

Rogers Industrial Development

Environmental Assessment Worksheet (EAW)

Rogers, MN

December 14, 2023

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Rogers Industrial Development

Environmental Assessment Worksheet

Rogers, MN

- | | |
|----------------------------------|--|
| 1. Project Title | Rogers Industrial Development |
| 2. Proposer | CP West, LLC |
| Contact Person | Thomas Noble |
| Address | 5402 Parkdale Dr. #105 |
| City, State, Zip | Saint Louis Park, MN 55416 |
| Phone | 952-224-2500 |
| Email | tnoble@westreinc.com |
| 3. RGU | City of Rogers |
| Contact Person | Brett Angell |
| Address | 22350 South Diamond Lake Road |
| City, State, Zip | Rogers, MN 55374 |
| Phone | 763-428-2253 |
| E-mail | bangell@rogersmn.gov |
| 4. Reason for Preparation | EAW Mandatory EAW, required by MN Rule 4410.4300 Subp 14, A & B |
| 5. Location and Maps | The index of figures can be found on page 4. |
| County | Hennepin |
| City | Rogers |
| PLS Location | E ½ of the NW ¼, S11, T 120N, R 23W
SE ¼ of the SW ¼, S2, T 120, R23W |
| Watershed | Elk Creek Watershed Management Organization |
| GPS Coordinates | 45°13'31.8"N 93°33'15.1"W |
| Tax Parcel Numbers: | 1112023210002 |

Table 5.1 – Parcel Information

Parcel ID	Tax Parcel #	Legal Descriptions
A	1112023210002	<p>Parcel 1: That part of the Southeast Quarter of the Southwest Quarter of Section 2, Township 120, Range 23, lying South of the Crow River, also That part of the East Half of the Northwest Quarter of Section 11, Township 120, Range 23 lying North of the South 1458.75 feet and West of the westerly right-of-way of State Highway No. 101.</p> <p>Excepting therefrom that part of Tracts A and B described below:</p> <p>Tract A: That part of the Southeast Quarter of the Southwest Quarter of Section 2, Township 120 North, Range 23 West, Hennepin County, Minnesota, lying south of the Crow River and westerly of the westerly right of way line of Trunk Highway No. 101 as now located and established.</p> <p>Tract B: That part of the Northeast Quarter of the Northwest Quarter of Section 11, Township 120 North, Range 23 West, Hennepin County, Minnesota, lying north of the south 1458.75 feet of the East Half of the Northwest Quarter of said Section 11, and west of the westerly right of way line of Trunk Highway No. 101 as now located and established; which lies westerly of the westerly boundary of Minnesota Department of Transportation Right of Way Plat No. 27-61 as the same is on file and of record in the office of the County Recorder in and for said County and easterly of Line 1 described below:</p> <p>Line 1: Commencing at the intersection of the south line of said Section 2 with the westerly boundary of said Plat No. 27-61; thence southerly on an assumed azimuth of 180 degrees 02 minutes 32 seconds along said westerly plat boundary for 382.00 feet to the point of beginning of Line 1 to be described; thence on an azimuth of 356 degrees 56 minutes 21 seconds for 831.22 feet; thence on an azimuth of 270 degrees 02 minutes 33 seconds for 50.00 feet; thence on an azimuth of 00 degrees 02 minutes 33 seconds for 367.02 feet, more or less, to the shore line of the Crow River and there terminating.</p> <p>(All Abstract Property)</p> <p>Parcel 2: Easement for vehicular and pedestrian traffic for ingress and egress as described in Quit Claim Deed, dated April 19, 1984, filed April 24, 1984, as Document No. 4884703.</p>

The following is a complete list of figures in this EAW which can be found in **Appendix “A”**.

TABLE 5.2 – LIST OF FIGURES

FIGURE NUMBER	FIGURE TITLE
1	Regional Location
2	Project Area
3	Concept Site Plan
4	USGS Map
5	Existing Cover Types
6	Existing Farmland Types
7	Soils
8	Zoning Map
9	2040 Future Land Use Map
10	Delineated Wetlands
11	National Wetland Inventory
12	100 Year Floodplain Map
13	Historic Site Locations
14	Impaired Waters

6. Description

The description section of an EAW should include the following elements for each major development scenario included:

a. Provide a project summary of 50 words or less to be published in the EQB Monitor.

EQB Monitor Heading Environmental Assessment Worksheet

Comment Deadline December 14, 2023

Project Title Rogers Industrial Development

Project Description..... The proposed Rogers Industrial Development project includes the development of approximately 45 acres within the City of Rogers, MN. The project proposes construction of three industrial buildings on one vacant lot.

Copies of the Draft EAW have been distributed to agencies listed on the Minnesota Environmental Quality Board distribution list. The Draft EAW may also be publicly accessed on the City of Rogers’ website.

RGU City of Rogers

Contact Person Brett Angell

Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal, or remodeling of existing structures. Indicate the timing and duration of construction activities.

The area being studied by the EAW is in Rogers, MN, within Hennepin County, north of Northdale Boulevard near the intersection of 147th Avenue and State Highway 101 (see **Figure 1 and Figure 2**). The proposed Rogers industrial Development project includes the development of approximately 45.53 acres within the City of Rogers, MN. The project proposes the construction of three industrial buildings on one vacant lot. Industrial uses on the proposed site will be compliant with City regulations and zoning guidelines. The proposed Concept Site Plan is included in **Figure 3**.

Construction on this site is anticipated to begin in fall 2024 with the first building being ready for occupancy in fall 2025. Phase I of the project will include mass grading of the site and construction of all stormwater facilities and utility improvements. Potential construction and operation methods include clearing and grubbing, mechanical site grading, underground utility installation, bituminous paving, concrete pouring, and building construction. The construction schedule will be confirmed as purchase agreements are obtained for the properties. Individual buildings will be built as the market allows and adhere to all City of Rogers zoning and building regulations.

According to aerial footage, there are no existing structures onsite in need of demolition. Trees and shrubs will be removed where necessary to accommodate the potential for changing grades onsite.

b. Project Magnitude Data

Total project acreage..... 45.53 acres
Linear Project Length..... NA
Number & type of residential uses..... NA
Residential Building Area..... NA
Commercial Building Area..... NA
Industrial Building Area..... 550,000 – 700,000 SF
Other Uses (specify)..... NA
Structure heights..... 45 feet

c. 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.

This project is being initiated and constructed by the private market. No governmental entities are leading the proposed design or construction efforts. The purpose of the project is to provide needed industrial facilities to accommodate an increasing population in and around the City of Rogers. The site is directly west of State Highway 101 and proximity to Interstate 94 and Highways 169 and 10 provide good access to a larger region. There are no projects with a similar size in the immediate area and being first to market will allow Rogers to capture the employment and tax revenue associated with this development.

d. Are future stages of this development (including development on any other property) planned or likely to happen?

No future phases of development, other than those described as part of the project and included in this EAW, are proposed on the project site and there are no known plans for additional development in the vicinity.

e. **Is this project a subsequent stage of an earlier project?**

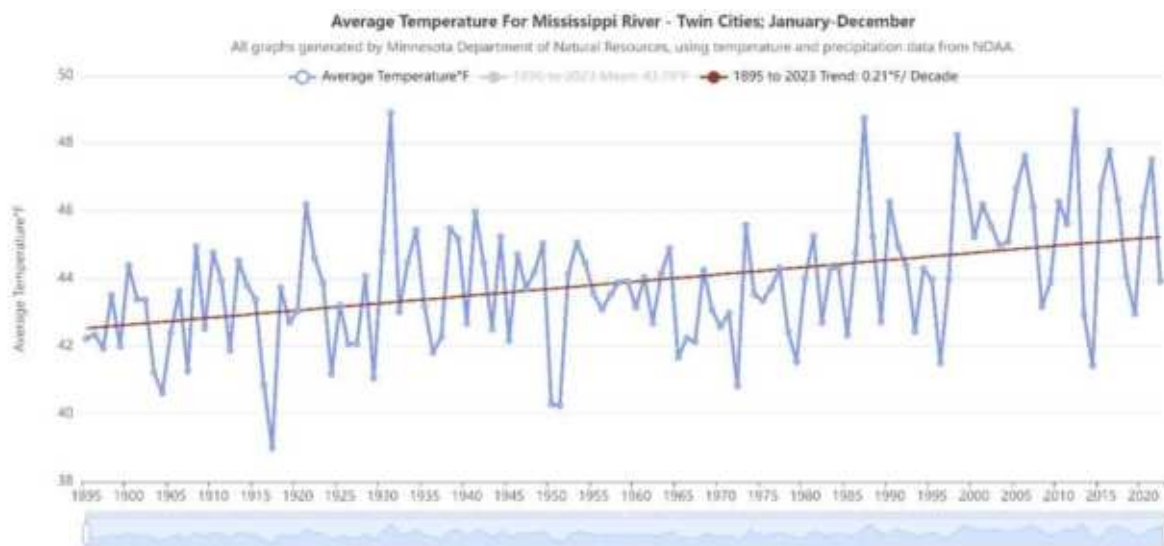
The project is not a subsequent stage of an earlier project.

7. **Climate Adaptation and Resilience:**

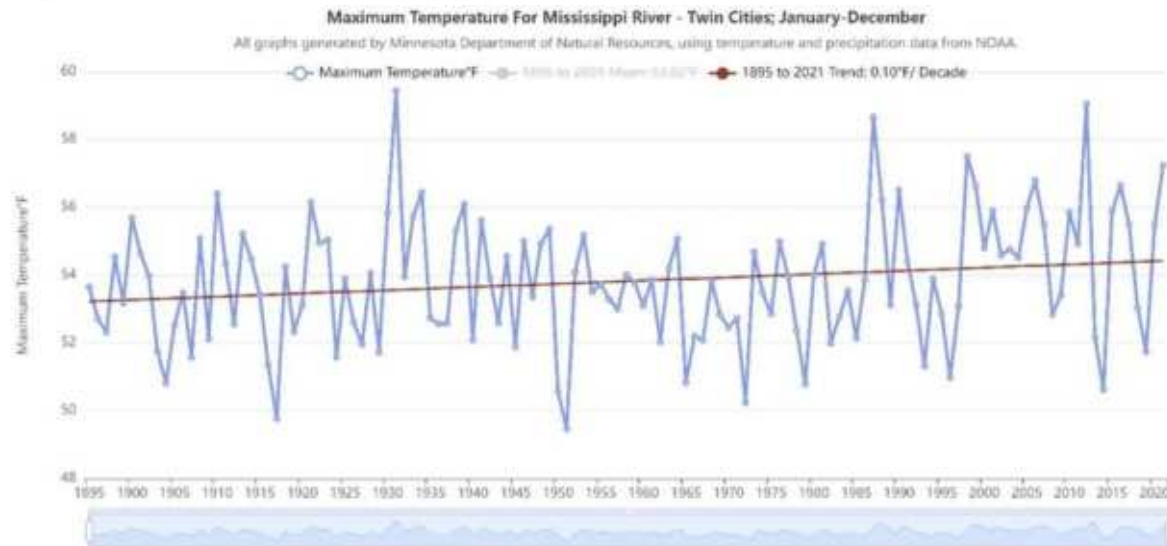
- a. **Describe the climate trends in the general location of the project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location during the life of the project.**

The MNDNR Minnesota Climate Trends website was used to analyze past climate trends in the immediate vicinity of the project area using the Mississippi River Watershed District – Twin Cities boundary.

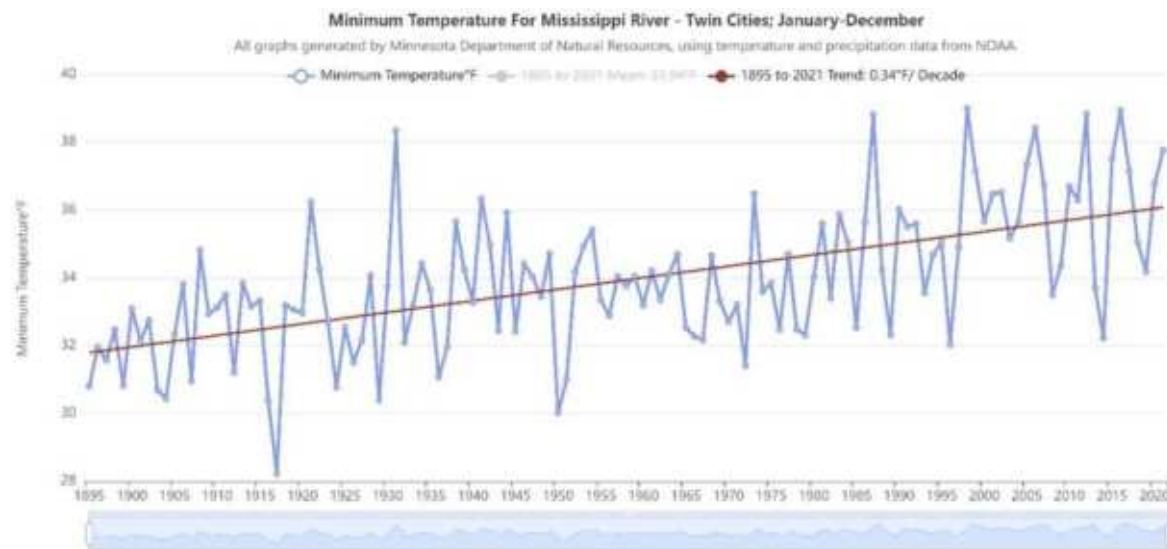
Overall past trends involve warming average annual temperatures (42.23°F in 1895 to 44°F in 2023).



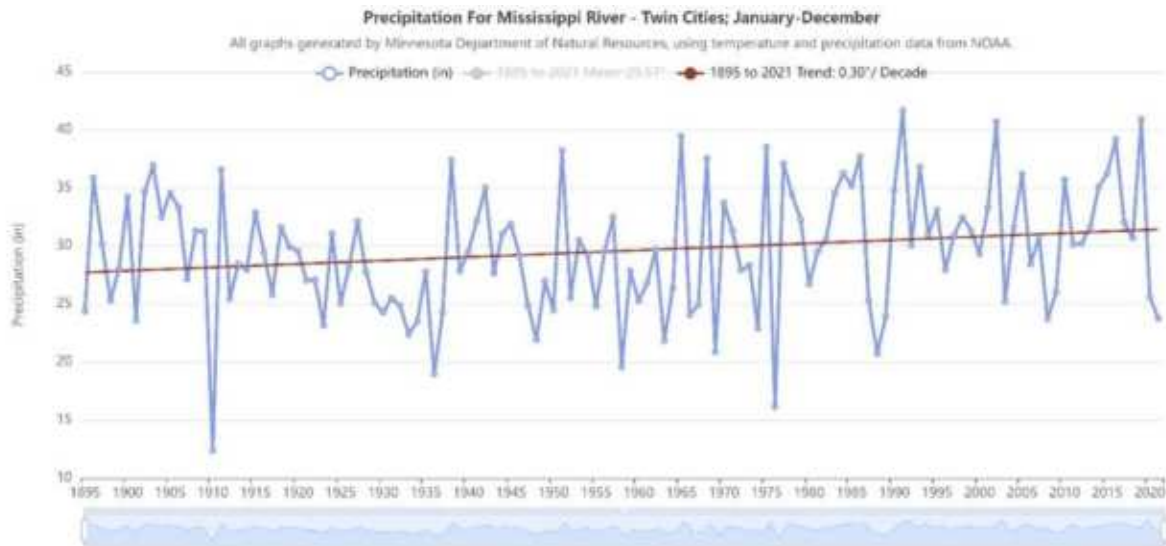
Past trends included increasing maximum annual temperatures (53.56°F in 1895 to 57.49°F in 2021).



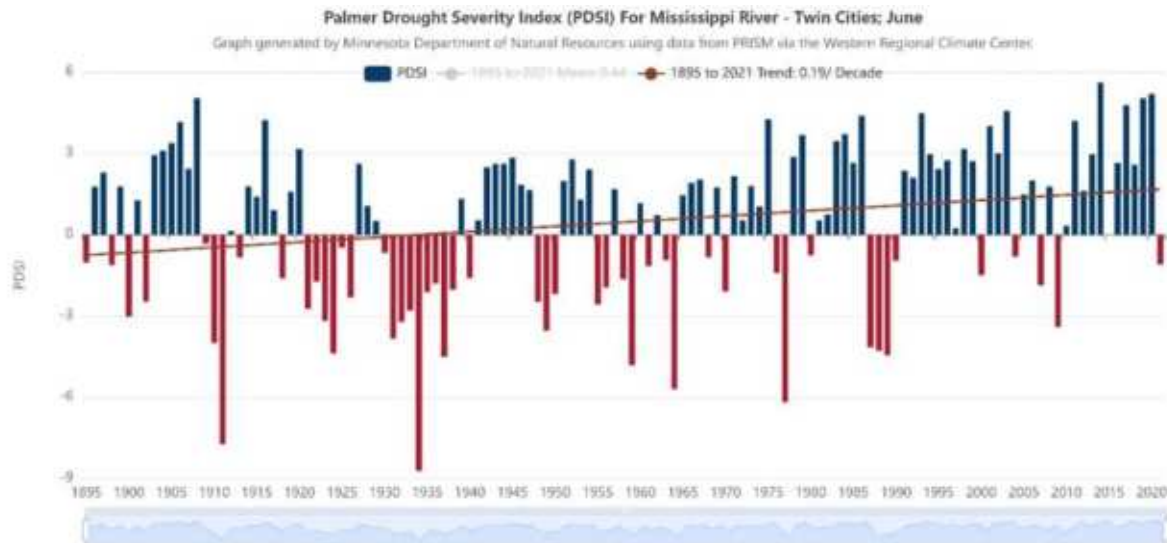
Past trends included increasing minimum annual temperatures (30.8°F in 1895 to 37.84°F in 2021)



Past trends included slightly increasing annual precipitation (24.31" in 1895 to 24.66" in 2021)



Past trends included increasing drought severity (Palmer Drought Severity index of 1.64 in 1895 to -2.1 in 2023).

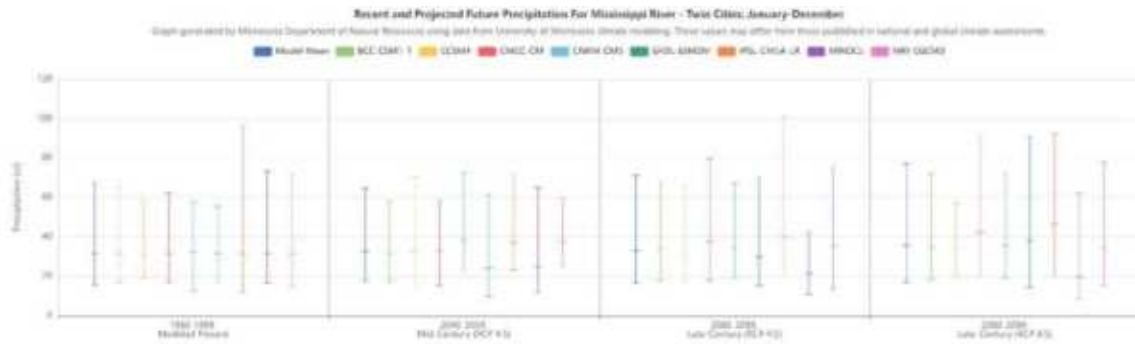


The MNDNR Minnesota Climate Explorer website was used to analyze future predictions for climate trends in the immediate vicinity of the project area using the Mississippi River Watershed District – Twin Cities boundary.

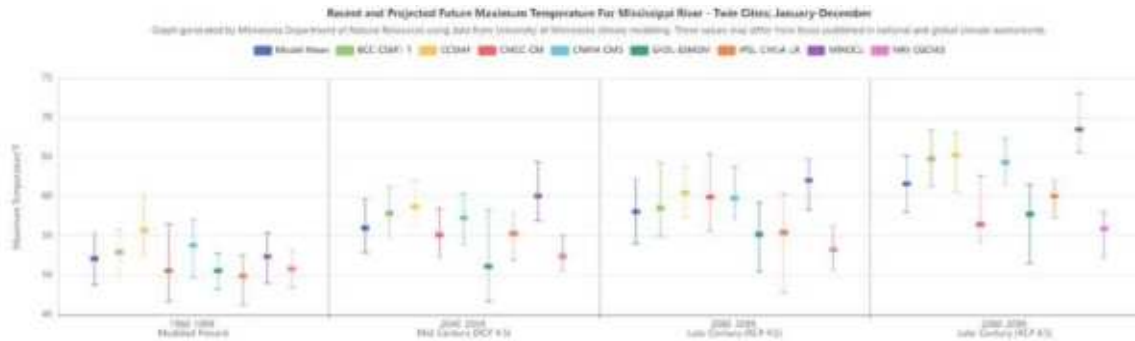
Overall trends involved warming annual average temperatures (modeled mean of 48.98°F between 2040-2059 and 51.38°F between 2080-2099).



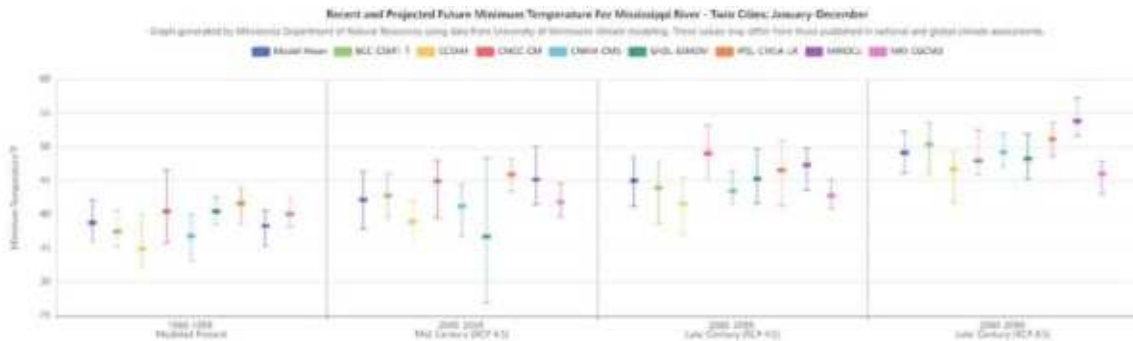
Future trends showed slightly increasing annual precipitation (modeled mean of 32.43" between 2040-2059 and 33.11" between 2080-2099).



Future trends showed increasing maximum annual temperatures (modeled mean of 55.99 °F between 2040-2059 and 58.08°F between 2080-2099).



Future trends showed increasing minimum annual temperatures (modeled mean of 42.20°F in 2040-2059 and 45.01 between 2080-2099).



The Rogers Industrial Development is expected to have a construction timeline of 2-4 years. The building and site design will abide by City and watershed requirements for minimum separation from existing ordinary high-water levels for the historic wetland, and amenities will comply with separation requirements from any observed ground water. These design parameters will mitigate the likelihood of flooding given current climate trends and future climate trends. The proposed development is consistent with the City of Rogers zoning plans in the Regional Employment Center and will not contribute to climate trends beyond what is predicted given the Industrial designation.

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

Table 7.1 – Resource Category Climate Considerations			
Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	The proposed project will increase the impervious area of the site and implement tree removal in the areas required to construct the development.	The developed site will include stormwater basins and improve stormwater management on site by regulating potential runoff. The developed site will provide tree replacement in accordance with City requirements to provide shade and help reduce heat island effect.	Project will abide by maximum allowable impervious coverage percentages per the zoning designation for industrial buildings. The project will limit tree removal and grading impacts to only the areas of the site necessary for development of the industrial facility. Trees and existing grades outside the development area will be preserved. New landscaping will include new trees throughout the site to ensure no net loss of qualifying trees.
Land Use	Climate trends of increasing annual average, minimum, and maximum temperatures along with increasing precipitation may result in expansion of	The project includes stormwater basins to protect the existing wetlands. Floodplain mitigation will be provided to	Project will comply with City and watershed guidelines. The project will include emergency overflow locations so large rainfall events will flow to downstream waters without impacting the proposed buildings or neighbors. The project will exceed the required open green space for

	existing waterbodies.	maintain existing floodplain volume.	its zoning designation.
Contaminated/ Hazardous Waste/ Materials	Climate trends of increasing annual average, minimum, and maximum temperatures along with increasing precipitation may increase erosion of exposed soils and materials held within the soils.	The project will comply with sediment control requirements of the NPDES permit and satisfy water quality requirements of the City and watershed district.	The project will implement a Storm Water Pollution Prevention Plan during construction. Practices will include designated wash-out areas for potentially hazardous construction materials and best management practices to capture and retain sediment onsite.
Water Resources	Climate trends of increasing annual average, minimum, and maximum temperatures along with increasing precipitation may result in increased storm runoff volumes, increased water temperatures, and greater fluctuation in annual precipitation.	The proposed project will satisfy stormwater requirements of the City and watershed district.	The project will satisfy rate, volume, and water quality control as outlined by the City and watershed district regulations. The project will also comply with regulations pertaining to protecting and preserving existing water resources such as wetlands, floodplain volume, and endangered species.

8. Cover Types

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

- Wetlands – identified by type (Circular 39)
- Watercourses – rivers, streams, creeks ditches
- Lakes – identify protected waters status and shoreland management classification
- Woodlands – breakdown by classes where possible
- Grassland – identify native and old field
- Cropland
- Current development

Please refer to **Figures 5 & 6** for a visual depiction of the following cover types and soil types before development within the study area:

Table 8.1 – Existing Cover Types		
Cover Types & Subtypes	Acres Before Development	Acres After Development
Wetlands	0.43	0.43
Watercourses	0	0
Lakes	0	0
Woodlands	7.89	3.16
Grassland	0	0

Cropland	37.21	0
Developed Land	0	41.94
Total:	45.53	45.53

Approximately 81% of the project area is currently cropland, 18% is trees, and the remaining 1% is wetland. As the design progresses the post-construction cover types will be refined. The developer will complete a tree preservation and replacement plan as required prior to construction activities.

Green Infrastructure*	Before (acreage)	After (acreage)
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretenion areas without underdrains/swales with impermeable check dams)	0	2.79
Constructed tree trenches and tree boxes	0	0
Constructed wetlands	0	0
Constructed green roofs	0	0
Constructed permeable pavements	0	0
Floodplain Mitigation	0	0
TOTAL*	0	2.79

Trees	Percent	Number
Percent tree canopy removed or number of mature trees removed during development	60%	-
Number of new trees planted	-	260

9. Permits and approvals required.

List all known local, state, and federal permits, approvals, 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 these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

Currently Assumed Approvals Needed:

Table 9.1 - Approvals		
Unit of Government	Type of Application	Status
FEDERAL		
St. Paul District of the U.S. Army Corps of Engineers (COE)	Approved Jurisdictional Determination	To be applied for
STATE		
Minnesota Department of Resources (MNDNR)	MN Natural Heritage Database Review	Complete
MN Pollution Control Agency (MPCA)	National Pollution Discharge Elimination System Construction Permit (NPDES)	To be applied for

Table 9.1 - Approvals		
Unit of Government	Type of Application	Status
	Stormwater Pollution Prevention Plan (SWPPP)	To be applied for
State Historic Preservation Office (SHPO)	Archeological/historic sites review	Complete
Minnesota Department of Labor and Industry (MNDLI)	Site Utilities Review	To be applied for
LOCAL		
Metropolitan Council	Metropolitan Council Environmental Services (MCES) Permit	To be applied for
Hennepin County	Plat Approval	To be applied for
Elm Creek Watershed Management Commission (ECWMC)	Wetland Alteration & Buffer Review	To be applied for
	Storm Water Management Plan Review	To be applied for
	Erosion and Sediment Control Plan Review	To be applied for
City of Rogers	Underground Excavation Permit	To be applied for
	Mechanical/HVAC Permit	To be applied for
	Plumbing Permit	To be applied for
	Electrical Permit	To be applied for
	Right of Way Permit	To be applied for
	New Construction Permit	To be applied for
	Temporary Sign Permit	To be applied for

10. 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 project area currently consists of cropland, trees, floodplain, and wetlands. The property to the west consists of residential single-family housing. The north property line abuts the Crow River. The property directly north of the Crow River is single-family housing. The east property line of the project area abuts State Highway 101 and properties directly across the highway are industrial and commercial production facilities. Properties located south of the project area are also industrial and commercial facilities.

There are no parks, trails, or designated walks near the project area.

The USDA Web Soil Survey indicates that approximately 50% of the project area is not prime farmland, approximately 43.4% is farmland of statewide importance, 5.9% is prime farmland if drained, and 0.4% is prime farmland (**Figure 6**).

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 planned land use for the project area consists of Mixed-Use Regional per the City of Rogers' 2040 Future Land Use Map (**Figure 9**). The region is intended to include commercial, office, light industrial, institutional, mid-and-high density residential, and park uses.

The project area is served by the Elm Creek Watershed Management Commission.

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

The project area is under one ownership and is currently zoned as Regional Employment Center (RC) on the City of Rogers Zoning Map (**Figure 8**). This zoning designation is intended to promote the redevelopment of the corridor along State Highway 101 into areas suited for high intensity commercial, office oriented, and industrial land use patterns tailored to the larger metropolitan region. The proposed project property is shown as Mixed-Use Regional on the 2040 Future Land Use Map (**Figure 9**). The Mixed-Use Regional zoning is intended to be a commercial and office-oriented land use pattern tailored to the community and larger metropolitan region.

There is no shoreland overlay district shown in the proposed project area on the City of Rogers 2022 zoning map (**Figure 8**) nor a Minnesota DNR designation for "Wild and Scenic Rivers". Appendix A of the City municipal code governs shoreland protection.

Based on the data provided by FEMA, approximately 6.47 acres of the site lies within Flood zone AE which represents the 1% annual flood (**Figure 12**).

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

No critical facilities are proposed within a floodplain area.

- 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 area is designated as Regional Employment Center by the City of Rogers' Zoning Map and Mixed-Use Regional in the City of Rogers' 2040 future Land Use map. The proposed project is consistent with these designations. The proposed project will create a unique identity in the region as the largest industrial site along State Highway 101. While the primary focus in this district is job creation, the proposed development will also be mindful of the existing natural features, trees, and floodplain.

The proposed development will be compatible with neighboring properties per the zoning ordinance and 2040 land use plan. No land use variances or conditional use permits are being applied for. All industrial developments have truck traffic and the expected trips from this project have been quantified in the traffic study (See **Question 18**). No hazardous waste or other contaminants is expected to be created from this development. The environmental impacts of the proposed project are consistent with impacts found with other industrial projects.

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

No inconsistencies were identified for the proposed project. New trees will be planted on site, storm water management best practice will be followed, and the site buildings will comply with all City of Rogers zoning regulations.

11. Geology, soils, and topography/landforms

- 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.

According to the Minnesota Geological Survey, depth to bedrock ranges from 50-150 feet below the existing ground surface within the limits of the project area. No known geologic hazards in the form of sinkholes, faults, shallow limestone formations, and karst topography are present on the site. Consequently, measures to avoid or minimize environmental problems due to these hazards are not proposed.

According to Minnesota Geological Survey of Hennepin County, the bedrock underlying the project area is identified as Jordan sandstone, St. Lawrence formation, and Mazomanie formation. Jordan sandstone is white-to-yellow, medium-to-coarse grained, friable quartzose sandstone. St. Lawrence formation is light gray-to-yellow gray and pale yellowish-green, dolomite, feldspathic siltstone with interbedded fine-grained sandstone and shale. Mazomanie formation is white-to-yellow gray, fine-to-medium grained, cross-stratified quartzose sandstone with interbedded dolomite sandstone. Surficial geology in the project area is fine grained sandy gravel.

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

Most of the site is currently cropland and trees with one existing wetland. According to the HSDA's Web Soi Survey, the soil is a mix of sandy loams (**Figure 7**).

Table 11.1 – Existing Soils			
Map Symbol	SCS Soils Classification	≈ Acres	% of site
D8C	Sandberg loam	17.2	35
D6B	Verndale sandy loam	8.9	18
D5B	Dorset-Two Inlets complex	7.2	14.7
D3A	Elkriver fine sandy loam, occasionally flooded	5.2	10.7
D67A	Hubbard loamy sand, 0-2% slope	3.7	7.5
D67C	Hubbard loamy sand, 2-12% slope	3.2	6.5
D24A	Sedgeville loam	2.9	5.9
W	Water	0.6	1.3
D2A	Elkriver fine sandy loam, rarely flooded	0.2	0.4

According to the geotechnical investigation by American Engineering Testing, Inc., soils within the project limits are non-erodible and suitable for the proposed uses. Mitigation based on typical erosion control and sedimentation regulations will be provided. (Appendix H)

12. Water Resources

- a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.
- Surface water** - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include 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.

Within the project area there are 0.43 acres of wetland along the northern property line. The Minnesota Wetland Conservation Act Notice of Decision on the wetland boundary was submitted on November 4, 2022. The wetland report is included in **Appendix C**. The delineation may be found in **Figure 10**.

According to Minnesota Geospatial Commons, there are no designated trout streams, trout lakes, wildlife lakes, or migratory waterfowl feeding and resting areas on or near the project area. Approximately 6.47 acres of the site is within the FEMA flood zone AE which represents the 1% annual flood.

According to MPCA's Construction Stormwater Special Waters Search, there are two impaired waters within one mile of the proposed site. The Crow River borders the northern property line of the project area and is impaired for benthic macroinvertebrates bioassessments, fecal coliform, fish bioassessments, nutrients, and turbidity. Foster lake is approximately 0.84 miles from the project site and is impaired for nutrients. See **figure 14** for impaired waters within 1 mile of the project area.

- 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.

According to soil borings taken on-site by American Engineering Testing on April 16, 2001, groundwater elevations on the site range from approximately 862.8-865.3 feet above mean sea level. The hydrogeologic gradient onsite is unknown but may be estimated to be north given the Crow River is located north of the project site location.

The United States Department of Agriculture Soil Conservation Service, Minnesota Geological Survey, and Hennepin County Well Index were reviewed as part of the Phase I Environmental Site Assessment. No wells were observed onsite. If any wells are discovered on-site during construction, they must be sealed in accordance with the regulations of the Minnesota Department of Health (MDH). The site is not located within a Drinking Water Supply Management Area (DWSMA) or Wellhead Protection Area.

- d. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

1) **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.

2) 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.

Wastewater from the proposed development will discharge to the City of Rogers trunk line located south of the proposed site. Stubs from the existing sanitary sewer lift station will be extended for the proposed development. The City's sanitary sewer system collects wastewater within City limits and conveys water to the Rogers Wastewater Treatment Plant and the Elm Creek Interceptor for treatment and disposal. There are plans to construct the MCES Crow River Reclamation Plant which will supply additional wastewater treatment capacity for the cities of Rogers, Corcoran, and Dayton. The Rogers Wastewater Treatment Plant was expanded in 1996 to a capacity of 1.602 million gallons per day (MGD). The Rogers industrial Development site is expected to use 48,000 gallons per day. This flow rate is 3% of the capacity of the Rogers Wastewater Treatment Plant. The waste loading from the development is expected to closely match the composition of the existing wastewater loading to the treatment plant. Pretreatment measures only consist of those pretreatment measures prior to treatment at the wastewater treatment facility.

3) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated because of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion.

The wastewater discharge from the development will not discharge to a subsurface sewage treatment system. The industrial development will be connected to the municipal sanitary sewer system.

4) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration

how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.

Sanitary sewer service will be provided by the City of Rogers from the south. Industrial buildings will connect via service connection to the sanitary sewer trunk line. The source of wastewater discharge from the site is expected to consist of the quantity and composition of wastewater typical of light industrial facilities. No effects to surface or groundwater are expected due to the wastewater being contained in the municipal sanitary sewer line.

- i. **Stormwater** - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion.

For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

Stormwater runoff for the existing conditions flows into the Crow River to the north. The topography in the area is higher along the south end of the project area and slopes downhill to the river. There are no existing areas with impervious surfaces.

The proposed project will be designed to meet the stormwater quantity and quality standards and requirements set by the Elm Creek Watershed Management Commission (ECWMC) and the City of Rogers. The ECWMC reviews grading, stormwater, erosion and sediment control. In addition to the ECWMC requirements, the City's zoning and stormwater management code plays a critical role in preserving natural resources.

Permanent stormwater Best Management Practices (BMPs) will be designed to manage the site's stormwater runoff and may include surface infiltration basins and surface sedimentation basins. These BMPs will aid in minimizing environmental impacts of rising average, maximum, and minimum temperatures, along with increasing average annual precipitation. BMPs provide additional water storage onsite to provide rate, volume, and water quality control before runoff discharges to downstream received waters. The proposed stormwater design will be compliant with City and watershed plans to integrate changing rainfall frequency, intensity, and amount into development requirements.

According to the geotechnical boring logs completed by American Engineering Testing in April 2001, existing soils in preliminary BMP locations consist of sand, sand with silt, and silty sand. These soils are hydrologic soil group (HSG) A and suitable for infiltration. The bottoms of proposed basins will be designed to provide required separation from the bottom of basin to groundwater elevation.

Catch basins and storm sewer pipes convey the stormwater runoff to those systems. Temporary

erosion and sediment control BMPs will be utilized during construction to ensure disturbed soil does not run off the site to surface waters or storm sewers. The project stormwater pollution prevention plan (SWPPP) ensures that the construction contractor follows proper procedures to prevent polluting stormwater runoff from the site during construction activity. The contractor and designer are encouraged to limit tree removal from the site to aid in the retention of stormwater, as older trees are much more efficient at retaining rainfall than young trees. The City of Rogers will require a maintenance agreement to ensure the permanent stormwater BMPs are maintained in the long term.

The project meets the requirements of the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Construction Stormwater (CSW) Permit, as it will disturb more than one acre of land. The CSW permit requires inactively worked soil to be stabilized within 7 days of disturbance, even if construction activity will resume in the area, because there is an impaired water within one mile of the proposed site area. The Crow River borders the northern property line of the project area and is impaired for benthic macroinvertebrates bioassessments, fecal coliform, fish bioassessments, nutrients, and turbidity. Foster lake is approximately 0.84 miles from the project site and is impaired for nutrients. See **figure 14** for impaired waters within 1 mile of the project area.

The CSW permit requires the maintenance of 50 feet of undisturbed existing buffer to existing water bodies during construction. If construction encroaches the buffer, then redundant down-gradient sediment controls must be installed to protect these water bodies during construction. These requirements must be listed in the project's SWPPP. If the lots are sold to other parties to complete construction on individual lots, the owner must supply a SWPPP to the new owner specifying required stormwater BMPs and CSW Permit coverage must be obtained by the new owner for their portion of the site via the Subdivision Registration process.

With the project proposes an increase in impervious surface, it can be expected that the amount of road and sidewalk salt used will slightly increase in the project area. Chloride released into local waterbodies does not break down and accumulates in the environment. At high enough levels, this can be harmful to aquatic plants and wildlife. The MPCA offers a Smart Salting Training program to encourage responsible usage of road salts. There are a variety of classes available for road salt applicators. The City is encouraged to provide public outreach to reduce the overuse of chloride.

- ii. **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. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

No water appropriation will occur during the operational lifespan of the proposed project. If water for dust control during construction is taken from streams, wetlands, or lakes in volumes

that exceed 10,000 gallons per day, or one million gallons per year, a DNR Water Appropriation Permit will be required. No products that contain chloride for dust control will be used in areas that drain to public waters. Construction dust control is required to be in conformance with City of Rogers's ordinances and the NPDES Construction Stormwater permit.

Domestic water use for the proposed project will be supplied through City of Rogers watermain. Existing 12" watermain is installed south of the project area and stubs will be extended for the proposed industrial development. The source for domestic water for the proposed project will be the City of Rogers which utilizes nine wells, two elevated storage facilities, and one ground storage reserve to provide capacity and flow for the expected demand. The City's 2040 comprehensive plan speculates additional water production and storage facilities will be required over the next 20 years as the city continues to grow and develop. The City of Rogers sources domestic water from wells connected to the Franconia-Ironton-Galesville formations. There is an annual Drinking Water Report which summarizes a years' worth of monitoring lead, copper, inorganic and organic contaminants.

iii. Surface Waters

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

A Minnesota Wetland Conservation Act Notice of Decision was submitted on November 4, 2022 for the Wetland Boundary onsite. Approximately 0.43 acres of wetland are located along the northern property line of the site aside the Crow River. See **Appendix C** for the Wetland Delineation Report. No commercial or industrial access to the wetland is proposed in the form of docks, bridges, or other pedestrian walkways.

To reduce indirect impacts to the wetland a 25 feet average and 10 feet minimum upland buffer will be established along the wetland boundary per the ECWMC rules, and all structures will have a 15 feet setback from the buffer strip. Upland buffers along wetlands have been proven to reduce sedimentation, stormwater runoff, and the number of pesticides/herbicides that reach wetlands. If any disturbance occurs within the buffer during construction the buffer will be re-planted with native species suitable to the area. ECWMC will review the buffer strips for the proposed project in accordance with the Stormwater Management Rule I. Signage will be required along the edge of the wetland buffer indicating that it is a "no disturb area."

- 2) **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.

All waters within the project area have been discussed above.

13. Contamination/Hazardous Materials/Wastes

- a. Pre-project site conditions** - Describe existing contamination or potential environmental hazards on or near 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 for the project area was completed in April 2001 (**Appendix D**). No instances of existing contamination or potential environmental hazards were identified in the project area. Past land uses include agricultural activities. Past land use activities may have included the application of pesticides and herbicides; however, no soil or groundwater contamination was identified or anticipated with this project.

- 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 of the proposed project will result in the generation of solid waste and construction waste material. All waste and unused building materials will be properly disposed of off-site.

During project operation, municipal solid waste will be hauled away by a local, licensed garbage hauler and new commercial and industrial tenants will be encouraged to recycle.

- 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. Indicate the number, location, size, and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

During construction and operation of the project, vehicles containing gasoline will be present on site. Minimal amounts of gasoline may be stored on site in approved containers with secondary leak protection. Toxic or hazardous materials present after construction will be consistent with commercial and industrial uses and may include pesticides and herbicides. If storage tanks for commercial and industrial hazardous materials are proposed, they will be constructed and contained in accordance with City standards. The potential for contamination is low. No above or below ground tanks will be stored onsite following construction.

- 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 of the project will not involve the generation of significant amounts of hazardous waste. Hazardous waste generated will be properly disposed of in accordance with state and federal law. The Minnesota Pollution Control Agency requires any business generating hazardous waste to complete a hazardous waste generator license. All state and federal laws will be followed during construction and operation of these facilities.

14. Fish, wildlife, plant communities, and sensitive ecological resources (rare features)

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

The project area consists of a variety of habitats and vegetation including wetlands, trees, and cropland. The surrounding properties consist of single-family residential developments, commercial facilities, and industrial facilities. No regionally significant ecological areas or Minnesota County Biological Survey Sites of Biodiversity Significance are identified on the project area or the adjacent properties.

According to the DNR's Ecological Classification System, the project area is located within historic Eastern Broadleaf Forest province, Minnesota & Iowa Morainal section, and Big Woods subsection.

The land surface of the Eastern Broadleaf Forest province is largely the product of Pleistocene glacial processes. The northwestern and central portions of the province were covered by ice in the last glaciation and are characterized by thick (100–300 feet) deposits of glacial drift. Eastern Broadleaf Forest Province coincides roughly with the part of Minnesota where precipitation approximately equals evapotranspiration. This aspect of climate has an important influence on plants, as many forest species reach their western range limits and several prairie species reach their eastern range limits within the province.

The pre-settlement pattern of upland vegetation in the Minnesota & Iowa Morainal section reflects substrate texture and landform topography. These features affected plants directly through their influence on moisture and nutrient availability, insulation, and local temperature, and indirectly through their influence on the frequency and severity of fires. Sandy flat areas were dominated by prairie, savanna, and oak and aspen woodlands. Woodland and forest dominated sites in the section where fire was uncommon or rare. Fine-textured drift deposited in hummocky moraines supported mesic forests dominated by sugar maple, basswood, American elm, and northern red oak. Even small reductions in fire frequency afforded by streams, lakes, or topographic breaks permitted the formation of forest on finer-textured soils, and once formed these forests were highly resistant to burning. Floodplain and terrace forests were present historically along the valleys of the major rivers, the Mississippi, Minnesota, and St. Croix, and are still prominent today along many stretches of these rivers. Forests of silver maple occupy the active floodplains, while forests of silver maple, cottonwood, box-elder, green ash, and elm occupy terraces that flood infrequently. These valleys are also characterized by herbaceous and shrubby river shore communities along shorelines and on sand bars, and in some areas by cliff communities on steep rocky river bluffs.

The Big Woods subsection coincides with a large block of deciduous forest present at the time of Euro-American settlement. West of the subsection, tallgrass prairie was the primary vegetation, suggesting basic differences in climate, topography, and natural disturbance. Topography characteristically is gently to moderately rolling across this subsection. Soils are formed in thick deposits of gray limey glacial till left by the Des Moines lobe. Northern red oak, sugar maple, basswood, and American elm were most common in this dominantly forested region. Presently, most of the region is farmed. The primary landform is a loamy mantled end moraine associated with the Des Moines lobe of the Late Wisconsin glaciation. Parts of the moraine have ice disintegration features. The dominant landscape feature is circular, level topped hills bounded by smooth side slopes. Broad level areas between the hills are interspersed with closed depressions containing lakes and peat bogs. According to the Big Woods subsection profile, examples of species within the subsection in greatest need of conservation include common mud puppy, cruelean

warbler, least darter, western harvest mouse, mucket, and eastern racer. More than 75% of the current land use for the Big Woods subsection is cropland, with an additional 5 to 10% pasture. The remaining 10 to 15% of the subsection remains as either upland forest or wetland.

- 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 (**MCE # 2023-00673**) 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.

The Minnesota Department of Natural Resources (MNDNR) reviewed the Natural Heritage Information System (NHIS) to determine if any rare natural features could be impacted by the proposed project. Correspondence dated August 30, 2023 (Correspondence MCE # 2023-00673) (**Appendix B**) indicates the following state-listed species of special concern may be adversely affected by the proposed project:

- Black Sandshell (*Igumia recta*). This invertebrate animal lives in large rivers and medium-size streams.

The NHIS did not contain any records for federally listed species within one mile of the proposed site.

In addition to the information provided by the MNDNR, the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) tool was used to identify other potential sensitive resources near the project. The IPaC identifies the northern long-eared bat (*Myotis septentrionalis*) (NLEB), the tricolored bat (*Perimyotis subflavus*), the whooping crane (*Grus Americana*), and the monarch butterfly (*Danaus plexippus*) as potentially being within the vicinity of the project area.

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

The black sandshell is usually found in the riffle and run areas of medium to large rivers in areas dominated by sand or gravel. Members of this mussel species may live for several decades and in some instances, a century or more. They spend most of their lives buried in the bottom sediments of permanent water bodies, and often live in multi-species communities called mussel beds. Mussels eat by filtering bacteria, protozoans, algae, and other organic matter out of the water. They draw water into their body through their incurrent siphon, remove food and oxygen with their gills, and then expel the filtered water through their excurrent siphon. Food particles are carried to the mussel's mouth by tiny hairlike cilia located on the gills.

Degradation of mussel habitat in streams throughout the black sandshell's known range is a continuing threat to this species. Declines in habitat conditions are associated with management of the Mississippi River as a navigational canal, and with non-point source water pollution and sediment pollution. Dams, channelization, and dredging increase siltation, physically alter habitat conditions, and block the movement of fish hosts. The black sandshell is also being impacted by the infestation of non-native [zebra mussels](#) (*Dreissena polymorpha*) in the Mississippi River and its tributaries. Zebra mussels can attach themselves in large numbers to the shells of native mussels, eventually causing death by suffocation. Further survey work in rivers where the black sandshell was formerly documented is needed to verify its status in the remainder of its historical range. To avoid impacts to the black sandshell, proper erosion and sediment control practices will be implemented and maintained during

construction of this project and will be incorporated into a stormwater management plan. The bounds of the wetland located onsite will not be disturbed to maintain as much natural habitat as possible. The black sandshell can also be sensitive to the impacts of climate change such as rising average, maximum, and minimum temperatures along with average increased annual precipitation. Rising water levels and droughts may lead to decreased habitat and unsuitable air and water temperatures.

The northern long eared bat (NLEB) was recently (March 31, 2023) recognized as a federally endangered species. The habitat of the NLEB in Minnesota is natural caves, sand mines, and iron mines in the winter and forested habitats near water in the summer. The bats have also been found roosting in man-made structures such as barns and sheds. There are no existing buildings located onsite and caves and mines are not present in the proposed project area. No surface carbonite features are located within the project area. The US Fish and Wildlife list of townships containing documented NLEB maternity roost trees and/or hibernacula entrances in Minnesota does not identify any hibernacula or roost trees near the project area.

Tricolored bats hibernate in caves, mines, and tunnels in the winter, and generally roost singly, often in trees in the summer. Maternity colonies have not been found in Minnesota, but elsewhere they have been found in trees, rock crevices, barns, or other buildings. Because no colonies have been found in Minnesota, the likelihood of the proposed project disturbing habitat for the tricolored bat is low. Tricolor bat habitats of caves and mines are not present on the proposed project area. The tricolor bat is under a proposal to be listed as an endangered species.

The whooping crane is an endangered species and currently exist in the wild at 3 locations (Aransas Buffalo-Woods National Park, central Florida, eastern Wisconsin) and in captivity at 12 sites. The proposed project site falls within the migratory path for the eastern Wisconsin population, but given the population size and migratory area, the chances of the project disturbing habitat for the birds are unlikely. Whooping crane habitat includes coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats, upland swales, wet meadows and rivers, pastures, and agricultural fields. The proposed project area does include agricultural fields and wetlands. The majority of existing agricultural field will be replaced for the proposed project development and landscaped areas. Historic wetlands will be protected to preserve habitat.

Monarch butterflies lay their eggs on milkweed (*Asclepias speciosa*) hosts year-round and migrate to warmer climates during the fall. Additional habitat needs for adult monarchs include flowering plants and nectar corridors. The existing ground cover of the proposed site consists of turf grass and cropland, neither of which contain abundance of milkweed or flowering plants. The monarch butterfly is under a proposal to be listed as an endangered species.

There is an opportunity for invasive weed species to be introduced during project construction; however, it is not anticipated that these species would persist following construction. The proposed project would be landscaped with turf grass and landscape trees and shrubs per a City-approved landscaping plan. Consequently, areas of exposed soil where invasive weed species might appear are not anticipated. If areas of invasive species do develop, they would be controlled in accordance with local and state invasive and noxious weed regulations. There are no specific invasive species of concern for the proposed 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.

To minimize impacts to the rare features noted above, the mitigation measures recommended by the MNDNR (**Appendix B**) will be implemented including:

- To avoid impacts to the Northern Long Eared Bat, tree removal should be avoided from June 1 through August 15. Winter tree clearing (November 15 to March 15) is recommended.

- River protection is vital to maintaining black sandshell populations. The bounds of the existing wetland between the project area and the river will be preserved on the proposed project to maintain existing habitat.
- Effective erosion and sediment control practices will be implemented and maintained during construction and incorporated into any stormwater management plans.
- If any construction equipment or materials encounter water, they must be decontaminated following the Equipment Cleaning to Minimize Invasive Species brochure from the DNR.

With implementation of these measures, impacts to rare features are not anticipated.

15. Historic properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or near 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.

The SHPO was contacted regarding the potential for historic, cultural, or architectural resources on and near the site as part of the EAW process. SHPO conducted a search of the Minnesota Archaeological Inventory and Historic Structures Inventory on September 12, 2023. The result of this database search provided a listing of recorded archaeological sites and historic/architectural properties that are included in the current MN SHPO databases, the general vicinity of these sites has been mapped and can be found on **Figure 13**. The SHPO correspondence is included in **Appendix B**.

The project area is in the E ½ of the NW ¼, S11, T 120N, R 23W and the SE ¼ of the SW ¼, S2, T 120, R23W in Hennepin County, Minnesota. The parcels consist of cropland and trees with wetland separating the parcel from the Crow River. Vegetation consisted of non-native grasses, trees, and bushes.

A total of 45.53 acres were inventoried by SHPO for the proposed project. No cultural resources were observed during this inventory of the proposed project. Therefore, a finding of “no historic properties” is recommended for the proposed project. If the applicable regulatory agencies agree with these findings, then a recommendation of ‘no further work’ is considered appropriate.

16. Visual

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

The transformation of natural land into a developed area inevitably alters its visual appearance. The Rogers Industrial Development is not expected to detrimentally affect the scenic views from State Highway 101. To mitigate the overall visual changes typically associated with development, the project will incorporate screen of truck entrances, dumpsters, and other areas identified through the site plan review process. In addition, the site will be improved with extensive landscaping, particularly in areas that provide a natural buffer from adjacent developments.

Additionally, all lighting within the development will be thoughtfully designed to minimize glare and will be equipped with shields to direct the light downward, preventing any disturbance to neighboring properties.

17. Air

- a. **Stationary source emissions** - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, 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 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.

No stationary source of air emissions is proposed as part of the project. Emissions from the heating and cooling units would be typical of other industrial and commercial buildings in the area. State law prohibits idling of trucks and equipment while parked or not-in-use during both construction of the project and operation of the facilities. Overnight parking is also prohibited.

- 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 most critical pollutant associated with vehicular traffic in Minnesota is carbon monoxide (CO). Carbon monoxide (CO) is one of five vehicle emission pollutants for which the US Environmental Protection Agency has standards. CO is a colorless, odorless, and tasteless toxic gas produced by the incomplete burning of carbon in fuel. Motor vehicle emissions will be associated with vehicles traveling to and from the development site, and from construction equipment necessary for the proposed construction activities. Following project completion, vehicle-related air emissions in the area—including carbon monoxide levels—will see a relatively small increase due to the increase in traffic to and from the site.

In general, concentrations of carbon monoxide are typically greatest at intersections with poor levels of service because of excessive idling or acceleration of vehicles. Levels of service at area intersections will remain consistent following this project.

- 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 will not generate significant odors during construction or operation. Odors generated during construction will be mitigated by maintenance of the construction equipment to the manufacturers' specifications and by using appropriate fuel additives when necessary. Grading and construction will temporarily generate dust. BMPs and other standard construction methods will be used to reduce construction impacts such as intermittent applications of water to exposed soils as needed to reduce dust during dry weather.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

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

The greenhouse gas emissions from the proposed Rogers Industrial Development project are provided on an annual basis using the carbon dioxide (CO₂) equivalent and include the best estimate of average annual emissions from the construction and operating phases. Emissions were estimated using the US Environmental Protection Agency's Simplified Greenhouse Gas Emissions Calculator and are summarized in the tables below by project phase and source type. The complete printout of the GHG Emission Calculator may be found in **Appendix F**.

Construction emissions are from mobile equipment, including passenger cars, light duty trucks, medium duty trucks, heavy duty trucks, and construction equipment. Emissions from cooling and refrigeration systems are not included in the analysis of GHG emissions as emissions from refrigerants are approximately less than five percent of the total emissions of a building according to the Practice Health Greenhouse Gas Reduction Toolkit.

The emission calculations below are from the EPA Greenhouse Gas Equivalencies Calculator and based on typical construction equipment used for a project of this size and duration. While specific equipment on site may vary slightly based the construction needs at the time of building, the emissions amount per equipment type are based on EPA data.

Table 18.1 - Construction Emissions

Scope	Type of Emission	Emission Sub-type	Project-related CO ₂ e Emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile Equipment	9,415	EPA Simplified Greenhouse Gas Emissions Calculator
TOTAL			9,415	

Table 18.2 - Operational Emissions

Scope	Type of	Emission	Project-related CO ₂ e Emissions (tons/year)	Calculation
Scope 1	Combustion	Stationary equipment	1,386	EPA Simplified Greenhouse Gas Emissions Calculator
Scope 2	Off-site electricity	Grid-based	4,561	EPA Simplified Greenhouse Gas Emissions Calculator
Scope 3	Off-site waste management	Area	3,739	EPA Simplified Greenhouse Gas Emissions Calculator.

b. GHG Assessment

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

Mitigation considerations to reduce greenhouse gas emissions on the proposed project may include use of energy efficient appliances, equipment and lighting, use of energy efficient building materials, encouragement of alternative forms of transportation to and from the proposed site, implementation of waste best management practices to recycle and compost appropriate materials, landscaping to improve air quality and absorb greenhouse gasses, and providing electric vehicle charging infrastructure.

ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the

project's GHG emissions. Explain why the selected mitigation was preferred.

Potential mitigation items will be selected based on practicability during design and construction.

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

The Next Generation Energy Act requires the state to reduce greenhouse gas emissions by 80 percent between 2005 and 2050 while supporting clean energy, energy efficiency, and supplementing other renewable energy standards in Minnesota. The expected lifespan of the proposed Rogers Industrial Development project is 50 years. This equates to a total estimated carbon dioxide equivalent emission of 521,960 metric tons including construction and operation phases.

Annual Construction Emissions*Years of Construction + Project Life Emissions*Project Lifetime=Net Lifetime Emissions

$$(9,415*4)+(1,386+4,561+3,739)*50 = 521,960$$

The project contractor will evaluate potential emission reduction practices to reduce operational emissions to the extent practicable and the project will be built in accordance with federal and state regulations and to the City code.

19. Noise

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

Grading and construction will temporarily generate an increase in noise level and vary in intensity based on the type of construction equipment being used (see **Table 9**). To minimize the effects of noise pollution, construction volumes and work hours will adhere to the City's noise ordinances. Mufflers will be used on equipment used during demolition and construction activities. Additionally, BMPs and other standard construction methods will be used to reduce construction impacts such as limiting hours of operation to comply with the noise regulations in City ordinance. Construction noise will be limited to daytime hours consistent with the City of Rogers's construction and noise ordinances.

After construction is completed, the proposed development will decrease noise pollution in residential communities coming from State Highway 101 by acting as a "sound wall". Industrial buildings, oriented north/south, will shield automotive noise and for the residential developments along Raspberry Drive, located west of the proposed project area. In addition, landscaping on site, including trees, vegetation, and berms will help reduce noise. The nearest parking area to the residential areas to the west will be approximately 250 feet from the nearest house and the nearest building will be approximately 320 feet. Both exceed the City's setback requirements.

Since this land is zoned for industrial development, this project is not asking for any variances or special considerations regarding noise, landscaping, or height regulations. All City codes will be followed during construction and operation of the facilities. In addition, the building on the west side of the property will not have loading bays that face residential neighbors to further reduce noise during business operations.

Minnesota law, *7030.0040 NOISE STANDARDS*, regulates the non-construction noise on all industrial sites in the state. The maximum noise allowable by law at this development during the day is 70dB and at night is 65dB. This project will comply with state law regarding noise limits.

Equipment Type	Peak Noise Level	Average During Use
Backhoe	74-92 dB	83
Dozer	65-95dB	85
Front Loader	75-96 dB	85
Grader	72-92 dB	84
Pile Driver	95-105 dB	101
Scraper	76-98 dB	87

20. Transportation

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

The existing site is currently vacant agricultural land. The proposed development has the potential to provide up to 688 parking spaces, not including the truck loading bay areas. The proposed development is expected to generate approximately 1,716 daily vehicular trips, of which, approximately 292 daily trips would be from heavy commercial vehicles (i.e., trucks). The proposed development is expected to generate approximately 207 a.m. peak hours (174 in/ 33 out) and 205 p.m. peak hour (44 in / 161 out). The a.m. peak hour represents 7 to 8 a.m. and the p.m. peak hour represents 4:30 to 5:30 p.m. The trip generation estimate for the proposed development was created using the ITE Trip Generation Manual, 11th Edition and used the preliminary fit plan as the basis for the estimate. A summary of the proposed development trip generation is provided in **Table 20.1**.

Table 20.1 Trip Generation Summary

Land Use Type (ITE Code)	Size	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
Proposed Development						
Warehouse (150)	473,450 SF	62	18	24	61	810
General Office (710)	83,550 SF	112	15	20	100	906
Total (All Vehicles)	557,000 SF	174	33	44	161	1,716
Total (Trucks)		8	7	5	5	292

- 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.

Although the expected trip generation is below the EAW threshold for traffic generation, a traffic study was still prepared to assess the transportation impacts associated with the proposed development. The draft Cote Industrial Development Traffic Study dated October 17, 2023, is included in Appendix G for reference.

Results of the study indicated that all study intersections and approaches currently operate an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours. There are existing minor queuing issues within the study area, although they do not present any significant operational issues from a capacity perspective and do not warrant any mitigation.

Under year 2026 build conditions, all study intersections and approaches are expected to continue to operate at an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours. The overall change in operations resulting from the proposed development from an intersection delay perspective is relatively minimal and within acceptable industry standards. Note that the location most impacted by the proposed development will be the CR 144 (141st Avenue) and Northdale Boulevard intersection, with an average increase of two (2) to six (6) seconds of delay per vehicle during the a.m. and p.m. peak hours respectively. Southbound queues along Northdale Boulevard will extend up to approximately 360 feet during the p.m. peak hour, which will impact access to a few driveways in the area.

To limit any queuing impacts along Northdale Boulevard during the p.m. peak hour, the addition of a southbound right-turn lane and optimization of the intersection signal timing should be considered. With these changes, the Northdale Boulevard intersection would operate at an overall LOS B and the average and 95th percentile queues in the southbound direction would be approximately 160 feet and 260 feet, respectively. At this level of queues, impacts to the North 101 Business Park access would be minimal.

The northbound left-turn lane queuing issue at the CR 144 (141st Avenue) and James Road / Rogers Drive intersection is expected to continue, however the proposed development is not expected to significantly impact this intersection or its operation. Minor signal timing adjustments could help reduce these queues, but given the relatively short-turn lane, they cannot be fully mitigated without additional geometric modifications. Further discussion with Hennepin County should occur to determine if any modifications should be considered for this location given the relatively small impact of the proposed development.

A review of the proposed site plan does not indicate any major issues. Although special care should be taken to locate signage and landscaping to avoid creating any sight distance issues and truck maneuverability should be reviewed to limit potential internal circulation conflicts. There are no multimodal facilities along Northdale Boulevard, but preservation of right-of-way for a future multimodal facility should be considered.

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

As noted in the traffic study, the following mitigation was identified.

- Construct a southbound right-turn lane along Northdale Boulevard at CR 144 (141st Avenue); this modification may require reconfiguration of the existing traffic signal in this location.
- Optimize the signal timing at the CR 144 (141st Avenue) and Northdale Boulevard intersection, which may also involve reviewing overall corridor progression and signal timing along CR 144.
- Preserve right-of-way for a future multimodal facility along Northdale Boulevard.

Further discussion with area agencies should occur to determine what modifications should be considered, as well as their implementation timeframe and funding.

21. Cumulative potential effects

- 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.**

Any impacts to the environment will meet Federal, State, and Local regulations and will be mitigated as required; therefore, it is not anticipated that impacts from the development create any cumulative potential effect not already examine herein.

- 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.**

No other known development or redevelopment is planned adjacent to the proposed project site currently.

- 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.**

No known development or redevelopment is planned adjacent to the proposed project site currently. Development of the project is not anticipated to cause any future projects. Continued development of the area is always a possibility, but any such changes in land use on an adjacent site would be reviewed as required by the City, and if necessary, a separate environmental review may need to be completed as a part of such a redevelopment. At that point, the drivers of such a project would need to coordinate efforts and reviews with the Rogers Industrial Development site to identify cumulative impacts that cannot be identified at the present day.

22. Other potential environmental effects

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

No additional environmental effects have been identified.

RGU Certification

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: BQ

Date: 12/14/2023

Name: Brett Angell, City of Rogers

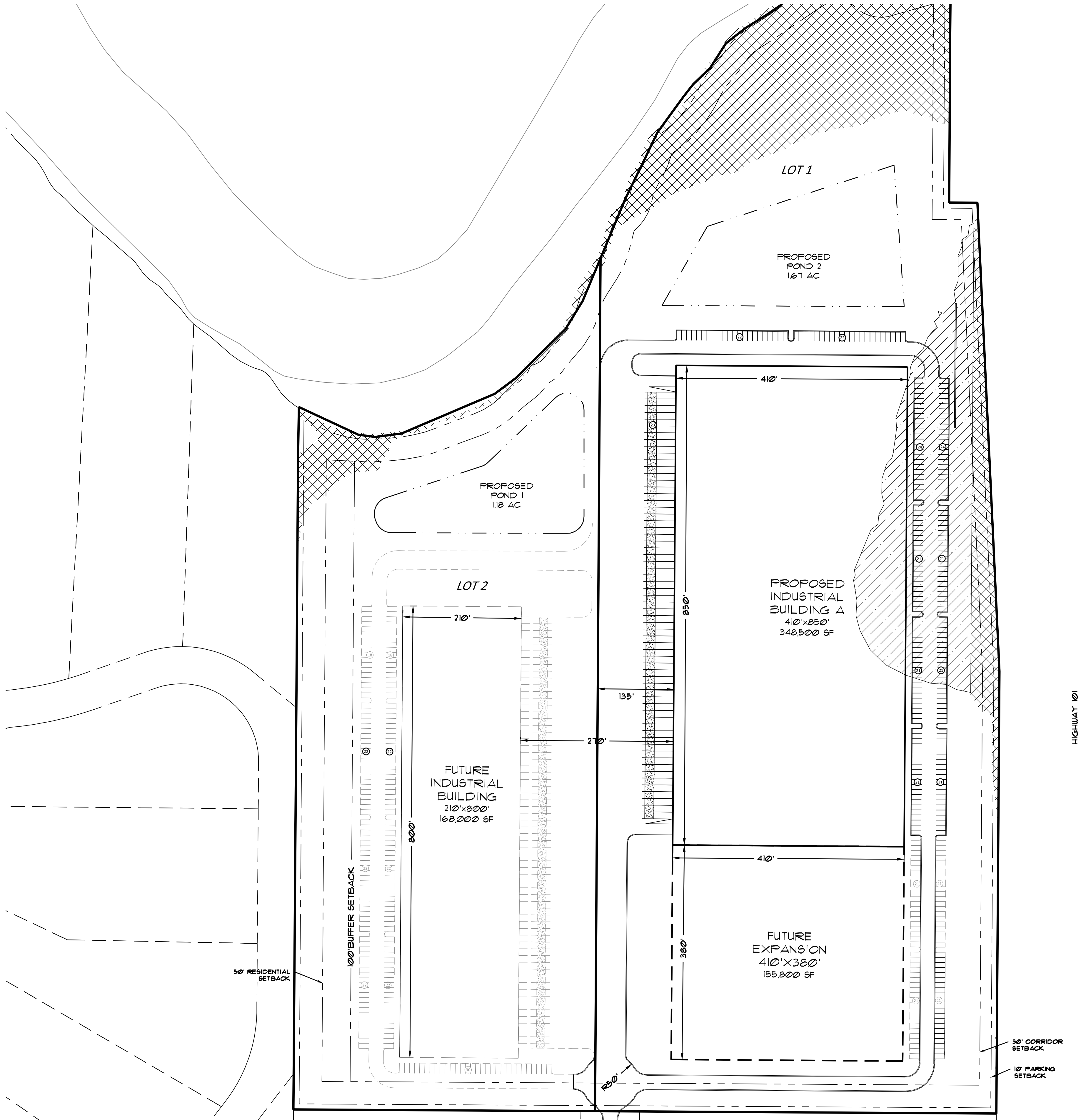
Appendix A



FIGURE 1 - REGIONAL LOCATION MAP



FIGURE 2 - PROJECT LOCATION



LEGEND	
	BOUNDARY LINE
	WETLAND
	STORMWATER POND
	FEMA FLOOD ZONE
	100 YEAR FLOOD PLAIN
	IMPACTED 100 YEAR FLOOD PLAIN

DEVELOPMENT SUMMARY	
AREAS	
LOT 1	29.81 AC
LOT 2	115.51 AC
GROSS LOT	45.38 AC
FLOOD PLAIN	6.41 AC
NET DEVELOPABLE	38.97 AC
IMPERVIOUS (MAX 75%)	
BUILDINGS	(55.1%) 20,093 AC
	(34.0%) 6,12,311 SF
BUILDING COVERAGE LOT 1	
BUILDING COVERAGE LOT 2	(38.8%) 11.58 AC
	(24.8%) 3.86 AC
STORMWATER PONDING	(18.8%) 2.85 AC

PARKING RATIOS
INDUSTRIAL PARKING: 1 PER 2000 SF
OFFICE: 1 PER 200 SF
85/15 FOR EACH BUILDING

PARKING SUMMARY	BUILDING AREA	REQUIRED	PROVIDED
PROPOSED BUILDING A	348,500 SF	411 STALLS	218 STALLS
BUILDING EXPANSION	155,800 SF	180 STALLS	184 STALLS
FUTURE BUILDING	168,000 SF	198 STALLS	198 STALLS

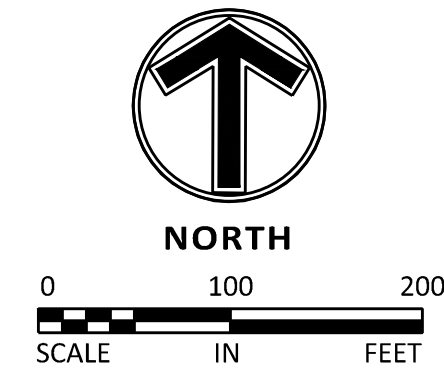


FIGURE 3 - CONCEPT SITE PLAN

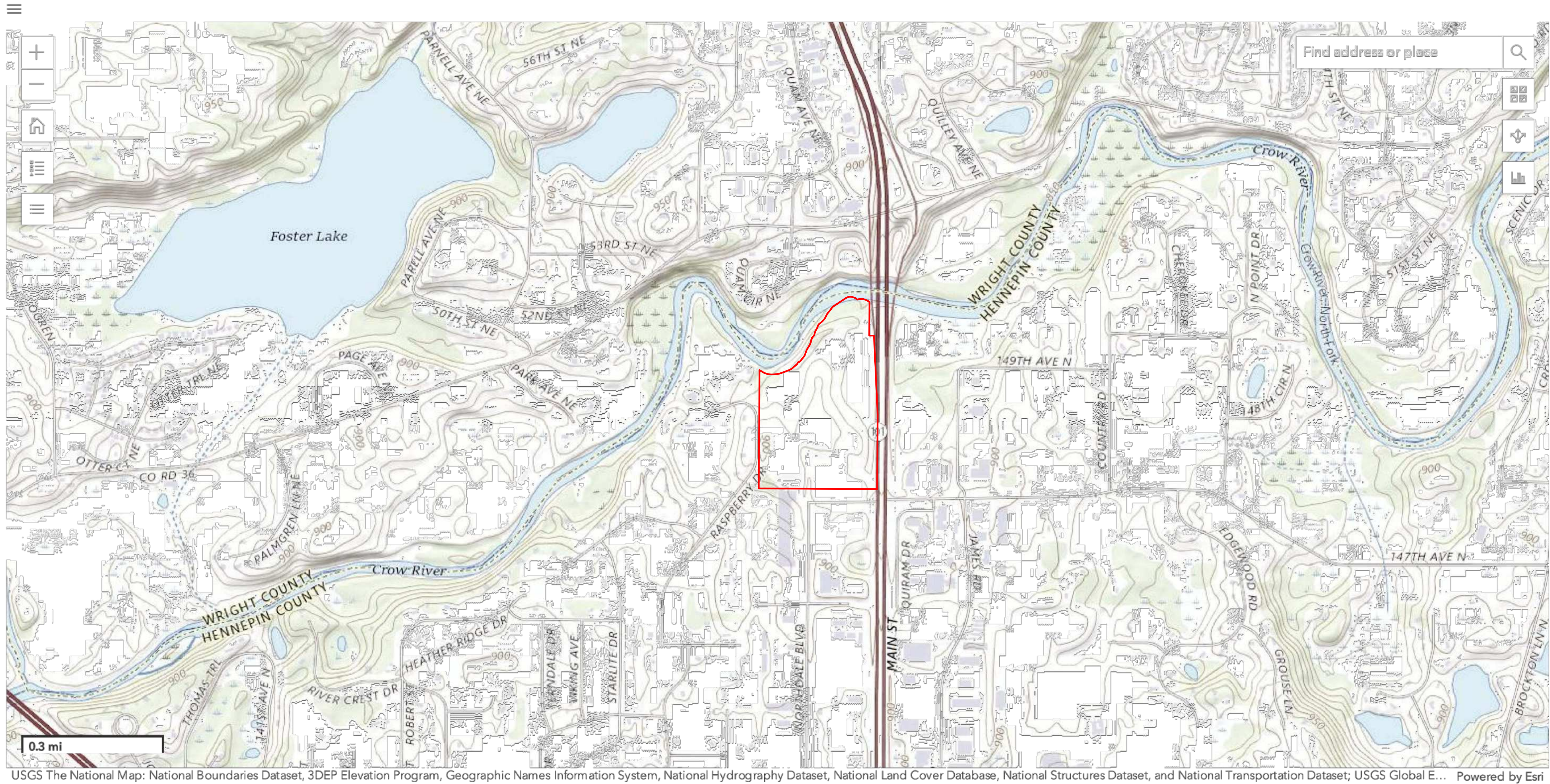
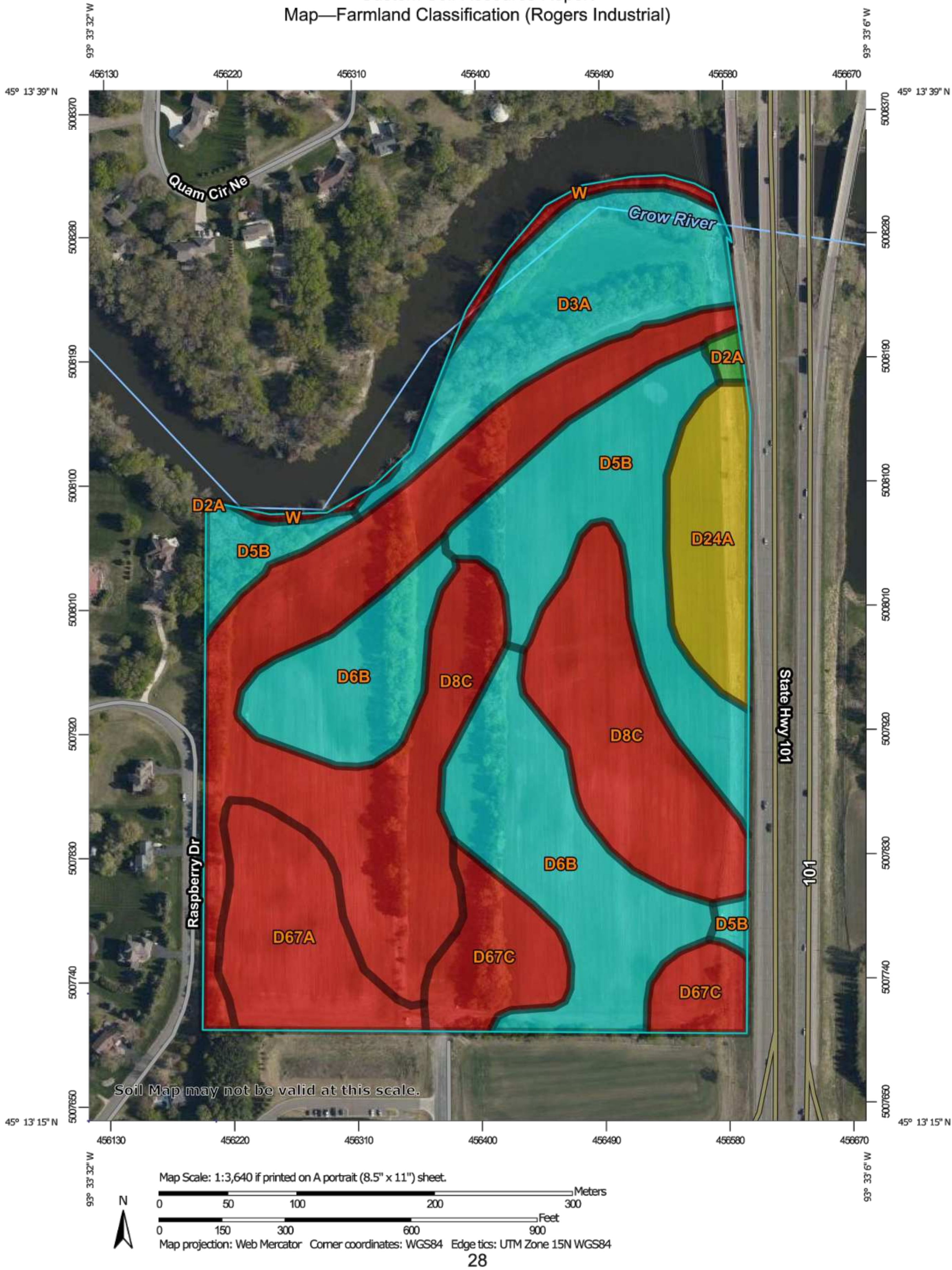


FIGURE 4 - USGS MAP



FIGURE 5 - EXISTING COVER TYPES

Custom Soil Resource Report
Map—Farmland Classification (Rogers Industrial)



Custom Soil Resource Report

Table—Farmland Classification (Rogers Industrial)

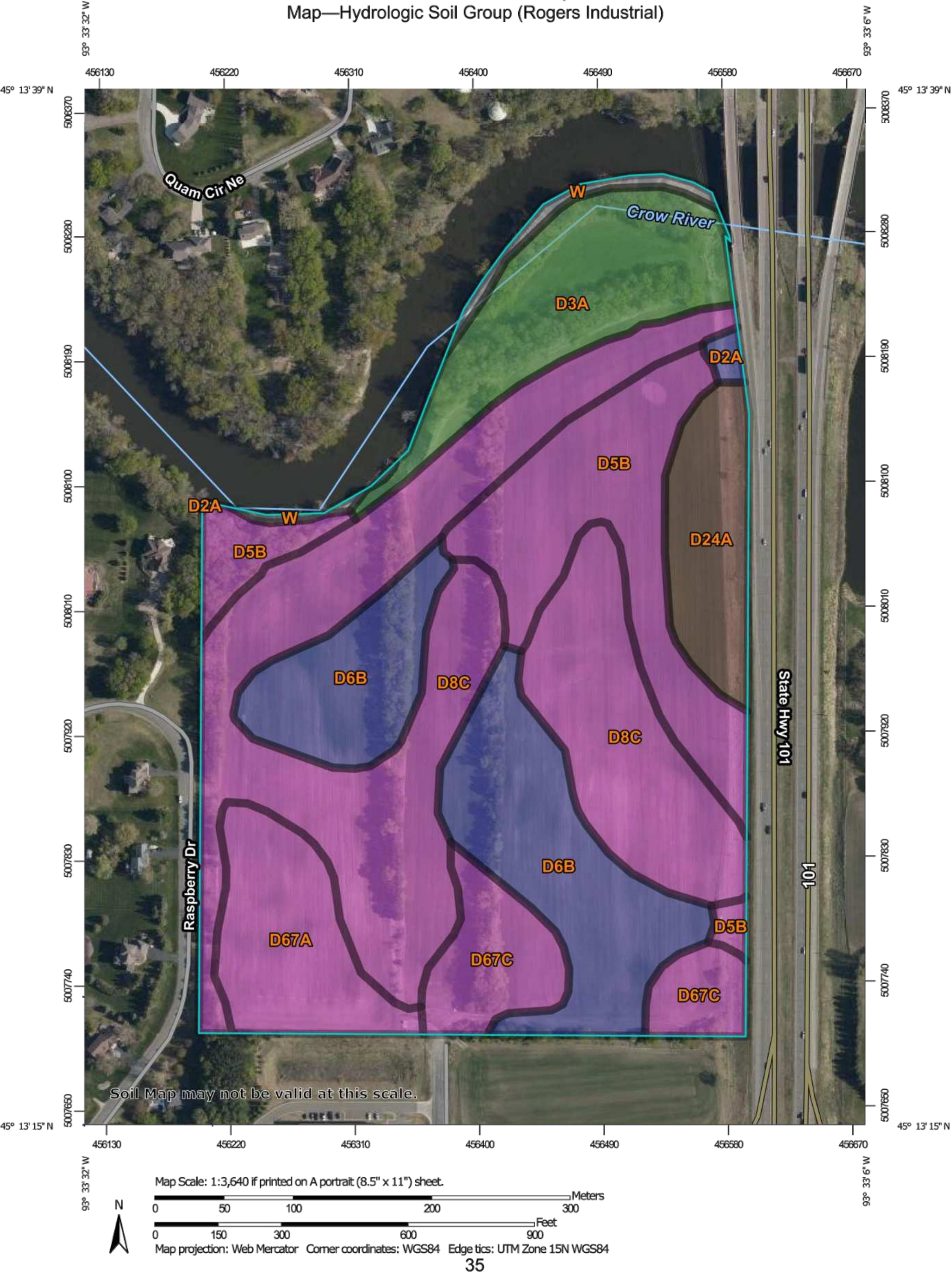
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
D2A	Elkriver fine sandy loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland	0.2	0.4%
D3A	Elkriver fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Farmland of statewide importance	5.2	10.7%
D5B	Dorset-Two Inlets complex, 2 to 6 percent slopes	Farmland of statewide importance	7.2	14.7%
D6B	Verndale sandy loam, 2 to 6 percent slopes	Farmland of statewide importance	8.9	18.0%
D8C	Sandberg loamy sand, 2 to 12 percent slopes	Not prime farmland	17.2	35.0%
D24A	Sedgeville loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	2.9	5.9%
D67A	Hubbard loamy sand, 0 to 2 percent slopes	Not prime farmland	3.7	7.5%
D67C	Hubbard loamy sand, 2 to 12 percent slopes	Not prime farmland	3.2	6.5%
W	Water	Not prime farmland	0.6	1.2%
Totals for Area of Interest			49.2	100.0%

Rating Options—Farmland Classification (Rogers Industrial)

Aggregation Method: No Aggregation Necessary
Tie-break Rule: Lower

FIGURE 6 EXISTING FARMLAND TYPES

Custom Soil Resource Report
Map—Hydrologic Soil Group (Rogers Industrial)



Custom Soil Resource Report

Table—Hydrologic Soil Group (Rogers Industrial)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
D2A	Elkriver fine sandy loam, 0 to 2 percent slopes, rarely flooded	B	0.2	0.4%
D3A	Elkriver fine sandy loam, 0 to 2 percent slopes, occasionally flooded	A/D	5.2	10.7%
D5B	Dorset-Two Inlets complex, 2 to 6 percent slopes	A	7.2	14.7%
D6B	Verdale sandy loam, 2 to 6 percent slopes	B	8.9	18.0%
D8C	Sandberg loamy sand, 2 to 12 percent slopes	A	17.2	35.0%
D24A	Sedgeville loam, 0 to 2 percent slopes, occasionally flooded	B/D	2.9	5.9%
D67A	Hubbard loamy sand, 0 to 2 percent slopes	A	3.7	7.5%
D67C	Hubbard loamy sand, 2 to 12 percent slopes	A	3.2	6.5%
W	Water		0.6	1.2%
Totals for Area of Interest			49.2	100.0%

Rating Options—Hydrologic Soil Group (Rogers Industrial)

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Higher

FIGURE 7 - SOILS



Rogers Zoning Map

City of Rogers, Minnesota
Date: June 23 2020



Legend

Zoning

- AG
- R1
- R2
- R3
- R4
- R5
- PUD
- OP
- ND
- DT
- LC
- RC
- GI
- SB

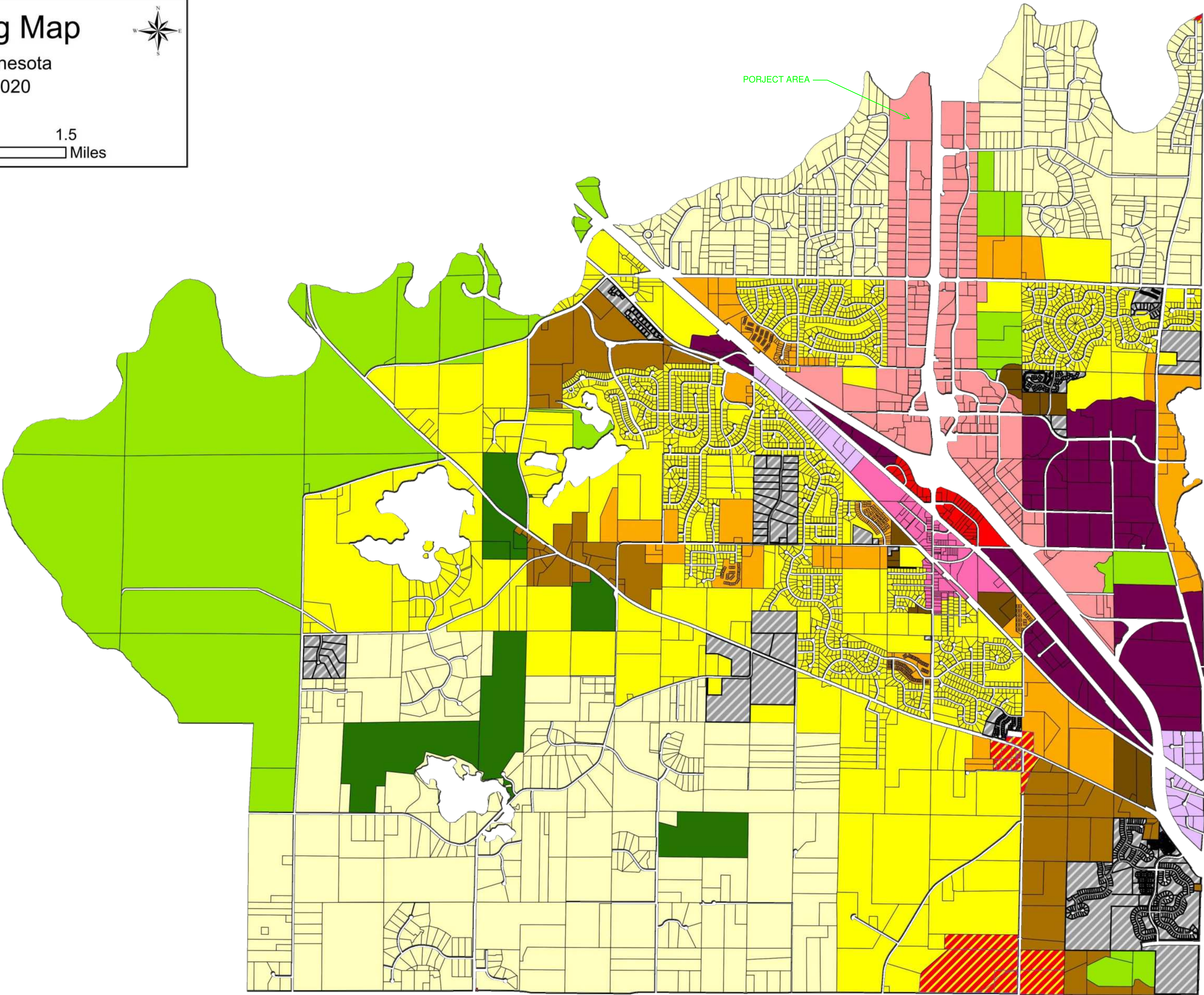


FIGURE 8 - ZONING MAP

Figure 4.4:
2040 Future Land Use

0 0.5 1 Miles

City of Rogers, Minnesota
Comprehensive Plan Update
Date: 19 January 20



Legend

- Rural Residential - 0.10 to 2 unit per acre
- Low Density Residential - 2 to 6 units per acre
- Medium Density Residential - 6 to 11 units per acre
- High Density Residential - 11 to 60 units per acre
- Mixed Residential - 4 to 15 units per acre
- Commercial
- Mixed Use Regional - 8 to 60 units per acre
- Mixed Use Neighborhood - 3 to 6 units per acre
- Mixed Use Downtown - 8 to 40 units per acre
- Industry
- Institutional
- Park & Open Space
- Protected Resources
- Agriculture Preserve
- Utility/Railroad

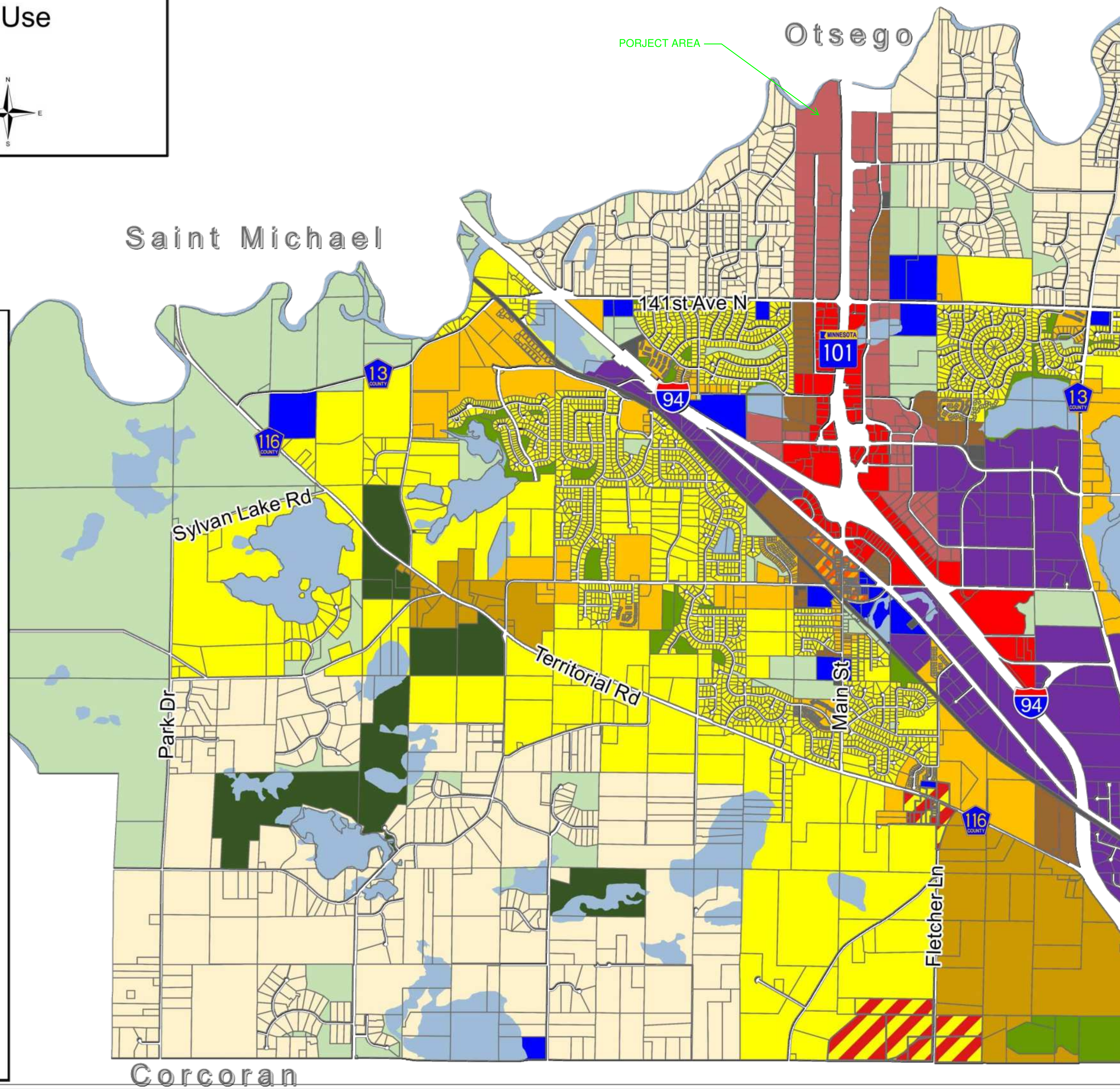


FIGURE 9 - FUTURE LAND USE

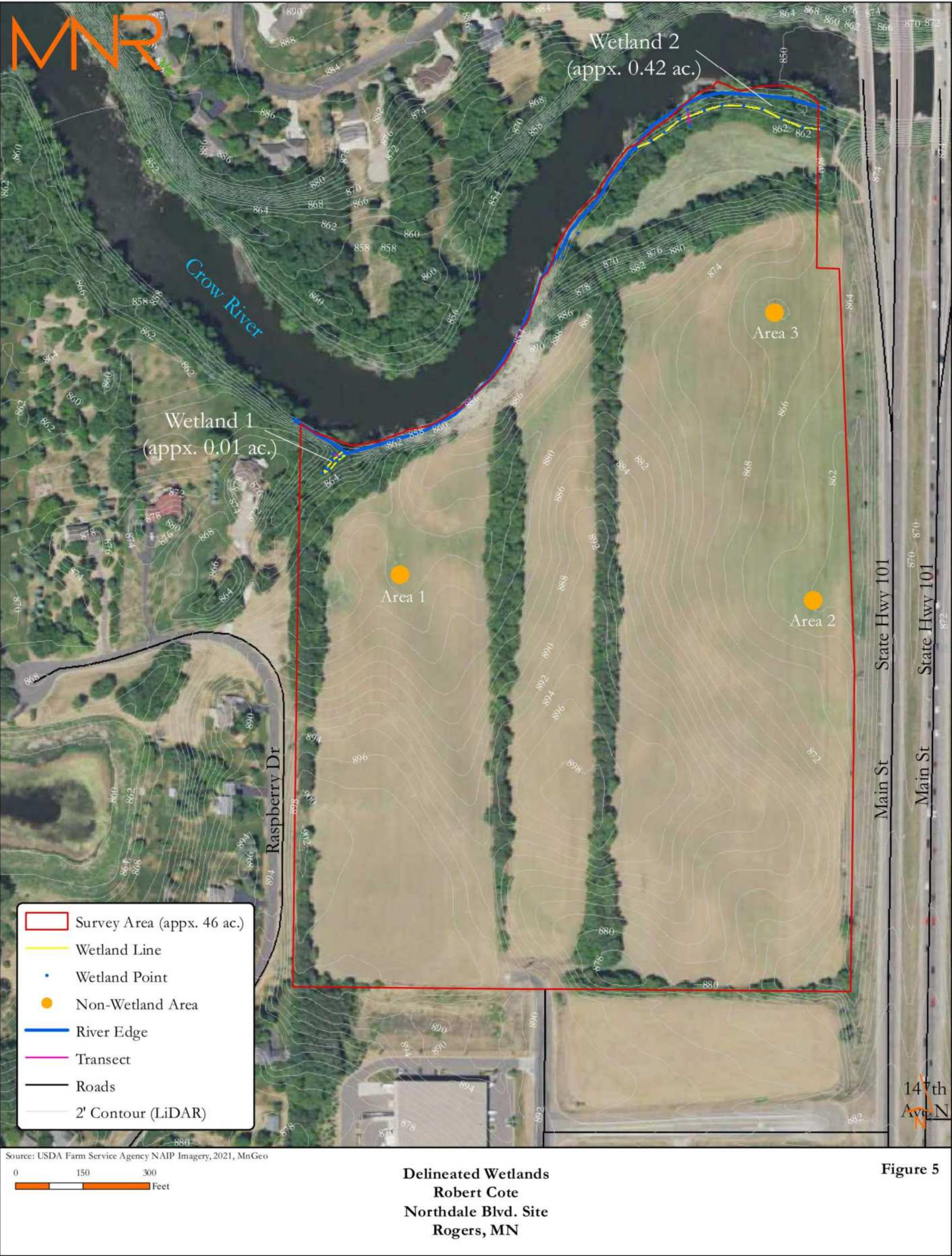


FIGURE 10 - DELINEATED WETLANDS



September 11, 2023

Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Other

Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

FIGURE 11 - NATIONAL WETLAND INVENTORY



FIGURE 13 - HISTORIC/ARCHEOLOGICAL SITE LOCATIONS

Appendix B

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Hennepin County, Minnesota



Local office

Minnesota-Wisconsin Ecological Services Field Office

☎ (952) 858-0793

📅 (952) 646-2873

3815 American Blvd East

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Whooping Crane <i>Grus americana</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/758	<u>EXPN</u>

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the [Bald and Golden Eagle Protection Act](#) and the [Migratory Bird Treaty Act](#).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON

Bald Eagle *Haliaeetus leucocephalus*

Breeds Dec 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and

understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

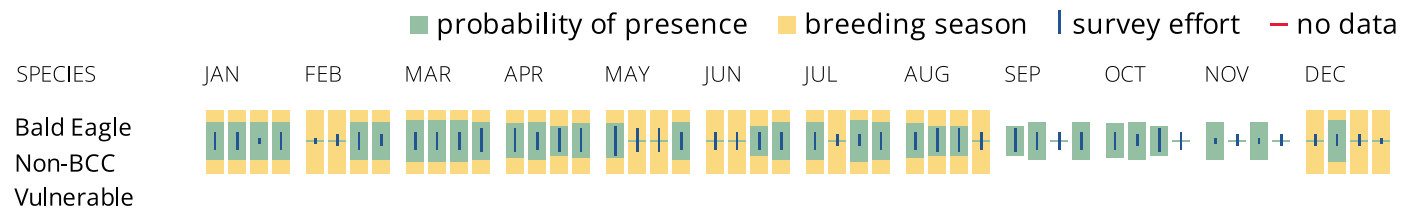
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31

Black Tern *Chlidonias niger*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3093>

Breeds May 15 to Aug 20

Bobolink *Dolichonyx oryzivorus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Jul 31

Canada Warbler *Cardellina canadensis*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 20 to Aug 10

Cerulean Warbler *Dendroica cerulea*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/2974>

Breeds Apr 22 to Jul 20

Chimney Swift *Chaetura pelagica*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Mar 15 to Aug 25

Golden-winged Warbler *Vermivora chrysoptera*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8745>

Breeds May 1 to Jul 20

Henslow's Sparrow *Ammodramus henslowii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3941>

Breeds May 1 to Aug 31

Lesser Yellowlegs *Tringa flavipes*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Breeds elsewhere

Red-headed Woodpecker *Melanerpes erythrocephalus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10 to Sep 10

Rusty Blackbird *Euphagus carolinus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Wood Thrush *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

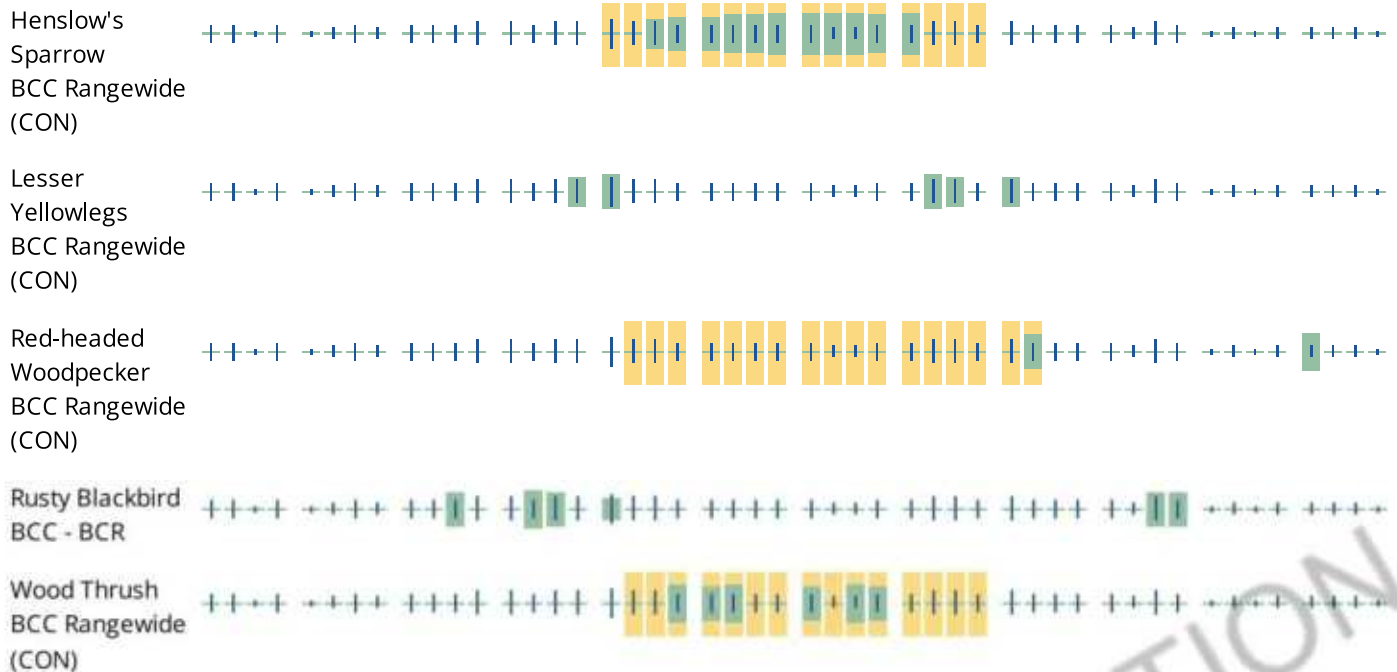
How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

[illegible]



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE
[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include

seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Rogers Industrial

Project Proposer: CP West, LLC

Project Type: Development, Commercial/Institutional/Industrial

Project Type Activities: Tree Removal;Grading;Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology));Wetland impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology))

TRS: T120 R23 S11, T120 R23 S2

County(s): Hennepin, Wright

DNR Admin Region(s): Central

Reason Requested: State EAW

Project Description: The proposed Rogers Industrial project includes construction of three industrial buildings in Rogers, MN. Driveway connections to the proposed facilities ...

Existing Land Uses: Existing land use consists of cropland, trees, and wetlands.

Landcover / Habitat Impacted: Clearing and grubbing of cropland will occur due to altering grades. Tree removal will occur due to altering grades. a tree removal and replacement will ...

Waterbodies Affected: The site is bordered by the Crow River along the north and a wetland delineation line runs along the northern property line. The project will provide floodplain ...

Groundwater Resources Affected: Not applicable

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Tree Removal - Recommendations
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review



Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

August 30, 2023

Project ID: MCE #2023-00673

Alessandra Stutz
Sambatek, Inc.
12800 Whitewater Drive, Suite 300
Minnetonka, MN 55343

RE: Automated Natural Heritage Review of the proposed Rogers Industrial
See Cover Page for location and project details.

Dear Alessandra Stutz,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

Project Type and/or Project Type Activity Comments

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed below, all seven of Minnesota's bats, including the federally endangered northern long-eared bat ([*Myotis septentrionalis*](#)), can be found throughout Minnesota. During the active season (approximately April-November) bats roost underneath bark, in cavities, or in crevices of both live and dead trees. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided from June 1 through August 15.

Ecologically Significant Area

No ecologically significant areas have been documented in the vicinity of the project.

State-Listed Endangered or Threatened Species

No state-listed endangered or threatened species have been documented in the vicinity of the project.

State-Listed Species of Special Concern

Taxonomic Group	Common Name	Scientific Name	Water Regime	Habitat	Federal Status
Invertebrate Animal	Black Sandshell	Ligumia recta		Large Rivers, Medium Rivers and Streams	

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the [DNR Rare Species Guide](#) for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. For further assistance, please contact the appropriate [DNR Regional Nongame Specialist](#) or [Regional Ecologist](#). Species-specific comments, if any, appear below.

Federally Listed Species

The Natural Heritage Information System does not contain any records for federally listed species within one mile of the proposed project. Please note, however, that not all federally listed species are tracked within the NHIS. To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online [Information for Planning and Consultation \(IPaC\) tool](#).

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your [DNR Regional Environmental Assessment Ecologist](#).

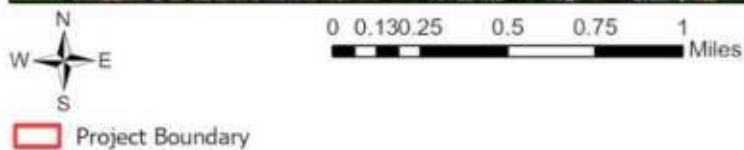
Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Jim Drake Jim Drake
Natural Heritage Review Specialist
James.F.Drake@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
[Information for Planning and Consultation \(IPaC\) tool](#)
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Rogers Industrial Aerial Imagery With Locator Map



Project Type: Development, Commercial/Institutional/Industrial

Project Size (acres): 46.56

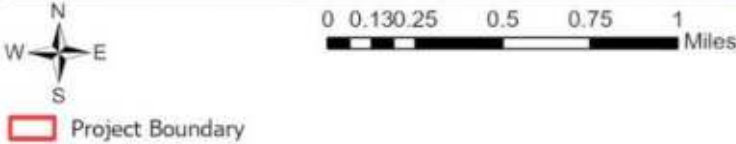
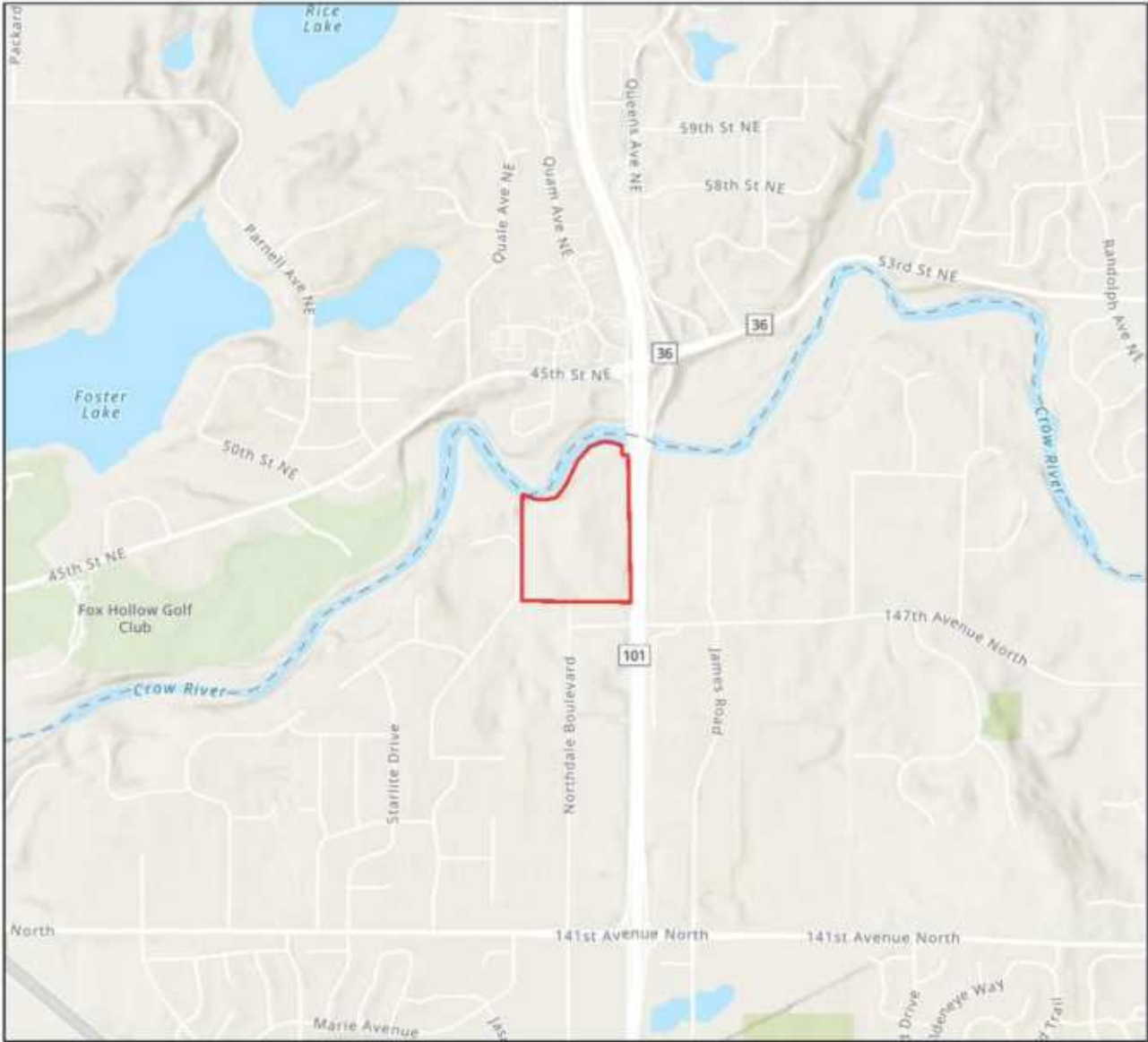
County(s): Hennepin, Wright

TRS: T120 R23 S11, T120 R23 S2

Metropolitan Council, MetroGIS, Three Rivers Park District, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/I/IASA, USGS, EPA, HPS, US Census Bureau, USDA



Rogers Industrial
USA Topo Basemap With Locator Map



Project Type: Development, Commercial/Institutional/Industrial
Project Size (acres): 46.56
County(s): Hennepin, Wright
TRS: T120 R23 S11, T120 R23 S2

Metropolitan Council, MetroGIS, Three Rivers Park District, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, MET/I/IASA, USGS, EPA, HPS, US Census Bureau, USDA



Alea Stutz

From: MN_MNIT_Data Request SHPO <DataRequestSHPO@state.mn.us>
Sent: Tuesday, September 12, 2023 3:16 PM
To: Alea Stutz
Subject: RE: Cultural Resource Consultation - Rogers Industrial
Attachments: Archaeology.xls; History.xls

Hello Alea,

Please see attached.

Jim



SHPO Data Requests
Minnesota State Historic Preservation Office
50 Sherburne Avenue, Suite 203
Saint Paul, MN 55155
(651) 201-3299
datarequestshpo@state.mn.us

Notice: This email message simply reports the results of the cultural resources database search you requested. The database search is only for previously known archaeological sites and historic properties. **IN NO CASE DOES THIS DATABASE SEARCH OR EMAIL MESSAGE CONSTITUTE A PROJECT REVIEW UNDER STATE OR FEDERAL PRESERVATION LAWS** – please see our website at <https://mn.gov/admin/shpo/protection/> for further information regarding our Environmental Review Process.

Because the majority of archaeological sites in the state and many historic/architectural properties have not been recorded, important sites or properties may exist within the search area and may be affected by development projects within that area. Additional research, including field surveys, may be necessary to adequately assess the area's potential to contain historic properties or archaeological sites.

Properties that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP are indicated on the reports you have received, if any. The following codes may be on those reports:

NR – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

CEF – Considered Eligible Findings are made when a federal agency has recommended that a property is eligible for listing in the National Register and MN SHPO has accepted the recommendation for the purposes of the Environmental Review Process. These properties need to be further assessed before they are officially listed in the National Register.

SEF – Staff eligible Findings are those properties the MN SHPO staff considers eligible for listing in the National Register, in circumstances other than the Environmental Review Process.

DOE – Determination of Eligibility is made by the National Park Service and are those properties that are eligible for listing in the National Register, but have not been officially listed.

CNEF – Considered Not Eligible Findings are made during the course of the Environmental Review Process. For the purposes of the review a property is considered not eligible for listing in the National Register. These properties may need to be reassessed for eligibility under additional or alternate contexts.

Properties without NR, CEF, SEF, DOE, or CNEF designations in the reports may not have been evaluated and therefore no assumption to their eligibility can be made. Integrity and contexts change over time, therefore any eligibility determination made ten (10) or more years from the date of the current survey are considered out of date and the property will need to be reassessed. If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic/architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson, Environmental Review Specialist @ 651-201-3285 or by email at kelly.graggjohnson@state.mn.us.

The Minnesota SHPO Archaeology and Historic/Architectural Survey Manuals can be found at <https://mn.gov/admin/shpo/identification-evaluation/>.

Please [subscribe to receive SHPO notices](#) for the most current updates regarding office hours, accessing research files, or changes in submitting materials to the SHPO.

To access historic resource information please visit our webpage on [Using SHPO's Files](#).



From: Alea Stutz <astutz@sambatek.com>
Sent: Tuesday, September 12, 2023 11:36 AM
To: MN_MNIT_Data Request SHPO <DataRequestSHPO@state.mn.us>
Subject: RE: Cultural Resource Consultation - Rogers Industrial

You don't often get email from astutz@sambatek.com. [Learn why this is important](#)

This message may be from an external email source.

Do not select links or open attachments unless verified. Report all suspicious emails to Minnesota IT Services Security Operations Center.

Hello,

I am following up on a data request submitted on 8/30. Please let us know any cultural resources within the project area.

Thank you!

Alea Stutz
Staff Engineer
[Direct: 763.520.8460](tel:763.520.8460)

From: Alea Stutz
Sent: Wednesday, August 30, 2023 1:43 PM
To: MN_MNIT_Data Request SHPO <DataRequestSHPO@state.mn.us>
Cc: Steve Troskey, AICP <stroskey@sambatek.com>
Subject: Cultural Resource Consultation - Rogers Industrial

Hello,

Sambatek is preparing an EAW for an industrial development in Rogers, MN. We are requesting a cultural resource review for the site to inform the impact analysis. The project location is as follows:

City of Rogers
Hennepin County
Section: 02
Township: 120
Range: 23W

PID: 1112023210002

A PDF of the project area is attached.

Thank you!

Alea Stutz

Staff Engineer

Direct: 763.520.8460

Email: astutz@sambatek.com



Engineering | **Surveying** | **Planning** | **Environmental**

12800 Whitewater Drive, Suite 300
Minnetonka, MN 55343

TPBPLS FIRM #10194760

Connect with us!



CONFIDENTIALITY NOTICE: This e-mail and the documents accompanying this e-mail contain confidential information. The information is solely for the use of the intended recipient(s) named above. If you are not the intended recipient, please notify us immediately by phone and delete it from your system.

COUNTY	CITYTWP	PROPNAME	ADDRESS	TOWN	RANGE	SECTION	QUARTER	USGS	REPORTNUM	NRHCE DOI	INVENTNUM
Hennepin	Rogers	Bridge 27020		120	23	2	SE-SW	Rogers			HE-HAT-058

Appendix C

Minnesota Wetland Conservation Act Notice of Decision

Local Government Unit: City of Rogers	County: Hennepin
Applicant Name: Schimdt Crow- Bob Cote	
Applicant Representative: Ken Arndt - MNR	
Project Name: Northdale Blvd Property	LGU Project No. (if any):
Date Complete Application Received by LGU: 10/24/2022	
Date of LGU Decision: 11/4/2022	
Date this Notice was Sent: 11/18/ 2022	

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)

Total WCA Wetland Impact Area:
Wetland Replacement Type: <input type="checkbox"/> Project Specific Credits: <input type="checkbox"/> Bank Credits:
Bank Account Number(s):

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

¹ *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 decision¹.

<input checked="" type="checkbox"/> Attachment(s) (specify): Site location, updated Figure 5 showing post TEP results, Email between MNDNR and Ken Arndt of MNR.
<input checked="" type="checkbox"/> Summary: A TEP review was held onsite on October 27, 2022. Lucas Mueller (LGU) Jed Chesnut (BWSR), and Ken Arndt (MNR) were in attendance. The TEP generally agreed with the Wetland Boundary and Type delineated my MNR. No changes or comments were made to the original delineation. The TEP approves the wetland delineation report and boundaries submitted by MNR on 10/24/2022.

¹ Findings must consider any TEP recommendations.

Attached Project Documents

☒ Site Location Map ☒ Wetland Boundaries Map [Click here to enter text.](#)

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

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

☐ Yes¹ ☒ No

¹If yes, all appeals must first be considered via the local appeals process.

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

Notice Distribution (include name)

Required on all notices:

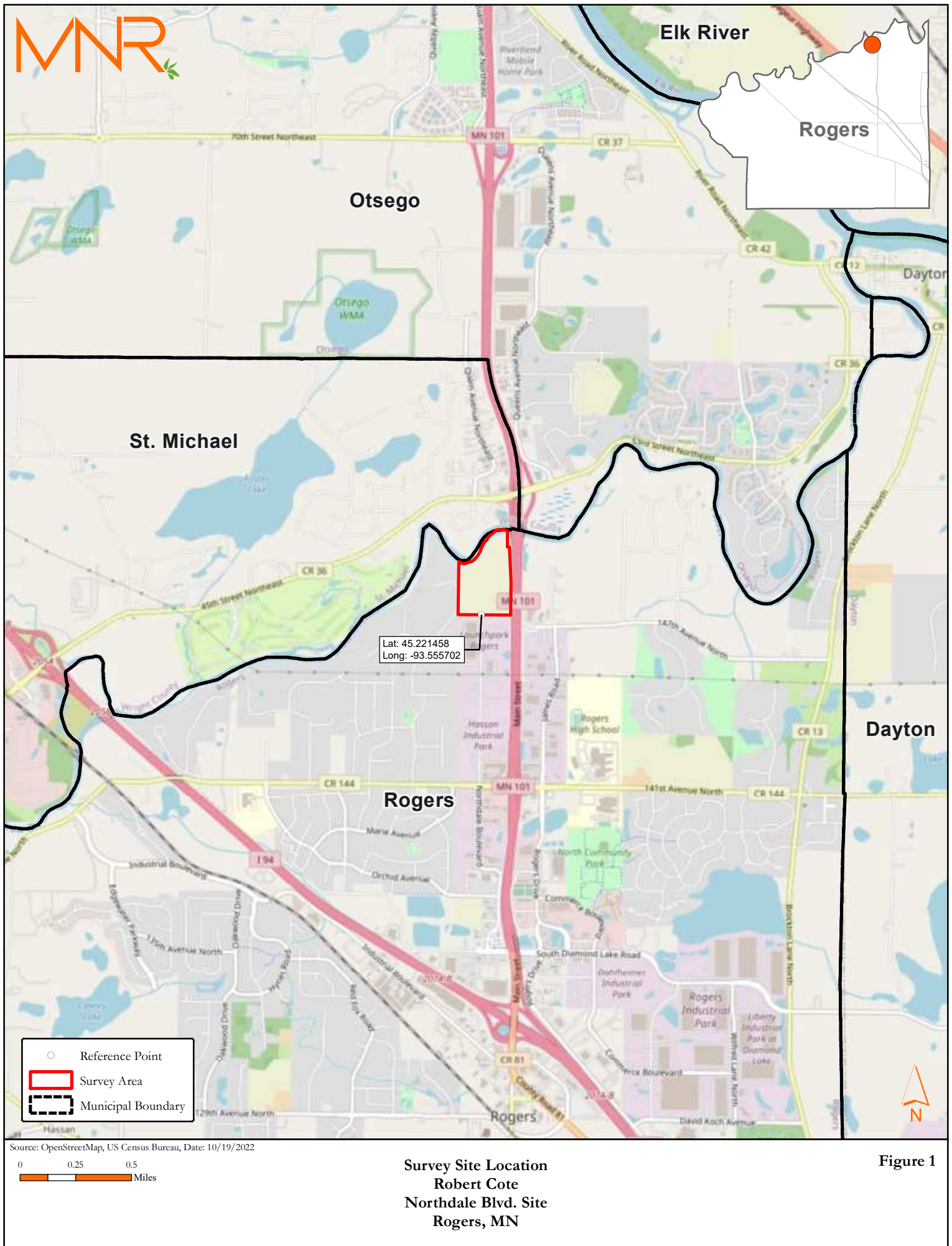
<input checked="" type="checkbox"/> SWCD TEP Member: Stacey Lijewski	<input checked="" type="checkbox"/> BWSR TEP Member: Jed Chesnut
<input type="checkbox"/> LGU TEP Member (if different than LGU contact):	
<input checked="" type="checkbox"/> DNR Representative: Wes Saunders-Pearce	
<input checked="" type="checkbox"/> Watershed District or Watershed Mgmt. Org.: Judie Anderson	
<input checked="" type="checkbox"/> Applicant: Bob Cote <input checked="" type="checkbox"/> Agent/Consultant: Ken Arndt	

Optional or As Applicable:

<input checked="" type="checkbox"/> Corps of Engineers:	
<input type="checkbox"/> BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
<input type="checkbox"/> Members of the Public (notice only): Eric Trelsad, Jeremey Donabauer	<input type="checkbox"/> Other:

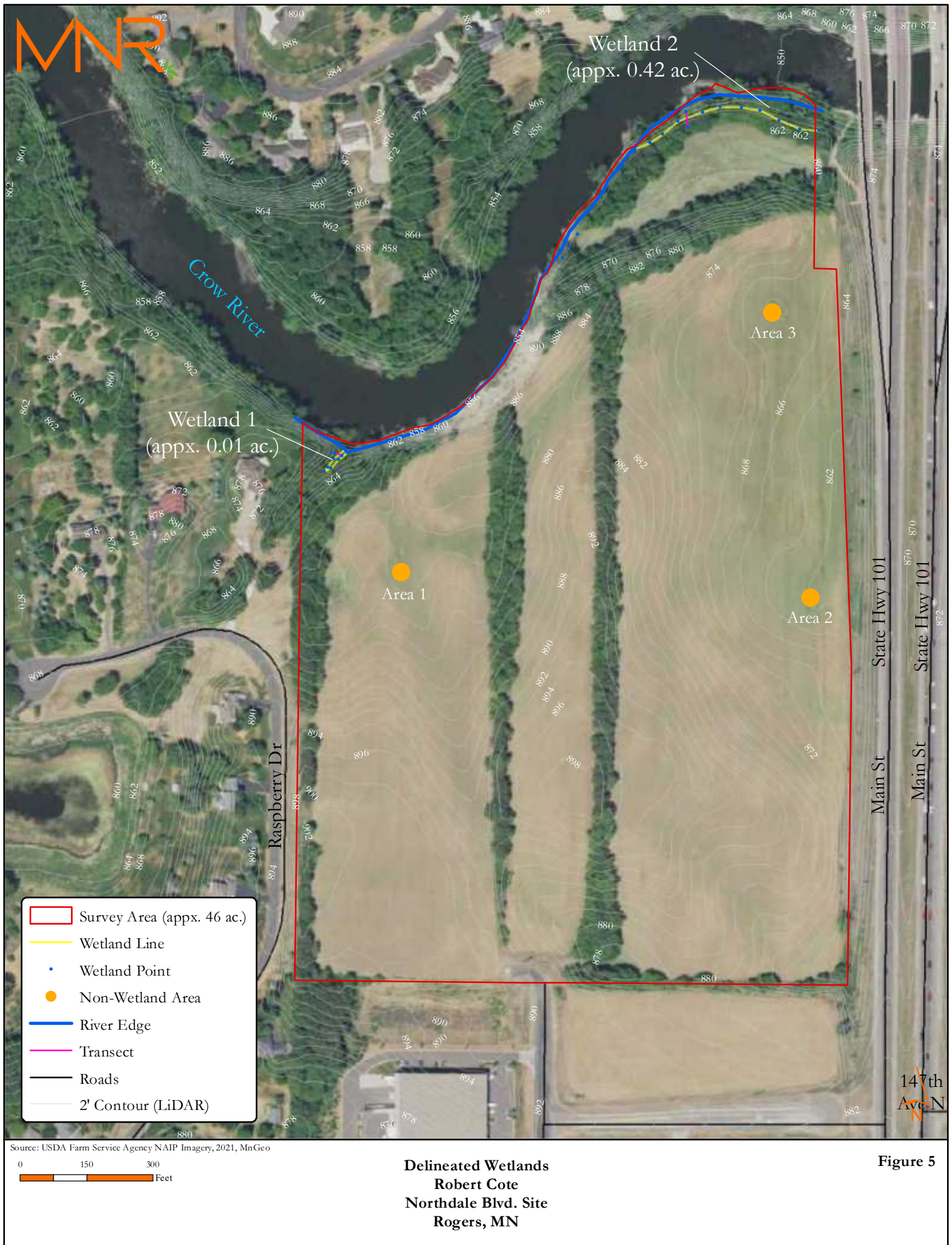
Signature: 	Date: November 18, 2022
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This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.



A horizontal number line representing distance in miles. It has tick marks labeled 0, 0.25, and 0.5. The segment between 0 and 0.25 is shaded orange. A white rectangular box is placed over the segment between 0.25 and 0.5.

Figure 1



Appendix D



REPORT
PHASE I ENVIRONMENTAL ASSESSMENT
45 ACRE DEVELOPMENT PROPERTY LOCATED
ALONG THE WEST SIDE OF MN HWY 101,
SOUTH OF THE CROW RIVER
ROGERS, MINNESOTA

APRIL 13, 2001

PREPARED FOR

MR. BOB COTE
SCHMIDT-GROW LLC



Search Office • 11802 Courthouse Lane • River Grove Heights, MD 20776 • (301) 490-3136 • (301) 490-3132 FAX

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APPENDIX F	TOPOGRAPHIC MAPS
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1.0 EXECUTIVE SUMMARY

Omni Environmental, Inc. (Omni) was retained by Mr. Bob Cole, Schmidt-Crow, LLC (CLIENT), Edina, Minnesota, to conduct a Phase I Environmental Site Assessment of the property known as (Legal Description in attachment in Appendix C) the 13 acre state owned property located along Hwy 101, south of the Crow River (subject property) in Rogers, Minnesota. A location map of the property is presented in Figure 1. The purpose of the Phase I Environmental Site Assessment was to evaluate whether current or historical activities on or near the subject property may have resulted in significant contamination by hazardous materials or substances known as a "Recognized Environmental Condition" (REC).

The Phase I Environmental Site Assessment was performed in accordance with ASTM Standard E 1527-97 and the attached scope of work (Appendix A), and was authorized by the CLIENT on March 26, 2001.

The subject property is approximately 48 acres in size and its dimensions are approximately 345 ft x 1,730 ft. The subject property is currently a very rural land with no building on it. According to Mr. Cole, the subject property has never been developed and has been always used primarily for agricultural land or farm value.

The subject property is bounded on the east by Minnesota Highway 101 and beyond is agricultural and commercial land. The Crow River bounds the subject property to the north and beyond is residential and commercial land. Residential land bounds the western edge of the subject property. Commercial property lies to the south of the subject property.

No evidence of contamination by hazardous substances, hazardous wastes, underground storage tanks (USTs), and drums or containers was observed on the subject property at the time of the site inspection. No unusual odors, color, or other marks of water, liquid, distressed vegetation, mounds, depressions, soil patterns, or evidence of growth were observed on the subject property during the site inspection. No pits, ponds, lagoons, or wetlands were observed on the subject property at the time of the site inspection. No signs were observed on the subject property.

Based on the available information, no Recognized Environmental Conditions (RECs) were found to be associated with current or historic activities on the subject property.

A visual inspection of observable areas of surrounding properties of the subject property did not identify any potential environmental concern that could be reasonably expected to create an REC at the subject property.

A review of Federal and State environmental databases identified no properties of potential environmental concern in the surrounding area that could be reasonably expected to create an REC at the subject property.

2.0 INTRODUCTION

Client was retained by Mr. Bob Gore, Schmidt Group, LLC (SGPNC), Rogers, Minnesota, to conduct a Phase I Environmental Site Assessment of the property known as the 48 Acres Development Property located along the West side of MN Hwy 131, south of the Crow River (subject property) in Rogers, Minnesota. This project was conducted in accordance with the attached scope of work (Appendix A) and was authorized by the CLIENT on March 13, 2001. The project purpose, scope, and limitations are presented in the following sections.

2.1 Purpose

The purpose of the Phase I Environmental Site Assessment was to evaluate any potential concerns or issues that may be associated with the subject property. Such any potential concerns or issues are subsequently referred to in this report as a "Recognized Environmental Condition" in accordance with the ASTM Standard 1527-00, "A Recognized Environmental Condition is defined as:

The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into the ground on the property or into the ground, surface water or surface water of the property. The term includes hazardous substances or petroleum products even if the condition is in compliance with laws. The term is not intended to include conditions existing on the property that do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 Scope of Work

The Phase I Environmental Site Assessment was performed in accordance with the attached scope of work and authorized by the CLIENT on March 28, 2001. A copy of this proposal is presented in Appendix A.

2.3 Limiting Conditions

The ability to complete the scope of work was limited by the ready availability of historical records such as fire insurance maps (Sanborns), historical topographic maps, and city directories. The ability to complete the scope of work was also limited by the subject property being overgrown during the site walk through.

2.4 Limitations of the Report

The Phase I Environmental Site Assessment Report was prepared in accordance with the Scope of Work described in Section 2.2 and presented in Appendix A. The work conducted is limited to the services agreed to with the CLIENT, and no other services beyond those explicitly stated could be inferred or implied.

The Phase I Environmental Site Assessment was limited to visual observations of conditions on the day of the site inspection, review of readily available and relevant data, and statements made and information provided by the CLIENT, his agents, outside parties, and regulatory agencies. Specifically not included in the scope of the Phase I Environmental Site Assessment was an evaluation of geologic hazards and/or geotechnical constraints, soil sampling of soil, ground water, air, sediment, or other.

The Phase I Environmental Site Assessment is a limited and non-exhaustive survey that is intended to evaluate whether readily available information indicates that the historic or current use of the subject property resulted in contamination by hazardous substances or wastes. As a result, further a comprehensive sampling and analysis program or implementation of services beyond the original scope of work, certain potential conditions, including, but not limited to those summarized below, may not be revealed:

- Naturally occurring toxic substances or elements found in the subsurface soils, rocks, or water;
- Toxic substances commonly found in current materials environments, such as stored household products, building materials, and consumer items;
- Biological or infectious agents and pollutants;
- Microbial plumes (liquid or gaseous) from the surface from a remote or unknown source;
- Unseen, concealed, and not readily visible contamination, which may have been caused by leaking or dumping and/or accidental spillage.

Due and customary care has been exercised in the conduct of the Phase I Environmental Site Assessment but information provided by others has not been independently verified. Therefore, no liability is assumed for any loss resulting from errors or omissions arising from the use of inaccurate/incomplete information or misinterpretations made by others. This has been prepared at the request of the CLIENT, and it should be emphasized that because conditions at the subject property can change over time, the use of this report by unauthorized third parties shall be at their own risk.

3.0 PHASE I ENVIRONMENTAL AFFECT ASSESSMENT

3.1 Description of Subject Property

Information concerning the subject property was obtained from the site inspection conducted by Mr. Matt Gilson of DMR on April 5, 2021 and documents referenced in Section 4.0 of this report. Interviews concerning the subject property were conducted with Mr. Jan Lutz.

3.1.1 Physical Location and Description of Subject Property

The subject property is a 48-acre development property located along the west side of MN Hwy 101, south of the Crow River in Rogers, Minnesota. A location map of the subject property is presented as figure 1. The subject properties dimensions are approximately 1,355 ft x 7,230 ft. According to Mr. Lutz, the subject property has never been developed and has been used primarily as agricultural land or been vacant.

The subject property is bordered on the east by Minnesota Highway 101 and beyond is agricultural and commercial land. The Crow River borders the subject property to the north and beyond is residential and commercial land. Residential land borders the western edge of the subject property. Commercial property borders the subject property to the south.

3.1.2 Environmental Setting

3.1.2.1 Topography

The subject property is located in Sections 2 & 11, Township 131 North, Range 20 West, in Hennepin County, Minnesota. Environmental characteristics including topography, soils, geology, and hydrogeology were evaluated based on site observations, published literature, and maps.

According to the United States Geological Survey "Rogers, Minnesota" 7.5 Minute Quadrangle, the elevation of the subject property is between 925 to 960 feet above mean sea level (MSL). The subject property appears to be fairly flat, with the exception of a steep river bank, and some lower river terrace areas in the northeast corner of the property. The local surface runoff appears to flow north toward the Crow River.

3.1.2.2 Soils

Based on information from the U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leading the National Cooperative Soil Survey (NCSS) the dominant soil composition in the general area of the target property is composed of Hubbard loamy sand. Hubbard loamy sand is well drained to excessively drained. These soils have very high and high hydraulic conductivity and low water holding capacity. Depth to the water table is generally more than 5 feet, except in the northern area of the target property near the river.

3.1.2.3 Regional Geology

Based on the Geologic Atlas of Hennepin County, Minnesota published by the Minnesota Geological Survey (1989), the surficial geology beneath the subject property and the surrounding area consists of sand, loamy sand, and gravel; overlain by less than 4 feet thick. Underlying the Crow River is flood plain alluvium which is composed of chiefly loamy sand, sand, and gravelly sand, no bedded, with and overlain by thin beds of fine siltstone and organic matter. Based on Hennepin County Well Index (CWI) logs for T12CN, 223W, Section 11, depth to the uppermost bedrock formation, the St. Lawrence Formation, is estimated at 93 and 150 feet below ground surface (pgs) and its thickness is estimated at 45-100 feet. The next bedrock unit, the Ironston & Galeville, is approximately 10 feet thick and overlies the Tan Oka Formation.

3.1.2.4 Hydrogeology

Based on the review of nearby well logs, and the nearby Crow River, groundwater flow direction is thought to be in a westerly direction toward the Crow River. Static water levels are thought to be between 2 feet and 20 feet below surface. Water levels decreasing with proximity to the river. The static groundwater surface elevation and flow direction beneath the subject property cannot be determined without on-site measurements of groundwater elevations. Based on the Hennepin County Geologic atlas groundwater flow in the Quaternary Formation Ironston & Galeville aquifer is in a northerly direction across the subject property. The natural return period of the subject property is from 100 year and 500 year flood zone based on information provided in the TDR report.

3.1.2.5 Wetland

Due to observations in plant species, it appears a wetland is present in the northern portion of the subject property. It was not in this scope of work to delineate the area of the wetland.

3.2 Site Inspection of Subject Property

The subject property was inspected on the afternoon of March 28, 2011 between the hours of 1:00 and 4:00 pm. Weather conditions at the time of the inspection was cloudy with a temperature of 46 degrees Fahrenheit. Conditions were generally level and clear. Observations are presented in Appendix A.

3.2.1 Current Uses of Subject Property

The subject property is currently used as a agricultural field and is approximately 48 acres in size.

3.2.2 Past Uses of Subject Property

Based on the site interview, observations from the site walk-through and a review of historic aerial photographs, the past use of the subject is limited. No other prior uses of the subject property were discernable based on the site inspection. Historic use information is presented in Section 5.4.

3.2.3 Exterior and Interior Site Observations of Subject Property

3.2.3.1 Hazardous Substances and Petroleum Products

No hazardous substances or petroleum products were observed on the subject property during the site inspection. According to Mr. Lutz, no hazardous substances or petroleum products are used or stored on the subject property.

3.2.3.2 Hazardous Wastes

According to Mr. Lutz, no hazardous wastes are produced or stored in operations at the site property. The site was not listed in the government regulatory database report under hazardous wastes.

3.2.3.3 Underground/Aboveground Storage Tanks

Vertical pipes indicating underground storage tanks (USTs) were not observed on the subject property during the site inspection. No aboveground storage tanks (ASTs) were observed on the subject property during the site inspection.

3.2.3.4 Drums and Containers

No drums or containers were observed on the subject property during the site inspection.

3.2.3.5 PCB Containing Equipment

No equipment that could potentially contain polychlorinated biphenyls (PCBs) were observed on the subject property during the site inspection.

3.2.3.6 Solid Waste

According to Mr. Lutz, no solid wastes, hazardous or otherwise, are produced or handled from the subject property. No dumpsters were observed on the subject property during the site inspection.

3.2.3.7 Drains and Sumps

No drains or sumps were observed on the subject property during the site inspection.

3.2.3.8 Wastewater-on-Water

According to Mr. Lutz, no wastewater is produced at the subject property as a result of site operations.

3.2.3.9 Wells

According to Mr. Lutz, no wells are located on the subject property. No wells were observed on the subject property during the site inspection.

3.2.3.10 Pits, Ponds, and Lagoons

Pits, ponds and lagoons were not observed on the subject property at the time of the site inspection.

3.2.3.11 Dry Cleaning Operations

Dry-cleaning operations do not appear to have been conducted at the site, as conducted on the subject property.

3.2.3.12 Emergency Generators

There are no emergency generators located on the subject property.

3.2.3.13 Air

There were no observed air emissions coming from the subject property during the site inspection.

Radar was not used, i.e., however, there are no buildings on the subject property for radar measurement.

3.2.3.14 Other Physical Evidence of Contamination

Other physical evidence of contamination was not observed during the site inspection.

3.2.3.15 Asbestos-Containing Materials

According to Mr. Lutz, the subject property has never been developed. No asbestos-containing materials were observed during the site inspection.

3.3 Surrounding Property Site Inspection

A visual inspection of readily visible areas of surrounding property was performed. The following description of the current uses and potential environmental concerns is based on observations on the date of the site inspection and interviews with site contacts.

3.3.1 Current Uses of Surrounding Property

Surrounding property on the date of the site inspection are as follows:

North: The Crow River borders the subject property to the north, and beyond is commercial and residential property.

East: Highway 10 borders the subject property on the east, and beyond is agricultural and commercial property.

South: Commercial land borders the subject property on the south.

West: Residential land borders the subject property on the west.

3.3.2 Surrounding Property of Potential Environmental Concern

The environmental database search revealed no sites of potential environmental concern within the ASTM search radius for each database. No surrounding properties of potential environmental concern were observed during the site inspection.

3.4 Historic Conditions of Subject Property and Surrounding Property

The history of land use on and near the subject property was evaluated in order to identify those uses and occupations that are likely to have led to a Recognized Environmental Condition in connection with the subject property.

3.4.1 Current and Prior Ownership and Tenants

According to Mr. Tim Ditz, he currently owns the subject property, and has owned the property since 1977 when he purchased the property from the Schamber family. Through a telephone interview with the Hennepin County Records office, the Schamber family purchased the property for deed in 1930. The subject property is currently an agricultural field and no area is delineated.

3.4.2 Chain-of-Title

A limited Chain-of-Title review was not completed at the Hennepin County Recorder's Office. However, a telephone interview was conducted with the Hennepin County Recorder's Office where it was learned that the Schaubers purchased the subject property for cash in 1961. It was learned through the interview with Jim Lutz that he purchased the subject property from the Schaubers family in 1979.

3.4.3 Interviews

Mr. Jim Lutz was interviewed regarding past and present ownership and usage of the subject property. The results of this interview are reported in Sections 3.3 and 3.4.1.

3.4.4 Aerial Photographs

Aerial photographs were reviewed to provide historical background on the subject property and its vicinity. These aerial photographs were available from Environmental Data Resources, Inc., for the years noted below.

1937 Photograph

Approximate scale: 1" = 800'

The subject property and surrounding properties appear as farmland. MN Highway 100 and 117th Street are observed in their present-day locations. 10th Avenue NE and the railroad are also visible in their present-day locations.

1943 Photograph

Approximate scale: 1" = 850'

The subject property and surrounding areas appear similar to the 1937 photograph.

1946 Photograph

Approximate scale: 1" = 825'

The subject property and surrounding areas appear similar to the 1943 photograph.

1966 Photograph

Approximate scale: 1" = 800'

The subject property and surrounding areas appear similar to the 1966 photograph.

1978 Photograph

Approximate scale: 1" = 775'

The commercial and residential buildings to the east and the large industrial buildings to the east of the property have appeared between 1966 and 1978. The subject property appears the same as in the 1966 photograph.

1984 Photograph

Approximate scale: 1" = 815'

The subject property and surrounding areas appear similar to the 1978 photograph.

1997 Photograph Approximate scale: 1" = 525'

The residential property bordering the subject property to the west appears between 1984 and 1992. The subject property appears similar to the 1984 photograph.

3.4.5 Sanborn Fire Insurance Rate Maps

Sanborn Fire Insurance Rate Maps are not available for the subject property.

3.4.6 Historic Topographic Maps

Historic topographic maps were reviewed to provide historical background of the subject property and its vicinity. Four topographic maps were available. The topographic map was obtained from the United States Geological Survey for the year noted below:

1961 "Rogers, Minn." 7.5 Minute Quadrangle Scale: 1" = 24,000'

The subject property appears vacant. MN Highway 51 does not yet have the proposed roadway on the east. 147th Avenue North is in its present-day location.

1968 "Rogers, Minn." 7.5 Minute Quadrangle Scale: 1" = 24,000'

MN Highway 51 is shown in the present-day location. The subject property appears similar to the 1961 topographic map.

1981 "Rogers, Minn." 7.5 Minute Quadrangle Scale: 1" = 24,000'

The subject property and the surrounding area appears similar to the 1968 topographic map.

1996 "Rogers, Minn." 7.5 Minute Quadrangle Scale: 1" = 24,000'

The subject property and the surrounding area appears similar to the 1981 topographic map.

3.4.7 City Directories

Based on the interview with Mr. Lutz and on the review of historical topographic maps and aerial photographs, it does not appear that the subject property has ever been developed. Therefore, a city directory search was not performed for this ESA.

3.5 Regulatory Agency Review

3.5.1 Environmental Database Review

During the last 15 years, Federal and State government agencies have developed legislation relating to environmental concerns. As a result of this legislation, laws and regulations which govern hazardous and/or toxic wastes and materials and the manufacturing, generation, use, storage, release, and/or disposal of such materials have been promulgated. As a consequence of these laws and regulations, numerous agencies collect and disseminate information for use in evaluating potential environmental problems.

To assess the potential for soil and groundwater contamination at the subject property (i.e., county property, the Federal, State, and local database list search provided by Environmental Data Resources, Inc. (EDR) of known or potential hazardous waste sites or landfills and the sites currently under investigation for environmental violations were reviewed. A copy of the EDR search is included in Appendix C. The following databases and their respective search radii were included in the EDR search:

Federal ASTM Records

- National Priority List (NPL) - 1 mile
- Resource Conservation and Recovery Information System (RCRIS) Treatment, Storage, and Disposal (TSD) - 1 mile
- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) - 0.5 mile
- RCRIS Small Quantity Generator (SQG) - 0.5 mile
- RCRIS Large Quantity Generator (LQG) - 0.5 mile
- Emergency Response Notification System (ERNS) - Target Property

Federal Non-ASTM Records

- Delisted NPL - Target Property
- No Further Remedial Action Plan for (CERCLA-NFRAP) - Target Property
- Corrective Action Report (CERCLA-CAR) - 1 mile
- RCRA Administrative Action Tracking System (RAATS) - Target Property
- Hazardous Material Information Reporting System (HMIRS) - Target Property
- PCB Activity Database System (PAIDS) - Target Property
- Facility Index System (FIS) - Target Property
- Toxic Chemical Release Inventory System (TRIS) - Target Property
- NPL (Federal Superfund Sites) - Target Property
- Toxic Substances Control Act (TSCA) - Target Property
- Material Handling Tracking System (MHTS) - Target Property
- Records of Disposal (RDIP) - 1 mile
- Superfund (CERCLA) Consent Decrees (CONSENT) - 1 mile

State of Wisconsin AS - M Records

- Solid Hazardous Waste Sites (SHWS) aka: Superfund: Formalized List of Priorities (FLP) - 1 mile
- Solid Waste Facilities/Landfill Sites (SWFLS) aka: Formalized Solid Waste Disposal Facilities - 0.5 mile
- Leak Sites (LUSL) - 0.5 mile
- Underground Storage Tank Title (USTT) - 0.25 mile

State of Minnesota Name/ASTM Records

- Abandoned Storage Tank (AST) - 0.25 mile
- Minnesota List of Sites (MNTS) - Target Property
- Minnesota Decontamination Log - Target Property
- Minnesota Voluntary Investigation and Cleanup Program (VICP) - Target Property
- Minnesota Spills - Target Property
- Minnesota Post - 1 mile
- Minnesota Deleted SHWS - 1 mile
- Minnesota Landfill Cleanup - 0.5 mile
- Minnesota LPSR Details - Target Property

Other State Agency Resources

- Great Gas - 1 mile

Descriptions of these databases are presented in Appendix C. The 43 acre development property on the west side of MN Hwy 101, Kersey, MN was the only one that was located in the EDR search. Because the subject property has no specific street address, the map coordinates were adjusted manually based on the location observed during the site inspection. A summary of the information found in the EDR is presented below.

The subject property was not identified on any of the EDR search databases.

No other sites were identified within the ASTM search radius of the subject property.

The sites listed under "Other Data Sources" were not mapped due to poor or inadequate address information. A review of these sites indicates that either they are not located within the ASTM search radius of the subject property and/or they do not appear to pose an RLC to the subject property.

3.5.2 Regulatory Agency Contact

No regulatory agencies were contacted as part of this Phase I ESA.

3.6 Findings and Conclusions

In conformance with the scope and limitations of ASTM Standard F1427-07 and the Scope of Work presented in Section 2.2, a Phase I Environmental Site Assessment was conducted at the subject property located within the south-west quadrant of Highway 101 N and Crow River intersection in Rogers, Minnesota to evaluate the potential for a Recognized Environmental Condition to exist on the subject property from on-site or off-site activities. Conclusions are presented below.

3.6.1 On-Site Recognized Environmental Conditions

No Recognized Environmental Conditions (RECs) were found to be associated with current or historic activities on the subject property based on the available information. No other potential Recognized Environmental Conditions were identified on the subject property.

3.6.2 Off-Site Recognized Environmental Conditions

A visual inspection of other observable areas of the surrounding properties did not identify any property of potential environmental concern that could be reasonably expected to create a Recognized Environmental Concern at the subject property.

A review of Federal and State environmental catalogs identified no properties of potential environmental concern in the surrounding area that could be reasonably expected to create a Recognized Environmental Concern at the subject property.

If you have any questions or comments regarding this report please contact us at (507) 252-0945.

Respectfully submitted,

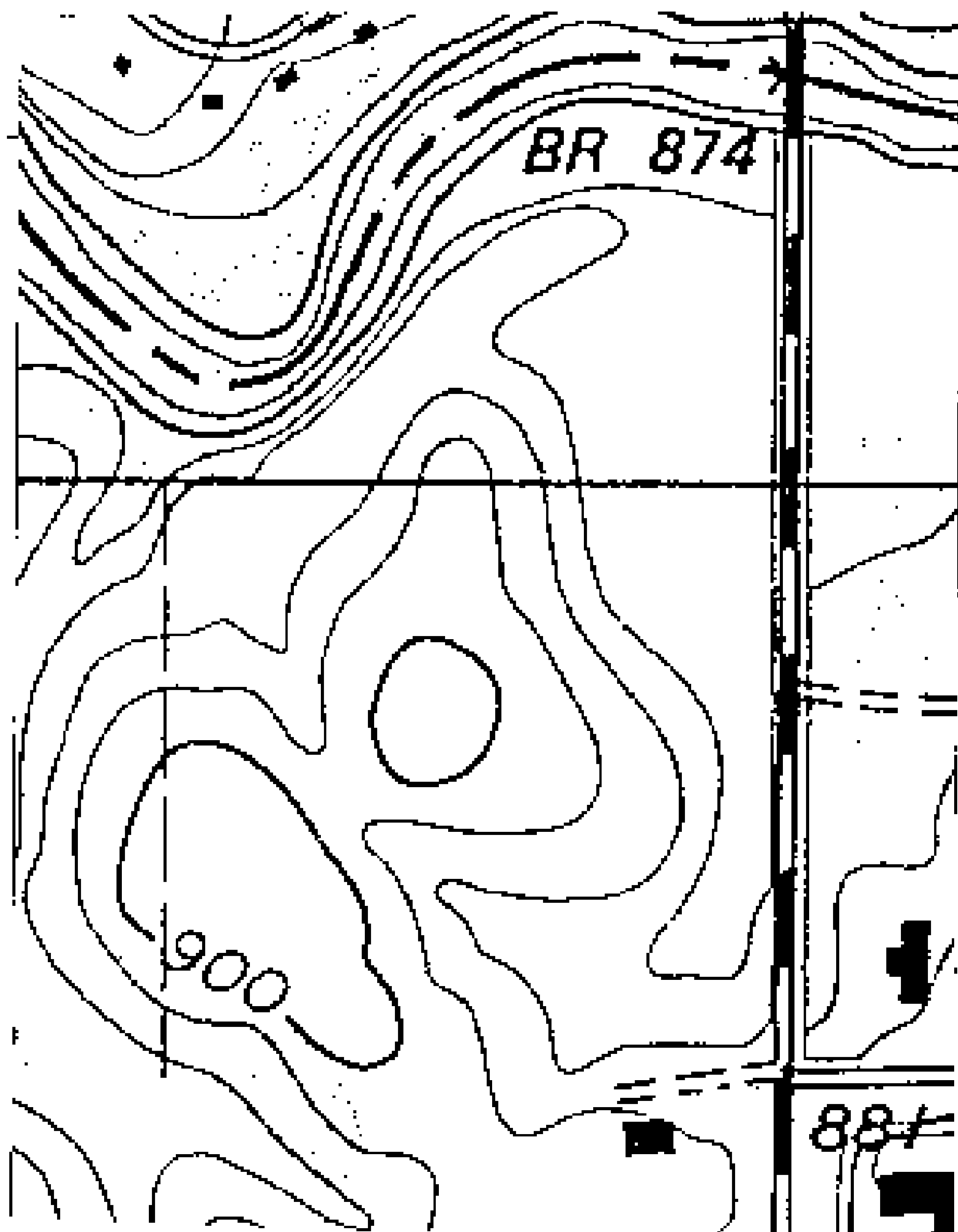
OMNI ENVIRONMENTAL, INC.

Kyle D. Raverty
Soil Geologist

Matthew N. Cikar
Principal Geologist

4.0 REFERENCES

- ASTM. 1997. American Society for Testing and Materials (ASTM). Standard E-527-97. "Standard Practice for Environmental Site Assessment - Phase I Environmental Site Assessment Process."
- Environmental Info Resources, Inc., "The EIS-Phase Map with GeoChem," July 20, 2008.
- Gilks, Matt, Oroni Environmental, Inc. Presented on site inspection on March 25, 2009.
- Goff, Bob, Future Property Owner, Naimi Air Flow LLC. Personal Communication with Nicole Florin of Oroni Environmental, Inc. March 28, 2009.
- Hennepin County, Minnesota. Geologic Atlas C-4, Hennepin Geologic Survey, University of Minnesota, 1989.
- Hennepin County Records Office, phone conversation, 4/1/09.
- Hennepin County Well Log, well logs for T120N, R15W, Section 11.



LEGEND

Source: Environmental Data Services, Inc.



0' 100' 200'

Horizontal Scale 1" = 200'

Figure 2
 1. Area of Study
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 10000 100th Ave. S.
 Suite 100
 Minneapolis, MN 55425
 Phone: 612-345-1234
 Fax: 612-345-1234
 Email: info@eds.com
 Website: www.eds.com



March 27, 2001

Mr. Mankings
CD Richard Ellis
7762 ~~Freeman Avenue~~, Scott Lake, MN
Minneapolis, Minnesota 55435

Subject: Phase I Environmental Site Assessment
48 Acre Development Property Located along the
West side of MN Hwy 100, south of the Crow River
Scott Lake, Minnesota

1.0 INTRODUCTION

Omni Environmental, Inc. (Omni) is pleased to submit the following proposal to conduct a Phase I Environmental Site Assessment (ESA) at the property located along Hwy 100 on the west side, adjacent to and east south of the Crow River in Rogers, Minnesota. This proposal is based on information provided by you in recent phone conversations. It is our understanding that a legal description and/or plat map of the property will be received upon commencement of the ESA.

2.0 SCOPE OF WORK

The purpose of the Phase I ESA will be to obtain and review information regarding past and present land use practices and site operations to assess the use, storage, generation, manufacture, and disposal of petroleum and agricultural products and hazardous materials and wastes at the above referenced property, and evaluate the potential presence of soil and/or ground water contamination from on-site and off-site sources. This assessment will be accomplished by, but is limited to, a reconnaissance of the subject property and surrounding properties, and a review of current and readily available pertinent documentation regarding past and current land use which may have been associated with releases of petroleum products and/or hazardous materials/wastes.

The proposed scope of services for the ESA is intended to obtain the necessary information as outlined in the ASTM Standard Practice for a Phase I ESA (E 1527-97) and will include the following elements:

- Review of pertinent, readily available documents and maps regarding local geologic and hydrogeologic conditions;
- If available, review and interpretation of selected historical aerial photography of the subject property and vicinity for selected years within at least the past 50 years, which are available through EDR, Inc. and/or other readily available sources.

1619 Kent (Browns) Road • Rochester, MN 55905 • (507) 282-0945 • (Fax) 282-2151 Ext.

Branch Office • 1500 Oak Grove Blvd. • Oak Grove Heights, MN 55069 • (353) 284-7036 • (253) 284-2692 Ext.

101. 800 Gore
March 27, 2007
Page 3

- Preparation of a report summarizing the scope of assessment, information obtained, and conclusions regarding recognized environmental conditions at the subject property.

Unless specifically requested and additional budget is authorized, any additional environmental sampling and analyses including assessment of wetlands, seismic hazards, lead paint, lead in drinking water, and structural/mechanical building conditions are not included in the scope. Asbestos and radon surveys are also not included in our proposed scope of work. Our conclusions regarding potential for wetlands, asbestos, lead-based paint, radon, and PCB transformers will be presented in the report.

Based on the results of the Phase I ESA, we will provide recommendations for additional research and/or soil, surface water, and ground-water sampling and analysis, if requested. At this time, it is not feasible to provide an accurate estimate of the scope and cost for additional investigation, if necessary.

Matthew Gilas, a Senior Environmental Engineer, will serve as the project manager and will be responsible for managing the technical performance of the project. Mr. Gilas has 12 years experience, including performing and managing all aspects of ESAs. Mr. Jeff Beck, a Project Engineer, will assist with conducting the Phase I ESA. Mr. Beck has 3 years experience in performing and managing ESAs.

4.0 COMPANY QUALIFICATIONS

Omni Environmental, Inc. is an environmental consulting and engineering firm specializing in subsurface characterization, assessments, soil and ground water remediation, underground storage tank investigations, property transfer assessments, regulatory compliance issues, waste mitigation and industrial wastewater treatment processes. Omni recognizes the importance of providing high quality products to our clients in a timely and cost-effective manner. The principals of the company have over 12 years of project management and supervisory experience in the environmental consulting business, including office and departmental management responsibilities.

Omni is especially well-qualified to assist in this effort for the following reasons:

- Extensive experience in Minnesota, Iowa, Wisconsin and Illinois.
- Extensive Phase I Environmental Site Assessment, remedial design and construction management/monitoring experience;
- Excellent working relationship with the Minnesota Pollution Control Agency (MPCA) and U.S. Environmental Protection Agency; and
- Immediate availability of experienced professionals with the skills needed to ensure delivery in a timely manner.

Mr. Bob Carr
March 27, 2001
Page 4

5.11 SCHEDULE

Omni is prepared to mobilize for the field investigation immediately upon receipt of your authorization to proceed. We anticipate that the initial field investigation services can be completed within one day. The report documenting the results of the Phase I ESA can be completed by April 10, 2001. However, if your need for this report becomes less urgent please notify us as soon as possible. Initial recommendations and conclusions can be communicated immediately upon completion of the site walk-through, historical research, and government/regulatory research in your region.

6.0 ESTIMATED FEE, TERMS AND CONDITIONS

Omni proposes to complete this scope of work on a time and materials basis in accordance with the Fee Schedule, Equipment/Charges and Limits of Liability which are attached and are included in this proposal. The estimated fee for this scope of work is \$1,500.

The scope of work outlined in this proposal will be conducted in accordance with Omni Environmental Inc.'s standard General Conditions, a copy of which is provided as an addendum to, and made part of, this proposal. By signing this proposal the client agrees to the attached General Conditions. Omni will maintain confidentiality of documents, materials, information, and reports collected or generated during the project. Omni's objective is to perform all work with integrity, advising the customer of any phase and completion of environmental and engineering consulting projects from all the relevant disciplines, in accordance with the standard for professional services for consulting firms in the state those services are rendered. It is important to recognize that the maximum competence or range of services may fall to direct environmental liability on a particular site. Therefore, Omni cannot act as insurers and cannot "certify or underwrite" that a site is free of environmental contamination and no expressed or implied representation or warranty is included in any of our reports except where our work was performed with the limits prescribed by our clients, with the customary thoroughness and competence of our profession.

I have been Omni's pleasure to prepare this proposal for you. Should you have any questions or comments, please do not hesitate to contact Mr. Baker. If the proposal meets with your approval, please provide us with written authorization to begin work on this project by signing a copy of this proposal and returning it to our office.

Respectfully Submitted,

OMNI ENVIRONMENTAL, INC.


Matthew N. Gikas
Principal Geologist

Mr. Bob Cote
March 27, 2001
Page 5

Upon your acceptance of C&S proposal please sign and return the white copy to Omni. By signing this proposal Bob Cote authorizes Omni to begin the Phase I ESA on the property located along the west side of MN Hwy 101 and south of the Crow River (approximately 48 acres), in Rogers, Minnesota.


Signature

Title

Robert C. Cote
Name

3/28/01
Date

Omnis Environmental, Inc.
MATTHEW N. GHICAS, P.G., C.P.G.

Title: President, CEO and General Manager of Omnis Environmental, Inc.
Senior Project Geologist

Expertise: Coordination of Underground Storage Tank (UST) Removals
Coordination of Bulk Plant Decommissioning
Environmental Assessments/Drilling Operations
Remedial Investigations (RI) and Corrective Action Designs (CADs)

Recent Experience: Provides project management for remedial investigations/corrective action designs at petroleum chemical spill sites and dry cleaning facilities. Manager of Environmental Site Assessments for property transfers and site investigations. Founded Omnis Environmental, Inc., May of 1998.

- A total of fourteen years experience in the areas of environmental geology and geotechnical sampling and testing.
- Project Management of over 300 UST and Storage of Storage Tank (SOT) Closure Assessments throughout the U.S., including over 200 in Minnesota.
- Provided UST removal and Bulk Plant Decommissioning oversight field sampling and report preparation at existing underground storage tanks (USTs) and petroleum spill sites in Minnesota, Wisconsin, Illinois, Michigan, Ohio, Kentucky, Tennessee, and Pennsylvania.
- Completed over 50 Remedial Investigation reports in Minnesota which included UST removal oversight and sampling, the installation of monitoring wells, development of soil and groundwater remediation strategies, general reporting, site assessments, feasibility studies and corrective action design.
- Assisted with the installation of active remediation systems, including groundwater pump and treat, liquid air pumps, and soil venting systems for petroleum and chemical spill sites.

Past Experience: Environmental Geologist, Dames & Moore, Inc., Minneapolis, Minnesota (1991-1995)

- Provided field oversight during construction of passive extraction well for treatment of petroleum contaminated soils in light storage.
- Provided field oversight during soil extraction as part of remediation efforts following UST removal at various sites in the Midwest.

- Monitored the installation of pump and treat ground water remediation systems at LUST sites.
- Performed pumping tests for aquifer characterization and delineation at LUST sites.
- Performed SR Title Geologist oversight for a two-year remedial investigation at a former chemical gasification plant cleanup site.

**Environmental Geologists, GML Consultants, Inc., Minneapolis, Minnesota
(1989-1991):**

- Provided project management, consultation, and report preparation for Phase I and II preliminary site assessments (PSAs).
- Project Manager for RST protocols and preparation of remedial investigation and corrective action design reports for petroleum sites in Minnesota and Wisconsin.
- Conducted and completed on-site RST protocols throughout Minneapolis.
- Participated in subsurface exploration and monitoring well installation, data collection, measurements interpretation, analysis and for Phase II PSAs.
- Prepared the hydrogeology, geology, and hydrology sections for both RI/CI cleanup reports and Phase I/II site investigations in Minnesota and Wisconsin.
- Director of well and safety program for a firm in the Minneapolis area.
- Performed American Society for Testing and Materials (ASTM) D-2013 and D-2085 classification of soils for engineering purposes.

**David Technica & Geologists, Alcor Associates, Inc., Raleigh, North Carolina
(1987-1989):**

- Assisted with the installation of a well monitoring system for a petroleum contaminated site.
- Participated in subsurface exploration and monitoring well installation for site assessments at petroleum facilities and for Phase II RSTs.
- Performed permeability tests, gradations, density, and other engineering tests on soils for geotechnical engineering purposes.

- Performed base soil testing, permeabilities and soil compression tests for waste water treatment ponds, landfill cover, and commercial, industrial and office structures.

Academic Background B.S. (1987), Geology, North Carolina State University, Raleigh

OSHA 4042, Hazardous Waste Operations Standards
Ground Water Flow and Well Hydraulics, University of Wisconsin, Short Course

Citizenship United States

Country of Worked in United States

Language Proficiency English

Professional Affiliations Minnesota Groundwater Association; Wisconsin Groundwater Association; National Groundwater Association

Registration Registered Professional Geologist - State of Wisconsin, No. 6
Registered Professional Geologist - State of Minnesota, No. 34581
Registered Groundwater Professional in the State of Iowa

Certification Certified Professional Geologist #9408 - American Institute of Professional Geologists (AIPG)
State of Wisconsin, Soil Assessor for leaking underground storage tank sites

Jeff Buck
Omni Environmental, Inc.

Title Project Engineer

Expertise
Environmental Site Assessments
Ground Water and Soils Remediation
Systems Analyst / Web Support
Project Management

Recent Experience
Provide project management for remedial investigations and corrective action designs.

- Perform Environmental Site Assessments for property restoration.
- Provide USL remedial oversight field sampling test result interpretation of leaking underground storage tank (UST) sites in Minnesota, Wisconsin, and Illinois.
- Provide oversight for remedial investigation and corrective action design activities at contaminated sites, including dry cleaners, service stations, and other industrial/semi-industrial facilities.
- Perform geologic/sediment surveys and geologic siting for hydrogeologic investigations/ remediation in wetlands and/or special areas.
- Provided system support for logistics and fleet control systems for a major server room at a large state project - engineered, designed, through implementation, testing, or changes to the final control system.
- Maintained ISO 9001 and 14001 certification for multiple processes within server manufacturing engineering.

Post Experience	A total of one year experience in the areas of environmental engineering, risk assessments, and final site assessments. A total of three years experience in the areas of system analysis and project engineering.
Academic Background	B.S. (1996), Civil and Environmental Engineering, University of Wisconsin-Madison OSHA 40-Hr Hazardous Waste Operations Standards
Citizenship	United States
Countries Worked In	United States, Ireland, Italy, Japan
Language Proficiency	English

KYLE R. HAVERTY

Quint Environmental, Inc.

Title Staff Geologist

Recent Experience Performing field sampling and report preparation for remedial investigations at US sites.

- Collecting, analyzing groundwater monitoring, & GAO monitoring, and reporting
- Assisting in the operation & maintenance of remediation systems
- Assisting with report compilation

Creating guidance documents for state's Wetland Protection Program

Academic Background B.A., 1990, Liberal Arts

Winona State Community College, Winona, Minnesota

B.S. (1993), Geology (Hydrogeology Option)

Winona State University, Winona, Minnesota

CEM 404-14 Hazardous Waste Operations & Emergency

Citizenship United States

Language Proficiency English



The EDR Radius Map with GeoCheck[®]

**48 Acre Development Property
West side of MN Hwy 101
Rogers, MN 55374**

Inquiry Number: 614423.3a

April 04, 2001

***The Source* For Environmental Risk Management Data**

**3500 Post Road
Southport, Connecticut 06490**

Nationwide Customer Service

**Telephone: 1-800-357-0050
Fax: 1-860-271-6902
Internet: www.edrnet.com**

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GEOCHECK APPENDIX

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Thank you for your business.
Please call the Toll-free 800-669-4766
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The search used the government records search tool known as ASTRAL (Automated Search for Environmental Site Assessment). E 1327 CO. Search distances are per ASTRAL standard or higher. Distances are noted in the text.

PROJECT PROPERTY INFORMATION

ADDRESS

WEST SIDE OF MICHIGAN
LANSING, MI 48202

COORDINATES

Location (North)	45°07'00" - 45°18'28.9"
Longitude (West)	83°05'00" - 83°08'10.9"
Universal Transverse Mercator Zone ID	
UTM X (Meters)	457,771
UTM Y (Meters)	4,000,000

OTHER COORDINATES ASSOCIATED WITH TARGET PROPERTY

Target Property:	2445 W. 3-B; ROBERT, MI
Address	2888 West 3-B Building

TARGET PROPERTY SEARCH RESULTS

The target property was not identified by the coordinates used in EDR.

DATABASES WITH NO MATCHES

No matches were found in EDR's search of available governmentally owned or owned or controlled records within the target property or within the ASTRAL E 1327 CO search radius around the target property for the following databases:

FEDERAL AGENCIES

NPL	National Priority List
Proposed NPL	Proposed National Priority List
CERCLA	Superfund National Priorities List, Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLA/FERAP	CERCLA National Priorities List and Federal Emergency Response Act
COMBATS	Comprehensive Assessment Report
RCRA-TSD	Resource Description and Recovery Information System
RCRA-IGL	Resource Description and Recovery Information System
RCRA-RRS	Resource Description and Recovery Information System
EMRS	Emergency Response Notification System

STATE AND STANDARD

SDWA	Safe Drinking Water Act/Lead/Pb Act
SDWA P	Public Drinking Water System Federal
UST	Underground Storage Tank
UST	Underground Storage Tank

EXECUTIVE SUMMARY

REVENUE - STATE SERVICE

CONSPNT.....	Aluminum CERCLA Consent Decrees
ADD	Chemical Addition
Delayed MPL.....	Delayed Priority Mail System
FILE.....	Family Index System - Public Information and Legal Research Summary Report
HWRS	Hazardous Materials Hazardous Handling System
METS	Material Handling Tracking System
NINEB	Nine West Index File
NPL LISTS	Food of Supermarket
PAGE.....	Page Activity Database System
PAATS.....	PCRA Audit Information Entry Tracking System
TAIR	Toxic Chemical Release Inventory System
TECA.....	Toxic Substances Control Act
PLS	TECA TSCA Tracking System - TECA TSCA Tracking System - TECA TSCA Tracking System - TECA TSCA Tracking System

BIOTECHNICAL AND SUPPLEMENTAL

ASI	Aluminum and Organic Tanks
RN Spill	Spill Response
RN HWB Form	Revised HMT Form
RN Deiled GHS	Promote Use of Safety Precautions
MM LCP	Coastal Land Partnership
MM IS	Is of Isles
MM VC	Voluntary Restoration and Cleanup Program
MM Assessment	Remedial Assessment and Environmental Impact
BULK	Bulk and Bulk Packages
MM AGSPILLS	Department of Agriculture Spills

FOR PROPRIETARY DATA

Coal Gas Former Man Produced Gas (20' Gas) S...

SUBJECT REPORT: ENACT REFUGEE

Su yarıda yazan kanunlar dardır.

EXECUTIVE SUMMARY

Due to current and pending address information, the following sites were not mapped:

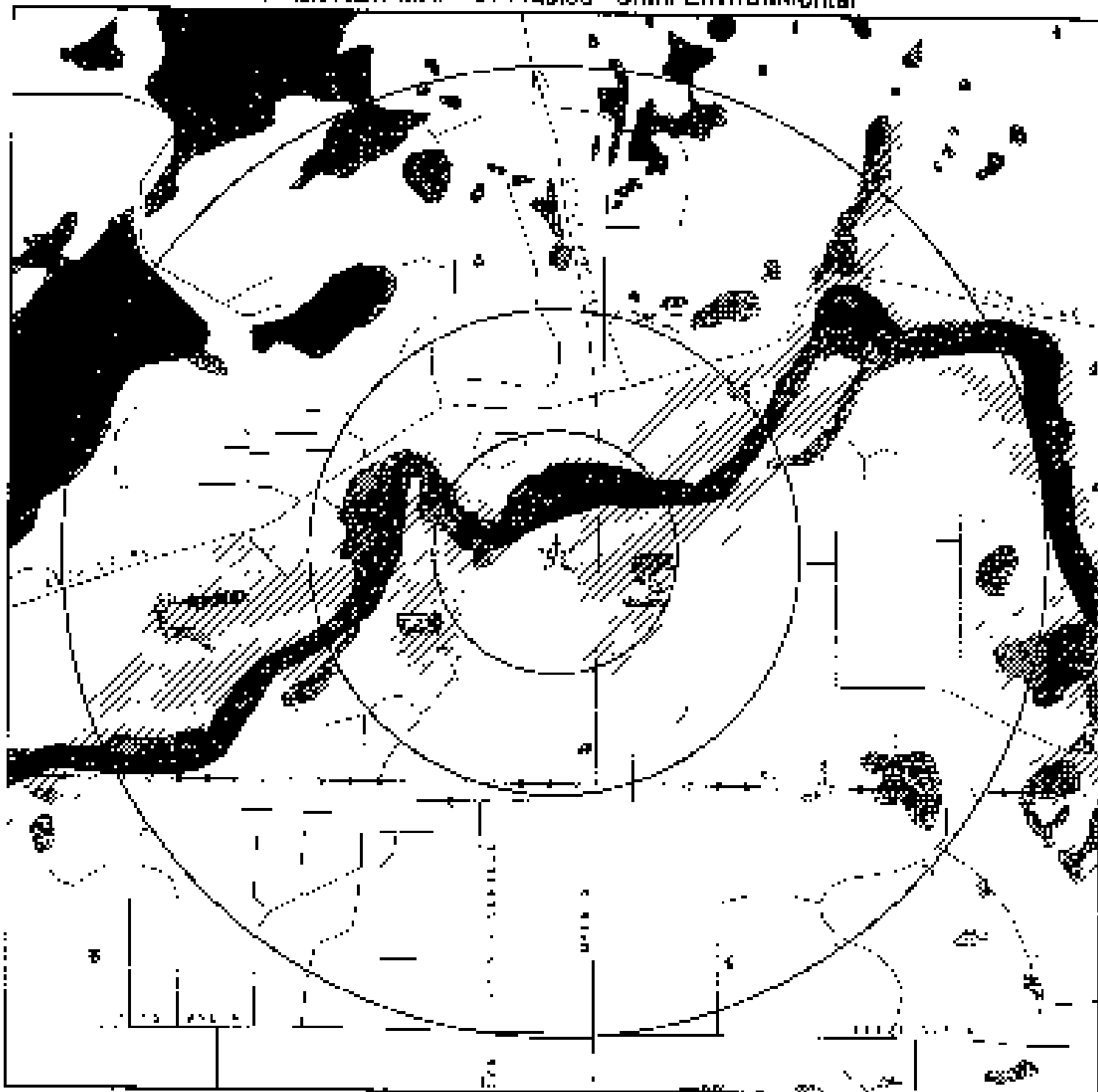
Site Name

UNIT 11 - 1000 SAN JOSE BL
TWIN CITY WEST AUTO TRUCK PLAZA
FORMER SUPERSTATION
ORANGE BLVD INTERLINE

Database(s)

SAVED
LDS1
LDS1
RCR 8-8-2011.DWG

OVERVIEW MAP - B14423.3a - Omit Environmental

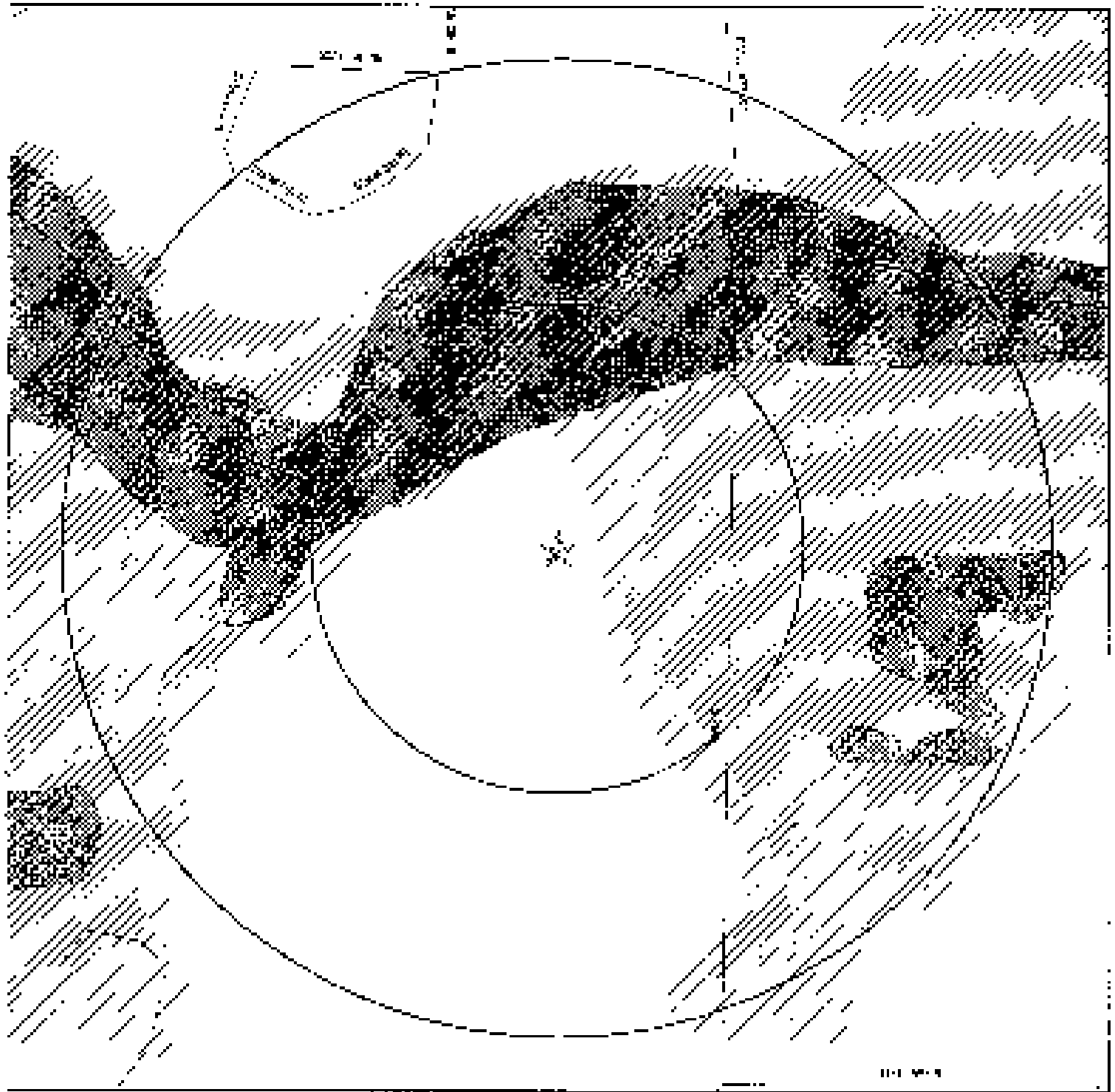


- 1. Target Property
- 2. General Easement Area (e.g., 10' Easement to the Target Property)
- 3. General Easement Area (e.g., 10' Easement to the Target Property)
- 4. Coal Condition (e.g., 10' Easement)
- 5. National Priority (e.g., 10' Easement)
- 6. Land Use (e.g., 10' Easement)

- 7. Power Line (e.g., 10' Easement)
- 8. Oil & Gas (e.g., 10' Easement)
- 9. 100-year Flood Zone
- 10. 500-year Flood Zone
- 11. Wetlands

TARGET PROPERTY: As Above Development Property
 ADDRESS: West side of MN Hwy 100
 CITY/STATE/ZIP: Bemis MN 56004
 LAT/LONG: 43.2247 / 93.5547

CLIENT: Omit Environmental
 CONTACT: Mr. Paul
 PHONE: 614-423-32
 DATE: April 17, 2010 10:50 pm



- | | |
|---|--|
| <ul style="list-style-type: none"> * Target Property ▲ Subarea within Target Property + Subarea within Target Property ▲ Subarea within Target Property ● Subarea within Target Property ■ Subarea within Target Property □ Subarea within Target Property | <ul style="list-style-type: none"> /// Forested land /// Grassland /// 100 year flood zone /// 500 year flood zone /// Wetlands |
|---|--|

TARGET PROPERTY:
ADDRESS:
CITY/STATE/ZIP:
PHONE:

11.444 Development Property
West side of MN Hwy 10
Hesperia, MN 56034
43.2347 / 93.5347

PROJECT ID:
CONTACT:
CELL PHONE:
DATE:

Omni Environmental
Jon Beck
612.444.1111
April 24, 2001 12:00pm

MAP FINDINGS SUMMARY

Codebook	Target Process ID	Search Histogram (Values)	1 - 15	16 - 194	195 - 198	199 - 1	2 - 1	1994 Pooled
<u>FEDERAL ASTM STANDARDS</u>								
NP1		300	0	0	0	0	NR	0
FILAMENT M1		300	0	0	0	0	NR	0
CEFCUS		0ND	0	0	0	NR	NR	0
CEFC MFRAP		0-50	0	0	NR	NR	NR	0
CORREACTS		1000	0	0	-	0	NR	0
CEFC T80		0E00	0	0	0	NR	NR	0
CEFC Lp. Dura. Gen.		0250	0	0	NR	NR	NR	0
CEFC Sm. Gura. Gen.		0350	0	0	NR	NR	NR	0
ENNS		TP	NR	NR	NR	NR	NR	0

STATEMENT OF WORK

Parameter	Value	Unit	Min	Max	Mean	Std	Min	Max	Mean	Std
Parameter	Value	Unit	Min	Max	Mean	Std	Min	Max	Mean	Std
Parameter	Value	Unit	Min	Max	Mean	Std	Min	Max	Mean	Std
Parameter	Value	Unit	Min	Max	Mean	Std	Min	Max	Mean	Std
Parameter	Value	Unit	Min	Max	Mean	Std	Min	Max	Mean	Std

REVENUE STG: H.PP:FW=142

[illegible]

ENTREPRENEURSHIP & REGIONAL DEVELOPMENT

[illegible]

W. PROPIETARY DATA

Cardiac	1991	2	3	4	5	6	7	8	9
---------	------	---	---	---	---	---	---	---	---

MAP FINDINGS SUMMARY

Findings	Target Property	Score Distance (Miles)	1-10	12-14	16-18	19-21	22-24	Yield Expected
----------	-----------------	------------------------	------	-------	-------	-------	-------	----------------

ADDITIONAL: See EDR for additional findings. Review findings.

TF = Target Property

NR = Not Reported at the Current Mileage

* Score may be lower if the data are excluded.

Map ID:
City:
County:
County (FIPS):

MAP NUMBER

Location: FIPS County: FIPS Number:

Get 0.0000 to Search Results was found in a review of Real Property Search (RPS) Map database.

NOTICE: FOUND

[illegible]

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/05/00
 Date Made Available: 03/17/01 00:00
 Date of Release: Released: 03/17/01 00:00

Date of Data Availability: 03/17/00
 Exposed: 03/17/00 00:00
 Date of Data Release: 03/17/00

ECRIS - Electronic Case Information and Records Management System

Source: ECRIS
 Telephone: 714-438-0045

Purpose: ECRIS is a web-based system that provides a central location for all case information and files which are used in the criminal justice system. It is a web-based system that provides a central location for all case information and files which are used in the criminal justice system.

Date of Government Version: 03/17/00
 Date Made Available: 03/17/00
 Release: 03/17/00, Released: 03/17/00

Date of Data Availability: 03/17/00
 Exposed: 03/17/00 00:00
 Date of Data Release: 03/17/00

ERIS - Emergency Response Information System

Source: ERIS
 Telephone: 714-438-0045

Purpose: Emergency Response Information System (ERIS) provides a central location for all case information and files which are used in the criminal justice system.

Date of Government Version: 03/17/00
 Date Made Available: 03/17/00
 Release: 03/17/00, Released: 03/17/00

Date of Data Availability: 03/17/00
 Exposed: 03/17/00 00:00
 Date of Data Release: 03/17/00

FEDERAL AS IN SUPPLEMENTAL TO 00000000

FRS - Federal Reporting System

Source: FRS
 Telephone: 714-438-0045

The Federal Reporting System (FRS) is a web-based system that provides a central location for all case information and files which are used in the criminal justice system. It is a web-based system that provides a central location for all case information and files which are used in the criminal justice system.

Date of Government Version: 03/17/00
 Release: 03/17/00, Released: 03/17/00

Date of Data Availability: 03/17/00
 Date of Data Release: 03/17/00

CONSENT - Consent (SPR) and (SPR) and (SPR)

Source: TIA - The American
 Telephone: 714-438-0045

Historical information for each of the separate systems is provided in a separate report. The report is a separate report that provides a central location for all case information and files which are used in the criminal justice system.

Date of Government Version: 03/17/00
 Release: 03/17/00, Released: 03/17/00

Date of Data Availability: 03/17/00
 Date of Data Release: 03/17/00

EDS - Electronic Data System

Source: EDS
 Telephone: 714-438-0045

Purpose: EDS is a web-based system that provides a central location for all case information and files which are used in the criminal justice system.

Date of Government Version: 03/17/00
 Release: 03/17/00, Released: 03/17/00

Date of Data Availability: 03/17/00
 Date of Data Release: 03/17/00

DELETED NPL: National Criminal Justice Database

Source: NPL
 Telephone: 714-438-0045

The National Criminal Justice Database (NPL) is a web-based system that provides a central location for all case information and files which are used in the criminal justice system. It is a web-based system that provides a central location for all case information and files which are used in the criminal justice system.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

714). *Journal of Chemical Thermodynamics* 35: 1031-1035.

Box 1: Fuel ERF Category: 2275-21
Box 2: Fuel ERF and ERF Category: 1673-74

TMOB: Tolly M. O'Quinn, 1414 North 11th St., Arlington Heights, Illinois 60014
 Source: FBI
 Telephone: 834

[illegible][illegible]

Date of Last Full Backup: 2/16/2011
Date of Next Scheduled Full Backup: 2/16/2011

HHSR-8: Human Resource Information System
Version 1.0, Department of Transportation
Title Page: 10/1/2000

University of Missouri at Columbia, Columbia, MO 65211-3000, USA; e-mail: chris@math.missouri.edu

Note: All documents are for informational purposes only.
 For more information, please contact the relevant authority.

5.7% - Total LEP Growth - 1980-91
5.9% - Total Estimated and FTR (1990-2001)

NLTS Month: January/February
Course: Kinder Page 1 / 1
Language: English

Material maintained by the National Regulatory Commission on an ongoing basis. Last update: March 27, 2013. This product or use method is not intended to be used without reference to NRC's Regulatory Guide, Document ID: RG-1.100. For more information, the Agency can be contacted via:

U.S. DEPARTMENT OF JUSTICE
 FEDERAL BUREAU OF INVESTIGATION

James L. McFARLAND, Chairman
Office of New England Area - 2440 Broadway, N.Y.C. 10024

地址: 宁夏回族自治区银川市
 银川市 金凤区 上海路 10 号 宁夏回族自治区
 银川市 金凤区 上海路 10 号 宁夏回族自治区

7. *Journal of Business*, 1990, 63, 1, 1-16.

Faculty of Law, 120, 7-1-17, 1-1-20
Faculty of Law, 120, 7-1-17, 1-1-20

45 LIFES: F and Signature Lines
 From: RFA
 Information: 800-674-1000

Internal Security - (1) The authority granted the USFEB by the Congressional Environmental Response Compensation and Liability Act (CERCLA) of 1980, the ERLA, has been authority to S. 1, i.e., nuclear property in order to recover naturally occurring substances under the circumstances involved. CERCLA is a statute dealing with USERCA compliance, but not with the issue of ERLA and there.

Local Government (No. 1) 1984
Local Government (No. 2) 1984

User: andrew@cs.cmu.edu
 User: andrew@cs.cmu.edu

Pd#0: Pd#0 Activity Indicator Summary
Printed: E=8
To Update... click HERE

FFS highly includes FASB Member's own projects, including commercial items and other projects and documents of FRSB, who are required to be by the FRSB of commercial items.

12. C. GARDNER: *THE GARDEN*, 1950.
13. *THE GARDEN*, 1950.

Box 1: *Low-Cost Control Strategy*
Box 2: *High-Speed, High-Throughput Control Strategy*

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMAR: HMAR Administrative and Training System

Source: JPR

Telephone: 202-694-4771

HMAR Data Integration Action Process Review: RASPS can improve the basis of management and the integrity of the system by integrating systems and including additional data and links. It is brought by the HMAR. For additional information, please contact: Michael Lee, 202-694-4771. HMAR is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

Date of Government Version: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

YMS: YMS Database Management System

Source: JPR

Telephone: 202-694-4771

The YMS Database Management System is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

Date of Government Version: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

YMS: YMS Database Management System

Source: JPR

Telephone: 202-694-4771

The YMS Database Management System is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

Date of Government Version: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

YMS: YMS Database Management System - YMS Database Management System

Source: JPR

Telephone: 202-694-4771

The YMS Database Management System is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

Date of Government Version: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

YMS: YMS Database Management System - YMS Database Management System

Source: JPR

Telephone: 202-694-4771

The YMS Database Management System is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

Date of Government Version: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

Date of Data Integration: 10/10/00

STATE OF MINNESOTA ARMY STANDARD RECORDS

STATE OF MINNESOTA ARMY STANDARD RECORDS

Source: JPR

Telephone: 202-694-4771

The State of Minnesota Army Standard Records is a system that is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data. The data is used to manage the data and the data is used to manage the data.

GOVERNMENT RECORDS SEARCHED/ DATA CURRENCY TRACKING

Calicut Government College, Calicut 673 002
Calicut Medical College, Calicut 673 006
Calicut Veterinary College, Calicut 673 001

Journal of Dental Research 71: 1409-1412 (1992)
 Journal of Endodontics 18: 499-501 (1992)
 Journal of Oral Med. Pathol. 49: 1-10 (1992)

STUFF: Writing Skills Across the Curriculum
Source: Minnesota Education Policy Agency
Tel.: 612.668.3333, 3741

2001, which has been identified since 2004 (Fig. 1). These data specifically indicate an increase in the number of days of precipitation and a decrease in the number of days of no precipitation. The data also indicate that the number of days of precipitation has increased in most of the United States, with the exception of the Pacific Northwest, where there has been a decrease in the number of days of precipitation.

Journal of Government Information Science 1999
Library Science Abstracts 1999
Library and Information Science Abstracts 1999

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LIST: 1 of 31

General Manager, Federal Bureau of Investigation
Telephone: 441-2910 (Ext.)

Leadership Development Program (LDP) – Provides leadership training and knowledge of personal leadership style, storage and individual characteristics of leadership, how to use resources and the internal resources of an individual.

Forest Science Center, University of Idaho
Forest Management and Ecology, 8384-2
Dunsmuir, California 95926-8384

[illegible]

UBT: Universal Binary Tables 6.17.02

E-mail: thomas@fsl.berkeley.edu
 Web page: <http://fsl.berkeley.edu>

For more information, please contact the U.S. Environmental Protection Agency, Office of Research and Development, Environmental Criteria and Standards Division, Health Effects Criteria Branch, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, or call 1-800-621-8733.

L'Espresso 20 novembre 1995
 Contributo di Mario Monti: 11.04.95
 Editore: Roberto Fiumi - 1995

Journal Date: 04/01/2015 14:07:22
 Journal: 63740000
 To: 04/01/2015 14:07:22

STATE OF MINNESOTA AND SUPERIOR APPELLATE COURTS

931: 2-22-2004 15:30:17

Source: www.police.uk
Tel: 0800 70 70 70

3--b--
3--b--

Date of Commitment Form: 10/27/01
 Release to Public: Frequency: Semi-Annual

2025 RELEASE UNDER E.O. 14176
 2025 RELEASE UNDER E.O. 14176

[illegible]

30. cc: Minnesota Pollution Control Agency
Toll-free: 1-800-552-8343

John G. ... 1970
John G. ... 1970

DATE FILED IN : 10-10-2010
DATE OF NEXT SUBMISSION FILE : 10-10-2010

"H HYE HEHEH: 2:54 1:47" He Hye

800. 468. 6100 National Petroleum Control Agency
Tel.: 1-800-297-2471
Fax: 1-800-555-5688

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

www.gutenberg.org, 1999.
 Version 3.0 (2006) : 2006/04

Date of first FTA: 2002-11-20
Date of last FTA: 2003-11-20

Dr. Douglas S. Bates, Department of Biology, University of Wisconsin, Madison, WI 53706

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Journal of Internal Medicine 247: 395–402

1. The following are the steps to be followed in the preparation of the report:

Datum: _____
Uraian Pekerjaan: _____

Helen Lee Fong Carter 1950
 Helen Lee Fong Carter and Fong Oon Lee 1951-52

LEP 0-1000 - Unit 19 Post-Lex

[illegible]

1. The study population consists of 100 respondents who are the young generation (18 years old and above) living in the HAGA community in the HAGA compound in the city of Addis Ababa, Ethiopia. The HAGA compound is made up of 100 houses made by the government but is, however, not a formal culture or community as it is perceived. The HAGA community has a rich history and heritage (1994).

2016年12月31日
 2017年1月1日

State of Louisiana, Parish of Orleans
 This is to certify that the within and foregoing is a true and correct copy of the original as the same appears in the records of the Clerk of the Court of the Parish of Orleans.

12 Dec '36

Seiten 14-15: Journalist: Journalismus
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Date of Submission: 14/01/2021
 Submission Reference No: 2021-00012

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1990-1991: *Journal of the American Medical Association*
 1992-1993: *Journal of the American Medical Association*
 1994-1995: *Journal of the American Medical Association*

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Data of Governmental Services: 0.00.79
 Data of Governmental Services: 0.00.79

'D. J. L. 811 P. 2-14220-02701

BY ORDER OF THE BOARD: _____

So. W. Minnesota Publishing Co., Inc.
Tel.: 605/338-1111, 1988

Environ Biol Fish (2008) 81:203–212

John Deere 1025L Tractor (2012)
 1. 1025L Tractor (2012) - 1025L Tractor (2012)

WFO: 11/01/2011 12:00:00
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2014年12月19日 星期五

2014年12月15日

John C. Spangenberg - TRC - 11-05-197

THE PAPERBURY VALUES

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[illegible][illegible]

Forest Zone Data: The data used in the calculations for the country was obtained by ECE in 1989 from the *Forest Management Zones (FMA)*. The country's 100-year and 500-year flood zones are defined by FEMA.

NOTE: National Webinars, November 17 (9:00-10:00 AM) and November 24 (9:00-10:00 AM) will be recorded and available on demand by EBP. In 1855, the first U.S. Webcast (Webcast) was held.

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS:

40 ACRES DEVELOPMENT PROPERTY
20 WEST SIDE OF HIGHWAY 101
CORNERS, MN 55874

TARGET PROPERTY COORDINATES:

UTM Zone Number	18 QJN 701
UTM Easting Number	630 38 10.0
UTM Northing Number	4564 15
UTM Easting	630 381.0
UTM Northing	456414.5

The GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional in the collection of physical setting sources to assist in accordance with ASTM 1188-07 Section 7.3.1 Section 12.1. The information supplied USGS 7.5 Minute Topographic Map for Corners, Minnesota (118875) Digital Elevation Model has been used. It also required that one or more additional geospatial data sources are used. This addendum has been identified in which hazardous substances or petroleum products are likely to be found (e.g., from a previous spill or leak) more information than is provided in the current USGS 7.5 Minute Topographic Map for Corners, Minnesota. The information is provided for the purpose of identifying potential impacts to the environment, including the potential for contamination of the property. The addendum also identifies sources of information that are available for the purpose of identifying potential impacts to the environment, including the potential for contamination of the property.

Assessment of the impact of contamination on the physical setting is required to be completed by the environmental professional.

1. Contamination of the physical setting
2. Contamination of the property

GeoCheck Physical Setting Source Addendum may be completed by an environmental professional, hydrology/hydrogeology, characterization of the soil, and/or a geologist. Contamination of the property is primarily impacted by the nature of the geologic situation. EDF's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in identifying and/or about the impact of potential contamination on the property.

GEOCHECK® PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER BOUNDBERY INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If available, it is recommended to include a flow direction necessary to rely on other assessment information, such as surface water flow information, hydrologic information, monitoring well data, additional survey protocols, and correlation between flow information from other wells area.

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surface groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminant properties or structure located on or near the target property, which design and siting might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 16083-00 ROGERS, MN
Source: 1893 7.5 min. quadrangle

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General: NW/SE

Source: General Topographic information has been determined from the USGS 1:250,000 Scale Elevation Quadrangle should be evaluated to determine the general gradient. Relative elevation information between the following property should be fully verified.

HYDROLOGIC INFORMATION

Surface water and hydrologic information to groundwater flow direction and flow information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminant properties and structure located on the target property, which design and siting might be impacted.

Insert in the Physical Setting Source Map following this summary for hydrologic information (in any appropriate location of water).

FEMA FLOOD ZONE

Target Property County:
HENNEPIN, MN

FEMA GS Flood:
Data Extract is Complete
YES - XRef to the County Map and Local Map

Flood Risk Factor at Target Property:
Additional Factor in Surrounding:

3707000000 / CRRP
3707150000 / CRRP
3707400000 / CRRP

NATIONAL WETLANDS MENTION

NW Coastal Marsh Property:
ROGERS

NW Elevation:
Complete
YES - XRef to the County Map and Local Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of well or exposure in the subsurface includes hydrologic characteristics, location in the immediate area, and hydrogeologic information that can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminant properties or structure located on the target property, which design and siting might be impacted.

GEOCHECK[®] - PHYSICAL SETTING SOURCE SUMMARY

510-227-0146 info@metromedical.com

822 21 R20 W.

• **Alumina** -

■ **המחיר:** 299 ₪

Source: *Environ* 2008 11:2

EDR has developed the ADR 100% Information System to provide data on the progress of federal court cases. For a complete list of ADR cases, please refer to the ADR 100% Information System. For more information, please contact the ADR 100% Information System at adr100@edr.com.

NAME OF SUBSEA STRUCTURE	LOCATION, FREQUENCY	CHRONIC, DUE TO CATASTROPHIC LOSS RISK
1	2 Miles SW	Not Reported
2	3 Miles SW	Not Reported
3	3 Miles SW	Not Reported

Erzählende Literatur u. a. in der 12. Klasse

GR9J42M0T7B.F.002F105T7B0F0001 (9)

These character and velocity information for a particular site is best determined by a qualified scientist with professional knowledge of geology, geophysics and soil characteristics. This data are not necessarily appropriate for any but the most carefully selected other purposes of assessment, including predicting ground motion, seismic hazard evaluation and soil characteristics data included in seismic hazard analysis and seismic information in general, and particularly for the use of the data in the development of building codes and other standards.

GEOLOGIC REFORMATION IN AFRICA: EFFECT OF LATE PRECAMBRIAN

bioRxiv preprint doi: <https://doi.org/10.1101/000000>; this version posted January 1, 2016. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

DECLARATION OF INTEREST

FOR 81961-017131617

1. Name of the person	1.
2. Address	2.
3. City	3.
4. State	4.

Source: Shelton Supply Co.

[illegible]

DEFINITION AND COMPOSITION OF GENERAL ASSESSEMENT QUESTIONS

The U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) leads the National Geographic Soil Survey (NGSS), and is responsible for collecting, storing, maintaining and distributing soil survey information. Currently, data are held in a file called *State_Arcmap*, a soil survey data visualization of soil patterns in a state space. The *State_Arcmap* are compiled by generalizing more detailed soil RGS soil survey maps. The objective of this paper is to use Soil Conservation Service (SCS) data.

GEOCHECK - PHYSICAL SETTING SOURCE SUMMARY

Site Component Name: HUBBARD

Soil Surface Description: sandy sand

Hydrogeologic Type: Class A - High infiltration media. Soil is composed of coarse sand to coarsely-sorted sand and gravels.

Soil Drainage Class: Excessively Soils have very high and high hydraulic conductivity and no water holding capacity. Depth to water table is more than 1000 ft.

Hydrogeologic Soil Index: no more than requirements for a hydrogeologic

Corrosion Potential: Unlikely. Steel: 100%

Depth to Bedrock Min: > 60' (Notes)

Depth to Bedrock Max: > 80' (Notes)

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Permeability	
	Upper	Lower		AASHTO Group	Unified Soil	Hyd (cm/yr)	Soil Reaction (pH)
1	0 inches	20 inches	Loose sand	Coarse-grained (35% sand) sand, poorly sorted, containing 10% to 20% silt and clay	SP-SM-SW, SC, SM, SW, Sand	Hyd: 20-100 Min: 10-100	Class: 7-8 Min: 5-10
2	20 inches	40 inches	sand	Coarse-grained (35% sand) sand, poorly sorted, containing 10% to 20% silt and clay	SP-SM-SW, SC, SM, SW, Sand	Hyd: 20-100 Min: 10-100	Class: 7-8 Min: 5-10
3	40 inches	60 inches	sand	Coarse-grained (35% sand) sand, poorly sorted, containing 10% to 20% silt and clay	SP-SM-SW, SC, SM, SW, Sand	Hyd: 20-100 Min: 10-100	Class: 7-8 Min: 5-10

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

OTHER SOIL APPLICABLE

Geotechnical Information Service STATSOIL contains the following additional information on types not shown with the general STATSOIL groupings.

Soil Surface Texture	sandy loam fine sand sandy fine sand fine sandy loam silt medium silty loam
Grained Soil Types	sandy loam fine sand sandy fine sand fine sandy loam silt medium silty loam
Shaley Soil Types	loam
Clayey Soil Types	clay loam fine clay stiff clay

ADDITIONAL ENVIRONMENTAL REPORTS REQUIRED

According to ASTM E 1540-00, Section 7.2.1, "For all new geotechnical sites within 50,000 ft of groundwater, reports may be checked in the database of the environmental engineer, townships and/or public utilities, and state records. Factors to consider in determining the need for additional site reports include: (1) whether they are reasonably accessible, (2) whether they are sufficiently recent, accurate, and complete to reflect the character of the geotechnical project, and (3) whether they would be of potential soil geotechnical or subsurface value." One of the items to consider under Section 7.2.1 is whether the information (geotechnical information) can be used to assist in understanding and assessing the various features that may impact groundwater flow direction, and if having a soil knowledge that may be important in relation to nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATE</u>	<u>SEARCH DISTANCE (ft)</u>
March 1999	1000
February 2001	Maximum Search Distance
May 2004	1000

PHYSICAL USE WELL INFORMATION

<u>NAME</u>	<u>DATE</u>	<u>STATUS</u>
Kawalla Farm		

GEOCHECK - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL PROS. RUN. & WATER SUPPLY SYSTEM INFORMATION

<u>WATER</u>	<u>ALLIED</u>	<u>LOCATION</u>
Hydroelectric Power		Hydro

Head Race System located in East Branch of the Connecticut River

STATE DATABASE WELL INFORMATION

<u>WELL ID</u>	<u>WELL ID</u>	<u>LOCATION</u>
A1	000000000000	000000000000
A2	000000000000	000000000000
A3	000000000000	000000000000
A4	000000000000	000000000000
A5	000000000000	000000000000
A6	000000000000	000000000000
A7	000000000000	000000000000
A8	000000000000	000000000000
A9	000000000000	000000000000
A10	000000000000	000000000000
A11	000000000000	000000000000
A12	000000000000	000000000000
A13	000000000000	000000000000
A14	000000000000	000000000000
A15	000000000000	000000000000
A16	000000000000	000000000000
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A35	000000000000	000000000000
A36	000000000000	000000000000
A37	000000000000	000000000000
A38	000000000000	000000000000
A39	000000000000	000000000000
A40	000000000000	000000000000
A41	000000000000	000000000000
A42	000000000000	000000000000
A43	000000000000	000000000000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

WELL ID	WELL NAME	WELL TYPE
141	2000000000	14 - 1000000000
142	2000000000	14 - 1000000000
143	2000000000	14 - 1000000000
144	2000000000	14 - 1000000000
145	2000000000	14 - 1000000000
146	2000000000	14 - 1000000000
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200	2000000000	14 - 1000000000

GEOCHECK: PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

WELL	WELL ID	LOCATION
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L41	0000000000	10 - 100 - 000
L42	0000000000	10 - 100 - 000
L43	0000000000	10 - 100 - 000
L44	0000000000	10 - 100 - 000
L45	0000000000	10 - 100 - 000
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L93	0000000000	10 - 100 - 000
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L95	0000000000	10 - 100 - 000
L96	0000000000	10 - 100 - 000
L97	0000000000	10 - 100 - 000
L98	0000000000	10 - 100 - 000
L99	0000000000	10 - 100 - 000
L100	0000000000	10 - 100 - 000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATA89- WELL INFORMATION

WELL ID	WELL ID	LOCATION FROM FE
W001	0000000000	12 - 1 Mile SW
W002	0000000001	12 - 1 Mile SW
W003	0000000002	12 - 1 Mile SW
W004	0000000003	12 - 1 Mile SW
W005	0000000004	12 - 1 Mile SW
W006	0000000005	12 - 1 Mile SW
W007	0000000006	12 - 1 Mile SW
W008	0000000007	12 - 1 Mile SW
W009	0000000008	12 - 1 Mile SW
W010	0000000009	12 - 1 Mile SW
W011	0000000010	12 - 1 Mile SW
W012	0000000011	12 - 1 Mile SW
W013	0000000012	12 - 1 Mile SW
W014	0000000013	12 - 1 Mile SW
W015	0000000014	12 - 1 Mile SW
W016	0000000015	12 - 1 Mile SW
W017	0000000016	12 - 1 Mile SW
W018	0000000017	12 - 1 Mile SW
W019	0000000018	12 - 1 Mile SW
W020	0000000019	12 - 1 Mile SW
W021	0000000020	12 - 1 Mile SW
W022	0000000021	12 - 1 Mile SW
W023	0000000022	12 - 1 Mile SW
W024	0000000023	12 - 1 Mile SW
W025	0000000024	12 - 1 Mile SW
W026	0000000025	12 - 1 Mile SW
W027	0000000026	12 - 1 Mile SW
W028	0000000027	12 - 1 Mile SW
W029	0000000028	12 - 1 Mile SW
W030	0000000029	12 - 1 Mile SW
W031	0000000030	12 - 1 Mile SW
W032	0000000031	12 - 1 Mile SW
W033	0000000032	12 - 1 Mile SW
W034	0000000033	12 - 1 Mile SW
W035	0000000034	12 - 1 Mile SW
W036	0000000035	12 - 1 Mile SW
W037	0000000036	12 - 1 Mile SW
W038	0000000037	12 - 1 Mile SW
W039	0000000038	12 - 1 Mile SW
W040	0000000039	12 - 1 Mile SW
W041	0000000040	12 - 1 Mile SW
W042	0000000041	12 - 1 Mile SW
W043	0000000042	12 - 1 Mile SW
W044	0000000043	12 - 1 Mile SW
W045	0000000044	12 - 1 Mile SW
W046	0000000045	12 - 1 Mile SW
W047	0000000046	12 - 1 Mile SW
W048	0000000047	12 - 1 Mile SW
W049	0000000048	12 - 1 Mile SW
W050	0000000049	12 - 1 Mile SW

GEOCHECK - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

WELL ID	WELL ID	LOG NAME
GL10	9027923345	10 - 1000 ESE
GL11	9027923346	10 - 1000 ESE
GL12	9027923347	10 - 1000 ESE
GL13	9027923348	10 - 1000 ESE
GL14	9027923349	10 - 1000 ESE
GL15	9027923350	10 - 1000 ESE
GL16	9027923351	10 - 1000 ESE
GL17	9027923352	10 - 1000 ESE
GL18	9027923353	10 - 1000 ESE
GL19	9027923354	10 - 1000 ESE
GL20	9027923355	10 - 1000 ESE
GL21	9027923356	10 - 1000 ESE
GL22	9027923357	10 - 1000 ESE
GL23	9027923358	10 - 1000 ESE
GL24	9027923359	10 - 1000 ESE
GL25	9027923360	10 - 1000 ESE
GL26	9027923361	10 - 1000 ESE
GL27	9027923362	10 - 1000 ESE
GL28	9027923363	10 - 1000 ESE
GL29	9027923364	10 - 1000 ESE
GL30	9027923365	10 - 1000 ESE
GL31	9027923366	10 - 1000 ESE
GL32	9027923367	10 - 1000 ESE
GL33	9027923368	10 - 1000 ESE
GL34	9027923369	10 - 1000 ESE
GL35	9027923370	10 - 1000 ESE
GL36	9027923371	10 - 1000 ESE
GL37	9027923372	10 - 1000 ESE
GL38	9027923373	10 - 1000 ESE
GL39	9027923374	10 - 1000 ESE
GL40	9027923375	10 - 1000 ESE
GL41	9027923376	10 - 1000 ESE
GL42	9027923377	10 - 1000 ESE
GL43	9027923378	10 - 1000 ESE
GL44	9027923379	10 - 1000 ESE
GL45	9027923380	10 - 1000 ESE
GL46	9027923381	10 - 1000 ESE
GL47	9027923382	10 - 1000 ESE
GL48	9027923383	10 - 1000 ESE
GL49	9027923384	10 - 1000 ESE
GL50	9027923385	10 - 1000 ESE
GL51	9027923386	10 - 1000 ESE
GL52	9027923387	10 - 1000 ESE
GL53	9027923388	10 - 1000 ESE
GL54	9027923389	10 - 1000 ESE
GL55	9027923390	10 - 1000 ESE
GL56	9027923391	10 - 1000 ESE
GL57	9027923392	10 - 1000 ESE
GL58	9027923393	10 - 1000 ESE
GL59	9027923394	10 - 1000 ESE
GL60	9027923395	10 - 1000 ESE
GL61	9027923396	10 - 1000 ESE
GL62	9027923397	10 - 1000 ESE
GL63	9027923398	10 - 1000 ESE
GL64	9027923399	10 - 1000 ESE
GL65	9027923400	10 - 1000 ESE
GL66	9027923401	10 - 1000 ESE
GL67	9027923402	10 - 1000 ESE
GL68	9027923403	10 - 1000 ESE
GL69	9027923404	10 - 1000 ESE
GL70	9027923405	10 - 1000 ESE
GL71	9027923406	10 - 1000 ESE
GL72	9027923407	10 - 1000 ESE
GL73	9027923408	10 - 1000 ESE
GL74	9027923409	10 - 1000 ESE
GL75	9027923410	10 - 1000 ESE
GL76	9027923411	10 - 1000 ESE
GL77	9027923412	10 - 1000 ESE
GL78	9027923413	10 - 1000 ESE
GL79	9027923414	10 - 1000 ESE
GL80	9027923415	10 - 1000 ESE
GL81	9027923416	10 - 1000 ESE
GL82	9027923417	10 - 1000 ESE
GL83	9027923418	10 - 1000 ESE
GL84	9027923419	10 - 1000 ESE
GL85	9027923420	10 - 1000 ESE
GL86	9027923421	10 - 1000 ESE
GL87	9027923422	10 - 1000 ESE
GL88	9027923423	10 - 1000 ESE
GL89	9027923424	10 - 1000 ESE
GL90	9027923425	10 - 1000 ESE
GL91	9027923426	10 - 1000 ESE
GL92	9027923427	10 - 1000 ESE
GL93	9027923428	10 - 1000 ESE
GL94	9027923429	10 - 1000 ESE
GL95	9027923430	10 - 1000 ESE
GL96	9027923431	10 - 1000 ESE
GL97	9027923432	10 - 1000 ESE
GL98	9027923433	10 - 1000 ESE
GL99	9027923434	10 - 1000 ESE
GL100	9027923435	10 - 1000 ESE

GEOCHECK[®] - PHYSICAL SETTING SOURCE SUMMARY

STATE EXTENSION WORK 1 15(+740 11074

[illegible]

- © Cambridge University Press, 2012. This is a Cambridge University Press publication.

FROM: J. M. B. Campbell-Emerich dated
 CONTACT: Jeff Emerich
 PHONE: 614-293-8251
 DATE: 24-04-2001 12:33 pm

GEOCHECKS- PHYSICAL SETTING SOURCE MAP FINDINGS

29. 4/20/11
 30. 4/20/11
 31. 4/20/11

• H C V 92

2024

[illegible]

San Andreas NP 500 XL

[illegible]

GEOCHECK: PHYSICAL SETTING SOURCE MAP FINDINGS

12/12
 1/1/1/1
 1/1/1/1
 1/1/1/1

סמל :H O'ly'ber

42
HH4
5 - 29 MIB
Hbfr

W4 031, 0 200512340

3. תנאי הכלל-לשון:

[illegible]

What do they understand?

4411 Adenau. 50441104N 00441104E
 00441104N 00441104E

பொதுமக்கள் அறிக்கை:

Daniel A. Anderson 207TH STREET DE
196-48 KNUTTS

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[illegible]

GEOCHECKX- PHYSICAL SETTING SOURCE MAP FINDINGS

Case ID	Director	Unit in Charge	Investigator	Case Name	Case Number
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75					

[illegible]

DATE: 11/18/2018 11:18 AM

DATE: 11/18/2018 11:18 AM

Principal Investigator:

County Well #	473441	County	WR-G-T
Township	12S	Section	2
Range	2E	Education File	NA Reported
Subsection	00	Location	NA Reported
Local Method	North Arrow	Depth Calculated File	07
Additional Checkangle	NA Reported	Date Filed	11/07/1988
Depth Data File #	00	Date of Last Update	11/07/1988
Status	Active	NA Reported	
Biographic Code & Use Method		Owner's Name	NA Reported
Well Name	ROBERTSON, WALTER	Location File Type	NA Reported
Local Identifier	NA Reported	Depth Correction	00
Data Organization Location		Depth Type	NA Reported
County Property	0	Wellhead Information Area	NA Reported
Family	NA Reported	County Identification Code	NA Reported
Well Identifier	NA Reported	Date of Last Update	NA Reported
Upper Interval Code	NA Reported		
CMR Classification	NA Reported		
Well Screen #	NA Reported		
Acuity	NA Reported		
Depth to Base of Well	NA Reported		
Any Other U.S. Map, Also named (National Property)?			
Political Column: Source Type			
Political Column: Source Distance in Feet			
Political Column: Source Direction			
Use	Domestic		
Education Number	NA Reported		
Database: Is well also contained in the DWT Observation Well Network Data Base?			NA Reported
Is the data contained in the National Water Data System?			NA Reported
Is the data contained in the NA Integrated Groundwater Information System?			NA Reported
Is the data of the availability of the well data or downloading the data to the well?			NA Reported
Is the data of the availability of the well data or downloading the data to the well?			NA Reported

[illegible]

Well Addressed to: _____

Yael Averbach
SCHOOL OF MANAGEMENT
BROOKLYN COLLEGE

Colloids and Interfaces in Water and Polymers: An Introduction

Calium Analysis (Colorimetric Method)	Yes/No	Yes/No
Calium Sampling (Direct Method)	Yes/No	Yes/No
CEC Analysis (Batch Method)	Yes/No	Yes/No
NI de Counting (Batch Method)	Yes/No	Yes/No
NI de Sampling (Batch Method)	Yes/No	Yes/No
NI Analysis (Batch Method)	Yes/No	Yes/No
State Water Level Data	Yes/No	Yes/No
State Water Level Data	Yes/No	Yes/No

Calium Analysis (Colorimetric Method)	Yes/No	Yes/No
Calium Sampling (Direct Method)	Yes/No	Yes/No
CEC Analysis (Batch Method)	Yes/No	Yes/No
NI de Counting (Batch Method)	Yes/No	Yes/No
NI de Sampling (Batch Method)	Yes/No	Yes/No
NI Analysis (Batch Method)	Yes/No	Yes/No
State Water Level Data	Yes/No	Yes/No
State Water Level Data	Yes/No	Yes/No

Remarks:

SOLUBLE POLYESTERS OF THE TEREPHTHALIC ACID

GEOCHECK - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Radon EPA Action Zone for Johnston County: 1

Radon Zone 1 indoor average level is 4 pCi/L

Zone 2 indoor average level is 3 pCi/L and less than 2 pCi/L

Zone 3 indoor average level is 2 pCi/L

PERCENTAGE OF POPULATION

Number of households: 102

Area	Address Address	Radon pCi/L	% of Zone	% of Population
Living Area - 1st Floor	2400 22nd	4 pCi/L	10%	0%
Living Area - 1st Floor	1000 24th Street	3.5 pCi/L	90% (assumed)	100% (assumed)
Living Area - 1st Floor	4500 22nd	3.5 pCi/L	20%	10%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC WEAPONS

Model Name: Data from 1971-1990, 1991-2000, and 2001-2010, and combined by EPR in 1991 (see Data from Data Agency) (THM). This depicts 100 years of 500-year loss rates as defined by EPR.

NOTE: *Quinn's Andromeda* is native to the Caribbean Sea and Gulf of Mexico. It is native to the Caribbean Sea and Gulf of Mexico. It is native to the Caribbean Sea and Gulf of Mexico.

INTEGEN 09514-04:ALXN

[illegible]

1999-2000 FCF was 40% of the base salary and was not included in the

DT has been reported to inhibit the growth of *S. typhimurium* in the presence of 10% or greater concentrations of specific fatty acids, but no evidence is published that it is specific for the production of a particular essential fatty acid or that it may be acting as a general growth inhibitor. In addition, the degree to which DT inhibits growth is dependent on the concentration of the fatty acid.

Q210912: 14408512

Հանդիմանում Եւրոպայի Եւրոպական խորհրդին:

Source: F.G. Smith and R.F. A. Johnston, *Local Government in the Commonwealth: A Study in Representative Democracy*, 2nd ed. (London: Longmans, 1965), pp. 10-11.

STATSD: 0144551645-1-16.1.17...

[illegible]

ACCEPTED ENVIRONMENTAL EFFECT COEFFICIENTS

RECORD WATER USES

PMS: 044-744-5/CH-4

www.mca.com

Tel.: 045 30422456

Part 1601. System shall provide individual reporting data stream to DOD, using any and all data processing procedures available to the DOD personnel to afford the data stream to the DOD personnel from each station in the system.

FOR THE FINANCIAL YEAR 2007, THE COMPANY HAS AVERAGE

52.44 RF:YH-- n' Fick ng 4/20/87

7-197-248 210 05' 7:39

Shannon and Weaver, 1949; P. 866, "The system is called a self-organizing system because it can learn to perform a task without being explicitly programmed to do so." (p. 866)

USGS Water Watch: In November 1997, the United States Geological Survey (USGS) announced that it had been selected to build and operate the national water data system. The structure of the new organization was announced in January 1998. USGS will be the lead agency for the USGS national water data system, and will be responsible for the national water data system. The program will be managed by the USGS National Water Research Institute, and the USGS National Water Research Institute.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Michigan Greenhouse Database

Source: Michigan Greenhouse Survey County Greenhouse Info (2010)
Description: 2010 Greenhouse

Ranking

Area Ranking Information: The National Greenhouse Survey has been divided into eight U.S. Census Bureau Statistical Areas (SAs) and is ranked based on the EPA Greenhouse Survey, United States Greenhouse Survey and the National Greenhouse Survey. The study covers the period 1996-2002. Greenhouse survey data has been collected from 10,000 greenhouses across the United States. Such activities include greenhouse research and surveys.

EPA Greenhouse Survey: EPA Greenhouse Survey of 1996-2002 ranked EPA Greenhouse Survey of 1996-2002 in the top 100 of ranked greenhouse survey.

OTIFP

Expenditure: World Bank Expenditure on Education

Source: Expenditure on Education, Greenhouse Survey and Expenditure on Education

UNITED STATES LEGAL

Site	Investigator	Unit ID Number U.S. G.S. 1001
------	--------------	----------------------------------

PAK OLYMPIA AUTO TRUCK R 27 5017 HWY 101 - PO BOX 232 ROSELAND, NH	LEST	5104752272 102
--	------	-------------------

UNIT 1
 Unit ID: 0027
 Record ID: 1001-002
 Owner Name: 0027-002
 Telephone: (603) 455-0027

EMMANUEL BROTHERS INC HWY 241 ST. MICHAEL, NH 03076	ROH B-SUC FMS	100007142 M402210303
---	------------------	-------------------------

UNIT 2
 Owner: 0027-0027-0027
 (603) 455-0027
 Owner: 0027-0027-0027
 (603) 455-0027
 Owner Name: 0027-0027
 Owner Name: 0027-0027
 Owner Name: 0027-0027
 Owner Name: 0027-0027

UNIT 3
 Unit: 0027-0027-0027-0027
 (603) 455-0027

LYNDENFELDER SANITARY (- ROUTE 1, BOX 283 ST. MICHAEL, NH 03076	SWR1	5102052003 104
---	------	-------------------

UNIT 4
 Unit ID: 0027-0027
 Owner: 0027-0027-0027
 Owner Name: 0027-0027
 Owner Name: 0027-0027
 Owner Name: 0027-0027

CONFERAFUR STATION HWY 241 ST. MICHAEL, NH 03076	LEST	5102010000 104
--	------	-------------------

UNIT 5
 Unit ID: 0027
 Record ID: 0027-0027
 Owner Name: 0027-0027
 Telephone: (603) 455-0027

Well No. 00470750

County Name: LAMAR

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 109

Hydro Unit: 000- 00

Entry Date: 19910703

Township: Range 2S
Section 36
Range 2S
Section 36

Well Depth: 101
Depth Completed: 101
Total Well Completed: 10000000

Well Name: HOUSEHOLD

Drilling Method: Conventional Rotary

Contractor Name: HENRY STEIN
1414 NORTH 24TH ST
MINNEAPOLIS, MN 55404

Is High Purity: No
Is High Purity: No
Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

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Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

Is High Purity: No

GEOLOGICAL INTERVAL	SOIL HARDNESS	FROM	TO
SAND GRAVEL	SOFT	0	27
CLAY	RED	27	115
SAND GRAVEL	RED-B	115	200
CLAY	RED	200	270
CLAY	RED	270	300
CLAY	RED	300	370
CLAY	RED	370	400
CLAY	RED	400	470
CLAY	RED	470	500
CLAY	RED	500	570
CLAY	RED	570	600
CLAY	RED	600	670
CLAY	RED	670	700
CLAY	RED	700	770
CLAY	RED	770	800
CLAY	RED	800	870
CLAY	RED	870	900
CLAY	RED	900	970
CLAY	RED	970	1000

REMARKS, ELEVATION, SOURCE OF DATA, etc.

CONTRACTOR'S SIGNATURE

Inspector: [Signature]
Date: 19910703

Report Copy

License No. 004901116

NEWCASTLE DEPARTMENT OF HEALTH WELL AND BORING RECORD

Update Date: 11/20/2020

County Name: Lincoln

Entry Date: 10/07/2019

Minimum Service Depth: 100'

County	Year	Available	Range	Dr	Section	Location	Well Depth	Depth	Code	Level	Date Well Completed
		100	25	10	11		155	1	155	1	10/07/2019

Well Name:

Boring Method:

Well Owner's Name:

Boring Fluid:

411 COUNTRY RD

Was Discharged into? Yes No

JOHN S. HEN

Time 4:15

Contact's Name:

Job Number:

411 COUNTRY RD

Casing Drive Shaft? Yes No

10250

How to Contact:

Owner: Spectator For

Area Type

Sale Price: 25.00 from 10/07/2019 Date: 10/07/2019

FINDING FOR (please use numbers)

Location (e.g. 100' 100' 100')

Well Head Completion

Flow completed Scale

Casing Method 12 in. 1000 gpm

Approximate amount of Well Head Pump (in L)

Casing information Augmented? Yes No

Known Known Source of Contamination

Location direction Type

Was Contaminated area completed? Yes No

Name No. Installed Date installed

100' 100'

Name 100' 100'

Final Well Length 100' Casing 100'

Type

Approved by (signature) (signature) Date

Was Contaminated area completed? Yes No

Well CONTRACTOR CERTIFICATION (signature) Date

100' 100' 100' 100'

100' 100' 100' 100'

100' 100' 100' 100'

RECORDS, LOCATION, SOURCE OF DATA, etc.

SEPARATE COPY BY STATE AGENCY REQUIRED

PROG. No. Page 1

6/10/2019

Author

10/07

Report Copy

Job No. 00570135

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD

Update Date 10/27/2017

County Name Wadena

Minnesota Statute Chapter 62A

Print Date 10/26/2017

Drainage Area Township Range Dir Section Subsection Well Type Depth Completed C/L Well Completed
120 22 42 11 10 100 10 1000-10000

Well Name VALSTIC BUILDING

Driller Method

Well Owner's Name VALENTY CONCRETE

1. Drilling Method

Well Depth (feet) Yes No

1000 SHADOWNING 10

From 1000 10

1000 10

2. Drilling Method

Concrete Name

3. Drilling Method

1000 10

1000 10 1000

1000

1000

4. Drilling Method

1000 10 1000

5. Drilling Method

1000 10 1000

6. Drilling Method 1000 10 1000 1000 1000

FLUORIDE LEVEL (below listed value)

1000 10 1000 1000

Wellhead Construction

1000 10 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

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REMARKS, ELEVATION, SECTION OF DATA, etc.

THE 1000 10 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

1000 10 1000 1000 1000

Report Copy

Digging No. <u>51433697</u> County Name <u>Chippewa</u> Township Name <u>Township 10 North</u> Range <u>10</u> T1N Section <u>10</u> S10		MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Administrative Code 1001		Update Date <u>10/26/13-14</u> Entry Date <u>10/26/2013</u>	
Well Name <u>NATURE'S BOUNTY</u>	Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Depth <u>100</u> ft	Depth Completed <u>100</u> ft	Drill Well Completed <u>10/26/2013</u>	
Drilling Method <u></u>	Drilling Fluid <u></u>	Drill Bit <u></u>	Drill Bit Material <u>Yes</u>	Drill Bit Size <u>1</u>	
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>	
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>	
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>	
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>	

Well Name <u>NATURE'S BOUNTY</u>	Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Depth <u>100</u> ft	Depth Completed <u>100</u> ft	Drill Well Completed <u>10/26/2013</u>
Drilling Method <u></u>	Drilling Fluid <u></u>	Drill Bit <u></u>	Drill Bit Material <u>Yes</u>	Drill Bit Size <u>1</u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>

Well Name <u>NATURE'S BOUNTY</u>	Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Depth <u>100</u> ft	Depth Completed <u>100</u> ft	Drill Well Completed <u>10/26/2013</u>
Drilling Method <u></u>	Drilling Fluid <u></u>	Drill Bit <u></u>	Drill Bit Material <u>Yes</u>	Drill Bit Size <u>1</u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>

Well Name <u>NATURE'S BOUNTY</u>	Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Depth <u>100</u> ft	Depth Completed <u>100</u> ft	Drill Well Completed <u>10/26/2013</u>
Drilling Method <u></u>	Drilling Fluid <u></u>	Drill Bit <u></u>	Drill Bit Material <u>Yes</u>	Drill Bit Size <u>1</u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>
Well Owner's Name <u>NATURE'S BOUNTY</u>	Well Owner's Address <u>10000 100th</u>	Well Owner's City <u>Chippewa Falls</u>	Well Owner's State <u>WI</u>	Well Owner's Zip <u>54601</u>
Well Owner's Phone <u>715-735-1111</u>	Well Owner's Email <u></u>	Well Owner's Fax <u></u>	Well Owner's Mobile <u></u>	Well Owner's Other <u></u>

DSHS Q100 - Page 1
 April 2013

Report Copy



Photograph #1 – Facing S: Subject property



Photograph #2 – Facing N: Subject Property



Photograph #3 – Facing W: Northeast low-lands.



Photograph #4 – Facing E: Subject Property



← SITE LOCATION



1997 Aerial Photograph
MC



← SITE LOCATION



1984 Aerial Photograph
MC



← SITE LOCATION



1978 Aerial Photograph
MC

An aerial photograph showing a landscape with a road running vertically through the center. The road is flanked by fields and some trees. In the upper left, there is a large, light-colored, irregularly shaped area, possibly a body of water or a cleared field. In the upper right, there are some buildings and more fields. The overall image is in black and white, with some colorization or shading that gives it a vintage appearance.

← SITE LOCATION



1966 Aerial Photograph
MC

6-1-56

SITE LOCATION →

1956 Aerial Photograph
MH





1945 Aerial Photograph
MN DOT

Sec. 2-120-23

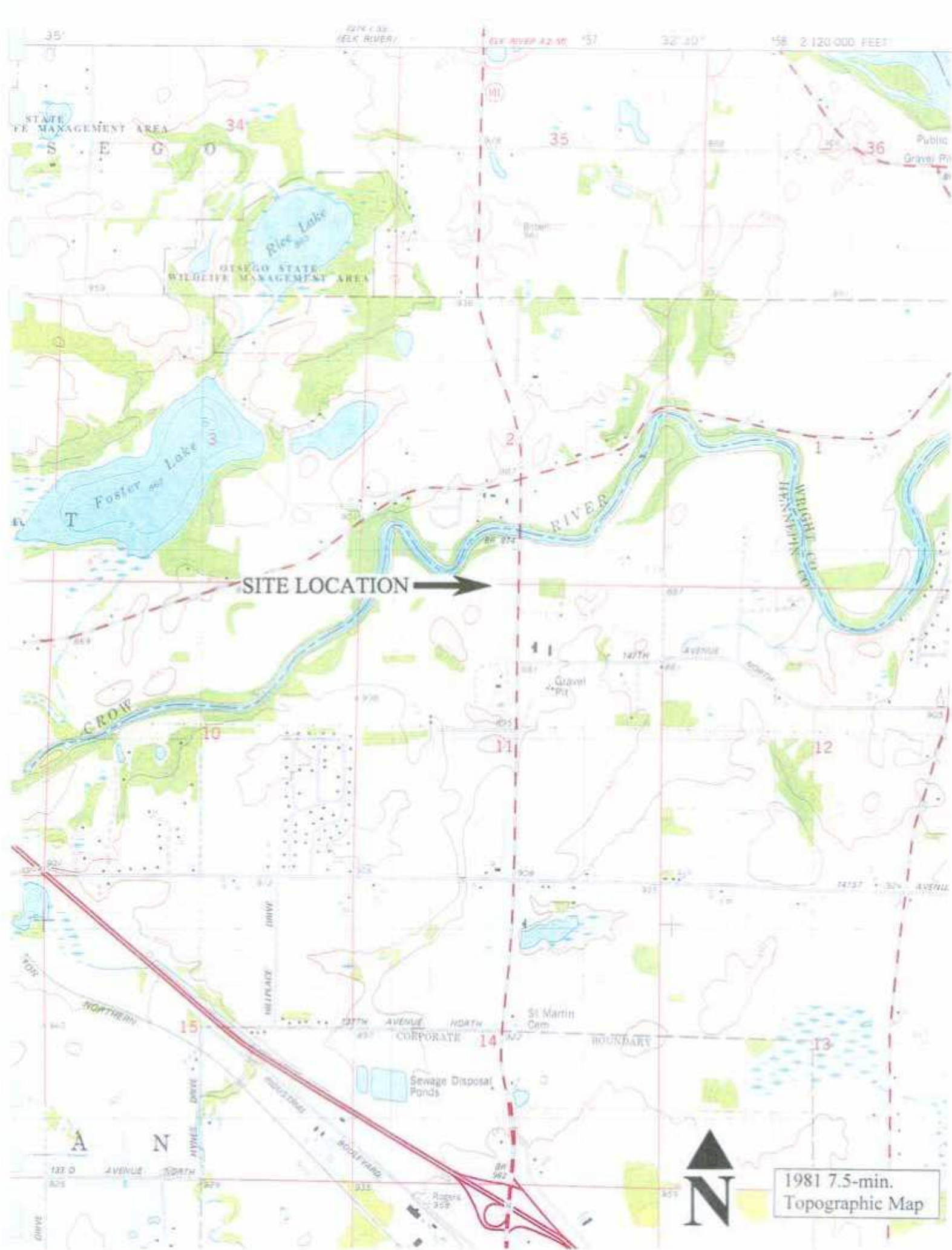
← SITE LOCATION

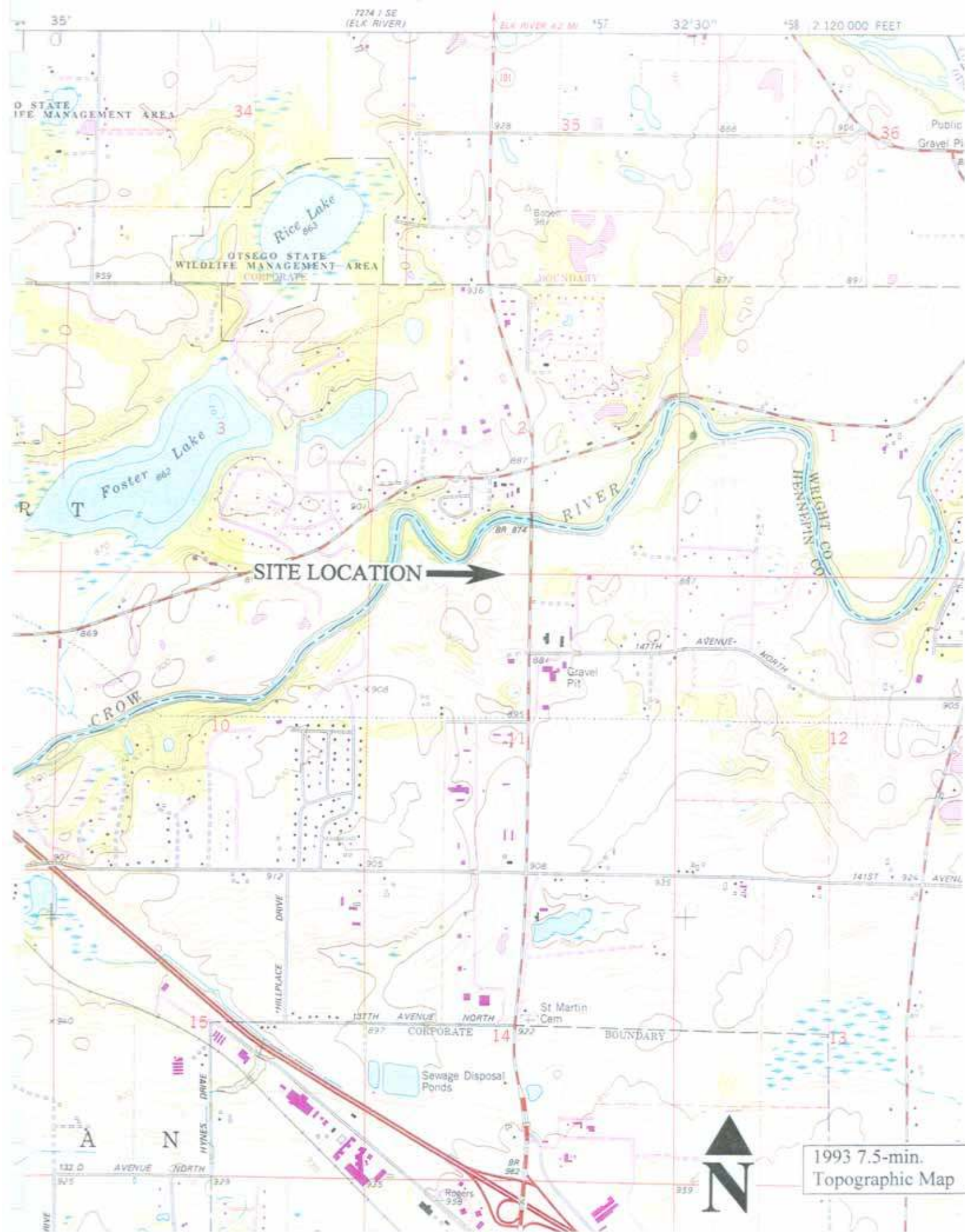
WN-5-45

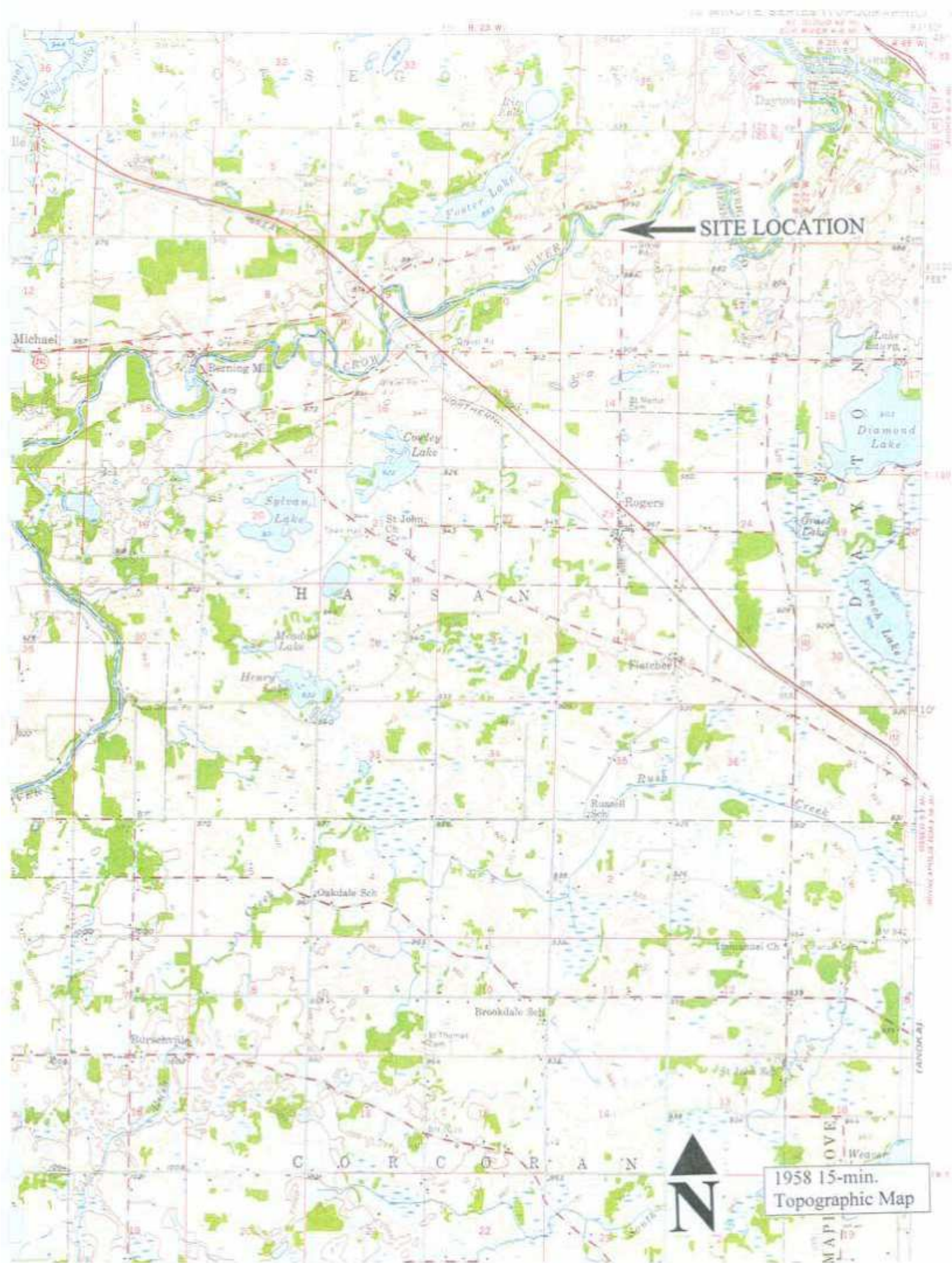
← SITE LOCATION



1937 Aerial Photograph
USDA-ASCS







No delinquent taxes and transfer entered; Particulars of Real Estate Value () Not () not required

NO. 2 AND PRIOR TRANSFER

TRANSFER ENTERED

NOV 13 1985

County Address:

By Deborah J. Scherber

DEPUTY

Deputy

STATE GROSS TAX OUR HERSON. \$ 130.00

Date: October 30, 1985

649989

55 NOV 13 1985

649989

130095 9:58 649989 800 \$4.50
130095 9:58 649989 800 \$4.50
130095 9:58 649989 800 \$4.50
(received for recording only)

FOR VALUABLE CONSIDERATION, Deborah J. Scherber and Ross F. Scherber
John Ross L. Scherber and John Scherber husband and wife

living singly (x) and jointly (x) in City of Minneapolis

do hereby convey (x) and warrant (x) in County of Hennepin
under the laws of Minnesota
real property in County of Hennepin, Minnesota, described as follows:

That part of the Northeast Quarter of the Southwest Quarter of Section 7,
Township 120, Range 23, lying south of the Crow River
also

That part of the East 1/2 of the Northwest Quarter of Section 11, Township 120,
Range 23 lying north of the South 145.9 feet and west of the westerly
right-of-way of State Highway No. 101.

together with an easement for for vehicular and pedestrian traffic for service
and ingress for the benefit of the above-described land over a strip of land 66.0
feet in width lying westerly of and adjoining the westerly right-of-way line of
said State Highway No. 101, northerly of the north line of the South 145.9 feet
of said East 1/2 of the Northwest Quarter and southerly of the north line of the

(CONTINUED on backsheet)
(This space is reserved for other purposes)

together with all encumbrances and appurtenances belonging thereto subject to the following exceptions: the
liens of all unpaid special assessments and taxes thereon:

After Paid Tax Stamp Here

Deborah J. Scherber
Deborah J. Scherber

Ross F. Scherber
Ross F. Scherber

STATE OF MINNESOTA

COUNTY OF HENNEPIN

This foregoing instrument was acknowledged before me this 30 day of October, 1985,
by Deborah J. Scherber and Ross F. Scherber husband and wife
John Ross L. Scherber and John Scherber

Notary Public for Hennepin County, Minnesota

Robert J. Miller
Robert J. Miller

Notary Public for Hennepin County, Minnesota
(The Notary Public for the Hennepin County, Minnesota, State of Minnesota, is hereby authorized to receive and record this instrument.)



Appendix E

Emissions Summary

Guidance

The total GHG emissions from each source category are provided below. You may also use this summary sheet to fill out the *Annual GHG Inventory Summary and Goal Tracking Form* (.xls) as this calculator only quantifies one year of emissions at a time.

<https://www.epa.gov/climateleadership/target-setting>

By entering the data below into the appropriate cell of the *Annual GHG Inventory Summary and Goal Tracking Form*, you will be able to compare multiple years of data.

If you have multiple Calculator files covering sub-sets of your inventory for a particular reporting period, sum each of the emission categories (e.g. Stationary Combustion) to an organizational total, which then can be entered into the *Annual GHG Inventory Summary and Goal Tracking Form*.

(A) Enter organization information into the orange cells. Other cells on this sheet will be automatically calculated from the data entered in the sheets in this workbook. Blue cells indicate required emission sources if applicable. Green cells indicate scope 3 emission sources and offsets, which organizations may optionally include in its inventory.

(B) The "Go To Sheet" buttons can be used to navigate to the data entry sheets.

Organizational Information:

Organization Name:	Rogers EAW		
Organization Address:			
Inventory Reporting Period:	NA	Start: NA	End: NA
Name of Preparer:	Sambatek		
Phone Number of Preparer:			
Date Prepared:	8/14/2023		

Summary of Organization's Emissions:

Scope 1 Emissions

Go To Sheet	Stationary Combustion	1,386	CO ₂ -e (metric tons)
Go To Sheet	Mobile Sources	9,415	CO ₂ -e (metric tons)
Go To Sheet	Refrigeration / AC Equipment Use	0	CO ₂ -e (metric tons)
Go To Sheet	Fire Suppression	0	CO ₂ -e (metric tons)
Go To Sheet	Purchased Gases	0	CO ₂ -e (metric tons)

Location-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	4,561	CO ₂ -e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO ₂ -e (metric tons)

Market-Based Scope 2 Emissions

Go To Sheet	Purchased and Consumed Electricity	4,561	CO ₂ -e (metric tons)
Go To Sheet	Purchased and Consumed Steam	0	CO ₂ -e (metric tons)

Total organization Emissions

Total Scope 1 & Location-Based Scope 2	15,361	CO ₂ -e (metric tons)
Total Scope 1 & Market-Based Scope 2	15,361	CO ₂ -e (metric tons)

Reductions

Go To Sheet	Offsets	0	CO ₂ -e (metric tons)
	Net Scope 1 and 2 Location-Based Emissions	15,361	CO ₂ -e (metric tons)
	Net Scope 1 and 2 Market-Based Emissions	15,361	CO ₂ -e (metric tons)

Scope 3 Emissions

Go To Sheet	Employee Business Travel	0	CO ₂ -e (metric tons)
Go To Sheet	Employee Commuting	0	CO ₂ -e (metric tons)
Go To Sheet	Upstream Transportation and Distribution	0	CO ₂ -e (metric tons)
Go To Sheet	Waste	3,739	CO ₂ -e (metric tons)

Required Supplemental Information

Go To Sheet	Biomass CO ₂ Emissions from Stationary Sources	0	CO ₂ -e (metric tons)
Go To Sheet	Biomass CO ₂ Emissions from Mobile Sources	0	CO ₂ -e (metric tons)



Scope 1 Emissions from Mobile Sources

Guidance

(A) Enter annual data for each vehicle or group of vehicles (grouped by vehicle type, vehicle year, and fuel type) in ORANGE cells in **Table 1**. Example entry is shown in first row (**GREEN Italics**). Only enter vehicles owned or leased by your organization on this sheet. All other vehicle use such as employee commuting or business travel is considered a scope 3 emissions source and should be reported in the corresponding scope 3 sheets.

- Select "On-Road" or "Non-Road" from drop down box to determine the Vehicle Types available. **Must select before picking vehicle type.**
- Select "Vehicle Type" from drop down box (closest type available).
- Enter "Fuel Usage" in appropriate units (units appear when vehicle type is selected).
 - If mileage or fuel usage is unknown, estimate using approximate fuel economy values (see **Reference Table** below).
 - Vehicle year and Miles traveled are not necessary for non-road equipment.

(B) When using biofuels, typically the biofuel (biodiesel or ethanol) is mixed with a petroleum fuel (diesel or gasoline) for use in vehicles. Enter the biodiesel and ethanol percentages of the fuel if known, or leave default values.

Biodiesel Percent:	20	%
Ethanol Percent:	80	%

(C) Biomass CO₂ emissions from biodiesel and ethanol are not reported in the total emissions, but are reported separately at the bottom of the sheet.

Table 1. Mobile Source Fuel Combustion and Miles Traveled[illegible]

Reference Table: Average Fuel Economy by Vehicle Type

Vehicle Type	Average Fuel Economy (mpg)
Passenger Cars	24.1
Motorcycles	44.0
Diesel Buses (Diesel Heavy-Duty Vehicles)	7.3
Other 2-axle, 4-Tire Vehicles	17.6
Single unit 2-Axle 6-Tire or More Trucks	7.5
Combination Trucks	6.0

GHG Emissions

Total Organization-Wide Mobile Source Fuel Usage and CO₂ Emissions (On-Road and Off-Road Vehicles)

Fuel Type	Fuel Usage	Units	CO ₂ (kg)
Motor Gasoline	203,109	gallons	1,783,297.0
Diesel Fuel	719,597	gallons	7,347,085.4
Residual Fuel Oil	0	gallons	0.0
Aviation Gasoline	0	gallons	0.0
Kerosene-Type Jet Fuel	0	gallons	0.0
Liquefied Petroleum Gas (LPG)	0	gallons	0.0
Ethanol	0	gallons	0.0
Biodiesel	0	gallons	0.0
Liquefied Natural Gas (LNG)	0	gallons	0.0
Compressed Natural Gas (CNG)	0	scf	0.0

Note: emissions here are only for the g

Total Organization-Wide On-Road Gasoline Mobile Source Mileage and CH₄/N₂O Emissions

Vehicle Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (g)
Passenger Cars - Gasoline	1984-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	3,726	26.8	19.4
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Light-Duty Trucks - Gasoline (Vans, Pickup Trucks, SUVs)	1987-93	0	0.0	0.0
	1994	0	0.0	0.0
	1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	1,332	13.7	8.1
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Heavy-Duty Vehicles - Gasoline	1985-86	0	0.0	0.0
	1987	0	0.0	0.0
	1988-1989	0	0.0	0.0
	1990-1995	0	0.0	0.0
	1996	0	0.0	0.0
	1997	0	0.0	0.0
	1998	0	0.0	0.0
	1999	0	0.0	0.0
	2000	0	0.0	0.0
	2001	0	0.0	0.0
	2002	0	0.0	0.0
	2003	0	0.0	0.0
	2004	0	0.0	0.0
	2005	0	0.0	0.0
	2006	0	0.0	0.0
	2007	0	0.0	0.0
	2008	0	0.0	0.0
	2009	0	0.0	0.0
	2010	0	0.0	0.0
	2011	0	0.0	0.0
	2012	0	0.0	0.0
	2013	0	0.0	0.0
	2014	0	0.0	0.0
	2015	0	0.0	0.0
	2016	0	0.0	0.0
	2017	0	0.0	0.0
	2018	0	0.0	0.0
	2019	0	0.0	0.0
Motorcycles - Gasoline	1960-1995	0	0.0	0.0
	1996-2019	0	0.0	0.0

Total Organization-Wide On-Road Non-Gasoline Mobile Source Mileage and CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Vehicle Year	Mileage (miles)	CH ₄ (g)	N ₂ O (g)
Passenger Cars - Diesel	Diesel	1960-1982	0	0	0
		1983-2006	0	0	0
		2007-2019	0	0	0

Light-Duty Trucks - Diesel	Diesel	1960-1982	0	0	0
		1983-2006	0	0	0
		2007-2019	0	0	0
Medium- and Heavy-Duty Vehicles	Diesel	1960-2006	0	0	0
		2007-2019	1,332	13	57
Light-Duty Cars	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Light-Duty Trucks	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Medium-Duty Trucks	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Heavy-Duty Trucks	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0
Buses	Methanol		0	0.0	0.0
	Ethanol		0	0.0	0.0
	CNG		0	0.0	0.0
	LPG		0	0.0	0.0
	LNG		0	0.0	0.0
	Biodiesel		0	0.0	0.0

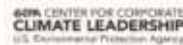
Total Organization-Wide Non-Road Mobile Source Fuel Usage and CH₄/N₂O Emissions

Vehicle Type	Fuel Type	Fuel Usage (gallons)	CH ₄ (g)	N ₂ O (g)
Ships and Boats	Residual Fuel Oil	-	-	-
	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Locomotives	Diesel	-	-	-
Aircraft	Jet Fuel	-	-	-
	Aviation Gasoline	-	-	-
Agricultural Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Agricultural Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Construction/Mining Equipment	Gasoline (2 stroke)	201,083	2,435,115	68,368
	Gasoline (4 stroke)	-	-	-
	Diesel	718,160	675,070	624,799
	LPG	-	-	-
Construction/Mining Offroad Trucks	Gasoline	-	-	-
	Diesel	-	-	-
Lawn and Garden Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Airport Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Industrial/Commercial Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Logging Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
Railroad Equipment	Gasoline	-	-	-
	Diesel	-	-	-
	LPG	-	-	-
Recreational Equipment	Gasoline (2 stroke)	-	-	-
	Gasoline (4 stroke)	-	-	-
	Diesel	-	-	-
	LPG	-	-	-

Total CO₂ Equivalent Emissions (metric tons) - Mobile Sources:	9,414.7
Total Biomass CO₂ Equivalent Emissions (metric tons) - Mobile Sources:	0.0

Notes:
1. Average mpg values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2019 (December 2021), Table VM-1.

Scope 2 Emissions from Purchase of Electricity



Guidance

The Indirect Emissions from Purchased Electricity Guidance document provides guidance for quantifying two scope 2 emissions totals, using a **location-based method** and a **market-based method**. The organization should quantify and report both totals in its GHG inventory. The location-based method considers average emission factors for the electricity grids that provide electricity. The market-based method considers contractual arrangements under which the organization procures electricity from specific sources, such as renewable energy.

- (A) Enter total annual electricity purchased in kWh and each eGRID subregion for each facility or site in ORANGE cells **Table 1**.
(B) If electricity consumption data are not available for a facility, an estimate should be made for completeness. See the "Items to Note" section of the Help sheet for suggested estimation approaches.
(C) Select "eGRID subregion" from drop box and enter "Electricity Purchased."
- Use map (Figure 1) at bottom of sheet to determine appropriate eGRID subregion. If subregion cannot be determined from the map, find the correct subregion by entering the location's zip code into EPA's Power Profiler:

(D) See the market-based emission factor hierarchy on the market-based method Help sheet. If any of the first four types of emission factors are applicable, enter the factors in the yellow cells marked as "<enter factor>". If not, leave the yellow cells as is, and eGRID subregion factors will be used for market-based emissions.

Example entry is shown in first row (*GREEN Italics*) for a facility that purchases RECs for 100% of its consumption, and therefore has a market-based emission factor of 0.

Help - Market-Based Method

Tips: Enter electricity usage by location and then look up the eGRID subregion for each location. If you purchase renewable energy that is less than 100% of your site's electricity, see the example in the market-based method Help sheet.

Table 1. Total Amount of Electricity Purchased by eGRID Subregion

[illegible]

GHG Emissions

CO ₂ Equivalent Emissions (metric tons)	
Location-Based Electricity Emissions	4,560.7
Market-Based Electricity Emissions	4,560.7

Notes:

1. CO₂, CH₄ and N₂O emissions are estimated using methodology provided in EPA's Center for Corporate Climate Leadership Greenhouse Gas Inventory Guidance - Indirect Emissions from Purchased Electricity (January 2016).

Figure 1. EPA eGRID2020, April 2022



[Back to Summary](#)

GEPA CENTER FOR CORPORATE CLIMATE LEADERSHIP
U.S. Environmental Protection Agency

Guidance

(A) Enter annual waste data in ORANGE cells. Example entry is shown in first row (*GREEN Italics*).

(B) First, choose the appropriate material then the disposal method from the drop down options. For the average-data method, use one of the mixed material types, such as mixed MSW. If the exact waste material is not available, consider an appropriate proxy. For example, dimensional lumber can be used as a proxy for wood furniture.

(C) Choose an appropriate disposal method. Note that not all disposal methods are available for all materials. If there is a #NA or # Value error in the emissions column, you must pick a new material type or appropriate disposal method.

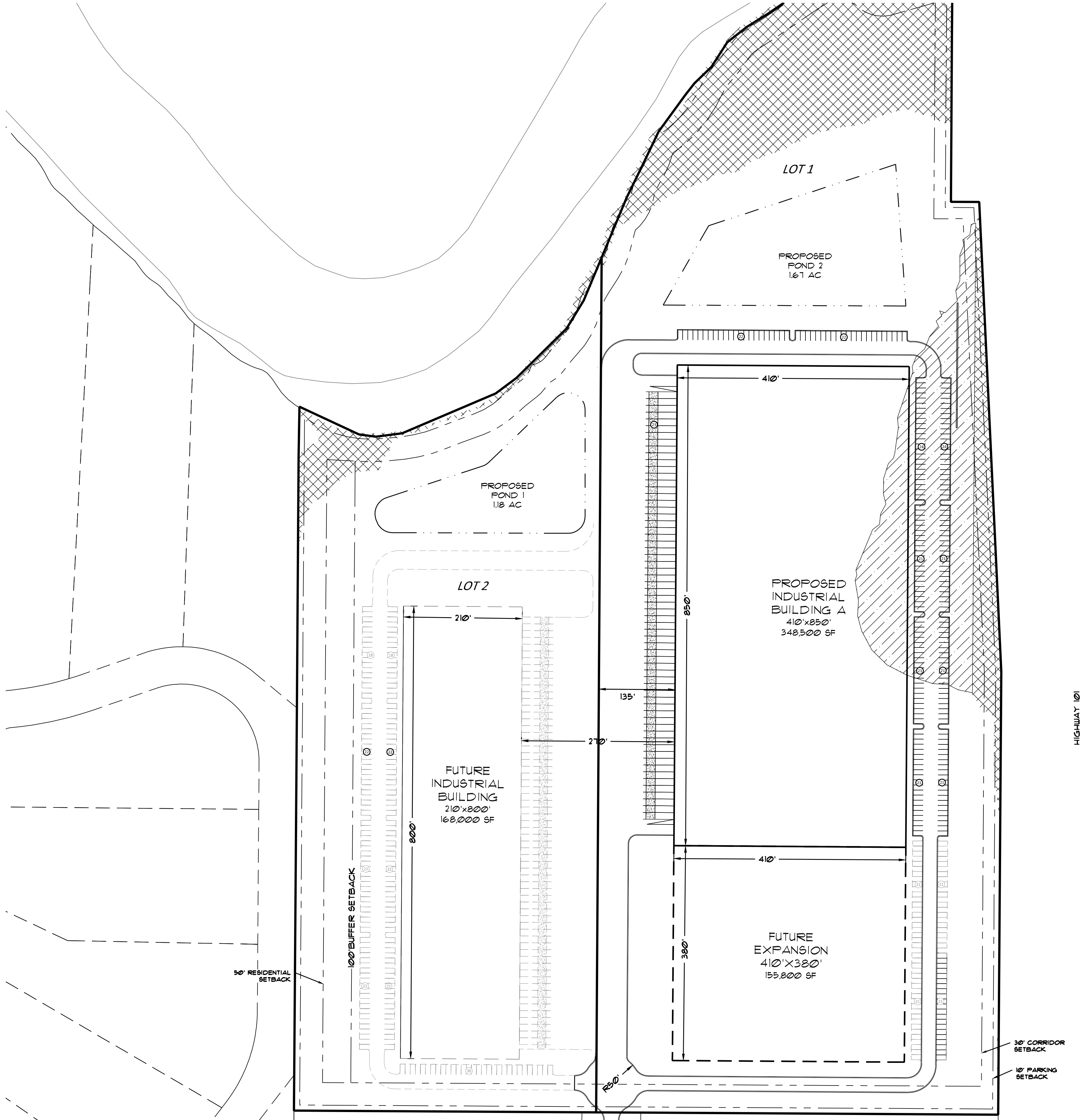
Table 1. Waste Disposal Weight by Waste Material and Disposal Method (CO₂, CH₄ and N₂O)[illegible]

Total Emissions by Disposal Method

Waste Material	CO ₂ e (kg)
Recycled	929,019
Landfilled	-
Combusted	2,809,990
Composted	-
Anaerobically Digested (Dry Digestate with Curing)	-
Anaerobically Digested (Wet Digestate with Curing)	-

Total CO₂ Equivalent Emissions (metric tons) - Waste	3,739.0
--	----------------

Appendix F

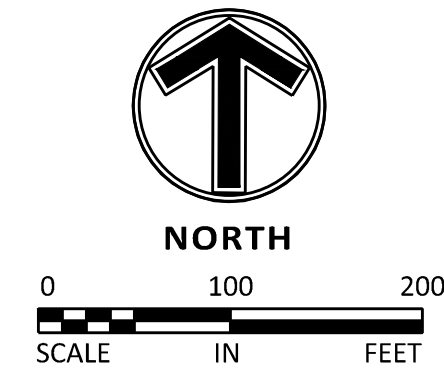


LEGEND	
BOUNDARY LINE	
WETLAND	WL
STORMWATER POND	
FEMA FLOOD ZONE	
100 YEAR FLOOD PLAIN	
IMPACTED 100 YEAR FLOOD PLAIN	

DEVELOPMENT SUMMARY	
AREAS	
LOT 1	29.81 AC
LOT 2	115.51 AC
GROSS LOT	45.38 AC
FLOOD PLAIN	6.41 AC
NET DEVELOPABLE	38.97 AC
IMPERVIOUS (MAX 75%)	(55.1%) 20.03 AC
BUILDINGS	(34.0%) 612,311 SF
BUILDING COVERAGE LOT 1	(38.8%) 11.58 AC
BUILDING COVERAGE LOT 2	(24.8%) 3.86 AC
STORMWATER PONDING	(18.8%) 2.85 AC

PARKING RATIOS
INDUSTRIAL PARKING: 1 PER 2000 SF
OFFICE: 1 PER 200 SF
85/15 FOR EACH BUILDING

PARKING SUMMARY	BUILDING AREA	REQUIRED	PROVIDED
PROPOSED BUILDING A	348,500 SF	411 STALLS	218 STALLS
BUILDING EXPANSION	155,800 SF	180 STALLS	184 STALLS
FUTURE BUILDING	168,000 SF	198 STALLS	198 STALLS



CP WEST, LLC - BORDER STATES CONCEPT

ROGERS, MINNESOTA

Sep 28, 2023 - 8:52am - User:TPeltz L:\PROJECTS\51493\CAD\Conceptual\51493 CNCPT ALT B - jdb.dwg

09/28/2023



Appendix G

To: Erik Miller, PE, Principal
Sambatek

From: Matt Pacyna, PE, Principal
Transportation Collaborative & Consultants, LLC

Date: October 17, 2023

Subject: Cote Industrial Development Traffic Study

INTRODUCTION

TC2 completed a traffic study for the proposed Cote Industrial development in the City of Rogers. The site under consideration, shown in [Figure 1](#), is generally bounded by Highway 101 to the east, Raspberry Drive to the west, 147th Avenue to the south, and the Crow River to the north. The main objectives of the study are to quantify current area operations, identify transportation impacts associated with proposed development, and recommend improvements, if necessary, to ensure safe and efficient operations for all users. This study will support the transportation section of the Environmental Assessment Worksheet (EAW) being completed for the development. The following study assumptions, methodology, and findings are offered for consideration.

Figure 1 Subject Site



EXISTING CONDITIONS

Existing conditions were reviewed within the study area to establish current traffic conditions to help determine impacts associated with the proposed development. The evaluation of existing conditions included collecting traffic volumes, observing transportation characteristics, and analyzing intersection capacity, which are described in the following sections.

Traffic Volumes

Vehicular intersection turning movement counts were collected at the following locations on Tuesday, September 12, 2023, from 6 a.m. to 7 p.m.

- County Road 144 (141st Avenue) and Raspberry Drive
- County Road 144 (141st Avenue) and Marie Avenue
- County Road 144 (141st Avenue) and Northdale Boulevard

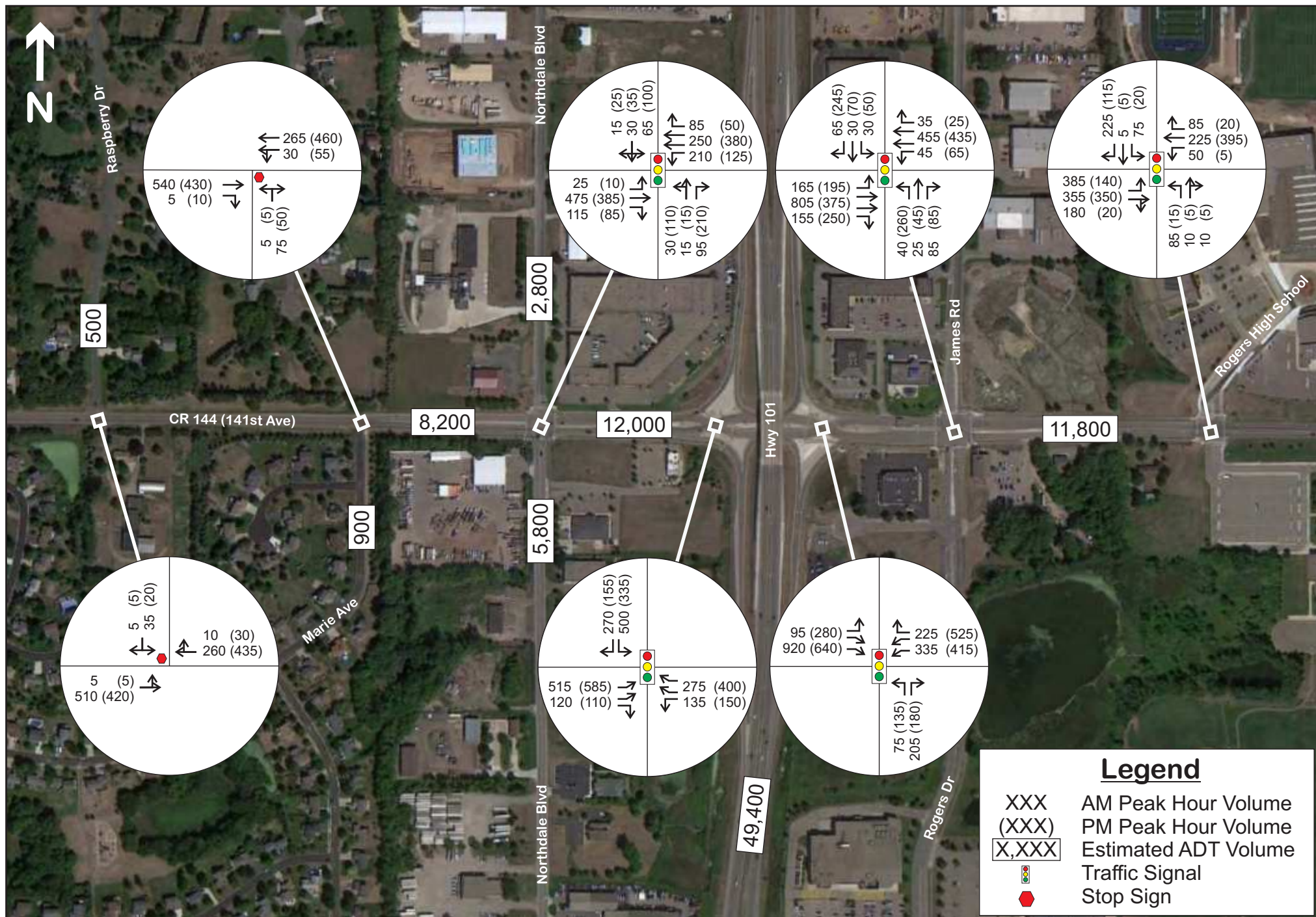
Intersection turning movement counts collected in October 2022 along County Road 144 (141st Avenue) between Northdale Boulevard and Rogers High School were also reviewed. Based on this review, the traffic volumes and patterns from October 2022 and September 2023 are generally consistent, with the September 2023 a.m. and p.m. peak hour volumes approximately five (5) to 15% higher. Therefore, the October 2022 volumes were modified to reflect 2023 conditions. Note that the a.m. and p.m. peak hours within the study area represent 7 to 8 a.m. and 4:30 to 5:30 p.m., respectively. Historical average daily traffic volumes were provided by MnDOT and/or estimated based on the data collected.

Transportation Characteristics

Observations were conducted within the study area to identify various transportation characteristics such as roadway geometry, traffic controls, speed limits, and multimodal facilities. A general overview of key roadways within the study area is as follows:

- **CR 144 (141st Avenue)** – generally a 2-lane roadway west of Marie Avenue and east of the Rogers High School / Middle School access; the roadway expands to a 4-lane section between Northdale Boulevard and James Road/Rogers Drive. A multi-use trail is on the south side of the roadway, which connects Hassan Elementary and Rogers Middle School; there is also a multi-use trail on the north side of the roadway between James Road and Rogers High School. The speed limit is 40 mph.
- **Northdale Boulevard** – generally a 2-lane roadway with no turn lanes, except a northbound right-turn lane at CR 144 (141st Avenue). No multimodal facility is present; the speed limit is 40-mph.
- **James Road / Rogers Drive** – generally a 2-lane roadway north of CR 144 (141st Avenue) and a 4-lane undivided roadway to the south. A multi-use trail is on the west side from CR 144 (141st Avenue) to approximately 600' to the north; a multi-use trail is on the east side south of CR 144 (141st Avenue), with a gap near Broadway Pizza. The speed limit ranges from 35 to 40-mph.

Most study intersections are signalized, except for Raspberry Drive and Marie Avenue, which are both side-street stop controlled. Current signal timing was provided by MnDOT, who operates and maintains the signals along the corridor. Existing geometrics, traffic controls, and volumes within the study area are illustrated in [Figure 2](#).



Intersection Capacity

Intersection capacity was evaluated using Synchro/SimTraffic Software (version 11), which uses methods outlined in the *Highway Capacity Manual, 6th Edition*. The software is used to develop calibrated models that simulate observed traffic operations and identify key metrics such as intersection Level of Service (LOS) and queues. These models incorporate collected traffic, pedestrian, and bicyclist volumes, traffic controls, and driver behavior factors.

Level of Service (LOS) quantifies how an intersection is operating. Intersections are graded from LOS A through LOS F, which corresponds to the average delay per vehicle values shown in [Table 2](#). An overall intersection LOS A through LOS D is generally considered acceptable in the Twin Cities. LOS A indicates the best traffic operation, while LOS F indicates an intersection where demand exceeds capacity.

Table 1 Level of Service Thresholds

Level of Service	Average Delay / Vehicles	
	Stop, Yield, and Roundabout Intersections	Signalized Intersections
A	< 10 seconds	< 10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

For side-street stop-controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service, which takes into account the total number of vehicles entering the intersection and the capability of the intersection to support the volumes. Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, most delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high-levels of delay (i.e., poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions.

The existing intersection capacity analysis results, summarized in [Table 2](#), indicate that all study intersections and approaches currently operate at an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours. In addition, existing queues are generally maintained within the current turn lanes provided. However, queues in the eastbound through lane along CR 144 (141st Avenue) at Northdale Boulevard occasionally extend beyond the adjacent left- and right-turn lanes, which limits access for approximately five percent of the peak hours. In addition, queues in the northbound left-turn lane from Rogers Drive to CR 144 (141st Avenue) extend beyond the provided turn lane storage during approximately 20 percent of the p.m. peak hour; this queuing issue is related to the relatively short-turn lane (i.e., 120 feet) and the peak hour traffic volume demand for this movement. No mitigation for these queueing issues is provided to understand how the proposed development will impact these areas. Thus, there are no significant existing operational issues from a capacity perspective within the study area.

Table 2 Existing Intersection Capacity

CR 144 / 141 st Avenue Intersection	Traffic Control	Level of Service (Delay)	
		AM Peak Hour	PM Peak Hour
Raspberry Drive	SSS	A / C (17 sec)	A / C (17 sec)
Marie Avenue	SSS	A / B (14 sec)	A / B (13 sec)
Northdale Boulevard	Signal	B (13 sec)	B (14 sec)
Hwy 101 West Ramps	Signal	B (12 sec)	B (13 sec)
Hwy 101 East Ramps	Signal	B (10 sec)	A (9 sec)
James Road / Rogers Drive	Signal	B (10 sec)	B (19 sec)
Rogers High School / Middle School	Signal	B (13 sec)	A (7 sec)

SSS – Side-Street-Stop

PROPOSED DEVELOPMENT

The proposed development, as shown in [Figure 3](#), is generally bounded by Highway 101 to the east, Raspberry Drive to the west, 147th Avenue to the south, and the Crow River to the north. As proposed, the project would include three (3) industrial warehouse buildings totaling approximately 557,000 square feet. One access to the site is planned via Northdale Boulevard, which connects with CR 144 (141st Avenue) and eventually Highway 101. For purposes of this study, construction was assumed to be completed by the end of 2025.

*Figure 3 Proposed Site Plan*

TRAFFIC FORECASTS

Traffic forecasts were developed for year 2026 no build and build conditions, which represents one-year after completion without and with the proposed development. The traffic forecasts include general background growth and trip generation from the proposed development. The following information summarizes the traffic forecast development process.

Background Growth

To account for general background growth in the study area, an annual growth rate of one (1) percent was applied to the existing traffic volumes to develop year 2026 background traffic forecasts. This growth rate is consistent with historical ADT volume growth over the past 15-years in the area, as well as future traffic forecasts from *Hennepin County's Transportation: Mobility 2040 Plan*. The year 2026 no build traffic forecasts are illustrated in [Figure 4](#).

Proposed Development Trip Generation

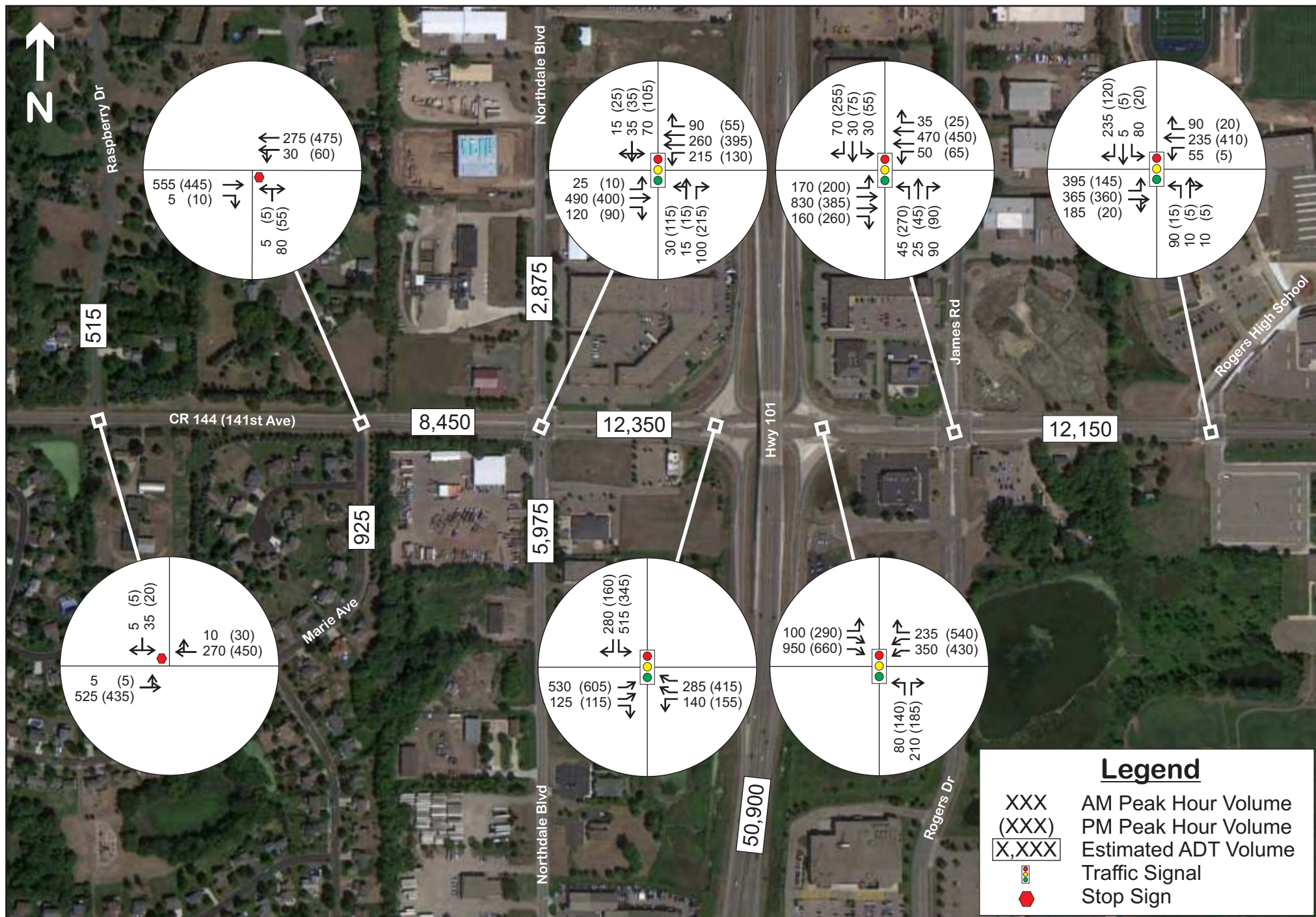
The trip generation estimate for the proposed development was created using the *ITE Trip Generation Manual, 11th Edition* and includes trips for typical weekday a.m. and p.m. peak hours, as well as daily. For purposes of this study and to provide a more conservative assessment, the overall industrial development was assumed to be 85 percent warehouse and 15 percent office; this equates to 473,450 square feet of warehouse and 83,550 square feet of office space. Using this assumption, the proposed development, as shown in [Table 3](#), is estimated to generate 207 a.m. peak hour (174 in/ 33 out), 205 p.m. peak hour (44 in / 161 out), and 1,716 daily trips. No modal reductions were applied to provide a conservative estimate.

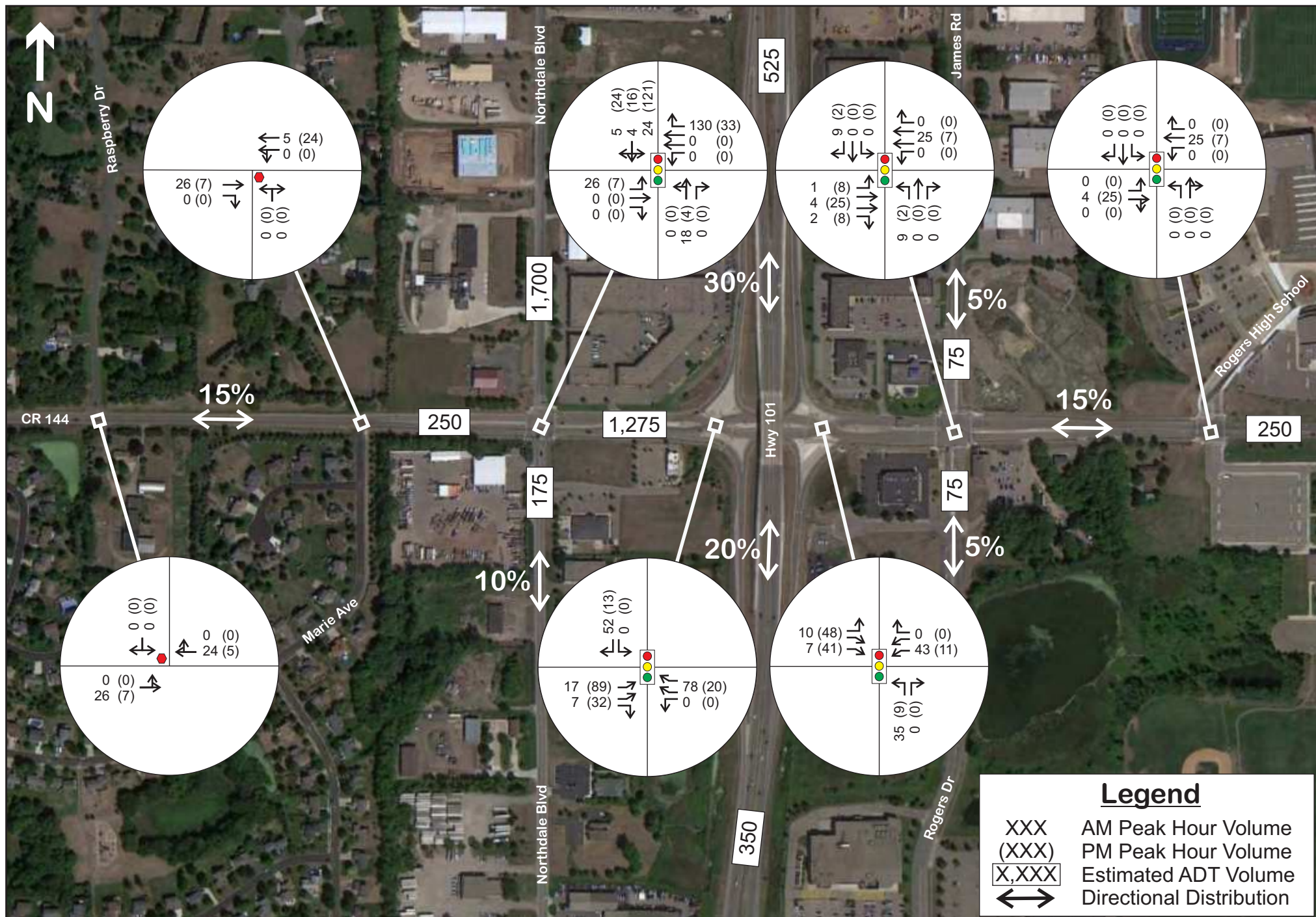
[Table 3 Trip Generation Summary](#)

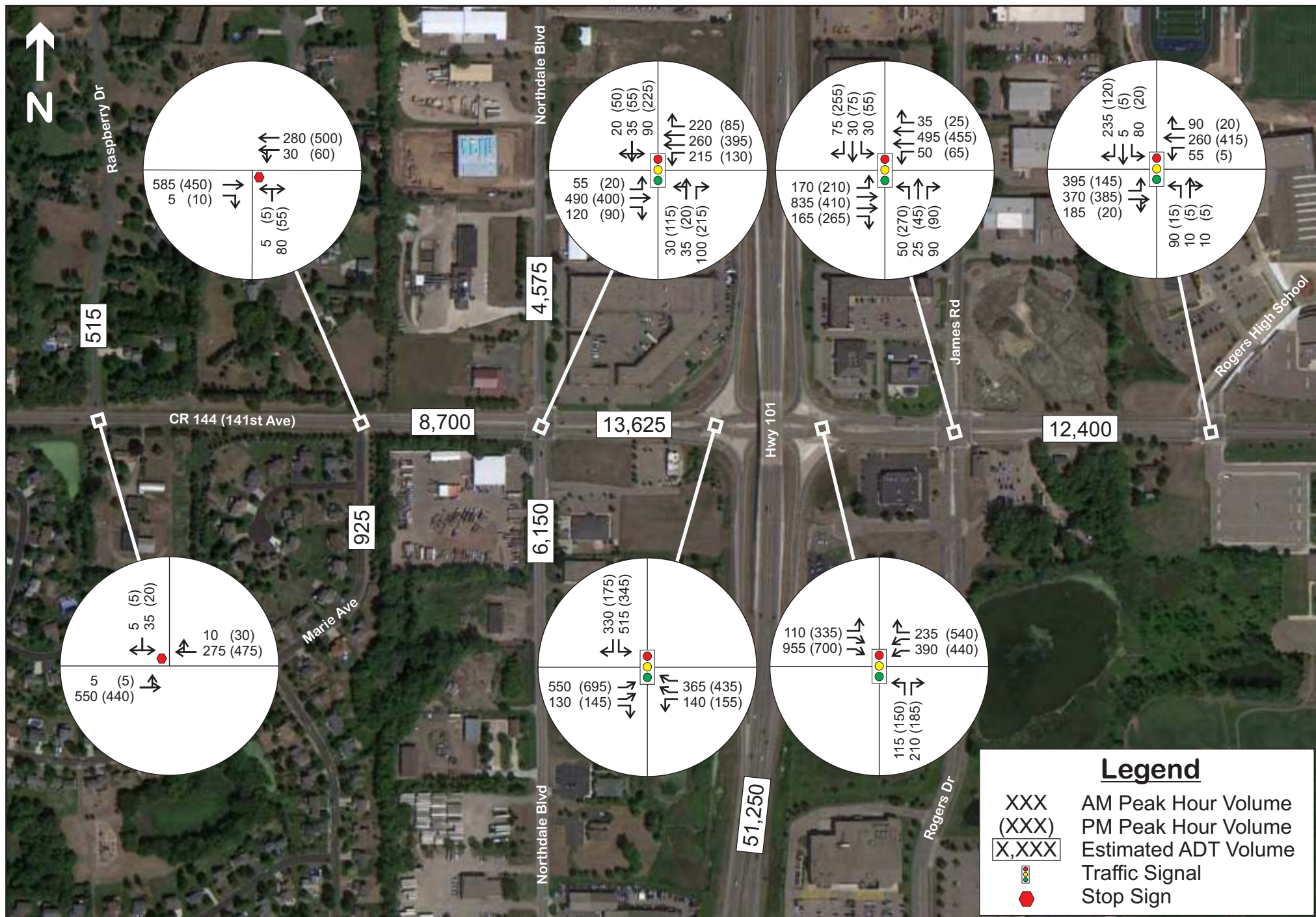
Land Use Type (ITE Code)	Size	AM Peak Hour		PM Peak Hour		Daily
		In	Out	In	Out	
Proposed Development						
Warehouse (150)	473,450 SF	62	18	24	61	810
General Office (710)	83,550 SF	112	15	20	100	906
Total (All Vehicles)	557,000 SF	174	33	44	161	1,716
Total (Trucks)		8	7	5	5	292

Note that given the industrial warehouse land use, a proportion of the site trip generation is expected to be heavy commercial vehicles (i.e., trucks). To help determine the number of trucks associated with the proposed development, the *ITE Trip Generation Manual* was again used. Based on this approach, the proposed development is estimated to generate 15 a.m. peak hour, 10 p.m. peak hour, and 292 daily truck trips, which equates to approximately 5 to 15 percent of the overall site generated trips.

Site generated trips were distributed throughout the study area based on the directional distribution in [Figure 5](#), which is based on a combination of existing area travel patterns and engineering judgment. The resultant year 2026 build condition traffic forecasts are illustrated in [Figure 6](#).







YEAR 2026 CONDITIONS

To understand impacts associated with the proposed development, a year 2026 no build and build condition intersection capacity analysis was conducted. [Table 4](#) provides a summary of the year 2026 no build and build condition capacity analysis and pertinent queuing information.

Table 4 Year 2026 Intersection Capacity Analysis Summary

CR 144 (141 st Avenue) Intersection	Year 2026 Level of Service (Delay - Seconds)			
	AM Peak Hour		PM Peak Hour	
	No Build	Build	No Build	Build
Raspberry Drive	A / C (18 sec)	A / C (18 sec)	A / C (18 sec)	A / C (19 sec)
Marie Avenue	A / C (15 sec)	A / C (15 sec)	A / B (13 sec)	A / B (13 sec)
Northdale Boulevard	B (14 sec)	B (16 sec)	B (15 sec)	C (21 sec)
Hwy 101 West Ramps	B (12 sec)	B (12 sec)	B (14 sec)	B (14 sec)
Hwy 101 East Ramps	B (10 sec)	B (10 sec)	B (10 sec)	B (10 sec)
James Road / Rogers Drive	B (10 sec)	B (10 sec)	C (20 sec)	C (21 sec)
Rogers High School / Middle School	B (14 sec)	B (14 sec)	A (8 sec)	A (8 sec)
Northdale Boulevard: 95 th Percentile Queuing				
Southbound	150 feet	180 feet	180 feet	360 feet
Eastbound Thru Lane	255 feet	270 feet	210 feet	245 feet
James Avenue / Rogers Drive: 95 th Percentile Queuing				
Northbound Left-Turn Lane*	70 feet	80 feet	325 feet	385 feet

* The northbound left-turn lane is approximately 120 feet in length; the taper is an additional 100 feet.

Results of the year 2026 intersection capacity analysis indicate that all study intersections and approaches are expected to continue to operate at an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours under both no build and build conditions. The overall change in operations resulting from the proposed development from an intersection delay perspective is relatively minimal and within acceptable industry standards. Note that the location most impacted by the proposed development will be the CR 144 (141st Avenue) and Northdale Boulevard intersection, with an average increase of two (2) to six (6) seconds of delay per vehicle during the a.m. and p.m. peak hours respectively. Southbound queues along Northdale Boulevard will extend up to approximately 360 feet during the p.m. peak hour, which will impact access to a few driveways in the area.

To limit any queuing impacts along Northdale Boulevard during the p.m. peak hour, the addition of a southbound right-turn lane and optimization of the intersection signal timing should be considered. With these changes, the Northdale Boulevard intersection would operate at an overall LOS B (18 seconds) and the average and 95th percentile queues in the southbound direction would be approximately 160 feet and 260 feet, respectively. At this level of queues, impacts to the North 101 Business Park access would be minimal. Note that any intersection modifications would need to be discussed further with Hennepin County before implementation.

The northbound left-turn lane queuing issue at James Road / Rogers Drive is expected to continue, however the proposed development is not expected to significantly impact this intersection or its operation. Minor signal timing adjustments could help reduce these queues, but given the relatively short-turn lane, they cannot be fully mitigated without additional geometric modifications. Further discussion with Hennepin County should occur to determine if any modifications should be considered for this location given the relatively small impact of the proposed development.

OTHER CONSIDERATIONS

A review of the proposed site plan does not indicate any major issues. Although special care should be taken to locate signage and landscaping to avoid creating any sight distance issues and truck maneuverability should be reviewed to limit potential internal circulation conflicts. There are no multimodal facilities along Northdale Boulevard, but preservation of right-of-way for a future multimodal facility should be considered.

CONCLUSIONS

Based on the findings of the study, the following conclusions are offered for consideration.

- 1) All study intersections and approaches currently operate at an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours; there are a few locations with minor queuing issues although no mitigation was provided to understand impacts of the proposed development.
- 2) The proposed development includes three (3) industrial warehouse buildings totaling approximately 557,000 square feet; construction was assumed to be completed by the end of year 2025.
- 3) Traffic forecasts were developed for year 2026 no build and build conditions, which included a one (1) percent annual background growth rate and traffic generated by the proposed development.
 - a. The overall site is estimated to generate 207 a.m. peak hour (174 in/ 33 out), 205 p.m. peak hour (44 in / 161 out), and 1,716 daily trips; approximately 15 a.m. peak hour, 10 p.m. peak hour, and 292 daily trips will be heavy commercial vehicles (i.e., trucks), which equates to approximately 5 to 15 percent of the overall site generated trips.
- 4) Key takeaways from the future year 2026 capacity analysis, include:
 - a. All study intersections and approaches are expected to continue to operate at an acceptable LOS D or better during typical weekday a.m. and p.m. peak hours under both no build and build conditions; the overall change in operations resulting from the proposed development from an intersection delay perspective is relatively minimal and within acceptable industry standards.
 - b. Southbound queues along Northdale Boulevard will extend up to approximately 360 feet during the p.m. peak hour, which will impact access to a few driveways in the area.
 - c. The northbound left-turn lane queuing issue at James Road / Rogers Drive is expected to continue, however the proposed development is not expected to significantly impact this intersection or its operation.

- 5) To limit any queuing impacts along Northdale Boulevard during the p.m. peak hour, the addition of a southbound right-turn lane and optimization of the intersection signal timing should be considered.
- 6) To reduce the northbound left-turn queuing impacts along Rogers Drive during the p.m. peak hour, minor signal timing adjustments could be implemented, but would not fully mitigate the queues without additional geometric modifications.
- 7) Further discussion with Hennepin County should occur to review the mitigation strategies and determine implementation and if any additional modifications should be considered.
- 8) Special care should be taken to locate signage and landscaping to avoid creating any sight distance issues and truck maneuverability should be reviewed to limit potential internal circulation conflicts; preservation of right-of-way for a future multimodal facility should be considered.

Appendix H



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• GEOTECHNICAL
• MATERIALS
• ENVIRONMENTAL

REPORT OF PRELIMINARY GEOTECHNICAL EXPLORATION AND REVIEW

Hassan Township Development

147th Avenue and Highway 101

Hassan Township, Minnesota

AET Job No. 29-01112

Date:

April 16, 2001

Prepared By:

Robert Cook
6624 Parkway
Edina, MN 55436

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AMERICAN
ENGINEERING
TESTING, INC.

• INDOOR AIR
• ACCT/CAUTION
• MATERIALS
• ENVIRONMENTAL

April 16, 2021

Mr. Robert Cole
6624 Parkwood Road
Edina, MN 55435

RE: Preliminary Geotechnical Exploration & Review
Hassan Township Development
147th Avenue and Highway 101
Hassan Township, Minnesota
AET Job No. 20-01117

Dear Mr. Cole:

This report presents the results of a subsurface exploration program and geotechnical engineering review for the referenced project. We are submitting three copies of the report to you.

Please feel free to contact me if you have any questions about the report. I can also be contacted for arranging additional exploration and construction observation testing services during the construction phase.

Very truly yours,

Megan L. Loe,
Structural Engineer

Phone: (612) 619-6664

Fax: (612) 619-1379

mloeg@americanet.com

WHL:m

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**PRELIMINARY GEOTECHNICAL EXPLORATION AND REVIEW
FOR
HASSAN TOWNSHIP DEVELOPMENT
147TH AVENUE AND HIGHWAY 101
HASSAN TOWNSHIP, MINNESOTA**

AET JOB NO. 20-01113

SUMMARY

Purpose

A multipurpose development is proposed for construction in the northwest quadrant of 147th Avenue and Highway 101 in Hassan Township, Minnesota. The purpose of our work on this project is to explore the subsurface conditions at the site and provide preliminary geotechnical engineering recommendations to assist you and the project team in planning, design, and construction.

Scope

To accomplish the above purpose, you have authorized our firm to drill ten standard penetration test borings at the site and prepare this geotechnical engineering report.

Findings

The test borings indicate a generalized soil profile of 1' to 4' of fill and/or topsoil over alluvial (water deposited) soils. Ground water was encountered in three of the borings at depths of about 11' to 19.5' below the surface, corresponding to about elevations 62.3 to 65.3 based on our assumed datum.

Recommendations

These recommendations are condensed for your convenience. Please study our entire report for detailed recommendations.

- It should be possible to develop the site for construction of buildings on conventional shallow spread foundations.
- General grading should include excavating all fill, topsoil, and fat clays from below all building areas. In addition, any soft clayey alluvial soils should also be removed from below structural areas. This soil correction should include a full oversize and surface compaction of any loose coarse at risk soils which are exposed.
- New fill soils placed to restore design foundation grades should be compacted to a minimum of 98% of the Standard Proctor maximum dry density density (ASTM D698).

fill which supports the floor slab only, outside of the 1:1 oversize zone below footings, can have a reduced minimum compaction level of 95 % of the Standard Proctor density.

- Following section section, the spread footings can then be designed for an allowable bearing pressure of up to 3,000 psf. These foundations can be supported on the coarse alluvial sands, newly placed fill, or competent clayey alluvial soils.

INTRODUCTION

This report presents the results of a subsurface exploration program and geotechnical engineering review for a proposed Hassan Township Development at the northwest quadrant of 147th Avenue and Highway 101 in Hassan Township, Minnesota.

To protect you, American Engineering Testing, Inc. (AETI), and the public, we authorize use of opinions and recommendations in this report only by you and your project team for this specific project. Comments in other uses are intended. Even though this report is not intended to provide sufficient information to accurately determine quantities and location of particular materials, we recommend that your potential contractors be advised of the report availability.

Scope of Services

AETI's work on this project was performed in accordance with our proposal dated March 28, 2021. The authorized scope of services for this project consists of the following:

- Perform ten standard penetration test borings to minimum depths of 16'.
- Conduct a preliminary geotechnical engineering analysis based on the above information.
- Prepare a formal report.

The scope of our work is intended for geotechnical purposes only. This scope is not intended to explore the geotechnical extent of environmental contamination on the site or provide opinions regarding the status of the site relative to "wetland" definition.

PROJECT INFORMATION

A multi-phase development is proposed for construction north of 147th Avenue and west of Highway 101 in Hassan Township, Minnesota. The plan furnished to us indicates that about the western half of the site will be used for multi-family housing or residential offices and the eastern portion of the site will include office/warehouse buildings.

At this time, we have very little information regarding the proposed construction. We assume the multi-family/residential office structures will be relatively light wood-framed construction. In addition, we assume these buildings may utilize either slab on grade or basement construction with one to two stories above-grade. We estimate bearing wall loads of up to 5 kips per linear foot and column loads of up to 100 kips.

We assume the office/warehouse buildings will be slab on grade structures with light overhead structures. In addition, we assume they will be constructed using either masonry block or precast concrete walls, structural steel frames, and metal roof decks. We estimate bearing wall loads of up to 8 kips per linear foot and column loads of up to 300 kips.

We recommend additional borings will be drilled at the site prior to final design and construction.

Foundation Design Assumptions

Our foundation design assumptions include a minimum factor of safety of 3 with respect to localized shear or base failure of the foundations. We assume the structure will be able to tolerate total settlements of up to 1", and differential settlements over a 40' distance of up to .15".

The presented project information represents our understanding of the proposed construction. This information is an integral part of our engineering review. It is important that you contact us if there are changes from that described so that we can determine whether changes in our recommendations are appropriate.

SITE CONDITIONS

Surface Observations

The site is located in the northwest quadrant of 117th Avenue and Highway 100 in Hasegawa Township, Minnesota. The Crow River borders the property on the north side and Highway 100

is the eastern property limit. The surface elevations at the boring locations ranged from about 74.4 at Boring #1 to 107.1 at Boring #8.

Subsurface Soils/Geology

Logs of the test borings are included in Appendix A. The logs contain information concerning soil layering, soil classification, geologic description, and moisture. Relative density of some sands is also given, which is based on the standard penetration resistance (N-value).

Based on our interpretation of the available boring information, it is our judgment the generalized soil profile consists of 1 to 4' of fill and/or topsoil underlain by alluvial soils.

Topsoil is present near the surface at each boring location, and earthfill soils were encountered at a fair half of the boring locations. When present, the fill typically overlies the topsoil layer. The fill and topsoil consist primarily of silty sands, however, some lean clays, sandy lean clays, and sands with silt are also present. Most of these soils were frozen at the time of sampling, therefore, reliable N values were not obtained within these deposits.

Coarse alluvial soils are the predominant underlying soil type. The coarse alluvium includes sand, sand with silt, and silty sand. Based on N-values, the coarse alluvium varies from very loose to dense. The coarse alluvial soils contain varying amounts of gravel; cobbles and boulders can also be present within coarse alluvial soils.

Medium clastic (sandy lean clay) and fine alluvial (silt clay) is present between the medium and coarse alluvium in the two borings located on the eastern half of the property near the southern boundary. These clayey alluvial soils are medium to very dense, based on N-values.

The boring logs only indicate the actual test conditions at the sampled locations. Variations often occur between and beyond borings.

Water Level Measurements

The boreholes were probed for the presence of ground water and water level measurements were taken. The measurements are recorded on the boring logs. A description of the water level measurement methods is presented in the **SUBSURFACE EXPLORATION** section of this report.

Ground water levels were noted at three boring locations, at depths varying from about 11' to 19 1/2' below existing site grade. Measured water level elevations range from elevation 63.6 to 65.3. The remaining seven borings did not extend down to these elevations. The water level measurements were taken within 500' of existing study soils and should provide a relatively good indication of the ground water level at that time and location.

Ground water levels usually fluctuate. Fluctuations occur due to varying seasons and yearly rainfall and snow melt, as well as other factors.

GEOTECHNICAL CONSIDERATIONS

The following geotechnical considerations are the basis for the recommendations presented later in this report.

Review of Soil Properties

Fill/Topsoil

The existing fill and topsoil are judged to be low to moderate strength materials, and they are judged to be potentially compressible under anticipated fill and loading loads. The majority of these soils are moderate to fast draining and have low frost heave potential. The exception would be the loess clay soils which are slow draining, in addition to the loess clays and silt/clay soils which are at least moderately frost susceptible.

Course Alluvium

The course alluvial soils are moderate to high strength materials and are not judged to be significantly compressible under anticipated fill and building loads. These soils are moderate to fast draining. The coarse alluvial soils classified as sand or sand with silt are judged to be of low frost heave potential, provided they do not become wet. The silty sands are at least moderately frost susceptible.

Fine/Mixed Alluvium

The fine alluvial and mixed alluvial soils are low to moderate strength materials. Any fine or mixed alluvial clayey soils which have an N-value of 5 bpf or less are judged to be compressible under increased fill and building loads. The stiffer alluvial soils are not judged to be significantly compressible under the assumed building loads. The fine and mixed alluvium are considered slow draining and are judged to be at least moderately frost susceptible. The fat clays are also prone to shrinkage or swelling due to corresponding changes in water content.

PRELIMINARY RECOMMENDATIONS

The following recommendations should be considered preliminary in nature. Once building plans are further established (location, grades, and building loads determined), we recommend additional site exploration and geotechnical analysis be performed.

Building Grading

Excavation

To prepare the site for spread footing building construction, we recommend the existing fill, topsoil, fat clays, and any soft lean clay soils be excavated from the building areas. Generally, it will be necessary to excavate the softer clayey soils (N-value of 5 bpf or less) where these soils are within the footing width of the bottom of footing elevation and grade will be raised. The

recommended depths of excavation and the estimated elevation of the excavation bottom are indicated in the following table:

Building Number	Surface Elevation	Estimated Depth of Excavation	Estimated Elevation of Bottom of Excavation
1	94.4	36"	94.0
2	97.5	2'	95.5
3	91.7	2'	89.7
4	102.5	2'	100.5
5	99.7	1'	98.7
6	89.8	2'	87.8
7	106.7	2'	104.7
8	100.1	2'	98.1
9	95.1	4'	91.1
10	86.9	2'	84.9

The sandy soils exposed in the excavation bottom should be surface compacted with several passes of a large vibratory roller prior to additional fill placement. The elevations of the bottom of the excavation indicated in the table above are based on soil conditions at the boring locations. Since conditions may vary, it is recommended that a geotechnical engineer/technician observe the final excavation prior to new fill or footing placement. Furthermore, portions of the silty sand topsoil may not be significantly organic. If this is the case, these soils can remain below building areas following surface compaction.

Where fill is placed below the foundations, the excavation bottom should be oversized laterally from the exterior outside edges of the foundations a distance equal to at least 1' for each vertical foot of compacted fill required beneath the foundation at that location (i.e., 1:1 oversize).

Filling

Fill required to attain grade for footings should be uniformly compacted in thin lifts to a minimum of 95 % of the Standard Proctor Maximum dry density (ASTM D698). Fill placed which supports the floor slab only (outside of the 1:1 oversize zone below footings) can have a reduced minimum compaction level of 95 % of the Standard Proctor density.

It should be possible to reuse most of the on-site non-organic soils as fill, excluding the fat clay soils, which should not be reused in structural or pavement areas. The caution that compaction of the on-site lean clay soils may be somewhat difficult, as these soils are sensitive to moisture and will likely require moisture conditioning to attain the desired compaction level. This conditioning process can be time consuming, labor intensive and will require favorable weather. It is also important to consider the frost heave potential for any area where clayey or silty fill is being used.

If off-site materials are required, granular soils which contain less than 12% passing the #200 sieve are preferred. If there are excavations where wet conditions exist at the time of site grading, it may be necessary to utilize cleaner granular soils as fill. In wet excavation areas, we recommend the initial 10' feet of fill material placed be a clean granular soil which contains less than 5% passing the #200 sieve and less than 40% passing the #10 sieve.

In areas where new fill will be placed on sloping ground, we recommend benching the surface prior to placing the fill. Benching is recommended where slopes are steeper than 4:1 (horizontal:vertical).

Spread Footing Foundations

The structures can be supported on conventional spread foundations placed on the new compacted fill and compacted native soils. We recommend perimeter foundations for heated building space be placed such that the bottom is a minimum of 42" below exterior grade. We recommend

foundations for enhanced building space (such as storage, garage, or loading dock foundations) be extended to a minimum of 55" below former grade.

Based on the conditions encountered, it is our opinion the building foundations can be designed based on a maximum allowable soil bearing pressure of 3,000 psf. It is our judgment this design pressure will have a factor of safety of at least 3 against localized shear or base failure. We judge that settlements under these loadings should not exceed 1". We also judge that differential settlements of conditions dictated by the borings should not exceed 1/2".

Floor Slab

Preparation of the building area as previously recommended in the Building Grading Procedures section will also prepare the building area for floor slab support. All fill supporting the floor slab should be compacted to a minimum of 95% of Standard Proctor density. This includes utility and foundation wash backfill.

For information regarding floor slab moisture vapor protection, we refer you to the attached standard sheet entitled "Floor Slab Moisture Vapor Protection."

Wall Backfill & Water Control

In order to reduce lateral loads exerted on below grade walls by the exterior backfill soils, we recommend backfilling with a free draining sand which has no more than 12% of the particles (by weight) passing the #200 sieve. We recommend the wall backfill be compacted to at least 95% of the Standard Proctor maximum dry density. For more information on preferred soil types, frost consideration, lateral loads, drainage, and water control, please see the attached standard sheets entitled:

- Basement/Retaining Wall Backfill and Water Control
- Freezing Weather Effects on Building Construction

Exterior Backfill & Site Drainage

All soils placed below exterior structural elements, such as sidewalks or stoops, should be compacted to a minimum of 95% of Standard Proctor Density. Because infiltration of ground water into the subgrade as it can result in frost heaving and subgrade weakening, problems in both pavement and sidewalks area, proper site drainage is important. The pavements, sidewalks, and landscaped areas should be properly sloped and maintained to allow surface water runoff away from the structure(s).

CONSTRUCTION CONSIDERATIONS

Potential Difficulties

Runoff Water in Excavation

Some of the near-surface soils at the site are moderately poor draining. Because of this, surface water can be expected to "pool" above these soils during times of water weather. To allow observation of the excavation bottom, to reduce the potential for soil disturbance, and to facilitate filling operations, we recommend water be removed from within the excavations during construction. We anticipate that any water can be handled with conventional sump pumping.

Disturbance of Soils

The natural on-site soils can become disturbed under construction traffic, especially if the soils are wet. If soils become disturbed, they should be subcut to the underlying undisturbed soils. The subcut soils can then be dusted and recompact back into place, or they should be removed and replaced with clean imported fill.

Cobbles and Boulders

Clayey silty soils, which are present at this site, can include cobbles and boulders. This may make excavating procedures somewhat more difficult than normal if they are encountered. Also,

if cobbles or boulders are encountered at footing grade, it may be necessary to remove these oversized particles and replace them with compacted fill to allow full footing placement. Existing fill soils can also contain oversized particles.

Excavation Sidesloping/Retention

If unretained, the excavation should maintain sideslopes in accordance with OSHA Regulations (Standards: 29.CFR), Part 1926, Subpart P, "Excavations" ([see www.osha.gov](http://www.osha.gov)). Even with the required OSHA sloping, ground water seepage can induce sideslope raveling or rinning which would require maintenance.

Observation and Testing

The purpose of this preliminary exploration program was to provide preliminary recommendations. Additional borings are recommended prior to final design and construction.

The recommendations in this report are based on the subsurface conditions found in our test boring locations. Since the soil conditions can be expected to vary away from the soil boring locations, we recommend on-site observation by a geotechnical engineer or technician during construction to evaluate these potential changes. Soil density testing should also be performed on new fill placed in order to document that project specifications for compaction have been satisfied.

SUBSURFACE EXPLORATION

General

The subsurface exploration program consisted of test sections or penetration test borings. The field work was performed on March 29 and 30, 2007.

Approximate test boring locations are shown on the attached sketch (Figure 1). The borings were located in the field by AET personnel by tapping steel nearby site features. Surface elevations at

the boring locations were measured in the field by AET personnel using an engineer's level. The benchmark reference was the centerline of 143rd Avenue at the west end (see Figure 1). This elevation was assumed to be 120.3.

Drilling Methods

The standard penetration test borings were drilled using 3.6" diameter hollow-stem augers.

Sampling Methods

Split-Spoon Samples (SS)

Standard penetration (split-spoon) samples were collected in accordance with ASTM D1586. This method consists of driving a 2" O.D. split-barrel sampler into the in situ soil with a 140 pound hammer dropped from a height of 30". The sampler is driven a total of 18" into the soil. After an initial set of 6", the number of hammer blows to drive the sampler the final 12" is known as the standard penetration resistance or N value.

Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings. They may still be present in the ground even if they are not noted on the boring logs.

Classification Methods

Soil classifications shown on the boring logs are based on the Unified Soil Classification (USC) system. The USC system is described in ASTM D2487 and D2486. Where laboratory classification tests (pieve analyses and Atterberg Limits) have been performed, classifications per ASTM D2487 are possible. Otherwise, soil classifications shown on the boring logs are visual-normal judgments. We have attached *Soils* (Appendix A) illustrating the USC system, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include judgments of the geologic origin. This judgment is primarily based on observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

Water Level Measurements

The ground water measurements are shown at the bottom of the boring logs. The following information appears under "Water Level Measurements" on the logs:

- Date and Time of Measurement
- Sampled Depth: lowest depth soil sampling at the date of measurement
- Casing Depth: depth in center of casing or below ground surface at time of measurement
- Case In Depth: depth at which measuring tape stops in the borehole
- Water Level: depth to the borehole where the water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the boreholes. Some of these factors include: permeability of each soil layer in profile, presence or perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

Sample Storage

We will retain representative samples of the soils recovered from the borings for a period of 30 days. The samples will then be discarded unless you notify us otherwise.

LIMITATIONS

The data derived through this sampling and observation program have been used to develop our opinion about the subsurface conditions at your site. However, because an exploration program can never totally

which is in the subsurface conditions between borings and between samples and, at other times, may differ from conditions described in this report. The exploration we conducted identified subsurface conditions only at those points where we took samples or observed ground-water conditions. Depending on the sampling methods and sampling frequency, every soil layer may not be observed, and some materials or layers which are present in the ground may not be noted on the boring logs.

If conditions encountered during construction differ from those indicated by our borings, it may be necessary to alter your construction and recommendations for building is such a important case, and the cost of construction may be affected.


The extent and detail of information about the subsurface condition is directly related to the scope of the exploration. It should be understood, therefore, that information can be provided by means of additional exploration.

STANDARD OF CARE


Our services for your project have been conducted to those standards considered normal for services of this type at this time and location. Other than this, no warranty, either express or implied, is intended.

SIGNATURES

Report Prepared by:


Martin J. T. by
Staff Engineer

Report Reviewed by:


Jeffrey K. Veyce, PE
Vice President, Geotechnical Division
MN Reg. No. 15928

FLOOR SLAB MOISTURE/VAPOR PROTECTION

Flora and fauna *desire* to prevent vapor protection standards make the ground between floor elements a significant source of moisture and a super-saturated vapor chamber. Water vapor formation is a problem for the following sections. The pros and cons of the possible actions regarding these elements will be presented next. But you and your specifier can make an engineering decision based on the benefits and costs of the choices.

GRAVELLY SAND LAYER

In American Concrete Institute (ACI) 308.1-98, a "base material" is recommended, rather than the conventional cleaner "sand" or finer material. The manual indicates that clean sand (common "construction" sand) is inferior to compacted natural sand because permeability is higher. ACI recommends a clean, fine graded material with at least 30% to 50% of particles passing #200 sieve, which is not contaminated with clay, silt or organic material. We refer you to ACI 308.1-98 for additional details regarding the requirements for the base material.

In areas where potential static water levels or significant perched water sources appear near or above the floor slab, an under-floor drainage system may be used to extend a drainage system in place within the base clean sand or gravel layer. Such a system should be properly engineered depending on subgrade soil type and intended use water use.

VAPOR MEMBRANE

The need for a vapor membrane depends on whether the floor slab will have a vapor sensitive covering. All have vapor sensitive linings except on the slab, and if the ground above the slab will be a humidity controlled area. If the ground does not have this vapor sensitivity or moisture control need, placement of a vapor membrane may not be necessary. Your decision will then relate to what you use the ACI base material or a conventional sand/gravel layer. However, if any of the above sensitivity issues apply, placement of a vapor membrane is recommended. Some floor covering systems (e.g. tile and floor covering) do require a vapor membrane to maintain a specified maximum slab moisture content or a minimum or their warranty.

VAPOR MEMBRANE/GRAVELLY SAND LAYER/PLASTIC MEMB.

A number of issues should be considered when deciding whether to place the vapor membrane above or below the granular layer. The benefits of placing the slab on a gravel layer with the vapor membrane placed below the granular layer, include reduction of the following:

- Slab cracking during the curing and drying process.
- Time of Healing, which allows for quicker finishing.
- Vapor membrane puncturing.
- Surface blistering or delamination caused by an extended healing period.
- Cracking caused by plastic or drying shrinkage.

The benefits of placing the vapor membrane over the granular layer include the following:

- The moisture evaporation rate is reduced faster.
- Eliminates a potential cover problem when the granular layer above the membrane.
- Provides a "slip surface" thereby reducing risk related to initial moisture shrink cracking.

If a membrane is to be used in conjunction with a granular layer, the approach recommended depends on slab usage and the construction schedule. The vapor membrane should be placed above the granular layer when:

- Vapor permeable floor covering systems are used or vapor sensitive linings will be directly placed on the slab.
- The area will be humidity controlled, but the slab will be placed before the building is enclosed and cooled from outside.
- Required by a floor covering manufacturer's system warranty.

The vapor membrane should be placed below the granular layer when:

- There is humidity controlled areas without vapor sensitive covering systems, with the membrane in place until the building is closed to the point where precipitation will not hit the membrane and the conditions are suitable to prevent blistering of the membrane or where water drainage or other disposal method can allow a potential water source, such as pipe or pipe leaks, the membrane will damp-proofing before, fire sprinkler system activation, etc.

There may be cases where membrane placement may have a deleterious effect on the subgrade supporting water table (expensive soils). In these cases, your engineer will need to weigh the cost of waterproofing and the performance risks.

BASEMENT RETAINING WALL BACKFILL AND WATER CONTROL

DRAINAGE

Below grade basement should include a permanent backfill drainage system on the exterior side of the wall. The exception may be where basement is within free draining sands where water will not percolate into backfill. Drainage systems should consist of perforated or slotted PVC drainage pipes located at the bottom of the backfill trench below the interior floor grade. The drainage pipe should be supported by properly graded filter rock. The drain pipe should be connected to a suitable means of disposal, such as a sump basin or a gravity outfall. A minimum gravity outfall would be preferred over exterior daydrainage, as the latter may freeze during winter. Exterior building, exterior retaining walls, street holes at the base of the wall can be substituted for a drain pipe.

BACKFILLING

Prior to backfilling, dampwater proofing should be applied on basement basement walls. The backfill materials placed against basement walls will exert lateral pressures. To reduce this loading by allowing for drainage, we recommend using free draining sands for backfill. The zone of sand backfill should extend outward from the wall at least 2', and then upward and outward from the wall at a 30° or greater angle from vertical. The sand should consist of greater than 12.5% by weight passing the #20 sieve, which would include SP and SM soils. The sand backfill should be placed in lifts and compacted with portable compaction equipment. This compaction should be to the specified levels if some or previous is not placed above. Where sub-parameters are not shown, we recommend capping the sand backfill with a layer of clayey silt to minimize surface water infiltration. Any water infiltration from the building should also be minimized.

Dealing with silty or clayey soil is possible but not preferred. These soils can build up water which increases lateral pressures and results in wall conditions and possible water infiltration into the basement. If you have to place silty or clayey soils as backfill, we recommend you place a pre-basement drainage composite system on the wall which is hydraulically connected to a drainage pipe at the base of the backfill trench. High plasticity clays should be avoided as backfill due to their swelling potential.

LATERAL PRESSURES

Lateral earth pressures on below grade walls vary, depending on height and soil configuration, backfill composition and slope of its backfill soil face. Static or dynamic surcharge loads over the wall will also increase lateral soil pressures. For design, we recommend the following ultimate lateral earth pressure values (given in equivalent fluid pressure values) for selected soil compaction in 6" lifts of the standard Proctor density and a wet unit weight.

Soil Type	Equivalent Fluid Density	
	Active (psf)	At-Rest (psf)
Sand (SP or SF SM)	35	45
Silty Sand (SM)	40	50
Fine Grained Soils (SC, CL or ML)	45	60

Basement walls are normally designed in the active earth pressure condition. In this case, the design lateral pressure should be the "active" pressure situation. Retaining walls which are free to move or deflect should be designed using the active soil. Lateral earth pressures will be significantly higher than that shown if the backfill soils are not disturbed and become saturated.

FREEZING WEATHER EFFECTS ON BUILDING CONSTRUCTION

GENERAL

Deposits with significant quantities of silt and clay contain water, soils which are affected in freeze-thaw cycles and then density. Upon thawing, these soils will not regain their original strength and density. The extent of heave and density strength loss depends on the soil type and moisture condition. Heave is greatest in soils with higher percentages of fines (silt/clay). High silt content soils are more susceptible than other high-silt soils due to their high capillary rise potential which can cause ice lenses. Fine grained soils generally heave about 1/4" to 1/2" for each foot of frost penetration. This can translate to 1/2" to 1" of total frost heave. This frost heave can be significantly greater if ice lenses occur.

DESIGN CONSIDERATIONS

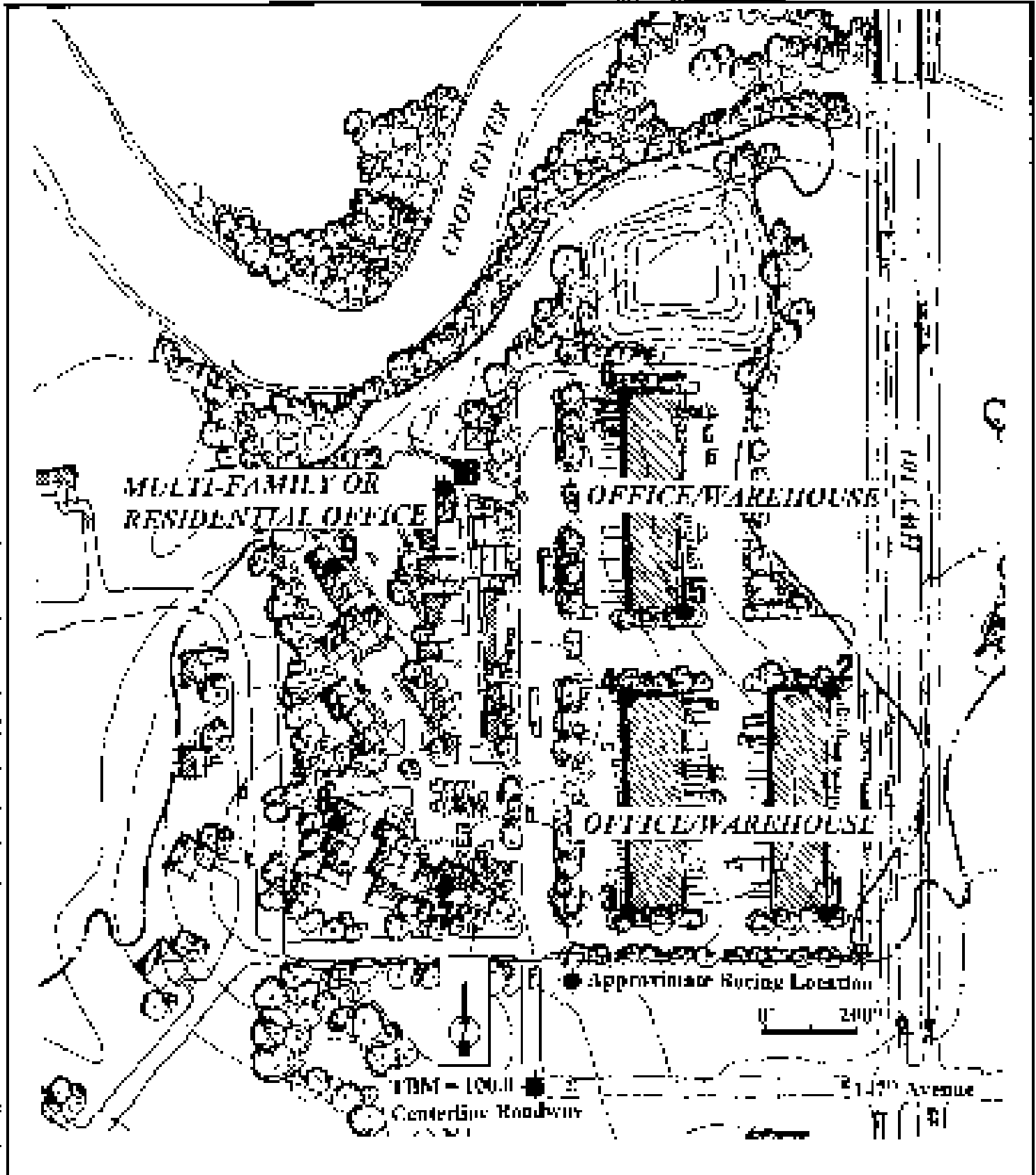
Clayey and silty soils can be used as perimeter backfill, although the effect of their poor shrinkage and frost properties should be considered. Basement walls will have special drainage and lateral load requirements which must be considered. Frost heave may be critical in driveway areas. The perimeter walls adjacent to driveways should be designed as a lateral slab supported on cross footings with void spaces below. With this design, movement may then occur between the main slab and the adjacent on-grade slabs. Frost-free susceptible soils (with less than 12% passing #200) generally can be used in driveway areas. If paving on the surface of surrounding areas, the frost layer may need sufficient transition away from the area where movement is critical. With gravel placement over softer draining soils, subsidence drainage would be needed for the sand layer. High density extended insulation would be used within the slab to reduce frost penetration, thereby reducing the frost thickness created. One caution that insulation placed near the surface can increase the potential for ice jacking of the surface.

The possible effects of adfreezing should be considered if clayey or silty soils are used as backfill. Adfreezing occurs when backfill adheres to enough on-basis foundation walls and/or to the wall as it freezes and heaves. This movement is most common with temporary clay walls, concrete or precast integral building foundations and clay backfill. The potential is also increased where backfill soils are poorly compacted and become saturated. The risk of adfreezing can be decreased by placing a low friction separating layer between the soil and backfill.

Adfreezing can occur in exterior plans (such as decks, fences or other similar plan footings), even if a drainage surface is provided. This is more likely in poor drainage situations where soils remain saturated. Additional footing or footing to allow widened footings below the frost zone (which includes waste reinforcement and the soil to resist uplift forces). Specific designs would require review of any risks.

CONSTRUCTION CONSIDERATIONS

Foundations, slabs and other components which may be affected by frost movement should be insulated from frost prior to their placement during freezing weather. If filling takes place during freezing weather, all frozen soils, snow and ice should be stripped from areas to be filled prior to new fill placement. The new fill should not be a covering freeze during final placement or completion. This should be considered in the project scheduling, budgeting and quality estimating. It is usually beneficial to perform mild weather conditions inspection in small areas where problems can be isolated quickly rather than seeking larger areas where a greater amount of frost stripping may be needed. If slab irregularities are observed, we recommend the subgrade be thawed prior to final slab placement. The frost action may also require reversing and recompaction of the lower structure.



AMERICAN ENGINEERING TESTING, INC.	PROJECT	Hazen Township Development, 147 th Ave. & Hwy 101 Hazen Township, Minnesota		ART. JOB NO.	20-0113
	SUBJECT	Boating Locations		DATE	Apr. 16, 2021
	SCALE	See Above	DRAWN BY	CHECKED BY	Figure 1
			VIL		



SUBSURFACE BORING LOG

AET JOB NO. 20-0113		LOG OF BORING NO. 1 (p. 1 of 1)	
FROM: Hassan Township Development, 147th Ave. & Highway 101, Hassan Township, MN			
DEPTH FEET	BORING LOCATION: HORIZONTAL LOCATION	DEPTH FEET	LOG OF BORING NO. 1 (p. 1 of 1)
0	Fill, mostly sand with silt, brown, loose	0	Fill
1		1	F
2	Silty sand, little gravel, dark brown, loose, medium to thick lens (SM)	2	SS
3		3	SS
4	Fine to med. gray silty sand, medium to thick lens (SM)	4	SS
5		5	SS
6	Sand, fine to med. gray, light gray, loose (SP-SM)	6	SS
7		7	SS
8	Sand, medium grain, light brown, loose, lens of silty sand (SP)	8	SS
9		9	SS
10	Sand with silty, light brown, medium grain, lens of silty sand (SP-SM)	10	SS
11		11	SS
12	Sand with silty sand, medium grain, lens of silty sand (SP-SM)	12	SS
13		13	SS
14	Coarse sand with silty, medium grain, lens of silty sand (SP-SM)	14	SS
15		15	SS
16	Sand, medium grain, light brown, lens of silty sand (SP)	16	SS
17		17	SS
18	Sand, fine to med. gray, medium to thick lens, brown, waterbearing, medium dense (SP)	18	SS
19		19	SS
20		20	SS
21		21	SS
22	END OF BORING	22	

BORING		BORING NO. 20-0113		WATER LEVEL MEASUREMENTS					NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY IN THIS LOG
DATE	TIME	DATE	TIME	SAMPLE DEPTH	WATER DEPTH	WATER LEVEL	WATER TEMPERATURE		
0-19	1:35	0-19	1:35	12.5	12.0	12.5		11.1	
				19.0	18.5	19.0		12.6	

BORING
 COMPLETED: 8/29/01
 BY: JTR
 CHECKED: JTR
 DATE: 8/29/01



SUBSURFACE BORING LOG

PROJECT NO. 20-01113

LOG SHEET NO. 2 (p. 1 of 1)

PROJECT: Dusen Township Development, 145th Ave. & Highway 44, Nassau Township, NJ

DEPTH FEET	SUBSTRATUM LOCATION NOTES ON DESCRIPTION	COLOR	S	MO	SAMPLE NO.	SPT IN	FIELD & LABORATORY DATA				
							W	U	CL	PI	WATER
0	Fill, mostly silt, sand, dark brown, moist	FILL		F	SS	16					
2											
4	Silt, sand, fine grained, dark brown, moist, medium (SP)	CLAY-SILT		F	SS	8					
6											
8	Sand with silt, fine to med. angular, brown, moist, loose (SP-SW)			S	SS	7					
10											
12	Sand, fine to coarse, medium to fine grained, light brown, moist, medium dense (SP)	CLAY-SILT & UNIFORM		F	SS	18					
14											
16											
18											
20	Sand, fine grained, light brown, moist, medium dense to loose (SP)			S	SS	18					
22											
24											
26	Sand with silt, fine gravel, medium grained, brown, well-sorted, loose to SD			GM-W	SS	3					
28	END OF BORING										

DATE		CRILLING METHOD		WATER LEVEL MEASUREMENTS					NOTE: REFER TO THE ATTACHED SHEETS FOR AN EVALUATION OF TERMINOLOGY OF THIS LOG
0-14-20	1:25 PM	DATE	TIME	WATER DEPTH	TASING DEPTH	GIVEN DEPTH	DRILLING EQUIP. USED	WATER LEVEL	
		3/25/21	3:15	16.0	14.8	14.2		14.8	
BOILING									
CONCEALED 3/25/21									
BY: DR CA SS 30113									



SUBSURFACE BORING LOG

SECTION NO. <u>20-01113</u>		PROJECT DESCRIPTION <u>Hasson Township Development, 147th Ave. & Highway 101, Hasson Township, MN</u>		DATE BORING NO. <u>3</u> (p. 1 of 1)							
DEPTH FEET	SURFACE ELEVATION <u>34.7</u> MATERIAL DESCRIPTION	DESCRIPTION	W	MC	SAMPLER TYPE	DEPTH IN	FIELD LABORATORY DATA				
							W	MC	LI	PL	SH
0	fill, mostly clayey sand, dark brown, brown	FILL				24					
1	clayey, dark brown, brown to 2 med medium (CL)	DOSECTD		0	MC	25					
2											
3											
4											
5	Bank clayey, dark brown, medium (CL)	DOSECTD		3	MC	26					
6											
7											
8											
9	Sand with silty, fine to med fine sand, light brown, med. medium dense to loose, silty silty sand and clayey sand (SP-SM)	DOSECTD		11	MC	27					
10											
11											
12		DOSECTD		3	MC	28					
13											
14											
15	Sand & fine gravel, medium gravel, light brown, med. loose (SP)			4	MC	29					
16											
17											
18											
19											
20	Sand with silty & fine gravel, medium to coarse gravel, brown, med. dense, loose (SP-SM)			4	MC	30					
21	END OF BORING										

DEPTH	DEVELOP METHOD	DATE	WATER LEVEL MEASUREMENTS				DRILLER EQUIPMENT	WATER LEVEL	NOTE REFERTO
			TIME	WATER DEPTH	CAVING DEPTH	WATER DEPTH			
0-19.5	3.25 HSA	1/29/01	1:57	26.0	14.5	15.5	None	SEE ATTACHED SHEETS FOR AN	
		1/29/01	1:57	21.0	19.5	20.0	19.4	EXPLANATION OF	
BORING COMPLETED 1/29/01									
BY: BR CO: SS R: JC									

NOTE: REFERTO
SEE ATTACHED
SHEETS FOR AN
EXPLANATION OF
TERMINOLOGY
ON THIS LOG



SUBSURFACE BORING LOG

PROJECT NO: <u>20-01113</u>		BORING NO: <u>5</u> (p. 1 of 1)																																																													
PROJECT: <u>Hassan Township Development, 147th Ave. & Highway 101, Hassan Township, MN</u>																																																															
DEPTH FEET	SURFACE ELEVATION: <u>45.3</u>		METHOD:		IN	OUT	SAMPLE TYPE	SEC. IN.	FIELD & LABORATORY TESTS																																																						
	MATERIAL DESCRIPTION								WATER	TEMP.	% SOL.																																																				
0 -	Silty sand with gravel, fine gravel (dark brown, coarse, brown) (SP) (may be TP)		TOPSOIL OR FILL		0	3.0	SS	1.8																																																							
1 -					10	3.0	SS	1.9																																																							
2 -					10	4.0	SS	2.0																																																							
3 -					2	4.0	SS	4.0																																																							
4 -	Sand with gravel, medium graded, brown, loose, loose to medium dense (SP)		UNSATURATED SILTSTONE		1.0	4.0	SS	4.0																																																							
5 -					1.0	4.0	SS	4.0																																																							
6 -					1.0	4.0	SS	12.0																																																							
7 -					1.0	4.0	SS	4.0																																																							
8 -																																																															
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<table border="1"> <tr> <td>DEPTH</td> <td>TESTING METHOD</td> <td colspan="5">WATER TEST MEASUREMENTS</td> <td rowspan="5">NOTE: REFER TO SEE ATTACHED SHEET FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG</td> </tr> <tr> <td>5-14.0'</td> <td>5.25" HSA</td> <td>DATE</td> <td>TIME</td> <td>WATER TEMP.</td> <td>CASING TEMP.</td> <td>WATER TEMP.</td> </tr> <tr> <td></td> <td></td> <td>3/30/01</td> <td>11:20</td> <td>16.0</td> <td>14.7</td> <td>14.9</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">TESTER COMPLETION: 3000ML</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">LOG BY: <u>20-01113</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>												DEPTH	TESTING METHOD	WATER TEST MEASUREMENTS					NOTE: REFER TO SEE ATTACHED SHEET FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG	5-14.0'	5.25" HSA	DATE	TIME	WATER TEMP.	CASING TEMP.	WATER TEMP.			3/30/01	11:20	16.0	14.7	14.9															TESTER COMPLETION: 3000ML								LOG BY: <u>20-01113</u>							
DEPTH	TESTING METHOD	WATER TEST MEASUREMENTS					NOTE: REFER TO SEE ATTACHED SHEET FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG																																																								
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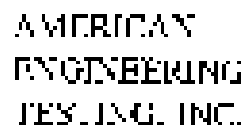


SUBSURFACE BORING LOG

DATE BORING 20-01113		LOG OF BORING NO. 6 (p. 1 of 1)	
PROJECT Hassan Township Development, 147th Ave. & Highway 101; Hassan Township, MN			

DEPTH IN FEET	SUBSTRATUM 30.4 MATERIAL DESCRIPTION	SPECIALITY	N	MC	SAMPLE TYPE	REF. ID.	FIELD LABORATORY TESTS				
							WL	LC	LL	PL	SH
1	Silty sand, fine grained, calc. brown, moist, loose (SP) (may be 20%)	TOP SOIL OR FILL	3	20	24	8					
2											
3	Sand with silt, > 50% gravel, medium grained, brown, moist, very loose (SP-5M)		3	10	25	9					
4											
5	Sand, > 50% gravel, medium to fine grained, brown, moist, medium dense (SP)		18	10	32	14					
6											
7	Sand, fine grained, brown, moist, medium dense (SP)	CLAYSTONE SANDSTONE	14	20	33	16					
8											
9	Sand with silt and gravel, medium to fine grained, brown, moist, medium dense (SP-5M)		4	20	33	6					
10											
11											
12											
13	Sand, > 50% gravel, medium to coarse grained, light brown, moist, medium dense (SP)		14	10	35	14					
14											
15			3	10	36	12					
16	END OF BORING										

DEPTH	TESTING METHOD	WATER LEVEL MEASUREMENTS					NOTES: WATER TO BE ATTACHED SUBSTRATUM EVALUATION OF PERMEABILITY (OPTIONAL)
		DATE	TIME	SAMPLE DEPTH	CASING DEPTH	CASING DEPTH	
0-14.5'	3.25" H&A	3/30/03	12:05	10.0	14.5	14.5	None
BORING FORM NO. 303001							
LOG BY	LA. RE. Sig. JS						



SUBSURFACE BORING LOG

REF ID: A11113

157 OF 157 PAGES 3 of 14

7801507 Hassan Township Development, 147th Ave. & Highway 101, Hassan Township, MN

[illegible]

DEPTH		TIME		WATER LEVEL MEASUREMENTS				
DEPTH	TIME	DATE	TIME	SAMPLED DEPTH	CRUISING DEPTH	CASE-ON DEPTH	WATERING DEPTH	WATER LEVEL
14.00'	3.25' BSA	1/2/2001	10:50	14.0	14.5	14.0		None
RETURN								
COMPLETED: 1/2/2001								
PP: 100 CA: 55								
JUL 99								



SUBSURFACE BORING LOG

DATE BORING: 20-01-13

LOG OF BORING NO. 8 (p. 1 of 1)

PROJECT: Hassan Township Development, 147th Ave. & Highway 101, Hassan Township, MN

DEPTH IN FEET	STANDARD PENETRATION TEST MATERIAL DESCRIPTION	DIAGRAM	F	WF	SAMPLE TYPE	RES. IN	FIELD & LABORATORY TESTS			
							W	N	LL	PL & SH
1	Silt, clay, fine grained, dark brown, more brown (SM) (fine to fill)	TOPSOIL OR FILL		F	SS	7				
2										
3	Sand with silt, a little gravel, fine to medium grained, brown, medium to coarse (SP-SM)			ESM	SS	7				
4										
5	Sand fine grained, brown, light brown, more brown (SP)			SM	SS	12				
6										
7		CLAY OR SILT CLAY		CM	SS	12				
8	Sand, a little gravel, medium grained, light brown, more brown, medium (SP)			SM	SS	12				
9										
10										
11										
12										
13	Sand with gravel, possibly a little medium to coarse grained, brown, medium to coarse (SP)			SM	SS	14				
14										
15										
16	Sand, a little gravel, medium grained, light brown, more brown, medium to coarse (SP)			SM	SS	16				
17										
18	END OF BORING									

CORRECTION FACTORS			WATER TEST MEASUREMENTS					REMARKS
DATE	TIME	TEMP.	DATE	SAMPLED DEPTH	DATE TESTED	DATE TESTED	WATER LEVEL	
01-13-13	3:25 PM	32.00	01-13-13	15.0	14.5	16.0	None	NOTE: THE ATTACHED SHEET IS TO BE EXCLUDED IN TERMINALITY OF THIS LOG
SIGNED SAMPLED BY: J. J. J.								
BY: SS BY: RR BY: JJ								



SUBSURFACE BORING LOG

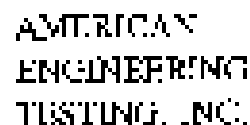
ALLOCATION: 20-01113

DATE OF BORING LOG: 9 Apr. 1991

PROJECT: Hasson Township Development, 147th Ave. & Highway 101, Hasson Township, MN

DEPTH IN FEET	SUBSTRATE LOCATION: MATERIAL DESCRIPTION	GEOLOGY	F	MC	SAMPLE TYPE	RISK %	FIELD & LABORATORY TESTS				
							MC	DM	LL	PL	SMC
1	Fine to very sand with silt, brown, (SP)	FINE SAND			SS	30					
2	Very sand, fine to med, dark brown, med, medium dense (SM)		5	M	SS	10					
3											
4	Very sand, fine to medium grained, brown, medium dense (SM)		6	M	SS	5					
5		COARSE SAND									
6											
7	Sand, white to gray, fine to medium grained, light brown, medium dense to medium dense (SP)		10	M	SS	10					
8											
9		COARSE SAND									
10	Sand, white to gray, medium grained to coarse, medium dense (SP)		5	M	SS	10					
11											
12											
13	Sand with gravel, medium to coarse grained, brown, medium dense (SM)	COARSE SAND	10	M	SS	10					
14											
15											
16											
17	END OF BORING										

DATE		WATER LEVEL MEASUREMENTS						NOTE: REFER TO		
DATE	TIME	WATER LEVEL	CASING DEPTH	WATER TEMP	DEPTH FROM SURF	WATER LEVEL		THE ATTACHED		
0-1495	0.25" DIA.	3-29001	12:05	10.0	14.5	10.0	None	SEALING		
BORING COMPLETED 122901								EXP. ANALYSIS OF		
CC J03 CA 88 510 M								TECHNICAL		
								CONSTRUCTION		



STRATFACE BORING LOG

157 SP 100.4% PO. 10 (p. 1 of 1)

SUBJECT: Hassam Township Development, 147th Ave. & Highway 101; Hassam Township, MN

[illegible][illegible]

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS		TEST SYMBOLS	
Symbol	Definition	Symbol	Definition
1 FT N	Size of fluid-level string	COBS	One dimensional consolidation test
AK	AK double tube core barrel	DEN	Dry density, pcf
AL	As completed of boring	DST	Direct stress test
CA	Crew assist	E	Extensometer modulus, psi
CAH	Pipe casing, number in inches nominal diameter in inches	HYD	Hydrometer analysis
CC	Crew cut	L	Liquid limit, %
CCB	Center core tube	LE	Free swell limit, % increase, 1d
DC	Drill casing; number indicated diameter in inches	PERM	Coefficient of permeability (cm/sec or ft/sec)
DM	Drilling number (non-unitary)	PI	Plastic limit, %
DP	Disturbed sample from depth (feet)	q _u	Pocket penetrometer, slug/in. or pound/in. or
DS	Plastic surge sampler indicates outside diameter in inches	q _u	Soil mass bearing pressure, psi
FL	Fluid layer, number indicates inside diameter	q _u	Ultimate single cone strength, psi
FW	Field water	Q	Ultimate uniaxial strength, psi
MC	Test specimen number indicates nominal diameter in inches	Q _u	Soil Quality Designation (percent aggregate length of test pieces + or minus a length as percent of test piece unit)
NC	Condition used to describe moisture condition of samples and for the ground water level symbols	S _u	Shear strength
NH	Standard penetration test blow count (blows per foot) (unitary)	T ₂₅	Thin section compression test
NQ	NQ wireline core barrel	V ₅₀	One shear strength, undrained (field), pcf
QC	QC wireline core barrel	V ₅₀	One shear strength, undrained (field), psi
RF	Rotary drilling with fluid and roller on clay bit	W	Water content, as percent of dry weight
SLC	In situ spoon test (used on fine-grained soils) sampling the recovered length (in inches) of sample. In making log, the length of the material recovered is percent of the total core run. Zero indicates no sample recovered	W ₂₀₀	Percent of material finer than #200 sieve
REV	Revised		
S	Standard split barrel sampler (used 18" or 24" diameter and 2" inside diameter) unless indicated otherwise		
TW	Thin walled tube; number indicates nominal diameter in inches		
WAGU	Percent of material obtained by squeezing sampling device on log. Thin walled tubes has collected inside the borehole since "falling" through drilling fluid		
WAT	Water		
WB	Sampler advanced by one weight (5 or 10) and 140 psi hammer		
WR	Sampler advanced by one weight (5 or 10)		
CAH	94 millimeter double core tube		
W	Water level directly measured in boring		
W	Estimated water level based on log sample appearance		

STANDARD PENETRATION TEST SUELLI

The standard penetration test consists of driving the sampler which 140 psi hammer and recording the number of blows imposed in each of three 3" increments of penetration. The sampler is driven less than 18" (usually in highly resistant material), recorded in ASTM D1586, the blows for each sample 3" increment and for each point increment is made using log. For a full penetration, the number of blows is shown in the notes in the log below the test.

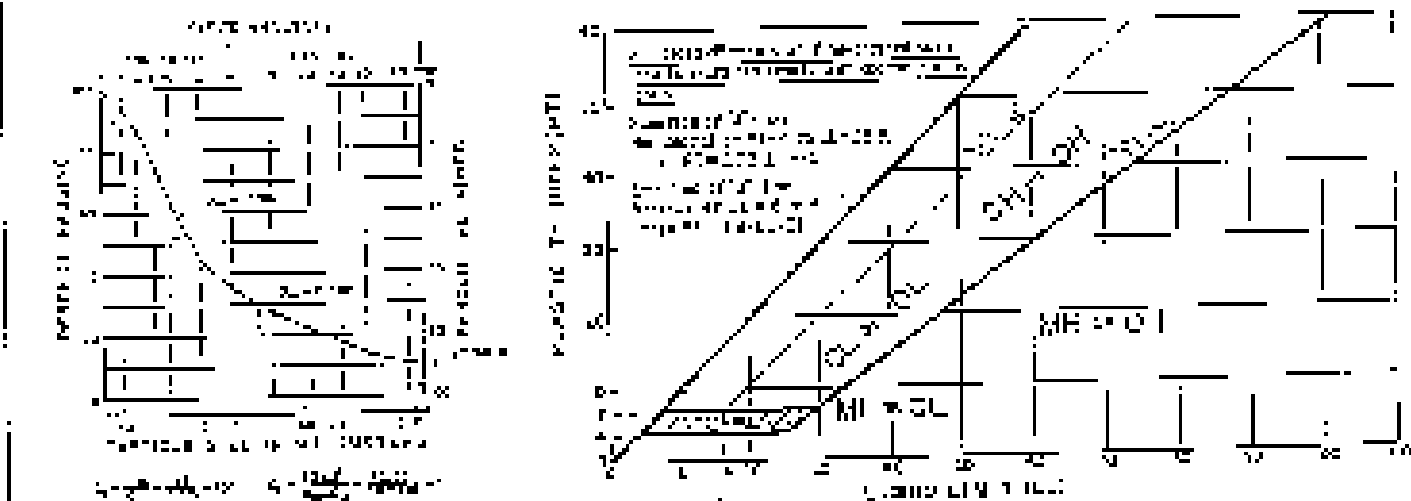
The length of sample recovered, as shown on the "SLC" column, may be greater than the limit indicated in the "Notes". The diagram is based on the "Notes" is recorded below the "SLC" column as per the penetration device in ASTM D1586 is encountered whereas the length of sample recovered is for the entire sample drive which may even be indicated on "SLC".

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES
ASTM Designation: D 2487
(Based on Unified Soil Classification System)

AMERICAN ENGINEERING
TESTING, INC.

Check for Applying Soil Symbols and Dividing Lines (ASTM D 2487)				Soil Classification	
				Code Symbol	English Name ¹
Well-Sorted Soil More than 85% passing No. 20 sieve	Gravel More than 25% coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	GW	Well-sorted gravel ³
			Coarse sand (10-60%) ²	GM	Gravelly sand (10-60%) ³
		High Plasticity	Fine-grained soil ²	GC	Gravelly clay ³
	Sand 25% or more coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	SW	Well-sorted sand ³
			Coarse sand (10-60%) ²	SM	Sandy gravel (10-60%) ³
		High Plasticity	Fine-grained soil ²	SC	Sandy clay (10-60%) ³
Well-Sorted Soil More than 85% passing No. 20 sieve	Gravel More than 25% coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	GW	Well-sorted gravel ³
			Coarse sand (10-60%) ²	GM	Gravelly sand (10-60%) ³
		High Plasticity	Fine-grained soil ²	GC	Gravelly clay (10-60%) ³
	Sand 25% or more coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	SW	Well-sorted sand ³
			Coarse sand (10-60%) ²	SM	Sandy gravel (10-60%) ³
		High Plasticity	Fine-grained soil ²	SC	Sandy clay (10-60%) ³
Well-Sorted Soil More than 85% passing No. 20 sieve	Gravel More than 25% coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	GW	Well-sorted gravel ³
			Coarse sand (10-60%) ²	GM	Gravelly sand (10-60%) ³
		High Plasticity	Fine-grained soil ²	GC	Gravelly clay (10-60%) ³
	Sand 25% or more coarse fraction retained on No. 40 sieve	Low Plasticity	Coarse-grained soil ²	SW	Well-sorted sand ³
			Coarse sand (10-60%) ²	SM	Sandy gravel (10-60%) ³
		High Plasticity	Fine-grained soil ²	SC	Sandy clay (10-60%) ³

Figure 1-1-1-1	ASTM Designation	Soil Classification	English Name
Figure 1-1-1-1	GW	Well-sorted gravel	Well-sorted gravel
Figure 1-1-1-1	GM	Gravelly sand	Gravelly sand
Figure 1-1-1-1	GC	Gravelly clay	Gravelly clay
Figure 1-1-1-1	SW	Well-sorted sand	Well-sorted sand
Figure 1-1-1-1	SM	Sandy gravel	Sandy gravel
Figure 1-1-1-1	SC	Sandy clay	Sandy clay



GENERAL TERMINOLOGY NOTES FOR SOIL IDENTIFICATION AND DESCRIPTION

<u>GRAIN SIZE</u>		<u>GRAVEL PERCENTAGES</u>	
<u>Term</u>	<u>ASTM</u>	<u>Term</u>	<u>Percent</u>
Boulders	Over 12"	A Little Gravel	75-100%
Cobbles	2" to 12"	Very Gravel	10%-20%
Gravel	60 sieve to 3"	Sandily	30%-50%
Sand	3000 to 60 sieve		
Fines (silt & clay)	Less than 60 sieve		

<u>CONSISTENCY OF PLASTIC SOILS</u>		<u>RELATIVE DENSITY OF NON-PLASTIC SOILS</u>	
<u>Term</u>	<u>ASTM, EOP</u>	<u>Term</u>	<u>ASTM, EOP</u>
Very Soft	Less than 2	Very Loose	0-4
Soft	2-4	Loose	4-10
Medium	4-8	Medium Dense	10-20
Stiff	8-15	Dense	20-50
Very Stiff	15-30	Very Dense	Greater than 50
Hard	Greater than 30		

<u>ADDITIONAL FIELD IDENTIFIERS (Add Column)</u>		<u>LAYERING NOTES</u>	
D (Dry):	Absence of moisture, damp, dry to touch.	Thin layer: Layers less than 1/8" thick of differing material as color.	
M (Moist):	Damp, or moist, but water not visible. Soil may still have a high water content (over "saturation").	Thick layer: Layers or layers greater than 1/8" thick of differing material in color.	
W (Water Waterbearing):	Free water visible, intended to describe unsaturated soils.		
F (Frozen):	Soil frozen.		

<u>FIBER CONTENT OF PEAT</u>		<u>ORGANIC DESCRIPTION</u>	
<u>Term</u>	<u>Fiber Content (ASTM, EOP)</u>	Nonpeat soils are described as organic, if over 10% putrefaction or organic content is sufficient to influence the soil properties.	
Peaty:	Greater than 67.5		
Peaty organic:	33-67.5		
Organic:	Less than 33.5		