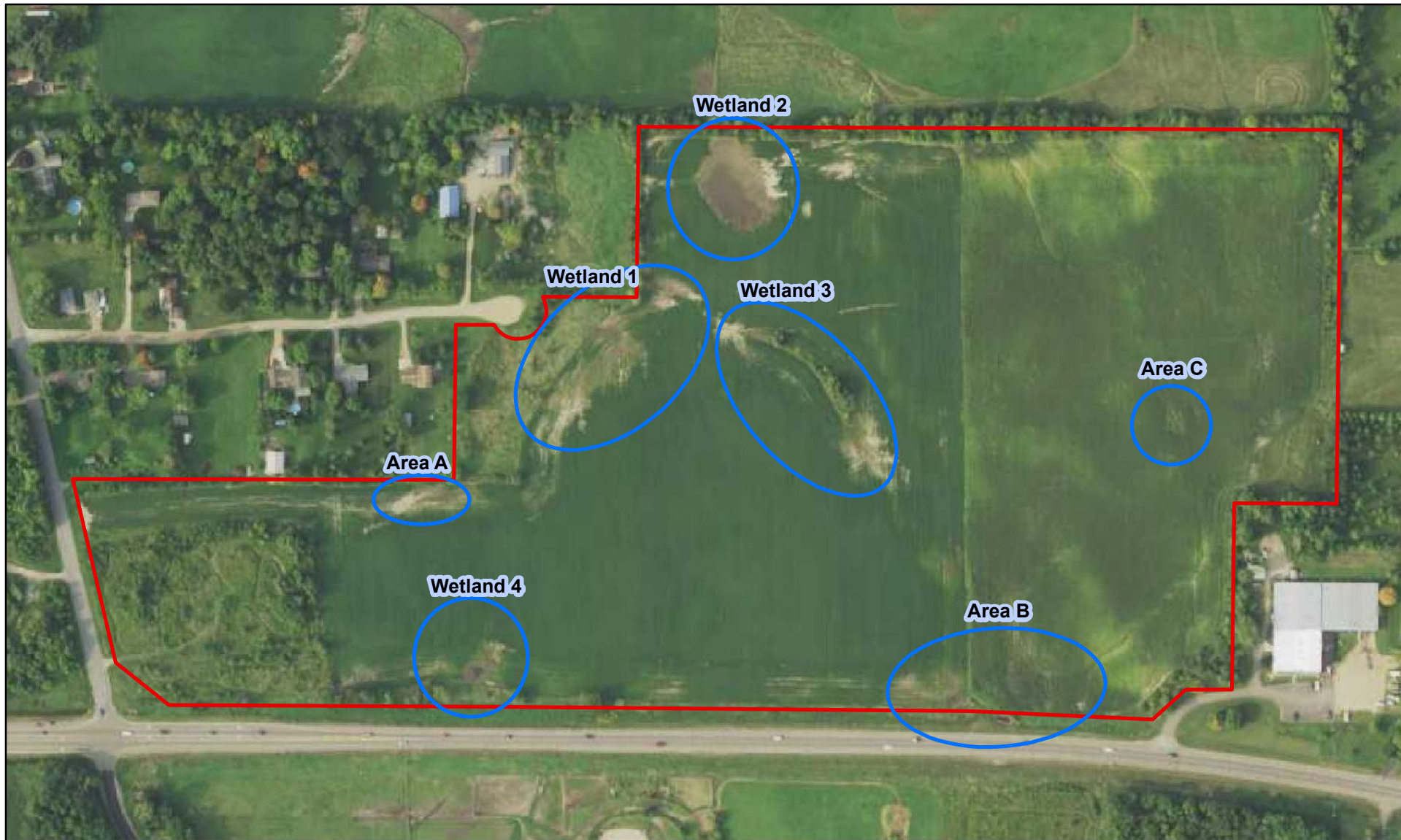
**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons, USGS

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.





**Figure 7 - Offsite Hydrology Assessment Areas (2017 FSA Photo: Wet Year)**

	<p>N</p> <p>0 300 Feet</p>	<p>Site Boundary</p>	<p><b>6210 Pioneer Trail Site (KES 2019-179)</b>  <b>Corcoran, Minnesota</b></p>
<p><b>KJOLHAUG</b> ENVIRONMENTAL SERVICES COMPANY          Source: MNGEO Spatial Commons</p>			<p>Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.</p>

# **6210 Pioneer Trail Site**

## **Wetland Delineation Report**

### **APPENDIX A**

#### **Joint Application Form for Activities Affecting Water Resources in Minnesota**

## PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

**Applicant/Landowner Name:** Landspec Fund 2 LLC c/o Jon Rausch  
**Mailing Address:** 3500 American Blvd W Suite 200, Bloomington, MN 55431  
**Phone:** 952-893-8251  
**E-mail Address:** Jon.Rausch@cushwake.com

**Authorized Contact (do not complete if same as above):**

**Mailing Address:**  
**Phone:**  
**E-mail Address:**

**Agent Name:** Adam Cameron  
**Mailing Address:** 2500 Shadywood Road #130, Orono MN 55331  
**Phone:** 952-401-8757 Ext. #106  
**E-mail Address:** Adam@kjolhaugenv.com

## PART TWO: Site Location Information

**County:** Hennepin **City/Township:** Corcoran  
**Parcel ID and/or Address:** 3211923340013, 3211923430005, 3211923430006  
**Legal Description (Section, Township, Range):** S:32 T:119N R:23W  
**Lat/Long (decimal degrees):** -  
**Attach a map showing the location of the site in relation to local streets, roads, highways.**  
**Approximate size of site (acres) or if a linear project, length (feet):** 55.5

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

[http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform\\_4345\\_2012oct.pdf](http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf)

## PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted *prior to* this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.



## PART FOUR: Aquatic Resource Impact<sup>1</sup> Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type (wetland, lake, tributary etc.)	Type of Impact (fill, excavate, drain, or remove vegetation)	Duration of Impact Permanent (P) or Temporary (T) <sup>1</sup>	Size of Impact <sup>2</sup>	Overall Size of Aquatic Resource <sup>3</sup>	Existing Plant Community Type(s) in Impact Area <sup>4</sup>	County, Major Watershed #, and Bank Service Area # of Impact Area <sup>5</sup>

<sup>1</sup>If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

<sup>2</sup>Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

<sup>3</sup>This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".

<sup>4</sup>Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3<sup>rd</sup> Ed. as modified in MN Rules 8420.0405 Subp. 2.

<sup>5</sup>Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

## PART FIVE: Applicant Signature

Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: Jon Rausch Date: 12/9/19

I hereby authorize Kjolhaug Environmental to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

<sup>1</sup> The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

## Attachment A

# Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

**Wetland Type Confirmation**

**Delineation Concurrence.** Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

**Preliminary Jurisdictional Determination.** A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

**Approved Jurisdictional Determination.** An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

<http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx>

# **6210 Pioneer Trail Site**

## **Wetland Delineation Report**

### **APPENDIX B**

#### **Wetland Delineation Data Forms**



**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP1-1Up  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Hamel (Partially Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N/A</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
_____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
<u>0</u> = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)
				Prevalence Index = B/A = _____
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	____ Dominance test is >50%
3 _____	_____	_____	_____	____ Prevalence index is ≤3.0*
4 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N/A</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field that was planted with corn for the 2019 growing season. The crops had been harvested, and the soils at this location were tilled.

**SOIL**

Sampling Point: SP1-1Up

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-13	10YR 2/1	100					Clay Loam	
13-25	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
25-40	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water table present? Yes  No  Depth (inches): 34  
 Saturation present? Yes  No  Depth (inches): 32  
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP1-1Wet  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Hamel (Partially Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: <u>Wetland 1</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample Point was located within a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
6 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
7 _____	_____	_____	_____	Column totals <u>5</u> (A) <u>10</u> (B)
8 _____	_____	_____	_____	Prevalence Index = B/A = <u>2.00</u>
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Cyperus esculentus</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2 _____	_____	_____	_____	<u>X</u> Dominance test is >50%
3 _____	_____	_____	_____	<u>X</u> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>5</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample point was located in an area that had been planted with corn for the 2019 growing season. The crops at this location had been drowned out, but sparse cover of field nutsedge was present.

**SOIL**

Sampling Point: SP1-1Wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Clay Loam	
14-22	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
22-31	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water table present? Yes  No  Depth (inches): 30  
 Saturation present? Yes  No  Depth (inches): 28  
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 100% of normal photo years in the offsite hydrology review.



**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP2-1 Wet  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Hamel (Partially Hydric) NWI Classification: PEM1Af

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: <u>Wetland 2</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample Point was located within a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
_____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
_____	_____	_____	_____	Column totals <u>5</u> (A) <u>10</u> (B)
<u>0</u> = Total Cover				Prevalence Index = B/A = <u>2.00</u>
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Cyperus esculentus</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2 _____	_____	_____	_____	<u>X</u> Dominance test is >50%
3 _____	_____	_____	_____	<u>X</u> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>5</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample point was located in an area that had been planted with corn for the 2019 growing season. The crops at this location had been drowned out, but sparse cover of field nutsedge was present.

**SOIL**

Sampling Point: SP2-1 Wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-29	10YR 2/1	100					Clay Loam	
29-34	2.5Y 4/2	98	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

<p><b>Hydric Soil Indicators:</b></p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input checked="" type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p><b>Indicators for Problematic Hydric Soils:</b></p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p><b>Restrictive Layer (if observed):</b></p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p><b>Hydric soil present?</b> <u>Y</u></p>
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Remarks:

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p>Primary Indicators (minimum of one is required; check all that apply)</p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>		<p>Secondary Indicators (minimum of two required)</p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>		<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input checked="" type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>	
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<p><b>Field Observations:</b></p> <p>Surface water present? Yes _____ No <u>X</u> Depth (inches): _____</p> <p>Water table present? Yes <u>X</u> No _____ Depth (inches): <u>35</u></p> <p>Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>33</u></p> <p>(includes capillary fringe)</p>	<p><b>Indicators of wetland hydrology present?</b> <u>Y</u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 80% of normal photo years in the offsite hydrology review.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP3-1Up  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear  
 Slope (%): 4 - 6 Lat: - Long: - Datum: -  
 Soil Map Unit Name Lester-Kilkenny Complex (Predominantly Non-Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N/A</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
_____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
_____	_____	_____	_____	Column totals <u>0</u> (A) <u>0</u> (B)
<u>0</u> = Total Cover				Prevalence Index = B/A = _____
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	_____ Dominance test is >50%
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N/A</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field that was planted with corn for the 2019 growing season. The crops had been harvested, and the soils at this location were tilled.

**SOIL**

Sampling Point: SP3-1Up

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-13	10YR 2/1	100					Clay Loam	
13-25	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
25-40	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		<b>Indicators for Problematic Hydric Soils:</b> <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
				*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric soil present?</b> <u>Y</u>
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Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)	

<b>Field Observations:</b> Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes <u>X</u> No _____ Depth (inches): <u>34</u> Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>32</u> (includes capillary fringe)	<b>Indicators of wetland hydrology present?</b> <u>N</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP3-1Wet  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Lester-Kilkenny Complex (Predominantly Non-Hydric) NWI Classification: PEM1A

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? Yes

**SUMMARY OF FINDINGS**

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: <u>Wetland 3</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample Point was located within a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b> Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				<b>Prevalence Index Worksheet</b> Total % Cover of: OBL species <u>40</u> x 1 = <u>40</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>80</u> (A) <u>120</u> (B) Prevalence Index = B/A = <u>1.50</u>
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	1 _____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	1 <u>Typha angustifolia</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>
	2 <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>80</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	1 _____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample point was located within an avoided wetland in a farm field.

**SOIL**

Sampling Point: SP3-1Wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Clay Loam	
14-22	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
22-31	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water table present? Yes  No  Depth (inches): 30  
 Saturation present? Yes  No  Depth (inches): 28  
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 100% of normal photo years in the offsite hydrology review.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP4-1Up  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear  
 Slope (%): 4 - 6 Lat: - Long: - Datum: -  
 Soil Map Unit Name Lerdal loam (Predominantly Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N/A</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
_____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
<u>0</u> = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)
				Prevalence Index = B/A = _____
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	_____ Dominance test is >50%
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N/A</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field that was planted with corn for the 2019 growing season. The crops had been harvested, and the soils at this location were tilled.

**SOIL**

Sampling Point: SP4-1Up

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-13	10YR 2/1	100					Clay Loam	
13-25	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
25-40	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)

Secondary Indicators (minimum of two required)

- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)
- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water table present? Yes  No  Depth (inches): 34  
 Saturation present? Yes  No  Depth (inches): 32  
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP4-1Wet  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Lerdal loam (Predominantly Non-Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	<b>Is the sampled area within a wetland?</b> <u>Y</u> If yes, optional wetland site ID: <u>Wetland 4</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample Point was located within a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
6 _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
7 _____	_____	_____	_____	Column totals <u>5</u> (A) <u>10</u> (B)
8 _____	_____	_____	_____	Prevalence Index = B/A = <u>2.00</u>
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>5</u> = Total Cover				
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Cyperus esculentus</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2 _____	_____	_____	_____	<input checked="" type="checkbox"/> Dominance test is >50%
3 _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>5</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>Y</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample point was located in an area that had been planted with corn for the 2019 growing season. The crops at this location had been drowned out, but sparse cover of field nutsedge was present.

**SOIL**

Sampling Point: SP4-1Wet

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Clay Loam	
14-22	10YR 2/1	98	10YR 4/6	2	C	M	Clay Loam	
22-31	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water table present? Yes  No  Depth (inches): 36  
 Saturation present? Yes  No  Depth (inches): 34  
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 100% of normal photo years in the offsite hydrology review.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP-A  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear  
 Slope (%): 3 - 5 Lat: - Long: - Datum: -  
 Soil Map Unit Name Lester-Kilkeny Complex (Predominantly Non-Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>5</u> x 2 = <u>10</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>20</u> x 4 = <u>80</u>
<u>0</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>25</u> (A) <u>90</u> (B)
				Prevalence Index = B/A = <u>3.60</u>
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 <u>Trifolium pratense</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
2 <u>Cyperus esculentus</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Dominance test is >50%
3 _____	_____	_____	_____	<input type="checkbox"/> Prevalence index is ≤3.0*
4 _____	_____	_____	_____	<input type="checkbox"/> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	<input type="checkbox"/> Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>25</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field dominated by corn stubble from the 2019 growing season.

**SOIL**

Sampling Point: SP-A

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 2/1	100					Clay Loam	
8-24	10YR 2/1	90	10YR 4/4	10	C	M	Clay Loam	
24-35	2.5Y 4/2	95	10YR 4/6	5	C	M	Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): X  
 Water table present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): X  
 Saturation present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): X  
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 20% of normal photo years in the offsite hydrology review.



**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP-B  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name Hamel (Partially Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil X, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS** (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N/A</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area. Vegetation and soils were disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
<u>0</u> = Total Cover				Column totals <u>0</u> (A) <u>0</u> (B)
				Prevalence Index = B/A = _____
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	____ Dominance test is >50%
3 _____	_____	_____	_____	____ Prevalence index is ≤3.0*
4 _____	_____	_____	_____	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N/A</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field dominated by soybeans. The crops were healthy, although some had been washed out along the hillslope.

**SOIL**

Sampling Point: SP-B

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 3/2	100					Loam	Agricultural sediment
4-24	10YR 2/1	95	10YR 4/6	5	C	M	Sandy Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

**Remarks:**

Assumed A12. Soils disturbed due to erosion from farming.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)

- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes  No  Depth (inches): X  
 Water table present? Yes  No  Depth (inches): X  
 Saturation present? Yes  No  Depth (inches): X  
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

**Remarks:**

This area showed wetland signatures in 40% of normal photo years in the offsite hydrology review.

**WETLAND DETERMINATION DATA FORM - Midwest Region**

Project/Site 6210 Pioneer Trail Site City/County: Corcoran/Hennepin Sampling Date: 11/14/2019  
 Applicant/Owner: See Joint Application Form State: MN Sampling Point: SP-C  
 Investigator(s): A.Cameron, K.Uhler Section, Township, Range: S:32 T:119N R:23W  
 Landform (hillslope, terrace, etc.): Flat Depression Local relief (concave, convex, none): None  
 Slope (%): 0 - 2 Lat: - Long: - Datum: -  
 Soil Map Unit Name: Angus-Kilkenny Complex (Predominantly Non-Hydric) NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)  
 Are vegetation X, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ significantly disturbed? Are "normal circumstances" present? No  
 Are vegetation \_\_\_\_\_, soil \_\_\_\_\_, or hydrology \_\_\_\_\_ naturally problematic? present? No

**SUMMARY OF FINDINGS**

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N/A</u>	<b>Is the sampled area within a wetland?</b> <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)  
 Precipitation from Gridded Database Method wetter than typical. 30-day precipitation rolling average within normal range. Sample point was taken with a farmed area, therefore vegetation was disturbed and normal circumstances were not present.

**VEGETATION -- Use scientific names of plants.**

<u>Tree Stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Dominance Test Worksheet</b>	
1 _____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>0</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u> = Total Cover				
<u>Sapling/Shrub stratum</u> (Plot size: <u>15 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Prevalence Index Worksheet</b>	
1 _____	_____	_____	_____	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>0</u> = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>0</u> (A) <u>0</u> (B)	
				Prevalence Index = B/A = _____	
<u>Herb stratum</u> (Plot size: <u>5 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>	
1 _____	_____	_____	_____	_____ Rapid test for hydrophytic vegetation	
2 _____	_____	_____	_____	_____ Dominance test is >50%	
3 _____	_____	_____	_____	_____ Prevalence index is ≤3.0*	
4 _____	_____	_____	_____	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)	
6 _____	_____	_____	_____		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>0</u> = Total Cover				
<u>Woody vine stratum</u> (Plot size: <u>30 ft Radius</u> )	Absolute % Cover	Dominant Species	Indicator Status	<b>Hydrophytic vegetation present?</b> <u>N/A</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)  
 Sample area consisted of a farm field dominated by a healthy crop of soybeans.

**SOIL**

Sampling Point: SP-C

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	100					Clay Loam	
6-13	10YR 2/1	95	10YR 4/6	5	C	M	Clay Loam	
13-25	10YR 2/1	100					Clay Loam	

\*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. \*\*Location: PL = Pore Lining, M = Matrix

**Hydric Soil Indicators:**

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils:**

- Coast Prairie Redox (A16) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Very Shallow Dark Surface (TF12)
- Other (explain in remarks)

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric soil present? Y

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

**Field Observations:**

Surface water present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water table present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Saturation present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area showed wetland signatures in 40% of normal years in the offsite hydrology review.



# **6210 Pioneer Trail Site**

## **Wetland Delineation Report**

### **APPENDIX C**

#### **Precipitation Information**

## Corcoran, MN: Precipitation Summary

### Source: Minnesota Climatology Working Group

#### Monthly Totals: 2019

Target: T119 R23 S32 (latitude: 45.07299 longitude: 93.61477)

mon year	cc	tttN	rrW	ss	nnnn	oooooooo	pre (inches)
Jan 2019	86	119N	24W	29	NWS	ROCKFORD	.43
Feb 2019	86	119N	24W	29	NWS	ROCKFORD	2.47
Mar 2019	86	119N	24W	29	NWS	ROCKFORD	1.89
Apr 2019	27	119N	22W	31	BYRG		3.16
May 2019	27	119N	22W	31	BYRG		7.83
Jun 2019	27	119N	22W	31	BYRG		2.64
Jul 2019	27	119N	22W	31	BYRG		9.24
Aug 2019	27	119N	22W	31	BYRG		5.60
Sep 2019	27	119N	22W	31	BYRG		4.76
Oct 2019	86	119N	24W	29	NWS	ROCKFORD	5.56
Nov 2019	86	119N	24W	29	NWS	ROCKFORD	1.59

#### September/October/November Daily Records

Date	Preci p.	Date	Preci p.	Date	Preci p.
Sep 1, 2019	0	Oct 1, 2019	.81	Nov 1, 2019	0
Sep 2, 2019	.07	Oct 2, 2019	.65	Nov 2, 2019	.12
Sep 3, 2019	.85	Oct 3, 2019	.44	Nov 3, 2019	T
Sep 4, 2019	0	Oct 4, 2019	T	Nov 4, 2019	0
Sep 5, 2019	0	Oct 5, 2019	1.19	Nov 5, 2019	T
Sep 6, 2019	0	Oct 6, 2019	.13	Nov 6, 2019	0
Sep 7, 2019	0	Oct 7, 2019	0	Nov 7, 2019	0
Sep 8, 2019	.05	Oct 8, 2019	0	Nov 8, 2019	0
Sep 9, 2019	.13	Oct 9, 2019	0	Nov 9, 2019	0
Sep 10, 2019	.35	Oct 10, 2019	.09	Nov 10, 2019	.07
Sep 11, 2019	.55	Oct 11, 2019	.56	Nov 11, 2019	.01
Sep 12, 2019	.80	Oct 12, 2019	.02	Nov 12, 2019	0
Sep 13, 2019	.33	Oct 13, 2019	.03	Nov 13, 2019	0
Sep 14, 2019	.02	Oct 14, 2019	T	Nov 14, 2019	.02
Sep 15, 2019	0	Oct 15, 2019	.16	Nov 15, 2019	0
Sep 16, 2019	0	Oct 16, 2019	T	Nov 16, 2019	0
Sep 17, 2019	0	Oct 17, 2019	0	Nov 17, 2019	.07
Sep 18, 2019	.20	Oct 18, 2019	0	Nov 18, 2019	0
Sep 19, 2019	0	Oct 19, 2019	T	Nov 19, 2019	.13
Sep 20, 2019	0	Oct 20, 2019	0	Nov 20, 2019	0
Sep 21, 2019	.33	Oct 21, 2019	.16	Nov 21, 2019	.46
Sep 22, 2019	.04	Oct 22, 2019	1.28	Nov 22, 2019	.01
Sep 23, 2019	.04	Oct 23, 2019	.04	Nov 23, 2019	0
Sep 24, 2019	0	Oct 24, 2019	0	Nov 24, 2019	0
Sep 25, 2019	T	Oct 25, 2019	0	Nov 25, 2019	0
Sep 26, 2019	0	Oct 26, 2019	0	Nov 26, 2019	0
Sep 27, 2019	0	Oct 27, 2019	0	Nov 27, 2019	.56
Sep 28, 2019	0	Oct 28, 2019	T	Nov 28, 2019	T
Sep 29, 2019	0	Oct 29, 2019	0	Nov 29, 2019	0
Sep 30, 2019	1.00	Oct 30, 2019	0	Nov 30, 2019	.14
		Oct 31, 2019	0		


Site Visit

#### 1981-2010 Summary Statistics

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	WARM	ANN	WAT
30%	0.42	0.43	1.11	1.80	2.33	3.16	2.47	2.72	1.84	1.25	1.01	0.55	15.61	25.88	25.64
70%	0.78	0.89	1.85	3.01	4.06	4.96	4.32	4.86	4.52	3.15	1.89	1.43	20.64	32.11	32.55
mean	0.69	0.67	1.59	2.59	3.22	4.33	3.73	3.97	3.36	2.38	1.55	1.07	18.61	29.15	28.99

# Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

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## Precipitation Worksheet Using Gridded Database

### Precipitation data for target wetland location:

county: **Hennepin** township number: **119N**  
 township name: **Corcoran** range number: **23W**  
 nearest community: **Leighton** section number: **32**

### Aerial photograph or site visit date:

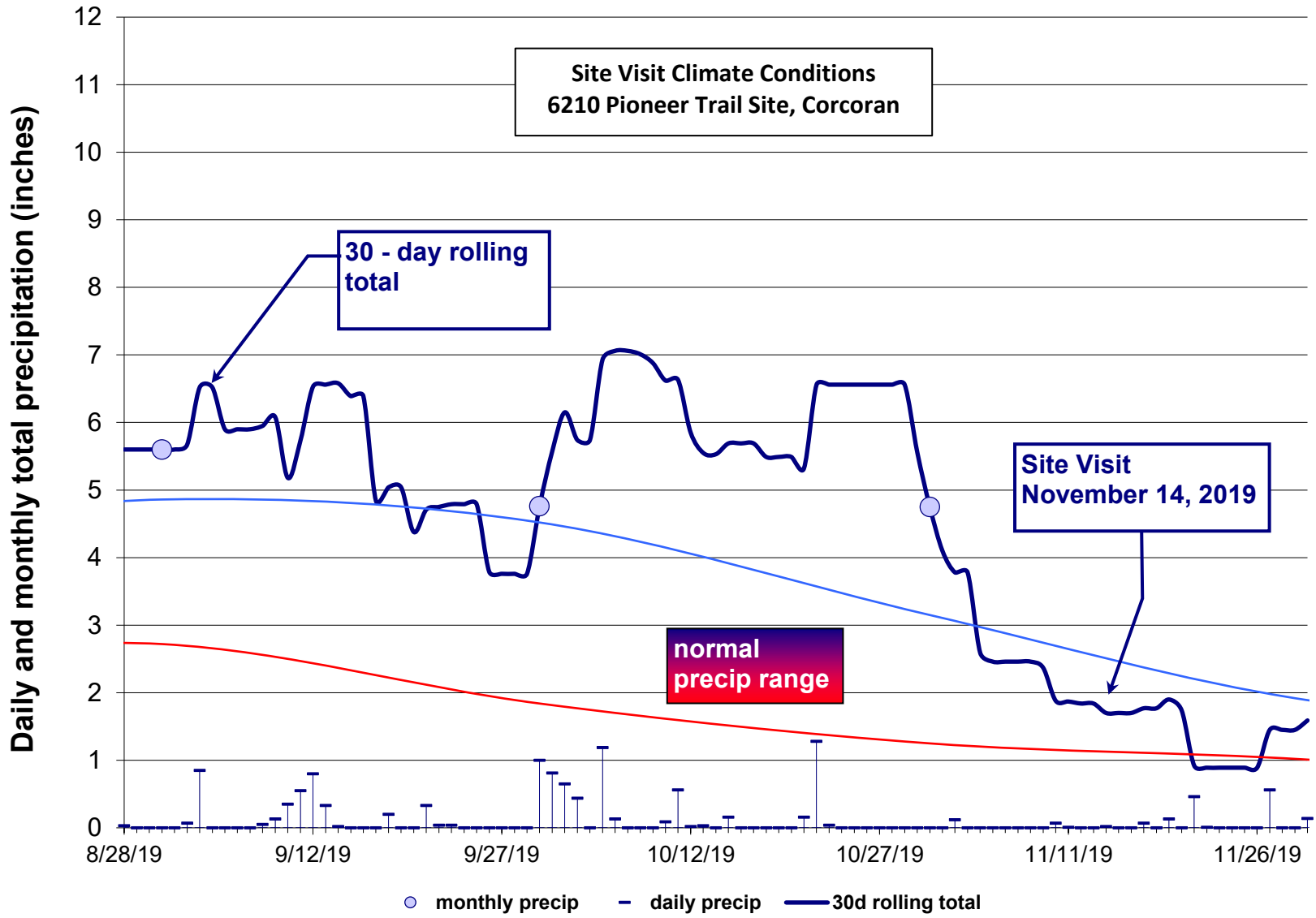
**Thursday, November 14, 2019**

### Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: <b>October 2019</b>	second prior month: <b>September 2019</b>	third prior month: <b>August 2019</b>
<b>estimated precipitation total for this location:</b>	<b>5.32R</b>	<b>5.56R</b>	<b>4.99</b>
<b>there is a 30% chance this location will have less than:</b>	1.25	1.84	2.72
<b>there is a 30% chance this location will have more than:</b>	3.15	4.52	4.86
<b>type of month: dry normal wet</b>	<b>wet</b>	<b>wet</b>	<b>wet</b>
<b>monthly score</b>	<b>3 * 3 = 9</b>	<b>2 * 3 = 6</b>	<b>1 * 3 = 3</b>
<b>multi-month score:</b> 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	<b>18 (Wet)</b>		

### Other Resources:

- [retrieve daily precipitation data](#)
- [view radar-based precipitation estimates](#)
- [view weekly precipitation maps](#)
- [Evaluating Antecedent Precipitation Conditions](#) (BWSR)





# **6210 Pioneer Trail Site**

## **Wetland Delineation Report**

### **APPENDIX D**

#### **Aerial Review for Offsite Hydrology Assessment**

## Wetland Hydrology from Aerial Imagery – Recording Form

**Project Name:** 6210 Pioneer Trail Site      **Date:** 11/12/2019      **County:** Hennepin

**Investigator:** A.Cameron      **Legal Description (S, T, R):** S:32 T:119N R:23W

Date Image Taken (M-D-Y)	Image Source	Climate Condition (wet, dry, normal) <sup>i</sup>	Image Interpretation(s)						
			Wetland 1	Wetland 2	Wetland 3	Wetland 4	Area: A	Area: B	Area: C
April 14, 1997	MN GEO	Normal (1)	NC/SS (1)	SS (1)	NC/SS (1)	NC (1)	NSS	NSS	SS (1)
July 1, 2003	FSA	Wet	DO	DO	NC/DO	N/A	N/A	DO/Washout	DO
April 17, 2006	MN GEO	Normal (2)	NC (2)	NSS	NC (2)	WS (2)	WS (1)	NSS	NSS
July 1, 2008	FSA	Normal, N/A	N/A, Fallow	N/A, Fallow	N/A, Fallow	N/A, Fallow	N/A, Fallow	N/A, Fallow	N/A, Fallow
July 1, 2009	FSA	Dry	NC	NV	NC	NC	NV	SS	NV
July 1, 2010	FSA	Wet	NC	NV	NC	NC/NV	NV	NV	NV
April 15, 2010	MN GEO	Normal (3)	NC (3)	SS (2)	NC (3)	NC/SS (3)	NSS	SS (1)	NSS
April 1, 2012	MN GEO	Normal (4)	NC (4)	SS (3)	NC (4)	NC (4)	NSS	SS (2)	NSS
July 1, 2013	FSA	Wet	NC	DO	NC	NC/CS	NV	DO	DO
July 1, 2015	FSA	Normal (5)	NC (5)	CS (4)	NC (5)	NC/CS (5)	NV	NV	CS (2)
April 15, 2016	MN GEO	Dry	NC/SS	NS	NC	NC/NSS	NSS	NS	NSS
July 1, 2017	FSA	Wet	NC/CS	DO/S	NC/DO	NC/DO	CS	CS	CS
Normal Climate Condition			<b>Wetland 1</b>	<b>Wetland 2</b>	<b>Wetland 3</b>	<b>Wetland 4</b>	<b>Area: A</b>	<b>Area: B</b>	<b>Area: C</b>
Number of normal years			5	5	5	5	5	5	5
Number with wet signatures			5	4	5	5	1	2	2
Percent with wet signatures			100%	80%	100%	100%	20%	40%	40%

KEY		
WS - wetland signature	SS - soil wetness signature	CS - crop stress
NC - not cropped	AP - altered pattern	NV - normal vegetative cover
DO - drowned out	SW - standing water	NSS - no soil wetness signature
Other labels or comments:		

- Use above key to label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.
  - If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.
- <sup>i</sup> Use [MN State Climatology website](#) to determine climate condition when image was take

## Wetland Determination from Aerial Imagery – Recording Form

**Project Name:** 6210 Pioneer Trail Site      **Date:** 11/12/2019      **County:** Hennepin  
**Investigator:** A.Cameron      **Legal Description (S, T, R):** S:32 T:119N R:23W

Use the Decision Matrix below to complete Table 1.

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

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

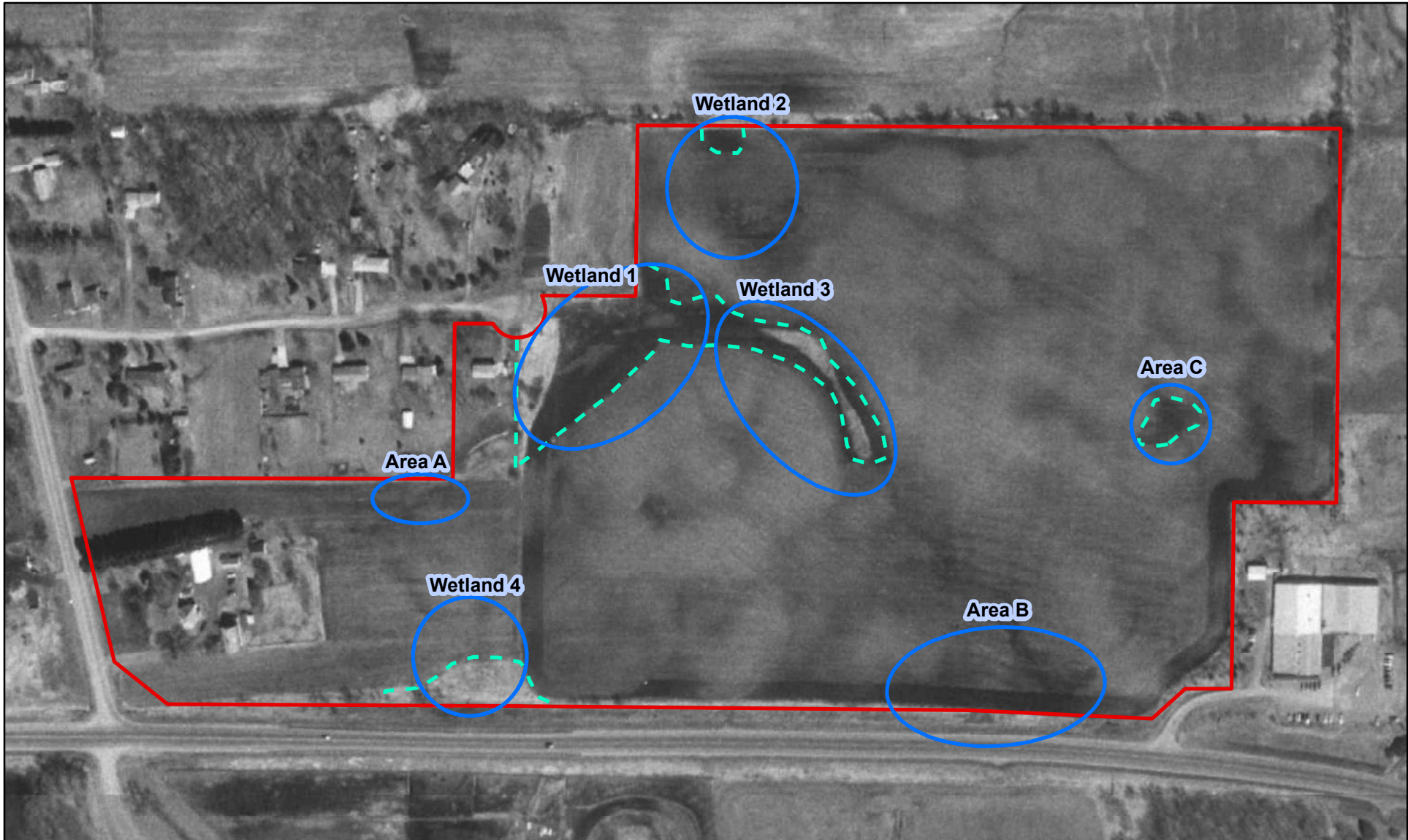
<sup>2</sup> At minimum, the most updated NWI data available for the area must be reviewed for this step. Any and all other local or regional wetland maps that are publically available should be reviewed.

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

**Table 1.**

Area	Hydric Soils Present	Identified on NWI or other wetland map	Percent with wet signatures from Exhibit 1	Other hydrology indicators present <sup>1</sup>	Wetland?
Wetland 1	Yes	Yes	100	Yes	Yes
Wetland 2	Yes	Yes	80	Yes	Yes
Wetland 3	Yes	Yes	100	Yes	Yes
Wetland 4	Yes	No	100	Yes	Yes
Area A	Yes	No	20	No	No
Area B	Yes	No	40	No	No
Area C	Yes	No	40	No	No, Washout

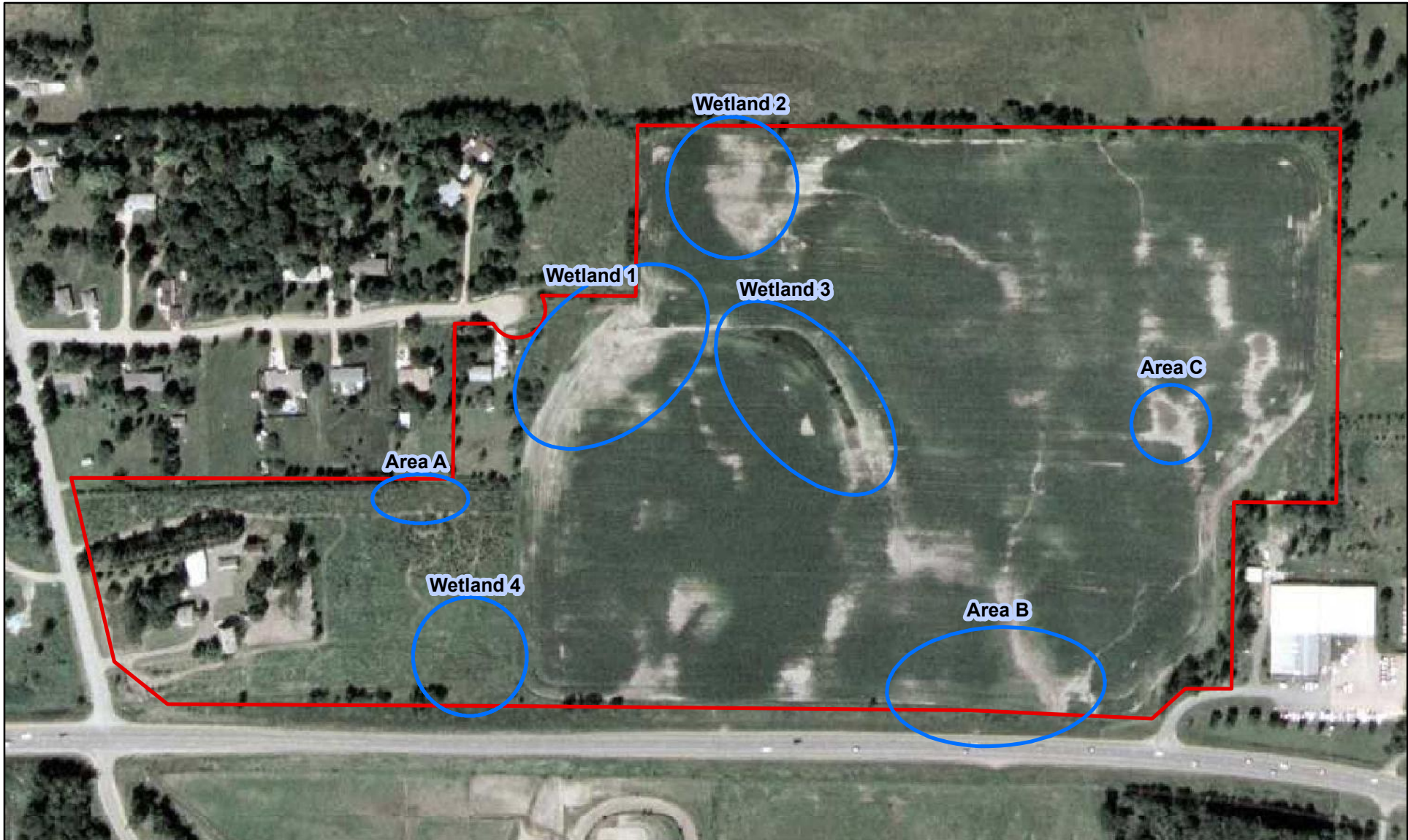
<sup>1</sup> Answer “N/A” if field verification is not required and was not conducted.




**Offsite Hydrology Assessment Year (1997 MNGEO Photo: Normal Year)**

	<p>N</p> <p>0 300 Feet</p>	<p> Site Boundary</p> <p> 1997 Wetland Signature</p>	<p><b>6210 Pioneer Trail Site (KES 2019-179)</b>  <b>Corcoran, Minnesota</b></p>
<p><b>KJOLHAUG</b> ENVIRONMENTAL SERVICES COMPANY          Source: MNGEO Spatial Commons</p>			<p>Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.</p>







**Offsite Hydrology Assessment Year (2003 FSA Photo: Wet Year)**




N



0      300




Feet

 Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

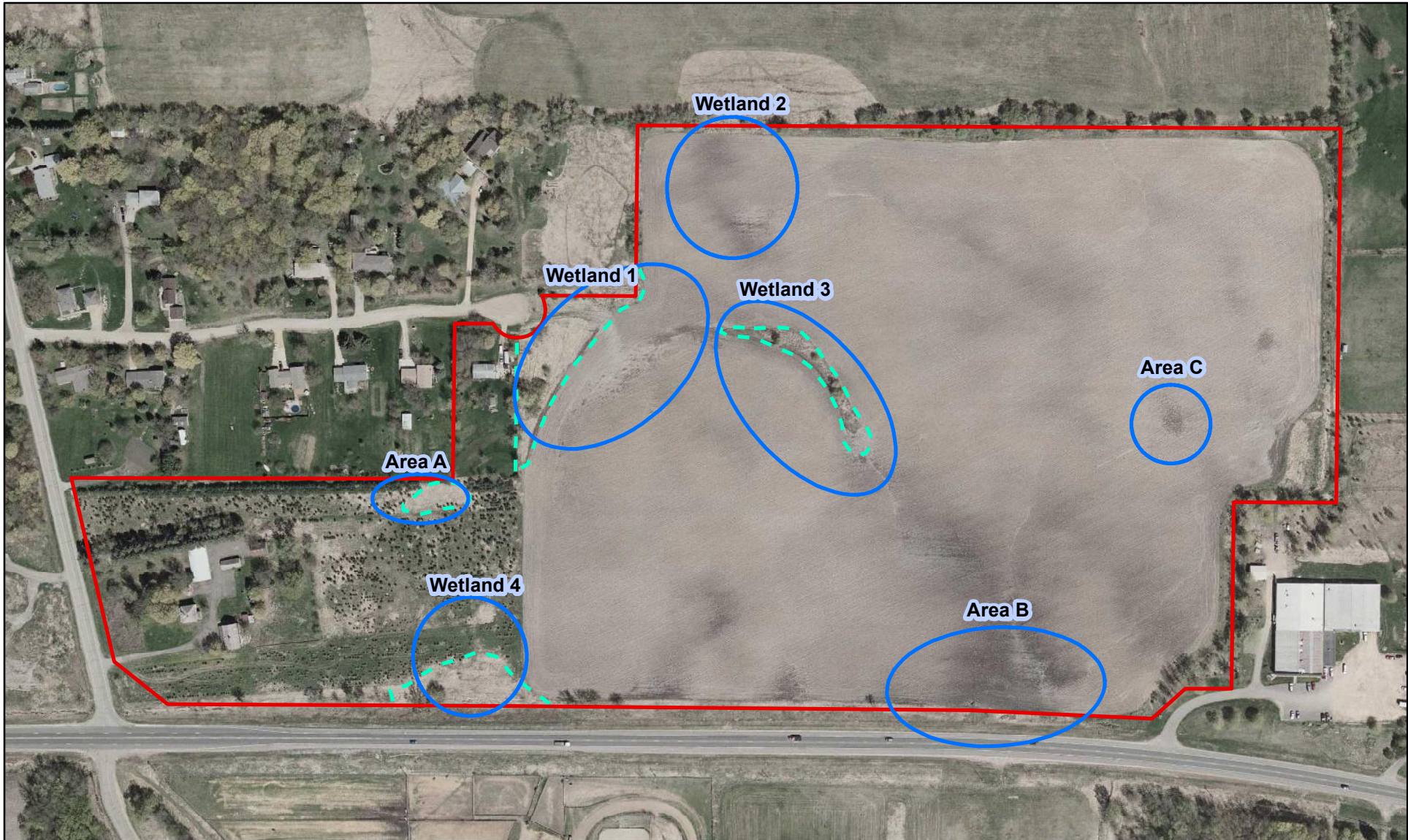
Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.




**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons






**Offsite Hydrology Assessment Year (2006 MNGEO Photo: Normal Year)**



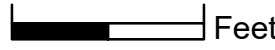
**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons

N



0      300



Feet

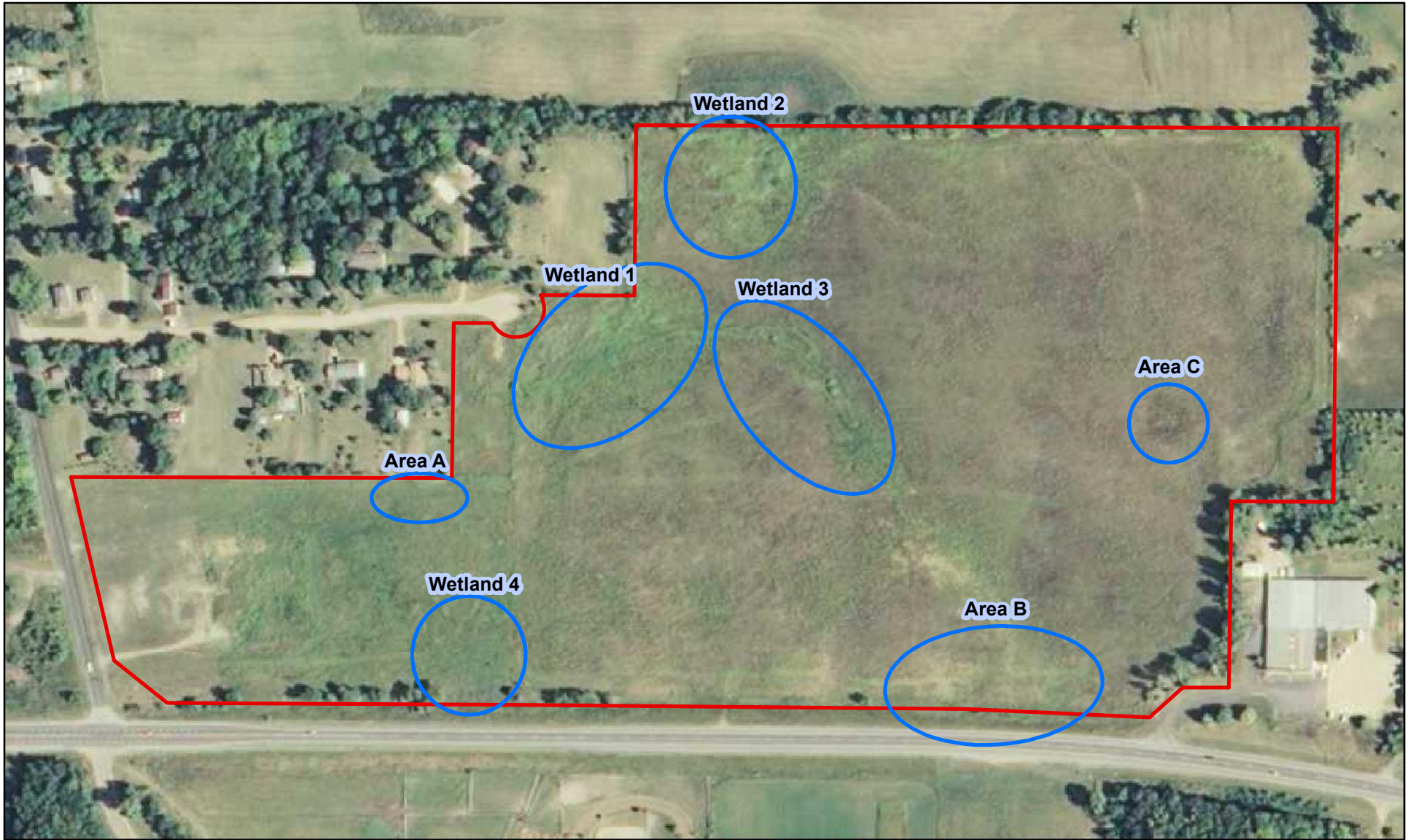
Site Boundary

2006 Wetland Signature


**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.






**Offsite Hydrology Assessment Year (2008 FSA Photo: Normal Year)**




**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons


N



0      300



Feet



Site Boundary


**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.







**Offsite Hydrology Assessment Year (2009 FSA Photo: Dry Year)**




N



0 300 Feet





Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
 Source: MNGEO Spatial Commons






**Offsite Hydrology Assessment Year (2010 MNGEO Photo: Normal Year)**

	<p>N</p> <p>0 300 Feet</p>	<p> Site Boundary</p> <p> 2010 Wetland Signature</p>	<p><b>6210 Pioneer Trail Site (KES 2019-179)</b>  <b>Corcoran, Minnesota</b></p>
<p><b>KJOLHAUG</b> ENVIRONMENTAL SERVICES COMPANY          Source: MNGEO Spatial Commons</p>			<p>Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.</p>






**Offsite Hydrology Assessment Year (2010 FSA Photo: Wet Year)**




**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons


N



0      300



Feet

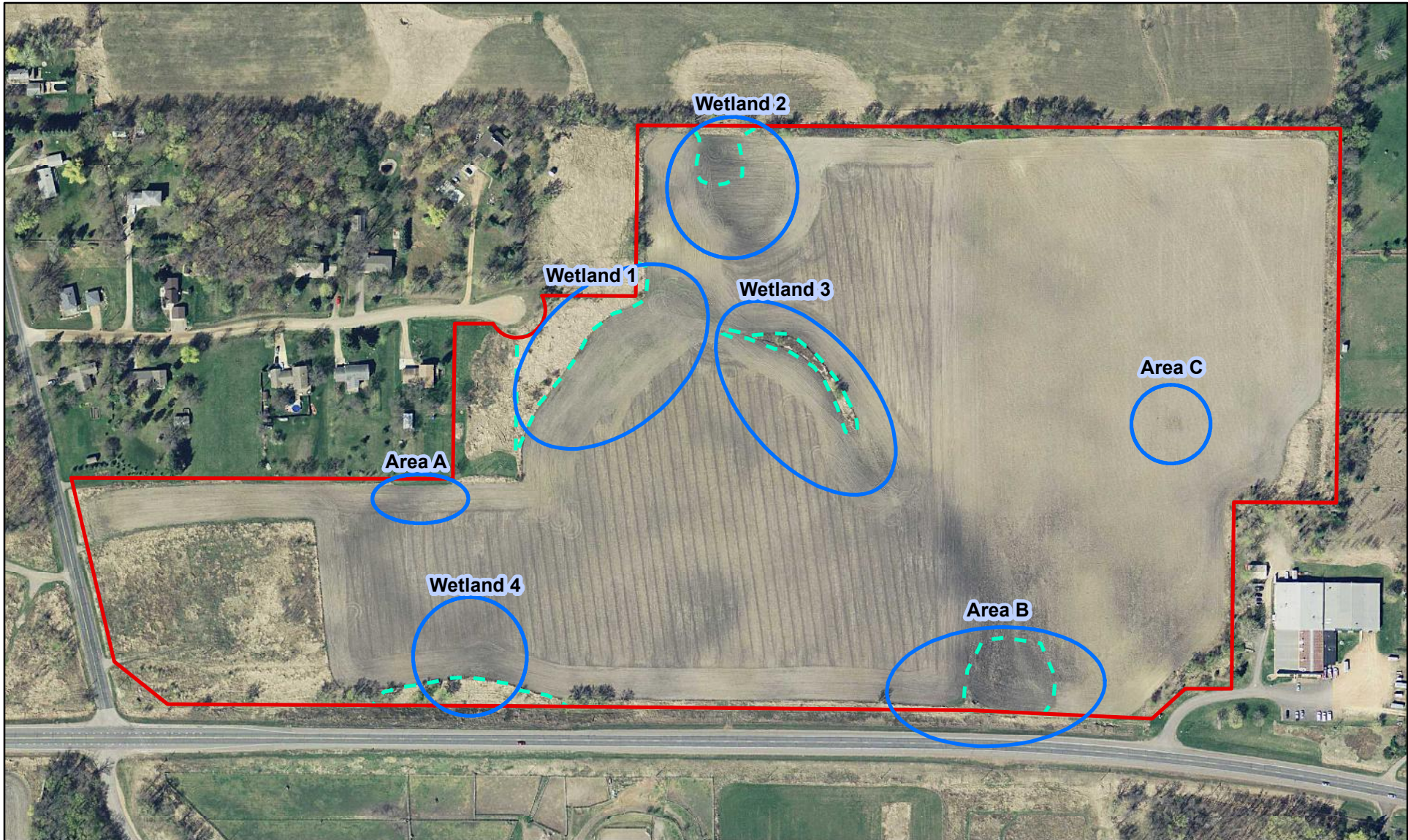


Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.





**Offsite Hydrology Assessment Year (2012 MNGEO Photo: Normal Year)**



N



0      300



Feet

**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons



Site Boundary



2012 Wetland Signature


**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.







**Offsite Hydrology Assessment Year (2013 FSA Photo: Wet Year)**




N



0 300 Feet



 Site Boundary

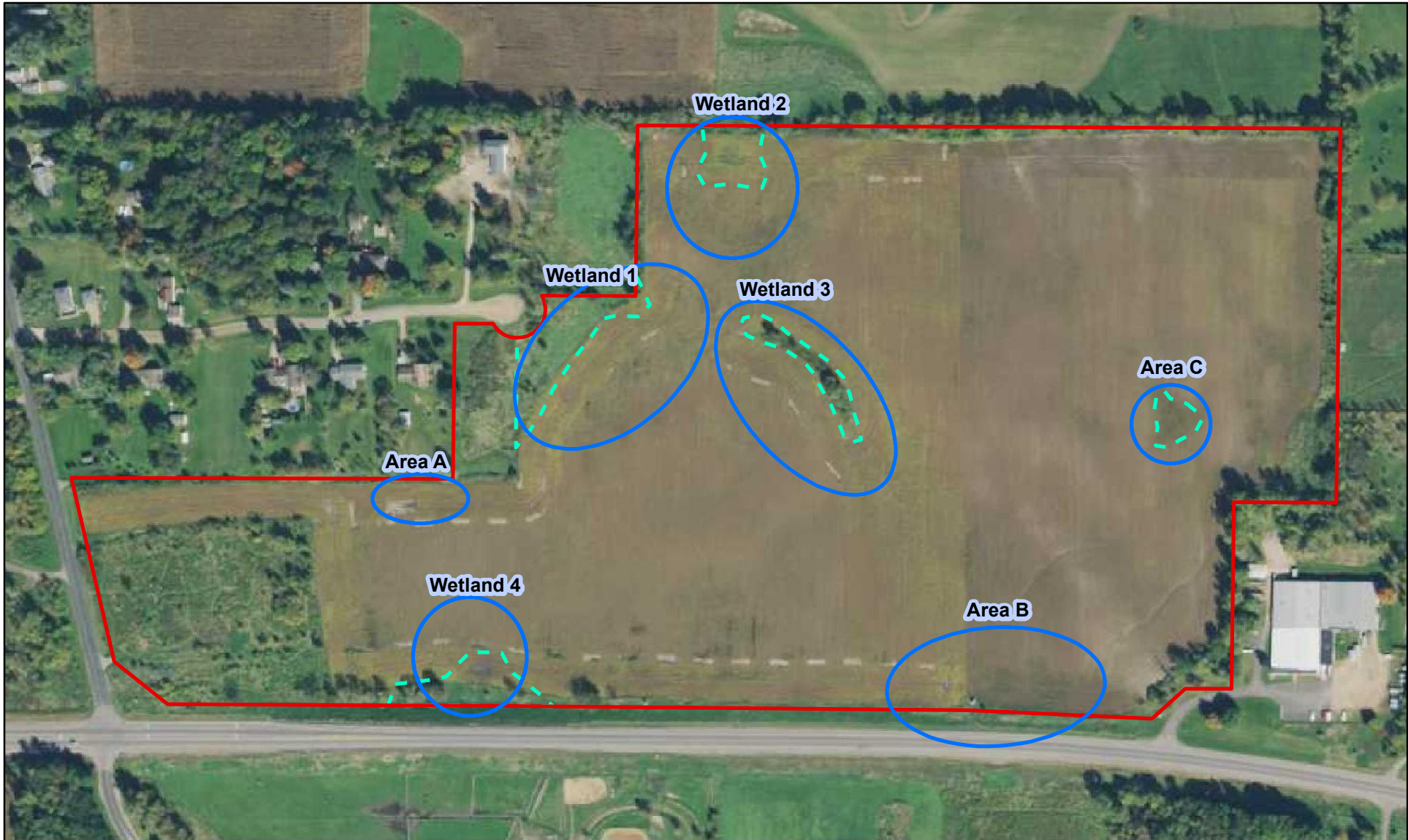
**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons









**Offsite Hydrology Assessment Year (2015 FSA Photo: Normal Year)**

	<p>N</p> <p>0 300 Feet</p>	<p> Site Boundary</p> <p> 2015 Wetland Signature</p>	<p><b>6210 Pioneer Trail Site (KES 2019-179)</b>  <b>Corcoran, Minnesota</b></p>
<p><b>KJOLHAUG</b> ENVIRONMENTAL SERVICES COMPANY          Source: MNGEO Spatial Commons</p>			<p>Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.</p>





**Offsite Hydrology Assessment Year (2016 MNGEO Photo: Dry Year)**

    Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**


Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: MNGEO Spatial Commons






**Offsite Hydrology Assessment Year (2017 FSA Photo: Wet Year)**




**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY

Source: MNGEO Spatial Commons


N



0      300



Feet



Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

## Minnesota Wetland Conservation Act Notice of Decision

<b>Local Government Unit:</b> City of Corcoran	<b>County:</b> Hennepin
<b>Applicant Name:</b> Landspec Fund 2 LLC	<b>Applicant Representative:</b> Adam Cameron, Kjolhaug
<b>Project Name:</b> 6210 Pioneer Trail	<b>LGU Project No. (if any):</b>
<b>Date Complete Application Received by LGU:</b> 01/06/2020	
<b>Date of LGU Decision:</b> 1/17/2020	
<b>Date this Notice was Sent:</b> 1/17/2020	

**WCA Decision Type - check all that apply**

<input checked="" type="checkbox"/> Wetland Boundary/Type	<input type="checkbox"/> Sequencing	<input type="checkbox"/> Replacement Plan	<input type="checkbox"/> Bank Plan (not credit purchase)
<input type="checkbox"/> No-Loss (8420.0415)	<input type="checkbox"/> Exemption (8420.0420)		
Part: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H	Subpart: <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9		

**Replacement Plan Impacts (replacement plan decisions only)**

<b>Total WCA Wetland Impact Area:</b> <a href="#">Click here to enter text.</a>
<b>Wetland Replacement Type:</b> <input type="checkbox"/> Project Specific Credits: <input type="checkbox"/> Bank Credits:
<b>Bank Account Number(s):</b>

**Technical Evaluation Panel Findings and Recommendations (attach if any)**

<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Approve w/Conditions <input type="checkbox"/> Deny <input type="checkbox"/> No TEP Recommendation
--

**LGU Decision**

<input type="checkbox"/> Approved with Conditions (specify below) <sup>1</sup> List Conditions:	<input checked="" type="checkbox"/> Approved <sup>1</sup>	<input checked="" type="checkbox"/> Denied
<b>Decision-Maker for this Application:</b> <input checked="" type="checkbox"/> Staff <input type="checkbox"/> Governing Board/Council <input type="checkbox"/> Other:		
<b>Decision is valid for:</b> <input checked="" type="checkbox"/> 5 years (default) <input type="checkbox"/> Other (specify):		

<sup>1</sup> *Wetland Replacement Plan approval is not valid until BWSR confirms the withdrawal of any required wetland bank credits. For project-specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 and evidence that all required forms have been recorded on the title of the property on which the replacement wetland is located must be provided to the LGU for the approval to be valid.*

**LGU Findings – Attach document(s) and/or insert narrative providing the basis for the LGU decision<sup>1</sup>.**

<input checked="" type="checkbox"/> Attachment(s) (specify): Please see the Delineation Review Summary attached.
<input type="checkbox"/> Summary:

<sup>1</sup> *Findings must consider any TEP recommendations.*

**Attached Project Documents**

<input checked="" type="checkbox"/> Site Location Map <input type="checkbox"/> Project Plan(s)/Descriptions/Reports (specify): Figure 2-Existing Conditions
---



**Appeals of LGU Decisions**

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

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

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

- Yes<sup>1</sup>       No

<sup>1</sup>If yes, all appeals must first be considered via the local appeals process.

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

**Notice Distribution (include name)**

*Required on all notices:*

<input checked="" type="checkbox"/> SWCD TEP Member: Stacey Lijewski , Hennepin SWCD	<input checked="" type="checkbox"/> BWSR TEP Member: Ben Carlson
<input checked="" type="checkbox"/> LGU TEP Member (if different than LGU contact): Kevin Mattson	
<input checked="" type="checkbox"/> DNR Representative: Jason Spiegel	
<input checked="" type="checkbox"/> Watershed District or Watershed Mgmt. Org.: Elm Creek Watershed District	
<input checked="" type="checkbox"/> Applicant: Landspec Fund 2 LLC <input checked="" type="checkbox"/> Agent/Consultant: Adam Cameron, Kjolhaug	

*Optional or As Applicable:*

<input checked="" type="checkbox"/> Corps of Engineers: USACE_requests_mn@usace.army.mil	
<input type="checkbox"/> BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
<input type="checkbox"/> Members of the Public (notice only):	<input type="checkbox"/> Other:

<b>Signature:</b> 	<b>Date:</b> 1/17/2020
---	------------------------

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

# Site Meeting Record



Responsive partner.  
Exceptional outcomes.

Boundary and Type Review       Other \_\_\_\_\_

<b>Site Name:</b> 6210 Pioneer Trail		<b>Location:</b> Corcoran, MN
<b>LGU:</b> City of Corcoran	<b>Review Date/Time:</b> 11/25/2019 11:00 and 01/14/2020 2:00pm	

## Notes

**Attendees: Wes Boll (Wenck), Adam Cameron (Kjolhaug), Ben Carlson (BWSR)**

WCA TEP (Wes Boll, Corcoran & Ben Carlson, BWSR) met with the consultant (Adam Cameron, Kjolhaug) to review wetland boundaries submitted to the City of Corcoran on November 20, 2019. Four wetlands were identified on the site through off-site review and on-site investigation. An incomplete report consisting of the off-site aerial review summary and figures was submitted to allow for field review of the site prior to winter conditions. The TEP agreed to the field review and the Application will be noticed when a complete Delineation Report and Application Form is submitted.

The off-site review was conducted on seven potential wetland areas on the site. The analysis determined that four of the seven areas met wetland criteria. The three areas (A, B, and C) were determined to be non-wetland since hydrology indicator signatures were observed in less than 50% of the normal years. The TEP reviewed the off-site analysis and had questions on Area B, Area C, and the boundaries of Wetland 2, 4, and 1. The TEP also identified potential signatures in an area just north of Area B.

The investigated site was harvested or fallow agricultural ground at the time of the site visit. Conditions at the time of the delineation and site investigation were wetter than normal, with soil saturation and standing water present in many areas of the site.

The TEP reviewed the field delineation by walking the site and confirming the location of delineated boundaries. In general, the TEP agreed with the delineation of wetland boundaries, as the boundaries corresponded approximately to the extent of wetland signatures on off-site analysis and indicators of wetland hydrology and cropping patterns.

On January 6, 2020, Adam Cameron of Kjolhaug submitted a revised wetland delineation report with an additional parcel added to the Project Limits. The parcel added was located on the western edge of Wetland 1 as shown on Figure 2 – Existing Conditions. The additional area of Wetland 1 was delineated during the winter to help with the planning purposes of the client. The western edge of Wetland 1 is the approximate and conservative boundary as shown in Figure 2. If impacts to Wetland 1 are to occur during the construction phases of the project, the winter delineation

portion of Wetland 1 will need to be delineated and approved during the growing season.

**Recommended Revisions:**

The TEP recommended additional review and potentially revision of some of the wetland boundaries on site. The TEP agreed with the placement of the boundaries of Wetland 4 and the non-wetland determination in Areas A, B, and C on the site, based on the lack of off-site hydrology signatures during normal years, landscape position, and cropping patterns during 2019 under extremely wet conditions.

Wetland 2-The TEP recommended the south boundary of the wetland move to the south to encompass a depressional area that appeared to meet wetland hydrology criteria during the off-site analysis and site investigation.

Wetland 1 and Wetland 4 – It appeared during the field investigation that the delineated boundaries were accurate, but the TEP requested a summary of the off-site hydrology signatures in comparison to the field delineated boundary in order to confirm the boundary.

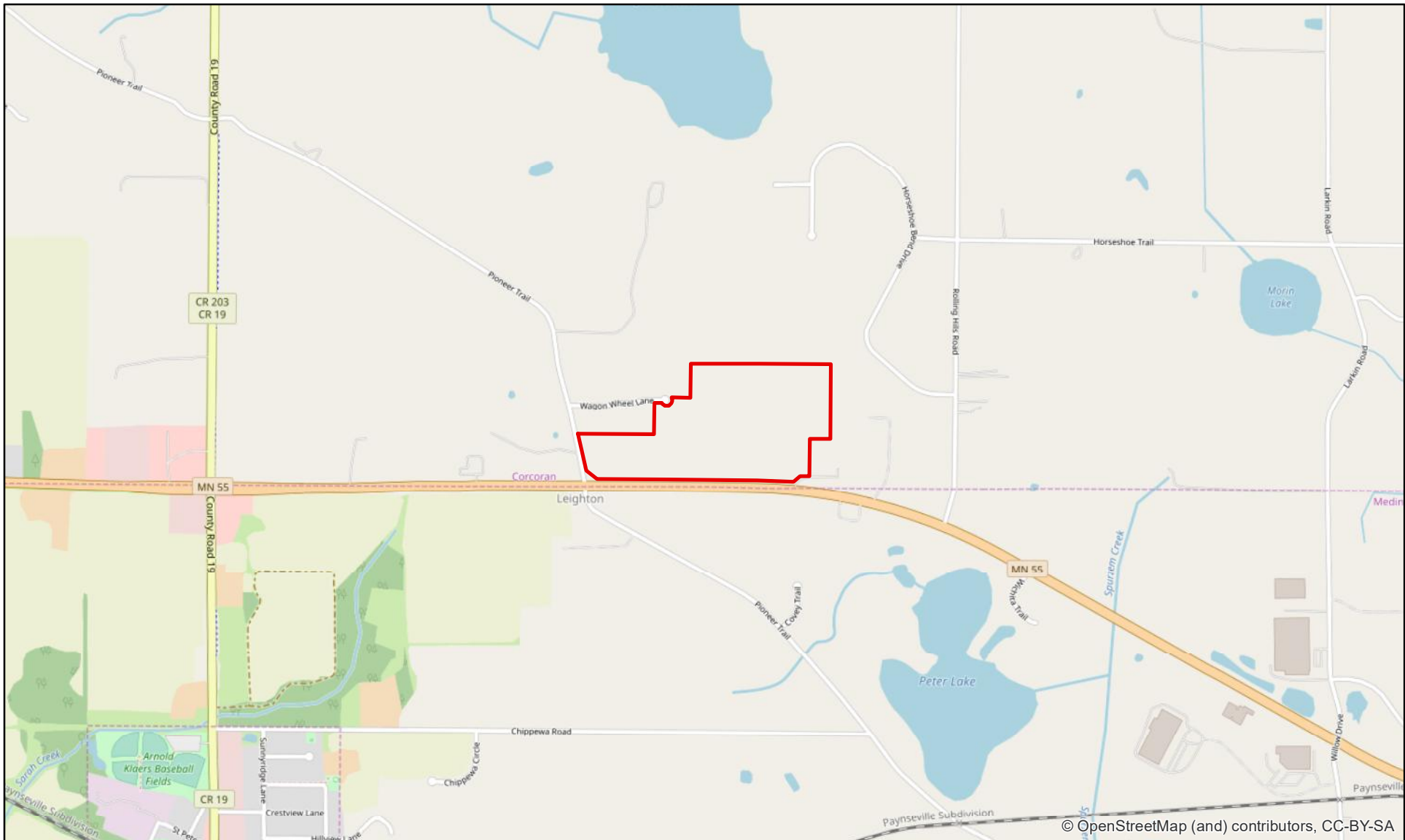
**Recommended Approval Status:** Conduct additional review, approve boundary and type as revised if necessary.

**Additional Potential Wetland Areas:**


There were no other potential wetland areas on the site that met wetland criteria based on the field visit. Other potential wetland areas (depressional areas and drainages with standing water) were determined to not meet wetland criteria during normal conditions.

**Action Items**

#	Party	Action Required	Date Completed
1	Kjolhaug	Review off-site and confirm boundaries (if necessary). Submit Delineation Report and Application Form	12-17-19  Revised Report sent 01-06-2020
2	City of Corcoran/Wenck	Review submitted information and facilitate approval	01-17-2020



**Figure 1 - Site Location**



**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: ESRI Streets Basemap

N

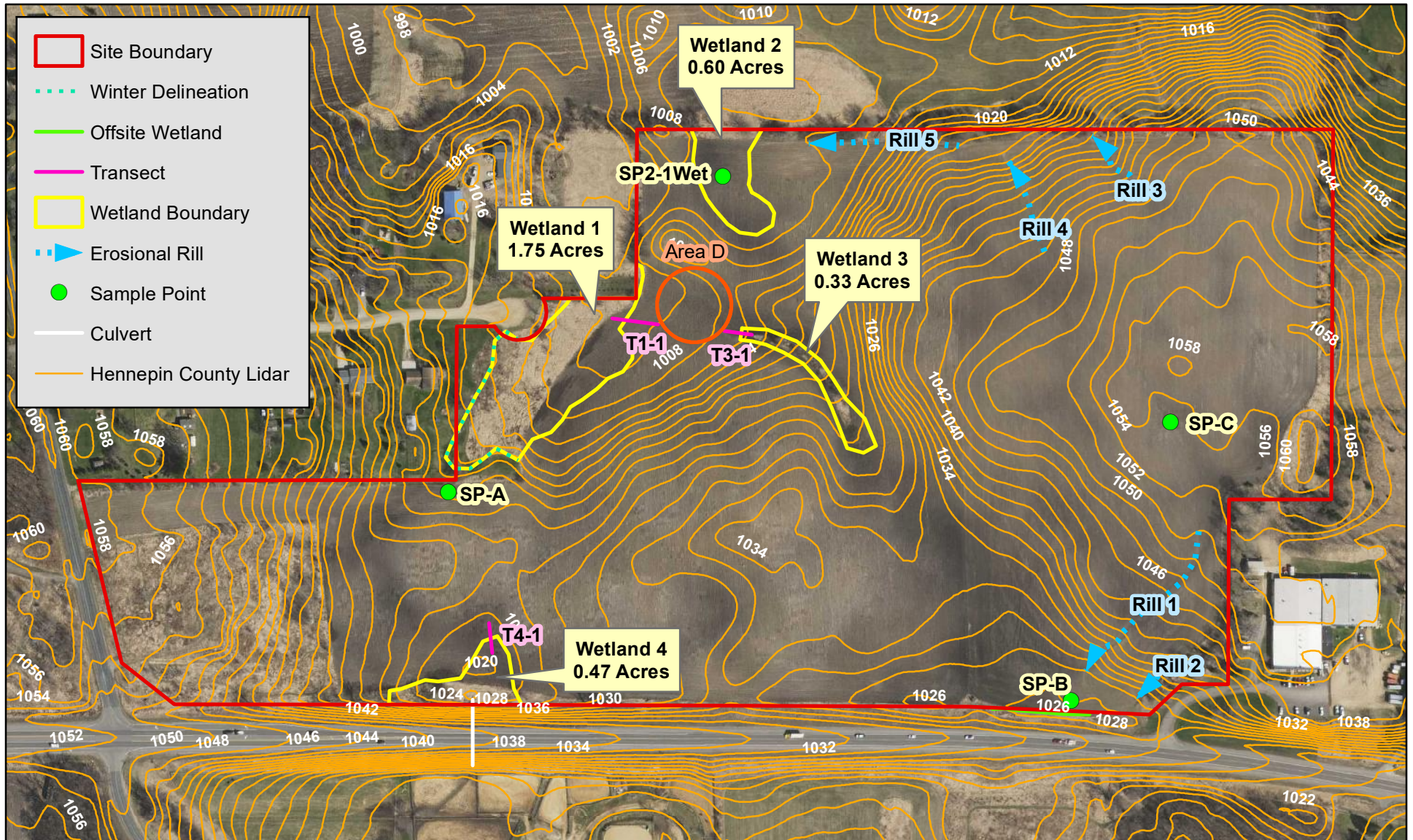
0 1,500 Feet

Site Boundary

**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.





**Figure 2 - Existing Conditions (2016 MNGEO Photo)**



**KJOLHAUG** ENVIRONMENTAL SERVICES COMPANY  
Source: MNGEO Spatial Commons

N



0 300 Feet



**6210 Pioneer Trail Site (KES 2019-179)**  
**Corcoran, Minnesota**

Note: Boundaries indicated on this figure are approximate and do not constitute an official survey product.

# **Appendix C**

## **FEMA FIRMette**



# National Flood Hazard Layer FIRMette



93°37'13"W 45°4'16"N



93°36'36"W 45°3'50"N

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

## Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		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 <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		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 1/21/2022 at 5:13 PM 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.

# **Appendix D**

## **Phase I ESA Executive Summary**





# Phase I Environmental Site Assessment

20-Acre Agricultural Parcel  
Northeast of Highway 55 and Pioneer Trail  
Corcoran, Minnesota

*Prepared For*

**Landspec Fund 2 LLC**

**and**

**Landspec Management LLC**

**BRAUN**  
**INTERTEC**  
The Science You Build On.

Project B1808851  
September 12, 2018

Braun Intertec Corporation

September 12, 2018

Project B1808851

Mr. Jon Rausch  
Landspec Fund 2 LLC  
3500 American Boulevard West, Suite 200  
Bloomington, MN 55431

Re: Phase I Environmental Site Assessment  
20-Acre Agricultural Parcel  
Northeast of Highway 55 and Pioneer Trail  
Corcoran, Minnesota

Dear Mr. Rausch:

In accordance with your written authorization, Braun Intertec Corporation conducted a Phase I environmental site assessment (ESA) of the above-referenced site (Site). The objective of the Phase I ESA was to evaluate the Site for indications of recognized environmental conditions and to assist in satisfying All Appropriate Inquiries (AAI) standards and practices. The Phase I ESA was conducted in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E1527-13 and 40 Code of Federal Regulations (CFR) Part 312.

The Phase I ESA was prepared on behalf of, and for use by Landspec Fund 2 LLC and Landspec Management LLC. No other party has a right to rely on the contents of the Phase I ESA without written authorization by Braun Intertec. The Phase I ESA was prepared in association with the purchase and redevelopment of the Site. Please refer to the attached report for the scope, methods and conclusions of our assessment.

We appreciate the opportunity to provide our professional services for you for this project. If you have any questions regarding this letter or the attached report, please contact Kevin Hoffman at 952.995.2458 or Mike Bratrud at 952.995.2430.

Sincerely,

BRAUN INTERTEC CORPORATION



Kevin J. Hoffman  
Senior Scientist



Michael L. Bratrud, PG  
Vice President

Attachment:  
Phase I Environmental Site Assessment Report

AA/EOE

## **Executive Summary**

Braun Intertec Corporation conducted a Phase I Environmental Site Assessment (ESA) of the 20-acre agricultural parcel located northeast of Highway 55 and Pioneer Trail in Corcoran, Minnesota (Site) in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E1527-13 and 40 Code of Federal Regulations (CFR) Part 312.

At the time of this assessment, the Site consisted of a parcel totaling approximately 19.71 acres. The Site currently and has historically consisted of cultivated agricultural land. The adjoining properties have historically been used for agricultural or rural residential purposes except for the property to the southeast that was developed with a farmstead and building for commercial purposes.

This assessment identified no recognized environmental conditions in connection with the Site.

This assessment identified no controlled recognized environmental conditions in connection with the Site.

**Appendix E**  
**DNR NHIS Request for Concurrence Letter**



January 31, 2022  
File: 227704712

Attention: NHIS Review  
Division of Ecological and Water Resources  
Minnesota Department of Natural Resources  
500 Lafayette Road, Box 25  
Saint Paul, MN 55155

Good afternoon,

**Reference: Pioneer Trail Industrial Park EAW – NHIS Concurrence Request**

Landspec Fund 2, LLC is proposing to construct the Pioneer Trail Industrial Park (Project Site) located in Section 32, Township 119 North, Range 23 West in the City of Corcoran in Hennepin County, Minnesota. The proposed project involves the construction of five lots, two stormwater ponds, and a new road connecting all the lots to the existing Pioneer Trail, north of the intersection at Highway 55. An Environmental Assessment Worksheet (EAW) is required per Minnesota Rules 4410.4300, subpart 14.

The Project Site currently consists of agricultural field and public road right-of-way (ROW) that is bordered by Highway 55 to the south, Pioneer Trail and residential housing to the west, agricultural fields to the north, and an agricultural field and commercial business to the east. The attached figures illustrate the location of the proposed project site. Table 1 below describes the proposed land uses for the five lots:

**Table 1. Pioneer Trail Industrial Park Proposed Land Uses**

Proposed Lots	Land Use	Lot Size (Acres)	Number of Buildings	Building Size (Square Feet)
Lot 1	Gas/Convenience	4.1	1	10,300
Lot 2	Office/Showroom/Retail	2.8	1	11,300
Lot 3	Office Warehouse/Light Manufacturing/Distribution	7.5	1	66,000
Lot 4	Office Warehouse/Light Manufacturing/Distribution	8.3	1	100,000
Lot 5	Storage Condominiums	27.3	6	379,000

Under Stantec’s Limited License to Use Copyrighted Material (LA 917, 140076) related to Rare Features Data, the Minnesota Department of Natural Resources (DNR) Natural Heritage Information System (NHIS) was searched in January 2022 to identify species within a one-mile radius of the project site. The NHIS search did not indicate any records within the proposed project site. Records of rare species were identified within in the one-mile review area. The following species information was gathered from the MN DNR Rare Species Guide (<https://www.dnr.state.mn.us/rsg/index.html>).

### Trumpeter Swan (*Cygnus buccinator*)

During the breeding season, trumpeter swans use small ponds and lakes or bays on larger water bodies that have approximately 100 meters of open water for take-off and have extensive beds of emergent vegetation such as cattails, bulrushes, and sedges. They will commonly use muskrat houses, beaver lodges, exposed hummocks, small islands, and floating platforms to construct their nests. Adult trumpeter swans are primarily herbivorous but will occasionally feed on small crustaceans, fish, and fish eggs. Due to over hunting, Trumpeter swans in Minnesota were declared extirpated in the state in the mid-1900s. Reintroduction efforts began in the 1960s and a survey conducted in 2015 estimated the breeding population to be more than 17,000 individuals. Currently, the leading threat to their population is lead poisoning from lead shot and fishing sinkers but degradation of wetland habitat, power line collisions, and illegal hunting are also notable factors. Although repopulation efforts have continued to be successful, the trumpeter swan was included on Minnesota's List of Endangered and Threatened Species List with the status of special concern due to continued threats to their population.

The Project Site consists of active agricultural land and does not contain suitable breeding or feeding habitat for the trumpeter swan. Based on a review of the NHIS data, occurrences of trumpeter swans were associated with Morin Lake which is approximately 0.85 miles northeast of the Project Site. Due to the lack of suitable habitat, the project is not anticipated to have an impact on the trumpeter swan.

### Native Plant Communities and Biodiversity Sites

Native plant communities, biodiversity sites, and Central Region Regionally Significant Ecological Areas (RESA) were reviewed for the area within one mile of the proposed Project Site. A native plant community (forested rich peatland system) is located approximately 0.55 miles east of the Project Site. Three sites of biodiversity significance ranked as moderate, and one ranked as below were identified within one mile of the Project Site. The three moderate ranked biodiversity sites are all located over 0.55 miles east and northeast of the Project Site and the one below ranked site is approximately 0.25 miles north of the Project Site. Four RESA sites extend into the one-mile review area. Of these, two are ranked as high and two ranked as moderate ecological areas. The closest moderate ranked RESA site is located on the south side of Highway 55 opposite of the Project Site. All work associated with this Project is proposed on the north side of Highway 55 and would not disturb this RESA site. The other moderate ranked RESA site is located approximately 0.65 miles northeast of the Project Site. The two high ranked RESA sites are approximately 0.5 miles south and 0.32 miles southeast of the Project Site. All of these RESA sites are located outside of the proposed Project Site and will not be encroached upon by the proposed project.

### Conclusion

The proposed project site contains limited potential suitable habitat for rare plants, animals, native plant communities, and other rare features. The project would not result in removal of suitable habitat for rare species or native plant communities as the project will be constructed within an area previously disturbed by active agriculture and public road ROW. Therefore, it is not anticipated that significant impacts to state-listed species or habitat would result from the proposed Pioneer Trail Industrial Park project.


Per our license agreement and the requirements of the state environmental review, we are requesting the DNR's concurrence with our review and assessment of the potential impacts from the project on known species documented in the NHIS database. The specific NHIS data evaluated as part of this review will not be distributed, mapped, or used within the EAW document or publicly distributed. The EAW will provide general explanatory text similar to that contained in this letter to document the species occurrence and potential impacts.

January 31, 2022  
NHIS Review  
Page 3 of 3  
**Reference: Pioneer Trail Industrial Park**

Please do not hesitate to contact me at 763.252.6802 or [Erin.Sejkora@stantec.com](mailto:Erin.Sejkora@stantec.com) should you have any questions. Thank you for your time.

Regards,

**Stantec Consulting Services Inc.**



---

**Erin Sejkora**  
Project Manager, Senior Planner  
Phone: 763.252.6802  
[Erin.Sejkora@stantec.com](mailto:Erin.Sejkora@stantec.com)

Attachment: Project Location Figures

# **Appendix F**

## **Traffic Impact Study**



**DRAFT**

# Traffic Impact Study for Pioneer Trail Industrial Park in Corcoran, MN

*Prepared for:*  
**City of Corcoran, MN**

8200 CR 116  
Corcoran, MN 55340



*Prepared by:*

**Stantec Consulting  
Services Inc.**

1800 Pioneer Creek Center  
Maple Plain, MN 55359  
Phone: 7963-479-4200  
Fax: 763-479-4242

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I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

\_\_\_\_\_  
Edward F. Terhaar  
License No. 24441

DATE: February 25, 2022

# 1.0 Executive Summary

---

The purpose of this Traffic Impact Study is to evaluate the impacts of a proposed industrial park development located in Corcoran, MN. This study is part of an Environmental Assessment Worksheet (EAW) for the proposed project. The project site is generally located on the north side of TH 55 east of Pioneer Trail.

Based on discussions with City, this study examined weekday a.m. and p.m. peak hour traffic impacts of the proposed development at the following intersections:

- TH 55/Pioneer Trail
- TH 55/Rolling Hills Road
- CSAH 19/Pioneer Trail
- Pioneer Trail/development access

The most intense development alternative consists of the following uses:

- 100,000 square feet of light industrial
- 66,000 square feet of light industrial
- 11,300 square feet of retail
- 379,000 square foot storage facility
- Gas station with convenience store and 20 vehicle fueling positions

All access will be provided at a new public street located approximately 500 feet north of TH 55 on Pioneer Trail. For purpose of this study, the development is expected to be completed in 2026.

The conclusions drawn from the information and analyses presented in this report are as follows:

- The proposed redevelopment is expected to generate 846 trips during the a.m. peak hour, 788 trips during the p.m. peak hour, and 8,986 trips daily.
- Traffic generated by the proposed development results in poor levels of service at the TH 55/Pioneer Trail intersection during the a.m. and p.m. peak hours.
- The results of a signal warrant analysis for the 2027 Build condition indicate that warrants are met at the TH 55/Pioneer Trail intersection. Based on this review, a full signal warrant analysis and Intersection Control Evaluation (ICE) per Minnesota Department of Transportation (MnDOT) standards should be completed to confirm future traffic control. Any changes to the intersection control must be reviewed and approved by MnDOT.
- The following mitigation measures are recommended at each intersection:
  - TH 55/Pioneer Trail
    - Short term – Widen southbound approach to accommodate a dedicated left turn lane and a through/right turn lane. Install traffic signal control.
    - Long term – No additional improvements needed.

- TH 55/Rolling Hills Road
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 19/Pioneer Trail
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- Pioneer Trail/development access
  - Short term – Construct westbound approach with dedicated left and right turn lanes. Construct a northbound right turn lane.
  - Long term – No additional improvements needed.



## 2.0 Purpose and Background

---

The purpose of this Traffic Impact Study is to evaluate the impacts of a proposed industrial park development located in Corcoran, MN. This study is part of an Environmental Assessment Worksheet (EAW) for the proposed project. The project site is generally located on the north side of TH 55 east of Pioneer Trail. The project location is shown in **Figure 1**.

Based on discussions with City, this study examined weekday a.m. and p.m. peak hour traffic impacts of the proposed development at the following intersections:

- TH 55/Pioneer Trail
- TH 55/Rolling Hills Road
- CSAH 19/Pioneer Trail
- Pioneer Trail/development access

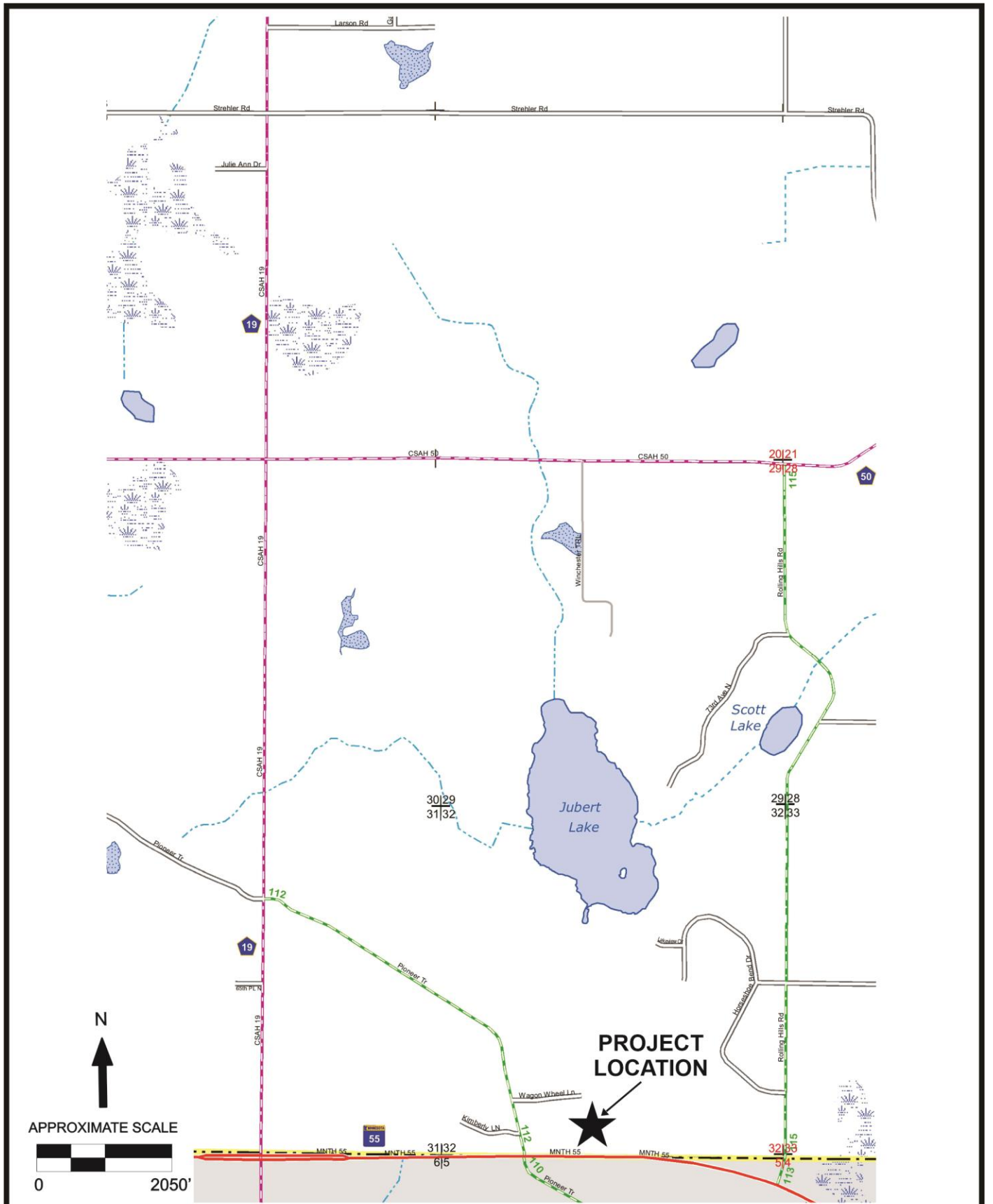
### Proposed Development Characteristics

The most intense development alternative consists of the following uses:

- 100,000 square feet of light industrial
- 66,000 square feet of light industrial
- 11,300 square feet of retail
- 379,000 square foot storage facility
- Gas station with convenience store and 20 vehicle fueling positions

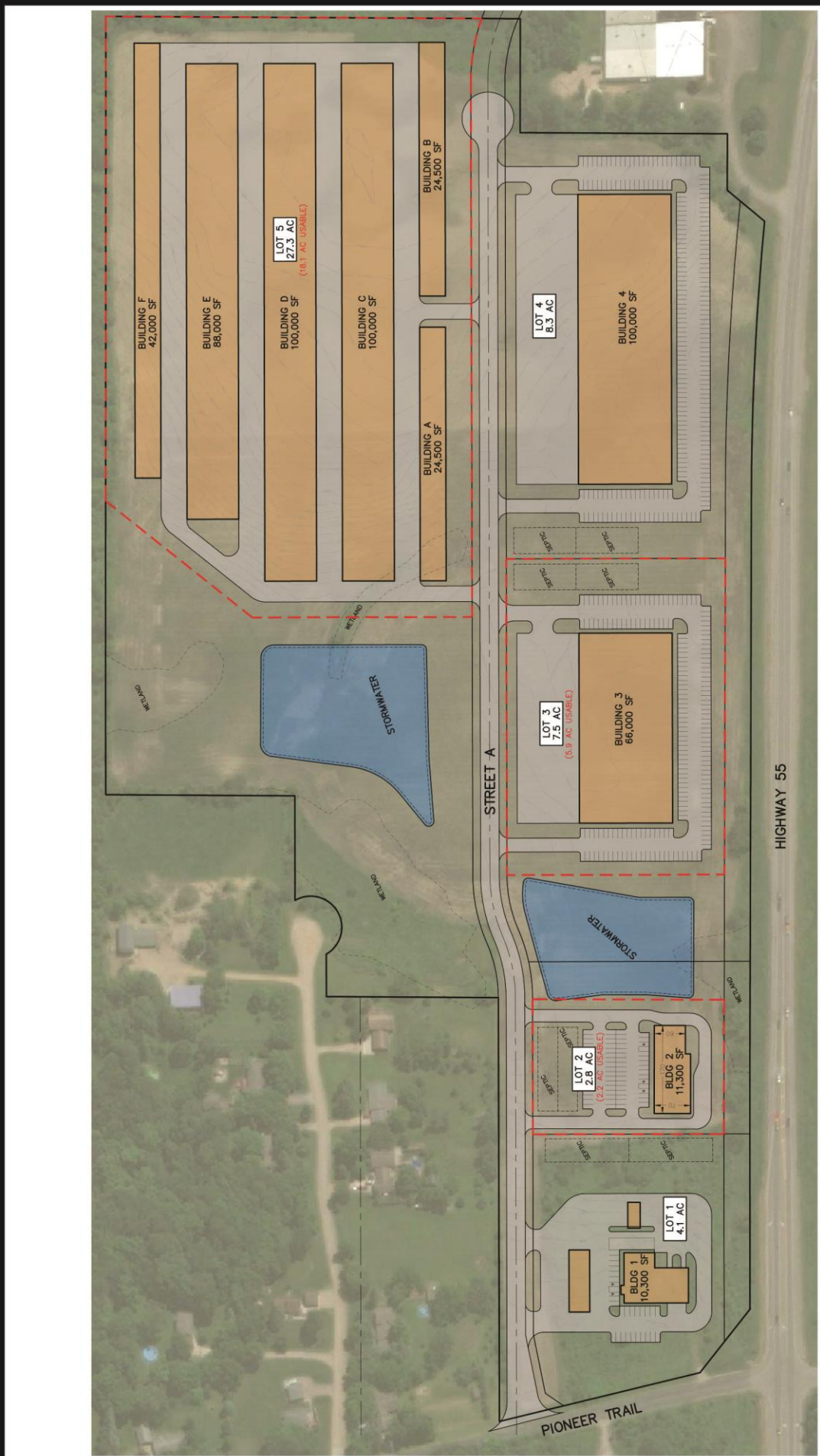
All access will be provided at a new public street located approximately 500 feet north of TH 55 on Pioneer Trail.

For purpose of this study, the development is expected to be completed in 2026. The proposed development plan is shown in **Figure 2**.



TRAFFIC IMPACT STUDY  
FOR PIONEER TRAIL  
INDUSTRIAL PARK  
IN CORCORAN, MN

FIGURE 1  
PROJECT LOCATION



**FIGURE 2  
DEVELOPMENT PLAN**

TRAFFIC IMPACT STUDY  
FOR PIONEER TRAIL  
INDUSTRIAL PARK  
IN CORCORAN, MN



## 3.0 Existing Conditions

---

The proposed project site is currently used for agricultural purposes. The site is bounded by TH 55 on the south, Pioneer Trail on the west, existing residential and commercial uses on the east, and agricultural uses on the north.

Near the site location, TH 55 is a two lane undivided roadway with turn lanes and traffic signal control at major intersections. Pioneer Trail is a local two-lane roadway.

Existing conditions near the proposed project location are shown in **Figure 3** and described below.

### TH 55/Pioneer Trail

This four-way intersection is controlled with stop signs on the northbound and southbound approaches. The eastbound and westbound approaches provide one left turn lane, one through lane, and one right turn lane. The northbound and southbound approaches provide one shared lane for left turn, through, and right turn movements.

### TH 55/Rolling Hills Road

This three-way intersection is controlled with a stop sign on the southbound approach. The eastbound approach provides one left turn lane and one through lane. The westbound approach provides one through lane and one right turn lane. The southbound approach provides one shared lane for left turn and right turn movements.

### CSAH 19/Pioneer Trail

This four-way intersection is controlled with stop signs on the eastbound and westbound approaches. The northbound and southbound approaches provide one left turn lane, one through lane, and one right turn lane. The eastbound and westbound approaches provide one left turn/through lane and one right turn lane.

### Traffic Volume Data

Weekday traffic volume data was recorded at the existing intersections in January, 2022. Existing traffic volume data is presented later in this report.





**FIGURE 3**  
**EXISTING CONDITIONS**

TRAFFIC IMPACT STUDY  
FOR PIONEER TRAIL  
INDUSTRIAL PARK  
IN CORCORAN, MN



## 4.0 Traffic Forecasts

### Traffic Forecast Scenarios

To adequately address the impacts of the proposed project, forecasts and analyses were completed for the years 2027 and 2040. Specifically, weekday a.m. and p.m. peak hour traffic forecasts were completed for the following scenarios:

- *2022 Existing.* Existing volumes were determined through traffic counts at the subject intersections. The existing volume information includes trips generated by the uses near the project site.
- *2027 No-Build.* Existing volumes at the subject intersections were increased by 1.0 percent per year to determine 2027 No-Build volumes. The 1.0 percent per year growth rate was calculated based on historic traffic volume growth in the project area.
- *2027 Build.* Trips generated by the proposed development were added to the 2027 No-Build volumes to determine 2027 Build volumes.
- *2040 No-Build.* Existing volumes at the subject intersections were increased by 1.0 percent per year to determine 2040 No-Build volumes. The 1.0 percent per year growth rate was calculated based on historic traffic volume growth in the project area.
- *2040 Build.* Trips generated by the proposed development were added to the 2040 No-Build volumes to determine 2040 Build volumes.

### Trip Generation for Proposed Project

The expected new development trips were calculated based on data presented in Trip Generation, Eleventh Edition, published by the Institute of Transportation Engineers. These calculations represent total trips that will be generated by the proposed development. The resultant trip generation estimates are shown in **Table 4-1**.

**Table 4-1  
Weekday Trip Generation for Proposed Project**

Land Use	Size	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday Daily
		In	Out	Total	In	Out	Total	Total
Light Industrial	100,000 SF	65	9	74	9	56	65	487
Light Industrial	66,000 SF	43	6	49	6	37	43	321
Retail	11,300 SF	16	11	27	37	37	74	615
Storage facility	379,000 SF	49	15	64	19	49	68	648
Gas station with convenience store	20 VFP	316	316	632	269	269	538	6915
<b>Totals</b>		<b>489</b>	<b>357</b>	<b>846</b>	<b>340</b>	<b>448</b>	<b>788</b>	<b>8986</b>

Notes: SF=square feet and VFP=vehicle fueling positions.

The gas station trips can be categorized in the following trip types:

- *New Trips*. Trips solely to and from the proposed development.
- *Pass-By Trips*. Trips that are attracted from the traffic volume on roadways immediately adjacent to the site.

Based on information published in the *Trip Generation Handbook*, 3<sup>rd</sup> Edition, by the Institute of Transportation Engineers, the percentage of each trip type is as follows:

- Gas Station - 60% new, 40% pass by

#### Trip Distribution Percentages

Trip distribution percentages for the subject development trips were established based on the nearby roadway network, existing and expected future traffic patterns, and location of the subject development in relation to major attractions and population concentrations.

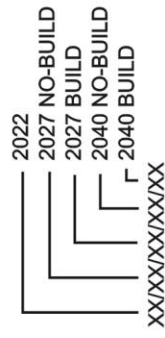
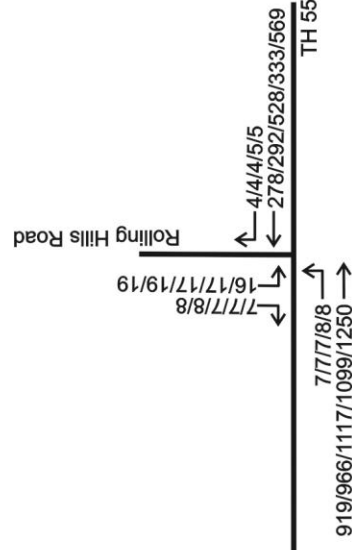
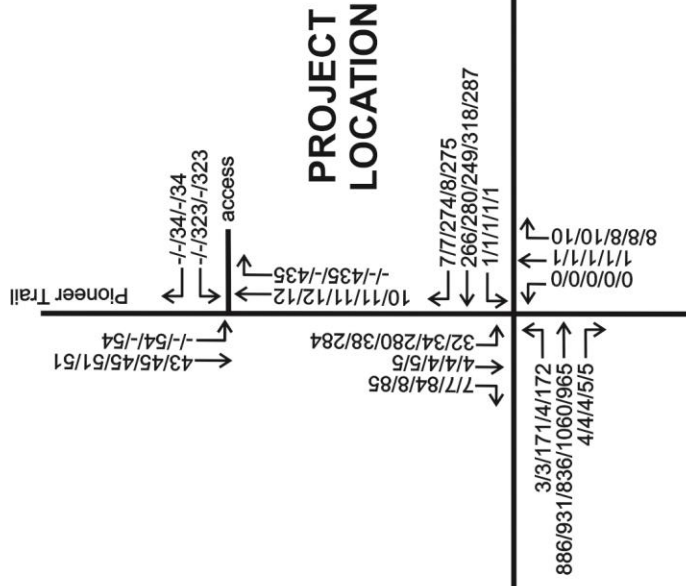
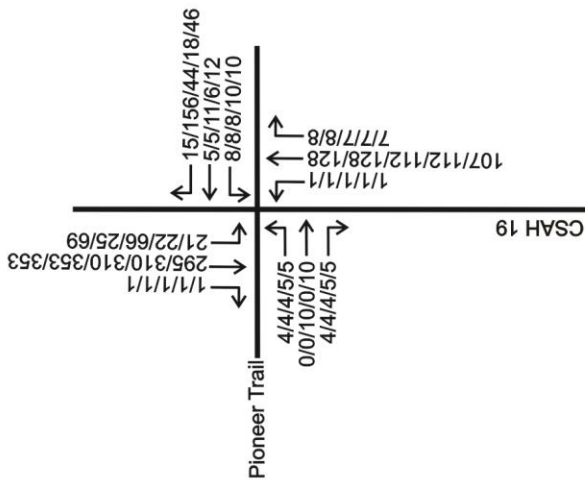
The distribution percentages for trips generated by the proposed development are described below:

- 65 percent to/from the east on TH 55
- 20 percent to/from the west on TH 55
- 12 percent to/from the north on CSAH 19
- 3 percent to/from the west on Pioneer Trail

#### Traffic Volumes

Development trips from Table 4-1 were assigned to the surrounding roadway network using the preceding trip distribution percentages. Traffic volumes were established for all the forecasting scenarios described earlier during the weekday a.m. and p.m. peak hours. The resultant peak hour volumes are shown in **Figures 4 and 5**.



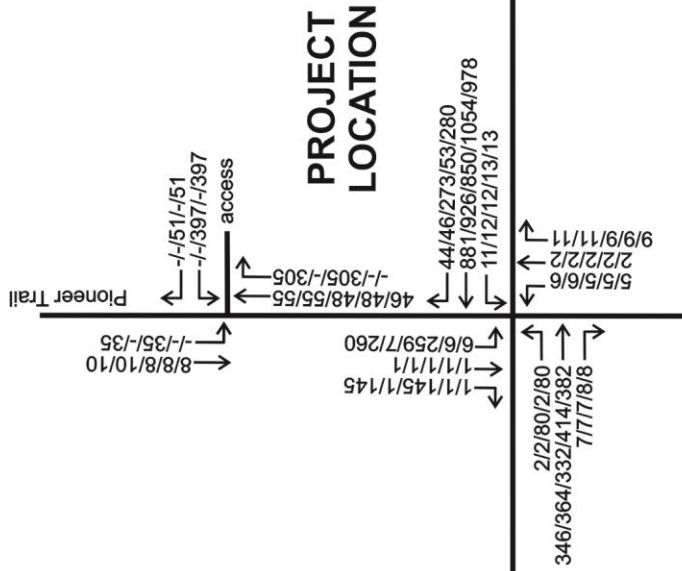
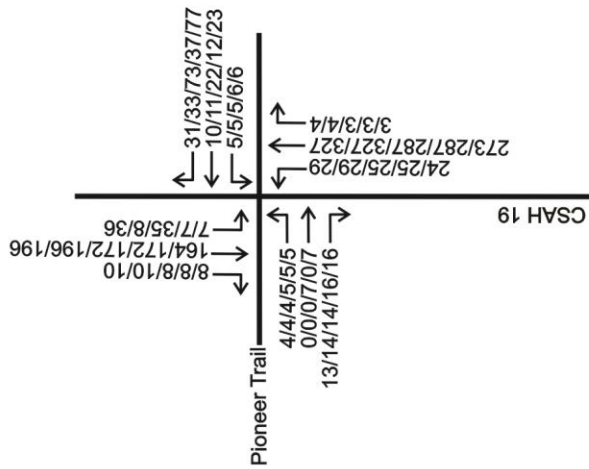


**FIGURE 4**  
**WEEKDAY AM PEAK HOUR**  
**TRAFFIC VOLUMES**

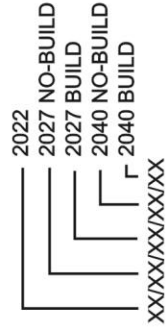
TRAFFIC IMPACT STUDY  
FOR PIONEER TRAIL  
INDUSTRIAL PARK  
IN CORCORAN, MN







**PROJECT LOCATION**



**FIGURE 5**  
**WEEKDAY PM PEAK HOUR**  
**TRAFFIC VOLUMES**

TRAFFIC IMPACT STUDY  
FOR PIONEER TRAIL  
INDUSTRIAL PARK  
IN CORCORAN, MN



## 5.0 Traffic Analysis

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### Intersection Level of Service Analysis

Traffic analyses were completed for the subject intersections for all scenarios described earlier during the weekday a.m. and p.m. peak hours using Synchro software. Initial analysis was completed using existing geometrics and intersection control.

Capacity analysis results are presented in terms of level of service (LOS), which is defined in terms of traffic delay at the intersection. LOS ranges from A to F. LOS A represents the best intersection operation, with little delay for each vehicle using the intersection. LOS F represents the worst intersection operation with excessive delay. The following is a detailed description of the conditions described by each LOS designation:

- Level of service A corresponds to a free flow condition with motorists virtually unaffected by the intersection control mechanism. For a signalized or an unsignalized intersection, the average delay per vehicle would be approximately 10 seconds or less.
- Level of service B represents stable flow with a high degree of freedom, but with some influence from the intersection control device and the traffic volumes. For a signalized intersection, the average delay ranges from 10 to 20 seconds. An unsignalized intersection would have delays ranging from 10 to 15 seconds for this level.
- Level of service C depicts a restricted flow which remains stable, but with significant influence from the intersection control device and the traffic volumes. The general level of comfort and convenience changes noticeably at this level. The delay ranges from 20 to 35 seconds for a signalized intersection and from 15 to 25 seconds for an unsignalized intersection at this level.
- Level of service D corresponds to high-density flow in which speed and freedom are significantly restricted. Though traffic flow remains stable, reductions in comfort and convenience are experienced. The control delay for this level is 35 to 55 seconds for a signalized intersection and 25 to 35 seconds for an unsignalized intersection.
- Level of service E represents unstable flow of traffic at or near the capacity of the intersection with poor levels of comfort and convenience. The delay ranges from 55 to 80 seconds for a signalized intersection and from 35 to 50 seconds for an unsignalized intersection at this level.
- Level of service F represents forced flow in which the volume of traffic approaching the intersection exceeds the volume that can be served. Characteristics often experienced include long queues, stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure. Delays over 80 seconds for a signalized intersection and over 50 seconds for an unsignalized intersection correspond to this level of service.

The LOS results are shown in **Figures 6 and 7** and described below. All LOS worksheets are included in the Appendix for further detail.

2022 Existing

**Weekday A.M. and P.M. Peak Hour LOS Results**

<b>Intersection</b>	<b>Traffic Control</b>	<b>AM Peak Hour LOS</b>	<b>PM Peak Hour LOS</b>
TH 55/Pioneer Trail	NB/SB stop	A/E	A/D
TH 55/Rolling Hills Road	SB stop	A/C	A/C
CSAH 19/Pioneer Trail	EB/WB stop	A/B	A/B

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

All intersections and movements operate at LOS E or better during the a.m. and p.m. peak hours.

2027 No-Build

**Weekday A.M. and P.M. Peak Hour LOS Results**

<b>Intersection</b>	<b>Traffic Control</b>	<b>AM Peak Hour LOS</b>	<b>PM Peak Hour LOS</b>
TH 55/Pioneer Trail	NB/SB stop	A/E	A/E
TH 55/Rolling Hills Road	SB stop	A/D	A/D
CSAH 19/Pioneer Trail	EB/WB stop	A/B	A/B

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

All intersections and movements operate at LOS E or better during the a.m. and p.m. peak hours.

2027 Build

**Weekday A.M. and P.M. Peak Hour LOS Results**

<b>Intersection</b>	<b>Traffic Control</b>	<b>AM Peak Hour LOS</b>	<b>PM Peak Hour LOS</b>
TH 55/Pioneer Trail	NB/SB stop	F/F	F/F
TH 55/Rolling Hills Road	SB stop	A/E	A/E
CSAH 19/Pioneer Trail	EB/WB stop	A/C	A/C
Pioneer Trail/development access	WB stop	A/B	A/B

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

The southbound movements at TH 55/Pioneer Trail operate at LOS F during the a.m. and p.m. peak hours. The northbound movements operate at LOS F during the p.m. peak hour. The overall intersection operates at LOS F during both the a.m. and p.m. peak hours. All other movements and intersections operate at LOS E or better during the a.m. and p.m. peak hours.

## 2040 No-Build

### Weekday A.M. and P.M. Peak Hour LOS Results

Intersection	Traffic Control	AM Peak Hour LOS	PM Peak Hour LOS
TH 55/Pioneer Trail	NB/SB stop	A/F	A/E
TH 55/Rolling Hills Road	SB stop	A/D	A/D
CSAH 19/Pioneer Trail	EB/WB stop	A/B	A/C

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

The southbound movements at TH 55/Pioneer Trail operate at LOS F during the a.m. peak hour. The overall intersection operates at LOS A during all scenarios. All other movements operate at LOS E or better during the a.m. and p.m. peak hours.

## 2040 Build

### Weekday A.M. and P.M. Peak Hour LOS Results

Intersection	Traffic Control	AM Peak Hour LOS	PM Peak Hour LOS
TH 55/Pioneer Trail	NB/SB stop	F/F	F/F
TH 55/Rolling Hills Road	SB stop	A/F	A/F
CSAH 19/Pioneer Trail	EB/WB stop	A/C	A/C
Pioneer Trail/development access	WB stop	A/B	A/B

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

The southbound movements at TH 55/Pioneer Trail operate at LOS F during the a.m. and p.m. peak hours. The northbound movements operate at LOS F during the p.m. peak hour. The overall intersection operates at LOS F during both the a.m. and p.m. peak hours. The southbound movements at TH 55/Rolling Hills Road operate at LOS F during the a.m. and p.m. peak hours. The overall intersection operates at LOS A. All other movements and intersections operate at LOS C or better during the a.m. and p.m. peak hours.

### Traffic Signal Warrants at TH 55/Pioneer Trail

As shown above, the southbound movements and the overall intersection operate at LOS F during the 2027 Build and 2040 Build scenarios at the TH 55/Pioneer Trail intersection. In order to accommodate traffic generated by the proposed development, traffic signal control was considered at this location.

The traffic forecasts for the 2027 Build scenario were used to analyze the peak hour and four-hour traffic signal warrants. These volumes include trips from the proposed project as well as other background traffic.

The traffic volume forecasts were used to determine if specific warrants are satisfied based on published criteria outlined in the Minnesota Manual of Uniform Traffic Control Devices (MMUTCD). Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour Volume) were assessed. Since the posted speed limits on TH 55 is 55 mph, the analyses presented consider reductions for speeds greater than 40 mph.

The results of the signal warrant analysis for the 2027 Build condition indicate the warrants are met at the intersection. Based on this review, a full signal warrant analysis and Intersection Control Evaluation (ICE) per Minnesota Department of Transportation (MnDOT)



standards should be completed to confirm future traffic control. Any changes to the intersection control must be reviewed and approved by MnDOT.

Intersection Operations at TH 55/Pioneer Trail with Traffic Signal Control

A potential mitigation measure for the operational issues shown at the TH 55/Pioneer Trail intersection is traffic signal control. The updated intersection operation results assuming traffic signal control are shown below.

**Weekday A.M. and P.M. Peak Hour LOS Results at TH 55/Pioneer Trail with Traffic Signal Control**

Scenario	AM Peak Hour LOS	PM Peak Hour LOS
2027 Build	B/C	B/C
2040 Build	B/D	B/D

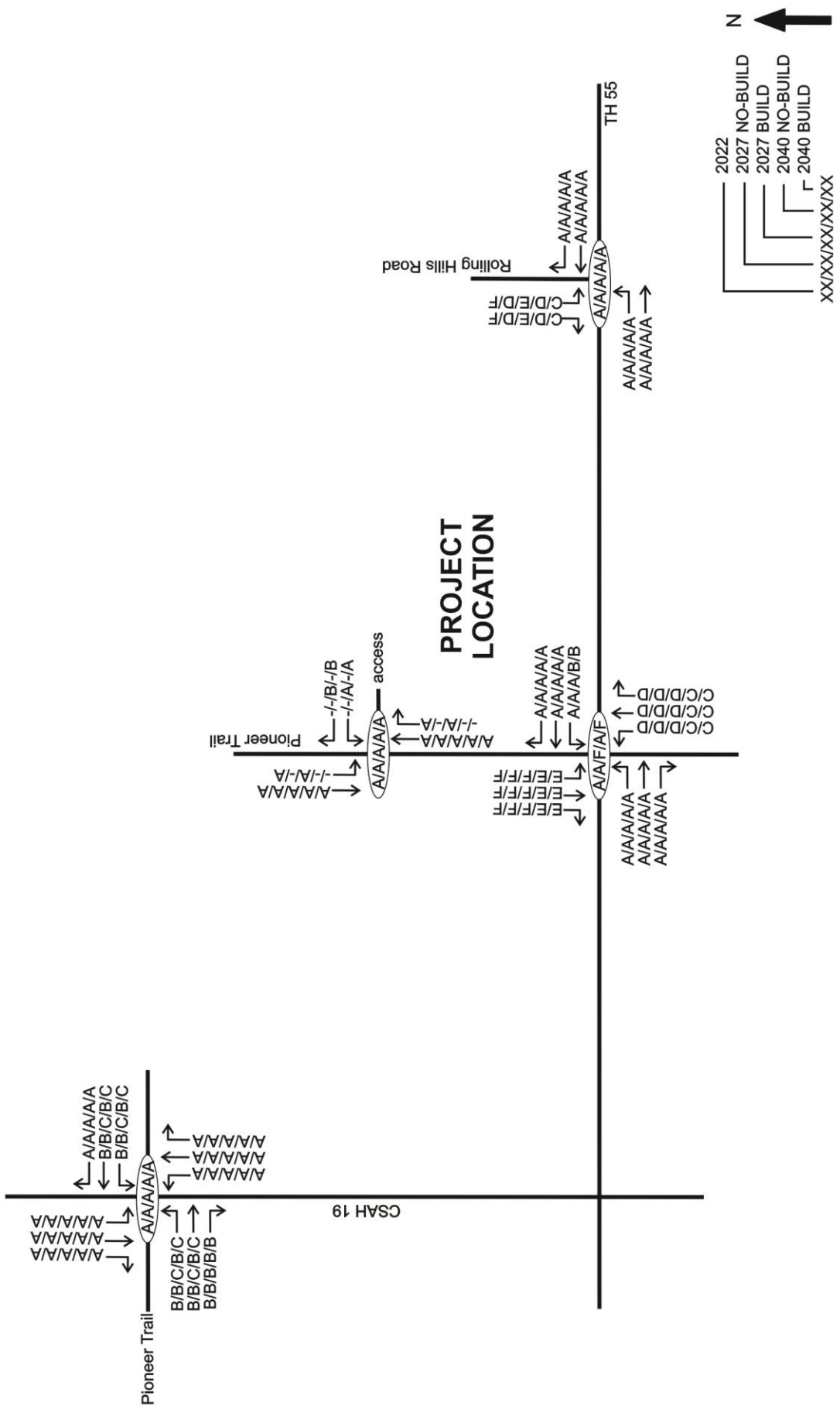
Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

All movements and the overall intersection operate at LOS D or better during the a.m. and p.m. peak hours under both scenarios.

Recommended Mitigation

The following mitigation measures are recommended at each intersection:

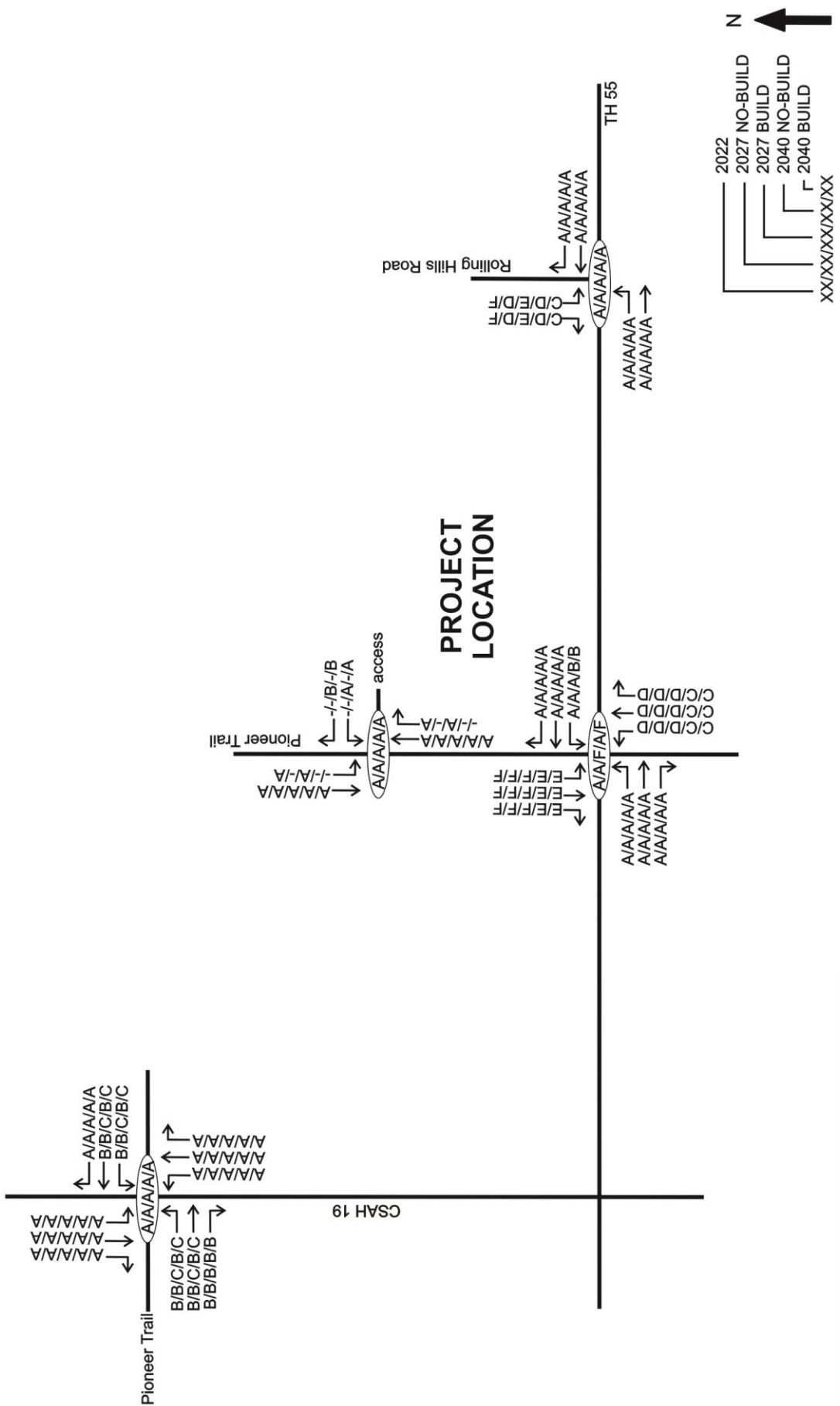
- TH 55/Pioneer Trail
  - Short term – Widen southbound approach to accommodate a dedicated left turn lane and a through/right turn lane. Install traffic signal control.
  - Long term – No additional improvements needed.
- TH 55/Rolling Hills Road
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 19/Pioneer Trail
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- Pioneer Trail/development access
  - Short term – Construct westbound approach with dedicated left and right turn lanes. Construct a northbound right turn lane.
  - Long term – No additional improvements needed.



**FIGURE 6**  
**WEEKDAY AM PEAK HOUR**  
**LOS RESULTS**

TRAFFIC IMPACT STUDY  
 FOR PIONEER TRAIL  
 INDUSTRIAL PARK  
 IN CORCORAN, MN





**FIGURE 7**  
**WEEKDAY PM PEAK HOUR**  
**LOS RESULTS**

TRAFFIC IMPACT STUDY  
 FOR PIONEER TRAIL  
 INDUSTRIAL PARK  
 IN CORCORAN, MN



## 6.0 Conclusions and Recommendations

---

The conclusions drawn from the information and analyses presented in this report are as follows:

- The proposed redevelopment is expected to generate 846 trips during the a.m. peak hour, 788 trips during the p.m. peak hour, and 8,986 trips daily.
- Traffic generated by the proposed development results in poor levels of service at the TH 55/Pioneer Trail intersection during the a.m. and p.m. peak hours.
- The results of a signal warrant analysis for the 2027 Build condition indicate that warrants are met at the TH 55/Pioneer Trail intersection. Based on this review, a full signal warrant analysis and Intersection Control Evaluation (ICE) per Minnesota Department of Transportation (MnDOT) standards should be completed to confirm future traffic control. Any changes to the intersection control must be reviewed and approved by MnDOT.
- The following mitigation measures are recommended at each intersection:
  - TH 55/Pioneer Trail
    - Short term – Widen southbound approach to accommodate a dedicated left turn lane and a through/right turn lane. Install traffic signal control.
    - Long term – No additional improvements needed.
  - TH 55/Rolling Hills Road
    - Short term – No improvements needed.
    - Long term – No improvements needed.
  - CSAH 19/Pioneer Trail
    - Short term – No improvements needed.
    - Long term – No improvements needed.
  - Pioneer Trail/development access
    - Short term – Construct westbound approach with dedicated left and right turn lanes. Construct a northbound right turn lane.
    - Long term – No additional improvements needed.



## 7.0 Appendix

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- Level of Service Worksheets

# **Appendix G**

## **Feasibility Study**



**PIONEER TRAIL INDUSTRIAL PARK  
INFRASTRUCTURE FEASIBILITY STUDY**

**Draft**

March 2022

Prepared for:

**City of Corcoran, MN**  
8200 County Road 116  
Corcoran, MN 55340

Prepared by:

**Stantec Consulting Services Inc.**  
1800 Pioneer Creek Center  
Maple Plain, MN 55359

Project Number: 227704712



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## **1.0 Introduction**

Landspec USA is a development group proposing to construct an industrial / warehouse development of over 500,000 square feet located on Pioneer trail and Pioneer Trail Industrial Park in Southwest Corcoran. The area was previously planned for a similar development in 2004/2005 so the change in landuse is under review for infrastructure impacts and needs related to mostly traffic drainage and stormwater with a review of sewer and water supply for future service.

This Draft Feasibility Study is the basis for cost estimating on public infrastructure needs for the site and outcomes are incorporated into the Environmental Assessment Worksheet and that public process. Figure 1 shows the site layout.



## 2.0 Transportation

### 2.1 Background

This study examined weekday a.m. and p.m. peak hour traffic impacts of the proposed development at the following intersections:

- TH 55/Pioneer Trail
- TH 55/Rolling Hills Road
- CSAH 19/Pioneer Trail
- Pioneer Trail/development access

### 2.2 Proposed Development Characteristics

For purpose of the traffic impact analysis, the proposed development is assumed to consist of the following uses:

- 100,000 square feet of light industrial
- 66,000 square feet of light industrial
- 11,300 square feet of retail
- 379,000 square foot storage facility
- Gas station with convenience store and 20 vehicle fueling positions

### 2.3 Existing Conditions

The proposed project site is currently used for agricultural purposes. The site is bounded by TH 55 on the south, Pioneer Trail on the west, existing residential and commercial uses on the east, and agricultural uses on the north.

Near the site location, TH 55 is a two lane undivided roadway with turn lanes and traffic signal control at major intersections. Pioneer Trail is a local two-lane roadway.

*TH 55/Pioneer Trail* - This four-way intersection is controlled with stop signs on the northbound and southbound approaches. The eastbound and westbound approaches provide one left turn lane, one through lane, and one right turn lane. The northbound and southbound approaches provide one shared lane for left turn, through, and right turn movements.

*TH 55/Rolling Hills Road* - This three-way intersection is controlled with a stop sign on the southbound approach. The eastbound approach provides one left turn lane and one through lane. The westbound approach provides one through lane and one right turn lane. The southbound approach provides one shared lane for left turn and right turn movements.

*CSAH 19/Pioneer Trail* - This four-way intersection is controlled with stop signs on the eastbound and westbound approaches. The northbound and southbound approaches provide one left turn lane, one through lane, and one right turn lane. The eastbound and westbound approaches provide one left turn/through lane and one right turn lane.



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Turn movement data was recorded at the existing intersections during the a.m. (6:00 – 9:00 a.m.) and p.m. (3:00 – 6:00 p.m.) peak periods in January, 2022. These volumes were used in the development of traffic forecasts for the project.

## 2.4 Traffic Forecasts

To adequately address the impacts of the proposed project, forecasts and analyses were completed for the years 2027 and 2040. Specifically, weekday a.m. and p.m. peak hour traffic forecasts were completed for the following scenarios:

- *2022 Existing.* Existing volumes were determined through traffic counts at the subject intersections. The existing volume information includes trips generated by the uses near the project site.
- *2027 No-Build.* Existing volumes at the subject intersections were increased by 1.0 percent per year to determine 2027 No-Build volumes. The 1.0 percent per year growth rate was calculated based on historic traffic volume growth in the project area.
- *2027 Build.* Trips generated by the proposed development were added to the 2027 No-Build volumes to determine 2027 Build volumes.
- *2040 No-Build.* Existing volumes at the subject intersections were increased by 1.0 percent per year to determine 2040 No-Build volumes. The 1.0 percent per year growth rate was calculated based on historic traffic volume growth in the project area.
- *2040 Build.* Trips generated by the proposed development were added to the 2040 No-Build volumes to determine 2040 Build volumes.

The expected new development trips were calculated based on data presented in Trip Generation, Eleventh Edition, published by the Institute of Transportation Engineers. These calculations represent total trips that will be generated by the proposed development. The resultant trip generation estimates are shown in Table 1.

**Table 1**  
**Weekday Trip Generation for Proposed Project**

Land Use	Size	Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday Daily
		In	Out	Total	In	Out	Total	Total
Light Industrial	100,000 SF	65	9	74	9	56	65	487
Light Industrial	66,000 SF	43	6	49	6	37	43	321
Retail	11,300 SF	16	11	27	37	37	74	615
Storage facility	379,000 SF	49	15	64	19	49	68	648
Gas station with convenience store	20 VFP	316	316	632	269	269	538	6915
<b>Totals</b>		<b>489</b>	<b>357</b>	<b>846</b>	<b>340</b>	<b>448</b>	<b>788</b>	<b>8986</b>

Notes: SF=square feet and VFP=vehicle fueling positions.

The gas station trips can be categorized in the following trip types:

- *New Trips.* Trips solely to and from the proposed development.
- *Pass-By Trips.* Trips that are attracted from the traffic volume on roadways immediately adjacent to the site.





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Based on information published in the *Trip Generation Handbook*, 3<sup>rd</sup> Edition, by the Institute of Transportation Engineers, the percentage of each trip type is as follows:

- Gas Station - 60% new, 40% pass by

Trip distribution percentages for the subject development trips were established based on the nearby roadway network, existing and expected future traffic patterns, and location of the subject development in relation to major attractions and population concentrations.

The distribution percentages for trips generated by the proposed development are described below:

- 65 percent to/from the east on TH 55
- 20 percent to/from the west on TH 55
- 12 percent to/from the north on CSAH 19
- 3 percent to/from the west on Pioneer Trail

Development trips from Table 4-1 were assigned to the surrounding roadway network using the preceding trip distribution percentages. Traffic volumes were established for all the forecasting scenarios described earlier during the weekday a.m. and p.m. peak hours. The resultant peak hour volumes are shown in Tables 2 and 3.

**Table 2  
Weekday A.M. Peak Hour Traffic Volumes**

<b>TH 55/Pioneer Trail</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	3	886	4	1	266	7	0	1	8	32	4	7
2027 No-Build	3	931	4	1	280	7	0	1	8	34	4	7
2027 Build	171	836	4	1	249	274	0	1	8	280	4	84
2040 No-Build	4	1060	5	1	318	8	0	1	10	38	5	8
2040 Build	172	965	5	1	287	275	0	1	10	284	5	85
<b>TH 55/Rolling Hills Rd</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	7	919	-	-	278	4	-	-	-	16	-	7
2027 No-Build	7	966	-	-	292	4	-	-	-	17	-	7
2027 Build	7	1117	-	-	528	4	-	-	-	17	-	7
2040 No-Build	8	1099	-	-	333	5	-	-	-	19	-	8
2040 Build	8	1250	-	-	569	5	-	-	-	19	-	8
<b>CSAH 19/Pioneer Trail</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	4	0	10	8	5	15	7	107	1	21	295	1
2027 No-Build	4	0	11	8	5	16	7	112	1	22	310	1
2027 Build	4	10	11	8	11	44	7	112	1	66	310	1
2040 No-Build	5	0	12	10	6	18	8	128	1	25	353	1
2040 Build	5	10	12	10	12	46	8	128	1	69	353	1
<b>Pioneer Trail/access</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	-	-	-	-	-	-	-	10	-	-	43	-
2027 No-Build	-	-	-	-	-	-	-	11	-	-	45	-
2027 Build	-	-	-	323	-	34	-	11	435	54	45	-
2040 No-Build	-	-	-	-	-	-	-	12	-	-	51	-
2040 Build	-	-	-	323	-	34	-	12	435	54	51	-



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**Table 3  
Weekday P.M. Peak Hour Traffic Volumes**

<b>TH 55/Pioneer Trail</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	2	346	7	11	881	44	5	2	9	6	1	1
2027 No-Build	2	364	7	12	926	46	5	2	9	6	1	1
2027 Build	80	332	7	12	850	273	5	2	9	259	1	145
2040 No-Build	2	414	8	13	1054	53	6	2	11	7	1	1
2040 Build	80	382	8	13	978	280	6	2	11	260	1	145
<b>TH 55/Rolling Hills Rd</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	4	357	-	-	929	24	-	-	-	9	-	7
2027 No-Build	4	375	-	-	976	25	-	-	-	9	-	7
2027 Build	4	596	-	-	1127	25	-	-	-	9	-	7
2040 No-Build	5	427	-	-	1111	29	-	-	-	11	-	8
2040 Build	5	648	-	-	1262	29	-	-	-	11	-	8
<b>CSAH 19/Pioneer Trail</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	4	0	13	5	10	31	24	273	3	7	164	8
2027 No-Build	4	0	14	5	11	33	25	287	3	7	172	8
2027 Build	4	7	14	5	22	73	25	287	3	35	172	8
2040 No-Build	5	0	16	6	12	37	29	327	4	8	196	10
2040 Build	5	7	16	6	23	77	29	327	4	36	196	10
<b>Pioneer Trail/access</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>
2022 Existing	-	-	-	-	-	-	-	46	-	-	8	-
2027 No-Build	-	-	-	-	-	-	-	48	-	-	8	-
2027 Build	-	-	-	397	-	51	-	48	305	35	8	-
2040 No-Build	-	-	-	-	-	-	-	55	-	-	10	-
2040 Build	-	-	-	397	-	51	-	55	305	35	10	-

## 2.5 Traffic Analysis

Traffic analyses were completed for the subject intersections for all scenarios described earlier during the weekday a.m. and p.m. peak hours using Synchro software. Initial analysis was completed using existing geometrics and intersection control.

Capacity analysis results are presented in terms of level of service (LOS), which is defined in terms of traffic delay at the intersection. LOS ranges from A to F. LOS A represents the best intersection operation, with little delay for each vehicle using the intersection. LOS F represents the worst intersection operation with excessive delay. The following is a detailed description of the conditions described by each LOS designation:

- Level of service A corresponds to a free flow condition with motorists virtually unaffected by the intersection control mechanism. For a signalized or an unsignalized intersection, the average delay per vehicle would be approximately 10 seconds or less.
- Level of service B represents stable flow with a high degree of freedom, but with some influence from the intersection control device and the traffic volumes. For a signalized intersection, the average delay ranges from 10 to 20 seconds. An unsignalized intersection would have delays ranging from 10 to 15 seconds for this level.



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- Level of service C depicts a restricted flow which remains stable, but with significant influence from the intersection control device and the traffic volumes. The general level of comfort and convenience changes noticeably at this level. The delay ranges from 20 to 35 seconds for a signalized intersection and from 15 to 25 seconds for an unsignalized intersection at this level.
- Level of service D corresponds to high-density flow in which speed and freedom are significantly restricted. Though traffic flow remains stable, reductions in comfort and convenience are experienced. The control delay for this level is 35 to 55 seconds for a signalized intersection and 25 to 35 seconds for an unsignalized intersection.
- Level of service E represents unstable flow of traffic at or near the capacity of the intersection with poor levels of comfort and convenience. The delay ranges from 55 to 80 seconds for a signalized intersection and from 35 to 50 seconds for an unsignalized intersection at this level.
- Level of service F represents forced flow in which the volume of traffic approaching the intersection exceeds the volume that can be served. Characteristics often experienced include long queues, stop-and-go waves, poor travel times, low comfort and convenience, and increased accident exposure. Delays over 80 seconds for a signalized intersection and over 50 seconds for an unsignalized intersection correspond to this level of service.

The LOS results for the study intersections are presented in Tables 4 and 5.

**Table 4**  
**Weekday A.M. Peak Hour Level of Service Results**

<b>TH 55/ Pioneer Tr</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	<b>Intersection</b>
2022 Existing	A	A	A	A	A	A	C	C	C	E	E	E	A
2027 No-Build	A	A	A	A	A	A	C	C	C	E	E	E	A
2027 Build	A	A	A	A	A	A	D	D	D	F	F	F	F
2040 No-Build	A	A	A	B	A	A	D	D	D	F	F	F	A
2040 Build	A	A	A	B	A	A	D	D	D	F	F	F	F
<b>TH 55/Rolling Hills Rd</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	A	A	-	-	A	A	-	-	-	C	-	C	A
2027 No-Build	A	A	-	-	A	A	-	-	-	D	-	D	A
2027 Build	A	A	-	-	A	A	-	-	-	E	-	E	A
2040 No-Build	A	A	-	-	A	A	-	-	-	D	-	D	A
2040 Build	A	A	-	-	A	A	-	-	-	F	-	F	A
<b>CSAH 19/ Pioneer Tr</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	B	B	B	B	B	A	A	A	A	A	A	A	A
2027 No-Build	B	B	B	B	B	A	A	A	A	A	A	A	A
2027 Build	C	C	B	C	C	A	A	A	A	A	A	A	A
2040 No-Build	B	B	B	B	B	A	A	A	A	A	A	A	A
2040 Build	C	C	B	C	C	A	A	A	A	A	A	A	A
<b>Pioneer Tr/access</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	-	-	-	-	-	-	-	A	-	-	A	-	A
2027 No-Build	-	-	-	-	-	-	-	A	-	-	A	-	A
2027 Build	-	-	-	B	-	A	-	A	A	A	A	-	A



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2040 No-Build	-	-	-	-	-	-	-	A	-	-	A	-	A
2040 Build	-	-	-	B	-	A	-	A	A	A	A	-	A

**Table 5  
Weekday P.M. Peak Hour Level of Service Results**

<b>TH 55/ Pioneer Tr</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	<b>Intersection</b>
2022 Existing	B	A	A	A	A	A	C	C	C	D	D	D	A
2027 No-Build	B	A	A	A	A	A	C	C	C	E	E	E	A
2027 Build	B	A	A	A	A	A	F	F	F	F	F	F	F
2040 No-Build	B	A	A	A	A	A	D	D	D	E	E	E	A
2040 Build	B	A	A	A	A	A	F	F	F	F	F	F	F
<b>TH 55/Rolling Hills Rd</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	B	A	-	-	A	A	-	-	-	C	-	C	A
2027 No-Build	B	A	-	-	A	A	-	-	-	D	-	D	A
2027 Build	B	A	-	-	A	A	-	-	-	E	-	E	A
2040 No-Build	B	A	-	-	A	A	-	-	-	D	-	D	A
2040 Build	B	A	-	-	A	A	-	-	-	F	-	F	A
<b>CSAH 19/ Pioneer Tr</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	B	B	A	B	B	B	A	A	A	A	A	A	A
2027 No-Build	B	B	A	B	B	B	A	A	A	A	A	A	A
2027 Build	C	C	A	C	C	B	A	A	A	A	A	A	A
2040 No-Build	C	C	A	C	C	B	A	A	A	A	A	A	A
2040 Build	C	C	A	C	C	B	A	A	A	A	A	A	A
<b>Pioneer Tr/access</b>	<b>EBL</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	<b>WBR</b>	<b>NBL</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>	<b>SBR</b>	
2022 Existing	-	-	-	-	-	-	-	A	-	-	A	-	A
2027 No-Build	-	-	-	-	-	-	-	A	-	-	A	-	A
2027 Build	-	-	-	B	-	A	-	A	A	A	A	-	A
2040 No-Build	-	-	-	-	-	-	-	A	-	-	A	-	A
2040 Build	-	-	-	B	-	A	-	A	A	A	A	-	A

Traffic Signal Warrants at TH 55/Pioneer Trail

As shown above, the southbound movements and the overall intersection operate at LOS F during the 2027 Build and 2040 Build scenarios at the TH 55/Pioneer Trail intersection. In order to accommodate traffic generated by the proposed development, traffic signal control was considered at this location.

The traffic forecasts for the 2027 Build scenario were used to analyze the peak hour and four-hour traffic signal warrants. These volumes include trips from the proposed project as well as other background traffic.

The traffic volume forecasts were used to determine if specific warrants are satisfied based on published criteria outlined in the Minnesota Manual of Uniform Traffic Control Devices (MMUTCD). Warrant 2 (Four-Hour Vehicular Volume) and Warrant 3 (Peak Hour Volume) were assessed. Since the posted speed limits on TH 55 is 55 mph, the analyses presented consider reductions for speeds greater than 40 mph.





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The results of the signal warrant analysis for the 2027 Build condition indicate the warrants are met at the intersection. Based on this review, a full signal warrant analysis and Intersection Control Evaluation (ICE) per Minnesota Department of Transportation (MnDOT) standards should be completed to confirm future traffic control. Any changes to the intersection control must be reviewed and approved by MnDOT.

### Intersection Operations at TH 55/Pioneer Trail with Traffic Signal Control

A potential mitigation measure for the operational issues shown at the TH 55/Pioneer Trail intersection is traffic signal control. The updated intersection operation results assuming traffic signal control are shown below.

#### **Weekday A.M. and P.M. Peak Hour LOS Results at TH 55/Pioneer Trail with Traffic Signal Control**

Scenario	AM Peak Hour LOS	PM Peak Hour LOS
2027 Build	B/C	B/C
2040 Build	B/D	B/D

Note: Level of service results presented with overall intersection LOS followed by worst movement LOS.

All movements and the overall intersection operate at LOS D or better during the a.m. and p.m. peak hours under both scenarios.

## 2.6 Findings

The following mitigation measures are recommended at each intersection:

- TH 55/Pioneer Trail
  - Short term – Widen southbound approach to accommodate a dedicated left turn lane and a through/right turn lane. Install traffic signal control.
  - Long term – No additional improvements needed.
- TH 55/Rolling Hills Road
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 19/Pioneer Trail
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- Pioneer Trail/development access
  - Short term – Construct westbound approach with dedicated left and right turn lanes. Construct a northbound right turn lane. Construct south bound left into development.
  - Long term – No additional improvements needed.



## 3.0 Sewer and Water

### 3.1 Wastewater

As mentioned previously, the prior development (AUAR, 2004) was exploring sewer shared with Medina. Sewer from MCES is not currently available, therefore the development is proceeding under rural development (well/septic) infrastructure. This is discussed further below.

- The closest existing City of Corcoran sanitary sewer is located approximately 3 miles east of this proposed development and eventually discharges to L80 near the Maple Grove border. The distance alone would render connection to this system impractical and not cost effective. Furthermore, the sewer system at that location was not designed to include wastewater from this proposed development.

In the City's previous 2030 Comprehensive Plan, wastewater from this development and the surrounding area of Southwest Corcoran was anticipated to be served via a connection into Medina, which borders Pioneer Trail Industrial Park to the south of this development. However, when the City was working with the Metropolitan Council in preparing the 2040 Comprehensive Plan, it was realized that Medina had slowed their staging of sewer system development in areas towards SW Corcoran, and that both Medina and the Metropolitan Council Environmental Services (MCES) no longer envisioned wastewater from SW Corcoran being directed through Medina (and generally eastward along Pioneer Trail Industrial Park). For this reason, Corcoran's 2040 Comprehensive Plan states that the method and timing of regional wastewater service to Southwest Corcoran would be determined through future study. The potential options for regional service would be longer-term (over 10 years) and very high-cost options, resulting in the need for future study.

- Another option that was suggested to Corcoran was to connect to the Loretto wastewater system. Loretto recently transitioned from operating their own permitted wastewater treatment facility (pond system) to a regionalized connection, i.e., they connected into the Tri-City wastewater forcemain, which is part of a local regional system that ultimately discharges wastewater from Independence, Greenfield and Medina into the regional sewer system located in Maple Plain. Operation of the Tri-City forcemain and the local regional system was modified to a Quad-City Agreement amongst Loretto, Greenfield, Independence, and Medina. Connection of the proposed Corcoran development into Loretto and the wider regional system is not viable for two reasons. First, the Quad City system was not designed to include significant future growth. Second, the infrastructure needed to reach the north edge of Loretto would likely not be cost effective, as it would require a lift station, approximately 1½ miles of forcemain, a directionally drilled/cased crossing of State Pioneer Trail Industrial Park, as well as long term operation and maintenance costs for the connecting infrastructure (plus a share of the local regional system costs). If the existing Loretto sewer system did not have enough available capacity to transfer this development-added flow to the south side of Loretto, additional force main length and a cased crossing of the railroad would also be required.
- Given the above background, the most viable option is what is currently envisioned by the developer: installation of an individual subsurface sewage treatment system (SSTS) for each parcel. Given the typically clayey soils in the area, these systems would utilize septic tank(s), with treated effluent being pumped to mound systems for further treatment/infiltration. We understand that the developer has stated that they may install only a wastewater holding tank for Lot 5 (storage units), given minimal employee occupancy. Hennepin County is the governing authority for permitting and tracking the installation, operation, maintenance, and enforcement of all SSTSs in Corcoran. The County may or may not allow the holding tank, and may require an SSTS to be



# PIONEER TRAIL INDUSTRIAL PARK DRAFT INFRASTRUCTURE FEASIBILITY STUDY

## CITY OF CORCORAN, MN

Sewer and Water

March 2022

installed, which would be minimal in size. Lastly, it is noted that the gas station will have a somewhat higher-strength wastewater, which will likely require additional treatment unit(s) compared to the other lots. Again, this will be governed by the County.

- The other potential option would be to install a community wastewater system, which would utilize one larger area for the infiltration area (mounds), rather than the smaller individual mound systems located at each lot, as currently shown. The developer would need to ensure that a suitable area that is large enough in size as determined by soil testing is included in the development design. This would also require working out a cost sharing agreement amongst the various lots for system installation and for long-term operation and maintenance, which could be somewhat more complicated by the fact that the gas station has an increased level of treatment needed. The community system approach is only noted as a potential option and is not necessarily recommended. The County would govern this approach and if system is large enough the MPCA would be involved.
- At some point in the future, when Corcoran sewer and water systems are extended into this area, the City will require all of the lots to connect to City water and sewer systems. With this in mind, the developer must provide an 80-foot street ROW such that watermain can be installed along the south side of the road and gravity sewer can be installed along the north side of the road. This will prevent having to tear up the entire length of road for the future utility installation. Since wastewater would likely be routed by gravity to the very northern edge for routing into/through the parcels to the north, a permanent easement to install this future north-south gravity sewer should be installed from the north side of the road to the northern property edge (western corner thereof).

## 3.2 Water

- The closest existing City of Corcoran potable watermain is located approximately 3 miles east of this proposed development. The distance renders connection to this system impractical, and would not be cost effective. Neighboring homes and businesses utilize private wells, and likewise, private wells are the most viable option for the proposed lots. Review of well logs for these neighboring homes and businesses suggest that wells located in this development would be completed in the quaternary buried aquifer (usually artesian). These wells are typically 4-inch diameter wells, completed in sand layers that are located at depths that suggest the well depths in the proposed development would be on the order of 150 to 200 feet. Test pumping is commonly indicated at 20 to 30 gallons per minute (gpm). Wells completed in the underlying bedrock would also be an option, though at a higher cost.
- The developer will need to install fire protection systems in accordance with public safety requirements, as determined by the City's designated fire marshal. This may require installation of water storage tank that would serve as a reservoir to supply a building's fire suppression system.
- Corcoran's 2040 Comprehensive Plan identified a potential future well exploration area in the vicinity of this site. Although there are no plans to install a municipal well in the near term, the City may eventually install municipal well(s) in SW Corcoran. As such, the City requests dedication for siting a municipal well in the upland area just west of Building F of Lot 5, at the northern edge of the property. Given various well setback requirements and the need for the City to own the property within 50 feet of the well, the City would need an outlot designated for this purpose at the northern property edge (approximately 110 by 110-foot area), which would allow for the possibility of siting a future municipal well near the center of the outlot (along with a small wellhouse). An easement for a narrow access road would also be required between the street and the well site. At some point in the future, the City would install a test well to verify the suitability of this location



# PIONEER TRAIL INDUSTRIAL PARK DRAFT INFRASTRUCTURE FEASIBILITY STUDY

## CITY OF CORCORAN, MN

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for a municipal well (or conversely, to rule it out). If suitable, installation of the municipal well, wellhouse, and access road could occur at that time.

- Lastly, as noted in the wastewater section, the developer must provide an 80-foot street ROW, which will provide an adequate width such that future City watermain can be installed along the south side of the road.

### 3.3 Findings

The sewer and water review shows the following significant findings.

- Future connections to sewer and water requires corridors and necessary easements that shall be coordinated with construction plans and platting.
- 80 foot ROW along Street A would allow for future utility corridor.
- An individual lot shall be platted and dedicated to the City for future water well exploration.

## 4.0 Water Resources

### 4.1 Regulatory Overview

Stormwater management regulations in the proposed project area would be guided or directed by Corcoran's Local Surface Water Management Plan (Local Plan) the City's Guidelines, Stormwater Pollution Prevention Plan (SWPPP) and MS4 requirements. Each of these documents has a larger regulatory context:

- The Local Plan reflects the goals, policies and rules of the Elm Creek Watershed Management Commission's Third Generation Watershed Management Plan (Commission's WMP).
- The SWPPP is a requirement of the City's stormwater permit, also known as the Municipal Separate Storm Sewer System (MS4) permit. The MS4 permit is issued by the Minnesota Pollution Control Agency (MPCA) which was reissued in October of 2021.
- Among other goals, both documents include plans to meet pollutant load reductions calculated in the Elm Creek Watershed Total Maximum Daily Load (TMDL) study. TMDL studies are required for surface waters that are designated as impaired – in other words, those that do not meet one or more state water quality standards.
- City guidelines lay out the required modeling parameters, preferred BMPs and some construction materials. City approval is required prior to application for the WMO approval process. Further City review occurs with construction plan approval process.





## **4.2 Watershed Setting and Land Use**

The majority of the proposed development is situated in the South Fork of Rush Creek watershed, and drains northward to Jubert Lake. Other parts of the development drain to the south under HWY 55 and northeast towards Horseshoe Bend Trail.

Existing land use in the proposed development is agricultural and topography varies significantly. The MUSA districts have ongoing changes from agricultural to non-agricultural land use that presents both challenges and also opportunities to better manage stormwater runoff. This is true of the proposed development site, where land use will change from row crops to commercial/industrial. Stormwater Best Management Practices (BMPs) installed during construction will maintain or improve water quality towards Jubert Lake and manage runoff rates to equal or less than existing conditions.

## **4.3 Stormwater Management**

The development on the parcel previously proposed by United Properties (2004) converts the agricultural to large scale industrial/commercial. Agricultural use of the land would cease, replaced by both pervious open space and impervious surfaces that will impact stormwater runoff.

Although elimination of agriculture can benefit water quality by reducing export of nutrients and sediments through onsite ponding and filtration (Best Management Practices or BMPs), construction of additional impervious surfaces, such as the roads, driveways, rooftops, and sidewalks increase the volume to nearby surface waters. Turn lane improvements to HWY 55 and Pioneer Trail would also increase impervious surface area and, like neighborhood roads and driveways, would require practices to mitigate the impacts.

Mitigation is accomplished by aligning development plans with City requirements and WMO/MS4 stormwater regulations. Corcoran's Local Plan, in agreement with the Commission's WMP, requires that development plans over 1 acre disturbed area be submitted to the City and the Commission for review. The purpose of the review is to ensure that the developer's plans for stormwater management during and after construction meet the Commission's rules regarding the rate, volume and pollutant load of stormwater runoff, along with other rules regarding wetland alteration, erosion and sediment control and other aspects of surface water protection. The City focuses on rates of discharge, downstream impacts and long term construction sustainability.

This adherence to Commission rules on water quality (BMPs) is one of the strategies Corcoran has chosen to also meet its TMDL obligations to reduce nutrients. The implementation plan calls on Corcoran to apply these standards when land use changes, a strategy that is predicted to have the net result of improving, or not further degrading, the water quality of stormwater runoff. Stormwater modeling guidelines are in Appendix B and may be updated prior to development's final construction plan approval.

Complementing the Local Plan, Corcoran's SWPPP requires plan review, construction site erosion and sediment control, and post-construction stormwater management. Construction site inspections by the City's consultant will begin with land-disturbing activity and end with final stabilization of



# PIONEER TRAIL INDUSTRIAL PARK DRAFT INFRASTRUCTURE FEASIBILITY STUDY

## CITY OF CORCORAN, MN

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exposed soils and City acceptance of the development. After construction, the City would enter an agreement with tany developer's common area association or similar group to ensure that stormwater Best Management Practices continue to function and are maintained as intended.

## 4.4 Findings

### Onsite

- Stormwater improvements are necessary within the development to meet City guidelines and in accordance with regulations of the WMO.
- To move towards meeting load reduction goals, the City's Local Surface Water Plan identifies that improvements to water resources will occur with development. Offsite

Offsite conveyance impacts for the development will be further explored as follows:

- Conveyance path to the north towards Jubert Lake for sustained flows from a majority of impervious land use,
- Potential diversion away from Horseshoe Bend Trail (an older roadside system), and
- Drainage paths under HWY 55, MnDOT approval and into Medina.

Costs may be incurred offsite by the development for drainage/water resource needs and the City is exploring a stormwater fee that may be incorporated in 2022.



## **5.0 Financing**

### **5.1 Summary**

Financing options of the development necessary for infrastructure and to mitigate impacts typically follow the approach of:

- On-site infrastructure is managed by the developer
- Although not currently available, all trunk sewer, water fees (TLAC), will be due at time services are made available to the site.
- Stormwater fee may be implemented by City prior to final platting.
- Off-site projects are typically managed by the by City (engineering, bidding and construction management) through an escrow provided by developer.

The financial package will be further detailed and negotiated as the project moves forward and culminates in the overall Developer Agreement with the overall preliminary plat approval which is updated for each phase of the development.



## 6.0 Conclusions and Recommendations

The following infrastructure improvements are feasible and necessary to manage the development. These improvements are consistent with similar requirements for other developments in Corcoran, and have shown to be necessary for managing the additional population:

### Transportation

- TH 55/Pioneer Trail
  - Short term – Widen southbound approach to accommodate a dedicated left turn lane and a through/right turn lane. Install traffic signal control.
  - Long term – No additional improvements needed.
- TH 55/Rolling Hills Road
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- CSAH 19/Pioneer Trail
  - Short term – No improvements needed.
  - Long term – No improvements needed.
- Pioneer Trail/development access
  - Short term – Construct westbound approach with dedicated left and right turn lanes. Construct a northbound right turn lane. Construct south bound left into development.
  - Long term – No additional improvements needed.
- Additional improvements may be necessary based on MnDOT review.

### Sewer and Water

- Future connections to sewer and water requires corridors and necessary easements that shall be coordinated with construction plans and platting.
- 80 foot ROW along Street A would allow for future utility corridor.
- An individual lot shall be platted and dedicated to the City for future water well exploration.

### Water Resources

- Offsite property and / or improvements may be necessary to manage the additional drainage and allow the City to implement compliance as identified in the City's TMDL.
- Stormwater fees may be in place prior to final platting and would be applied to the development.
- Discharge to the Highway 55 ROW will be required to receive MnDOT approval.

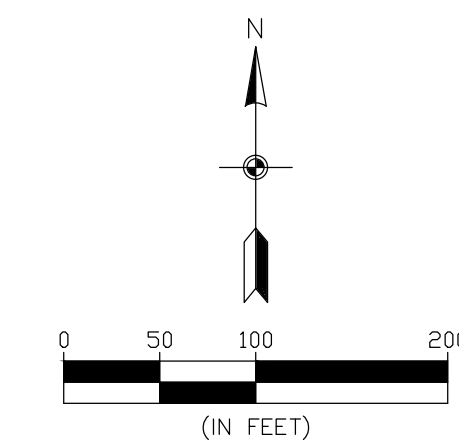
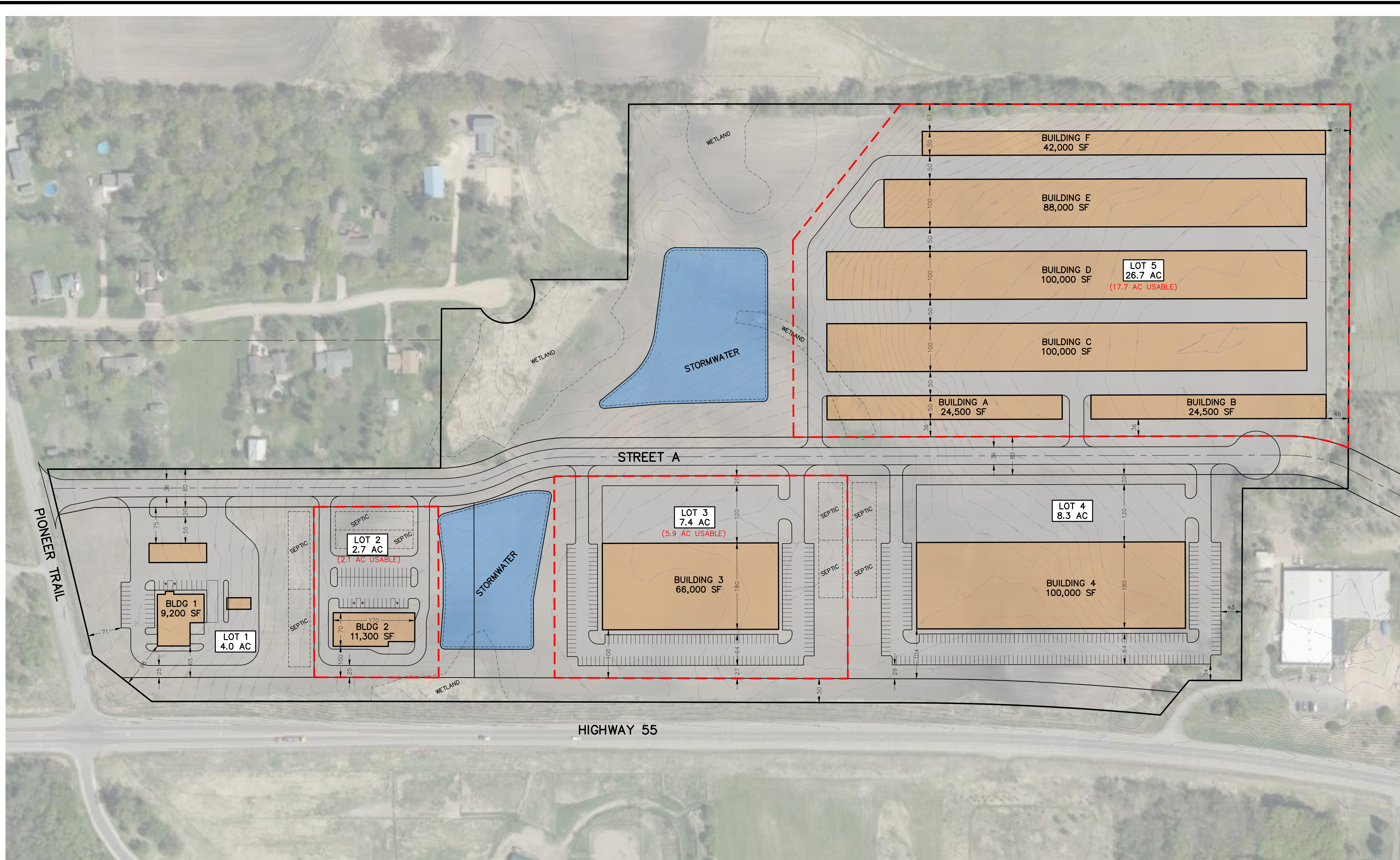




# **FIGURE**

**Site Plan**





REVISIONS

1.	02/11/22	80' RIGHT OF WAY

DRAWN BY: JTR  
 DESIGNED BY: JTR  
 ISSUE DATE: 10/05/21

Site: D:\02\11\22\1\1\001a\0021 - 3990\0824 - landspec - corcoran\carlsonmccain\concept\_n - concept\_n\_220111.dwg



# **APPENDIX A**

## **Sewer and Water Comprehensive Plan Systems**



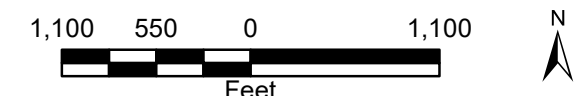
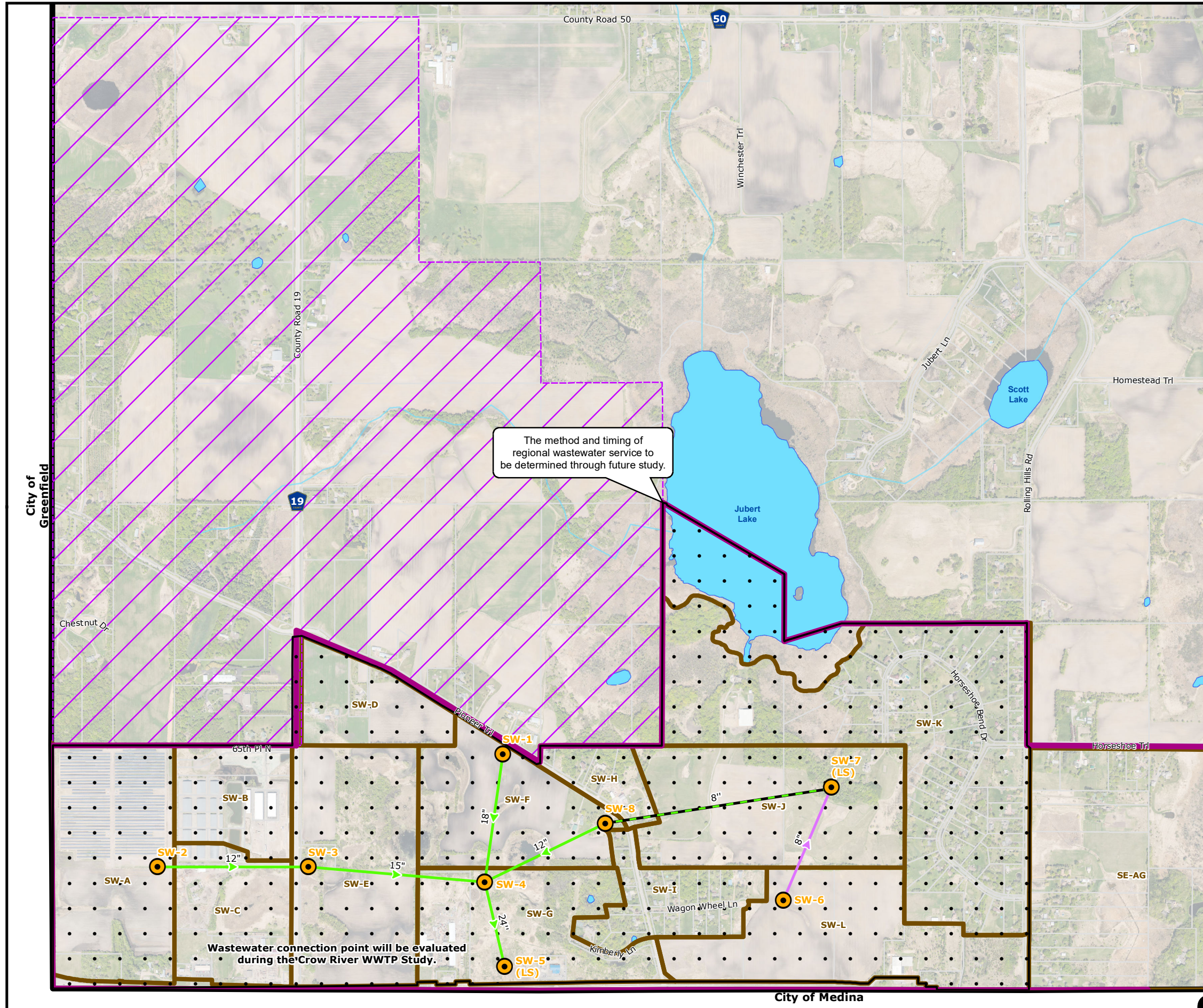


# CITY OF CORCORAN

## 2040 COMPREHENSIVE PLAN

Map 7-4  
Proposed Trunk Sanitary  
Sewer System - SW District

- Proposed Gravity
- Proposed Gravity (Lateral)
- Proposed Forcemain
- Sewer Nodes (LS) = Lift Station
- Sewer Subdistricts
- Municipal Boundary
- 2040 MUSA
- Future MUSA Expansion Area
- Future Study Area
- Parcel Boundaries
- Streams
- Lake/Open Water



Path: L:\22941100\2040CompPlan\SW Proposed Trunk Sanitary Sewer.mxd  
Date: 8/7/2019 Time: 8:15:33 AM User: ShuJC0243



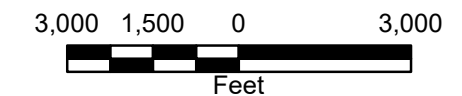


# CITY OF CORCORAN

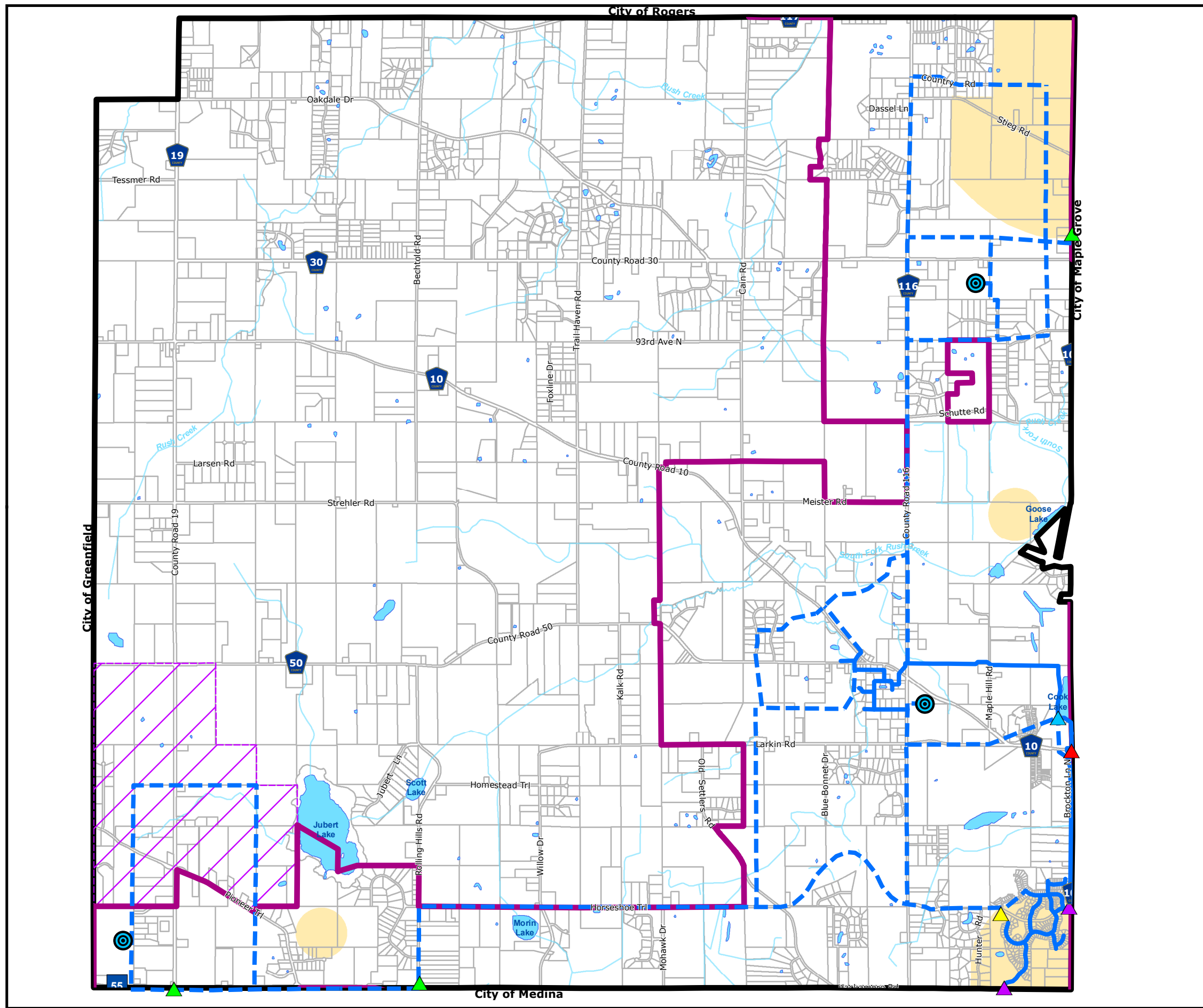
## 2040 COMPREHENSIVE PLAN

### Map 9-2 Trunk Water System

- Existing Watermain
- Proposed Watermain
- Potential Water Tower Locations
- Existing Supply Connection with Neighboring Communities
- Proposed Supply Connection with Neighboring Communities
- Emergency Connection with Neighboring Communities (Normally Closed)
- Potential Water Storage
- Potential Booster Station
- Potential Future Well Exploration Areas
- Municipal Boundary
- 2040 MUSA
- Future MUSA Expansion Area
- Parcel Boundaries
- Streams
- Lake/Open Water



Path: L:\2294\100\2040CompPlan\Trunk Water System.mxd  
Date: 1/15/2019 Time: 1:38:40 PM User: ShujC0243





# **APPENDIX B**

## **Stormwater Modeling Guidelines**

## Stormwater Guidelines for Development March 2019

### Issue

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Cities changing from rural to urban development are challenged by the additional stormwater generated due to construction of impervious surfaces, along with the offsite infrastructure, or lack thereof, to manage effectively. To standardize the modeling and review process, the guidelines below were created for efficiency.

Note: A watershed approval is required per Elm Creek WMO rules, which also reviews flow rates, water quality and volume management.

### Modeling

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#### Watershed Information

- Provide an aerial photo of the development that includes the overall watershed and subwatershed boundaries
- Provide a summary of the acreage to each discharge point leaving the site. Any increase (or decrease) shall be identified.
- Show any floodplain adjacent to project or within the project
- Show downstream water bodies and flow paths
  - Downstream flow paths and water bodies typically need to have elevations, inverts, and condition identified.

#### Subwatersheds

A HydroCAD model (typically used) has inputs that can vary by user. To minimize resubmittals, review time and effort, the following data shall be utilized.

- Electronic model shall be submitted
- Hydrologic Soil Group (HSG) shall be lowered one category due to the mass grading and compaction of the soils. For example, an existing B soil, shall be modeled as a proposed C soil (unless it remains undisturbed)
- Wetlands, filtration basins, and ponds shall be modeled at CN of 98
- Identify peak rates for storm events and proposed shall be equal or less than existing rates.
  - Note: There are certain conditions where at City's discretion the off-site conditions require a reduction in flow rate from existing rates.
- SWMM (i.e. EPA-, XP-, or PC-) models can be submitted for review, however these increase review time.

#### Model Setup for Outlet Control Structures, NWLs and Infiltration

- The model's flow control structures (OCS, culverts, etc.) shall match the construction plan information. During the plan and model review both may be modified and revised
- Individual detail plates are required for each OCS, and individual plates shall have inverts identified
- A pond or wetland NWL (and model starting elevation) shall be set at the constructed outlet control elevation.
  - No live storage shall be utilized below the controlling OCS elevation.
  - No live storage shall be used for filtration shelves on ponds below controlling OCS elevation
- If a pond or wetland has an NWL (wet surface), infiltration shall not be used in flood routing.
- If a pond has filtration BMP causing drawdown below the NWL, this drawdown elevation shall not be used as the NWL for flood routing. (Filtration has a slower release time and during wet periods is not available as live storage).

### Construction Plans

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#### Catch Basins

- Street drainage shall be sufficient to manage the 10-year event

- Typical a CB inlet capacity is 2 to 2.5 CFS, and CBs shall be spaced accordingly
- Three inches (0.25 feet) of head on a CB will inundate a street centerline (2% slope).
- Spacing is 200 to 250 feet using longitudinal street dimensions of 40 feet from road centerline to half the house footprint (assumes rear half of house drains to rear yard). Dimensions equal 10,000 SF.
- CBs may be required on both sides of ped ramps to capture flows

### **Natural Drainage Features**

- Waterbodies receiving urban drainage (wetlands, ditches, gullies) may need to have OCS installed, erosion protection, or reduced flow rates to allow the feature to function over the long term due to more consistent flows from increased impervious via development
- Offsite work may be necessary and City will assist with coordination, easements, etc.

### **HWLs and EOFs**

- The freeboard requirements are:
  - Low Opening is a minimum of two feet above the HWL
  - Low Opening is a minimum of two feet above the EOF
- EOFs shall be accurately shown and as built are required. The highest point shall be the EOF (for example top of curb) since this is the controlling elevation
  - In certain instances, channel calculations of the swale may be required to show the EOF has capacity to manage estimated flow
- Overland EOFs are preferred, however if a second pipe serves as an EOF then modeling will include a 100-year event using the second pipe (EOF) as the only outlet (primary outlet plugged).

### **Rear Yards**

- Rear yards or swales less than 2% shall have draintile. Typically, every two to three lots will require rear yard CBs.

### **Sump Connections**

- Houses adjoining a wetland or pond do not need individual sump connection
- Others will have access to rear yard stormsewer.

## **Offsite Impacts**

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### **Adjacent Parcels**

- City will review adjacent parcels (downstream and upstream) for impacts from volume, point discharge, etc. and may require off site improvements. City will assist in coordination of any off site work.
- Off site water quality improvement projects may be determined by the City for assistance with compliance with City's TMDL approach of implementing improvements upon development.
- FEMA modifications may be necessary due to development and implemented by City.





# **Appendix H**

## **SHPO Response Letter**

February 22, 2022

Kendra Lindahl  
City Planner  
City of Corcoran  
8200 County Road 116  
Corcoran, MN 55357

RE: Pioneer Trail Industrial Park  
6210 Pioneer Trail, Corcoran, Hennepin County  
SHPO Number: 2022-0773

Dear Kendra Lindahl:

Thank you for the opportunity to comment on the above referenced project. Information received on January 26, 2022, has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act (M.S. 138.666).

Based on information that is available to us at this time, we have determined that there are **no properties** listed in the National or State Registers of Historic Places and no known or suspected archaeological properties located in the area that will be affected by this project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

If you have any questions regarding our review of this project, please contact Kelly Gragg-Johnson, Environmental Review Program Specialist, at [kelly.graggjohnson@state.mn.us](mailto:kelly.graggjohnson@state.mn.us).

Sincerely,



Sarah J. Beimers  
Environmental Review Program Manager