

Downtown Duluth AUAR

Scoping Environmental Assessment Worksheet

Responsible Governmental Unit: City of Duluth
Proposer: City of Duluth



Prepared for:
City of Duluth

November 2025

Prepared by:
Stantec Consulting Services Inc.

Project/File:
227708309

Table of Contents

1.	Project Title	1
2.	Proposer	1
3.	Responsible Governmental Unit (RGU)	2
4.	Reason for EAW Preparation	2
5.	Project Location	2
6.	Project Description.....	3
7.	Climate Adaptation and Resilience	10
8.	Cover Types	13
9.	Permits and Approvals Required	17
10.	Land use	18
11.	Geology, Soils and Topography/Land Forms	21
12.	Water Resources	25
13.	Contamination/Hazardous Materials/Wastes	35
14.	Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)	37
15.	Historic Properties	40
16.	Visual	41
17.	Air.....	41
18.	Greenhouse Gas (GHG) Emissions/Carbon Footprint	42
19.	Noise	43
20.	Transportation.....	46
21.	Cumulative Potential Effects.....	47
22.	Other Potential Environmental Effects.....	47

Tables

Table 1. Project Magnitude.....	8
Table 2. Climate Considerations and Adaptations	12
Table 3. Cover Types	14
Table 4. Green Infrastructure	15
Table 5. Tree Canopy	16
Table 6. Permits and Approvals	17
Table 7. Soil within the AUAR area	24
Table 8. Surface Waters and Public Waters within the AUAR area	26
Table 9. Wetlands within the AUAR area	28
Table 10. Impaired Waters within the AUAR area.....	29
Table 11. Verified Wells Within the AUAR area	30
Table 12. Noise Area Classifications	45

Figures

- Figure 1: Project Location USGS Topo
- Figure 2: Project Location Aerial Map
- Figure 3: Existing Land Cover
- Figure 4: Parks, Trails, and other Recreational Areas

Figure 5: Future Land Use
Figure 6: Zoning
Figure 7: Surficial Geology
Figure 8: Bedrock Geology
Figure 9: Minnesota Well Index
Figure 10: Soil and Farmland Classification
Figure 11: Water Resources
Figure 12: Wetlands
Figure 13: MPCA Potentially Contaminated Sites
Figure 14: Transportation Study Intersections

Appendices

Appendix A: List of Parcels within the AUAR area
Appendix B: Figures
Appendix C: Lot D Concept Plan
Appendix D: FEMA FIRMette
Appendix E: MDH Well Log Reports
Appendix F: List of MPCA WIMN Sites within the AUAR area
Appendix G: USFWS IPaC Unofficial Species List and DNR NHIS Review Letter
Appendix H: MnSHIP Sites within the AUAR area

December 2022 version

Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at: <https://www.eqb.state.mn.us/>. The EAW form provides information about a Project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Introduction

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

An AUAR consists of three steps: Scoping EAW, Draft AUAR and Final AUAR. The Scoping EAW describes issues to be studied in the AUAR and potential data sources to be used in this analysis. The purpose of the Scoping EAW is to provide information to agencies and the public on the proposed scope of the AUAR and to invite feedback on any additional analysis or data sources that should be included in the AUAR. Once the Scoping EAW process and comment period has been completed, a Draft AUAR is prepared that reflects the comments received.

The revised EAW form (December 2022 version) was used to conduct and document this scoping EAW for the Downtown Duluth AUAR. The twenty-two items in the EAW form provide information about the proposed development scenarios within the AUAR area, existing conditions, existing plans, potential issues to explore through the AUAR process, and specific methodologies for special studies that will be conducted for the AUAR (i.e., the scope of the Traffic Impact Study). The EAW and AUAR Guidelines provide additional details and resources for completing the EAW form for an AUAR and conducting the AUAR review process.

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

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

1. Project Title

Downtown Duluth Alternative Urban Areawide Review (AUAR)

2. Proposer

Proposer:	City of Duluth
Contact person:	Tricia Hobbs
Title:	Executive Director, Duluth Economic Development Authority (DEDA)
Address:	411 W. 1 st Street
City, State, ZIP:	Duluth, MN 55802
Phone:	(218) 730-5322
Email:	thobbs@duluthmn.gov

3. Responsible Governmental Unit (RGU)

RGU Agency:	City of Duluth
Contact person:	Jenn Moses, AICP
Title:	Planning Manager
Address:	Planning and Development Division 411 W. 1 st Street, Room 160
City, State, ZIP:	Duluth, MN 55802
Phone:	(218) 730-5328
Email:	jmoses@DuluthMN.gov

4. Reason for EAW Preparation

Required:	Discretionary:
☒ EIS Scoping (AUAR)	☐ Citizen petition
☐ Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

Minnesota Rules 4410.3610, Subpart 1 allow for eligible projects to be reviewed through the AUAR procedures instead of the EAW and EIS procedures. Pursuant to Minnesota Rules Chapter 4410.3610, Subpart 5a additional procedures are required when certain large specific projects are reviewed. This Scoping EAW has been prepared in accordance with these procedures to guide the Draft AUAR. Minnesota Rules Chapter 4410.4300 Subpart 32 and 4410.4400 Subpart 21 pertain to the Development Scenario B (Maximum Development Scenario).

5. Project Location

County: Saint Louis

City/Township: Duluth

PLS Location (¼, ¼, Section, Township, Range): Township 50 North, Range 14 West, Section 22, 23, 27, 34

Watershed (81 major watershed scale): St. Louis River and Lake Superior - South

GPS Coordinates: Latitude 46.790583, Longitude -92.095905

Tax Parcel Number: Appendix A provides a list of parcels within each of the four AUAR subareas.

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

- County map showing the general location of the Project;
See Figure 1 and Figure 2, Appendix B
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating Project boundaries (photocopy acceptable); and
See Figure 1, Appendix B
- Site plans showing all significant Project and natural features. Pre-construction site plan and post-construction site plan.
See Exhibits 1 and 2 (development scenarios) and Lot D Concept Plan in Appendix C
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the Project during the life of the Project (as detailed below in item 7. Climate Adaptation and Resilience).

See data sources provided in Item 7 of this document.

6. Project Description

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

The City of Duluth is preparing an AUAR for an approximately 335 acre area encompassing the traditional downtown, Essentia Health Medical Campus and surrounding Hillside neighborhood, as well as the proposed “Lot D” development in the Bayfront area. The purpose of this AUAR is to prepare for infill or redevelopment of key sites within this broader area. Two development scenarios will be evaluated as part of the AUAR which include an existing conditions scenario and a maximum mixed use (commercial and residential) redevelopment scenario consistent with the City’s adopted Comprehensive Plan.

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

Existing Conditions

The AUAR area is an urban environment within the City of Duluth, St. Louis County, Minnesota, consisting of a traditional downtown commercial and business district (East and West Superior Street), a medical campus (Essentia), and some high-density residential areas with local streets and sidewalks, as well as an interstate highway corridor and railroad. The AUAR area includes businesses focused on hospitality such as restaurants, bars, hotels, and shopping. Some sections of the AUAR area remain undeveloped due to the discontinuation and removal of previous commercial and light industrial activities. The natural environment primarily features landscaped vegetation with limited lawn space or mature trees, except for the approximately two miles of the Lake Superior shoreline, which functions as a seaport within the Great Lakes Region.

Proposed Project

Proposed AUAR Development Scenarios

Two development scenarios will be considered as part of the AUAR which include one scenario that encompasses the existing conditions as a comparison to the maximum development scenario which is consistent with the growth planned for in the City’s adopted Comprehensive Plan (Imagine Duluth 2035 – Forward Together¹). The maximum development scenario plans generally for mixed use redevelopment of key sites within the broader downtown area.

The purpose of the AUAR is to help the City adequately plan for this redevelopment and provide a mitigation plan for how the City and future developers will manage the environmental impacts. The City initiated this AUAR in anticipation that the downtown area could see significant infill and redevelopment within the coming years, including areas that are within the City’s shoreland area and would require environmental review and sensitivity. The AUAR is meant to plan for this development in a holistic manner, understanding that there are environmental benefits of development within an already dense urban area, and that environmental impacts are not contained to one site but rather are best studied and mitigated with a broader lens.

The City has elected to designate subareas within the broader AUAR area to facilitate the process of studying and planning mitigation for 335 acres of the City’s urban core, which is comprised of many different uses and forms of development. The four subareas include:

¹ City of Duluth. Imagine Duluth 2035 – Forward Together. Adopted June 25, 2018. https://duluthmn.gov/media/rtgk5tin/imagine-duluth-2035-combined_website_temp.pdf

- Lot D Subarea (500-1000 Railroad Street in the Bayfront District)
- 1st Street Subarea (generally bounded by 2nd Street to the north, 3rd Avenue East to the east, Interstate 35 (I-35) to the south, Mesaba Avenue to the west)
- Essentia Subarea (generally bounded by 5th Street to the north, 7th Avenue East to the east, I-35 to the south and 3rd Avenue E to the west)
- Secondary Subarea (generally bounded by 5th Street to the north, 14th Avenue East to the east, London Road to the south and 7th Avenue East to the west)

These subarea boundaries are shown in Exhibit 1 and Exhibit 2 below.

Development Scenario A: Existing Conditions

Exhibit 1 depicts Development Scenario A. The following paragraphs describe the existing conditions for the four subareas. Table 1 identifies existing building area assumptions for Development Scenario A based on available parcel data.

Lot D Subarea

The Lot D subarea was historically a light industrial site, with its most notable past use as a manufacturing and cold storage facility. Today, the site is the last piece of undeveloped commercial waterfront in the City of Duluth, which has remained vacant for more than three decades. Complicating factors in the redevelopment of the site include a collapsing seawall, a massive cement slab, and contaminated soil. The Lot D subarea is roughly 19 acres and includes surrounding site context and roads.

While the site was historically developed, for the purposes of this analysis, the site is considered vacant. The site is currently owned by the Duluth Economic Development Authority (DEDA). DEDA has a predevelopment agreement with Inland Development Partners (Inland) for the development rights to Lot D. Lot D is located on Railroad Street between the Pier B hotel and Compass Minerals, a salt packaging plant.

Essentia Subarea

The Essentia subarea is mostly occupied by the Essentia Health Medical Campus and Benedictine Sisters of the St. Scholastica Monastery properties. Construction of the new Essentia Health – St. Mary's Medical Center at 402 East 2nd Street was recently completed to bring to fruition Vision Northland, a \$900 million investment seeking to transform the Essentia Health Medical Campus. The demolition of the former St. Mary's Medical Center at 407 East 3rd Street was also recently completed. The Essentia subarea includes about 141 acres and 4.3 million square feet of mostly institutional (medical campus) and other commercial and residential uses. Several existing surface parking lots within the subarea will become surplus with the consolidation of the Essentia campus.

1st Street Subarea

The 1st Street subarea encompasses the City of Duluth's historic downtown core. The area is about 83 acres and includes nearly 5.2 million square feet of commercial, office, urban residential, hospitality and tourism, institutional (churches and government offices), and a limited amount of industrial development. The built form is urban in nature, with buildings ranging from one to sixteen stories in height. In addition to the built square footage in the 1st Street subarea, there are many surface and structured parking lots and some vacant land or unoccupied buildings.

Secondary Subarea

The Secondary subarea includes an eclectic mix of uses including high, medium, and low-density housing, the Aspirus St. Lukes Hospital campus, and a mix of commercial uses mostly located along Superior Street. Like the Essentia Health campus, Aspirus St. Luke's is also underway with a hospital modernization and expansion project. The Secondary subarea includes roughly 92 acres and 3.3 million

square feet of mostly residential, institutional (medical campus) and other commercial uses.

Development Scenario B: Maximum Development (Mixed Use) Scenario

Proposed development considered in Development Scenario B for this AUAR consists of a mix of commercial/office, retail, and residential uses in the AUAR area. Development Scenario B does not include heavy industrial and data center uses. Additionally, it is noted that future projects proposed within the AUAR area would be subject to the AUAR eligibility criteria pursuant to Minn. R. 4410.3610, Subp. 1.

Lot D Subarea

As mentioned above, the landowner of the Lot D area is DEDA, which has a predevelopment agreement with Inland for the development rights to Lot D. Inland has created a concept plan for a multi-phased mixed use multifamily and hospitality redevelopment. This concept plan is the basis for the maximum development scenario for this subarea. The planned redevelopment includes two buildings of market rate multifamily apartments, constructed over two phases and totaling 802,000 square feet. The maximum redevelopment scenario also includes a hotel totaling about 93,000 square feet.

In addition to the planned development, there are several site preparation activities which will occur within the subarea including repair and reconstruction of the deteriorated seawall, removal of the cement slab, and remediation and encapsulation of soil contamination. Table 1 and Exhibit 2 detail the Lot D subarea maximum development scenario. Appendix C provides Inland's preliminary Lot D Concept Plan.

Essentia Subarea

The Essentia subarea maximum development scenario is based generally on the plans that Essentia Health and the Benedictine Sisters of the St. Scholastica Monastery have for redevelopment of excess properties made available by the consolidation of the campus and parking lots. This includes 18 properties across a roughly 16-block campus. The Duluth Market Study² completed by Cushman Wakefield in March 2023 plans for the following maximum development potential for these 18 properties: more than 600 new housing units, 50,000 square feet of retail space, up to 480 hotel rooms and 275,000 square feet of medical office and classroom space. This information is the basis for the maximum development scenario in this subarea, as shown in Table 1 and Exhibit 2.

1st Street Subarea

Within the 1st Street subarea, there are two DEDA owned sites that will be available for redevelopment in the near-term. These include the former Pastoret Terrace building and the former Shoppers Parking Ramp and adjacent New Garrick Building (Pineapple Building). The maximum development scenario for these sites includes mixed-use development with residential and retail space. In addition to these properties, there is potential for underutilized properties in the downtown area to be redeveloped into a mix of uses, including housing. Scenario B plans for the maximum amount of development that 1st Street subarea may see for the next ten years. Given that the AUAR will be updated every five years, as required by state statute, there is an opportunity to update these assumptions regularly as development expectations shift.

For the next ten year period, the maximum development scenario for the 1st Street subarea assumes a 30 percent increase in residential development and a small increase in commercial development from existing conditions. This assumes that much of the major redevelopment in the downtown area is mixed use, including mostly housing and some new commercial development. Table 1 and Exhibit 2 detail the 1st Street subarea maximum development scenario.

Secondary Subarea

While there are no major plans currently proposed by landowners, developers, or the City for redevelopment within the Secondary subarea, it is anticipated that some redevelopment may occur within

² Cushman & Wakefield. Duluth, Minnesota Market Study. March 2023.

the next ten years. Given the investments in the Aspirus St. Luke's Hospital, and the heavily residential nature of the area, it is anticipated that this may be an attractive area for housing redevelopment. The maximum development scenario for this subarea assumes that the area could see a 20 percent increase in residential development over the next ten years. As with the 1st Street subarea, which also lacks clear development expectations, there is an opportunity with each AUAR Update to reevaluate these assumptions as development expectations shift. Table 1 and Exhibit 2 detail the Secondary subarea maximum development scenario.

Exhibit 1. Development Scenario A – Existing Conditions

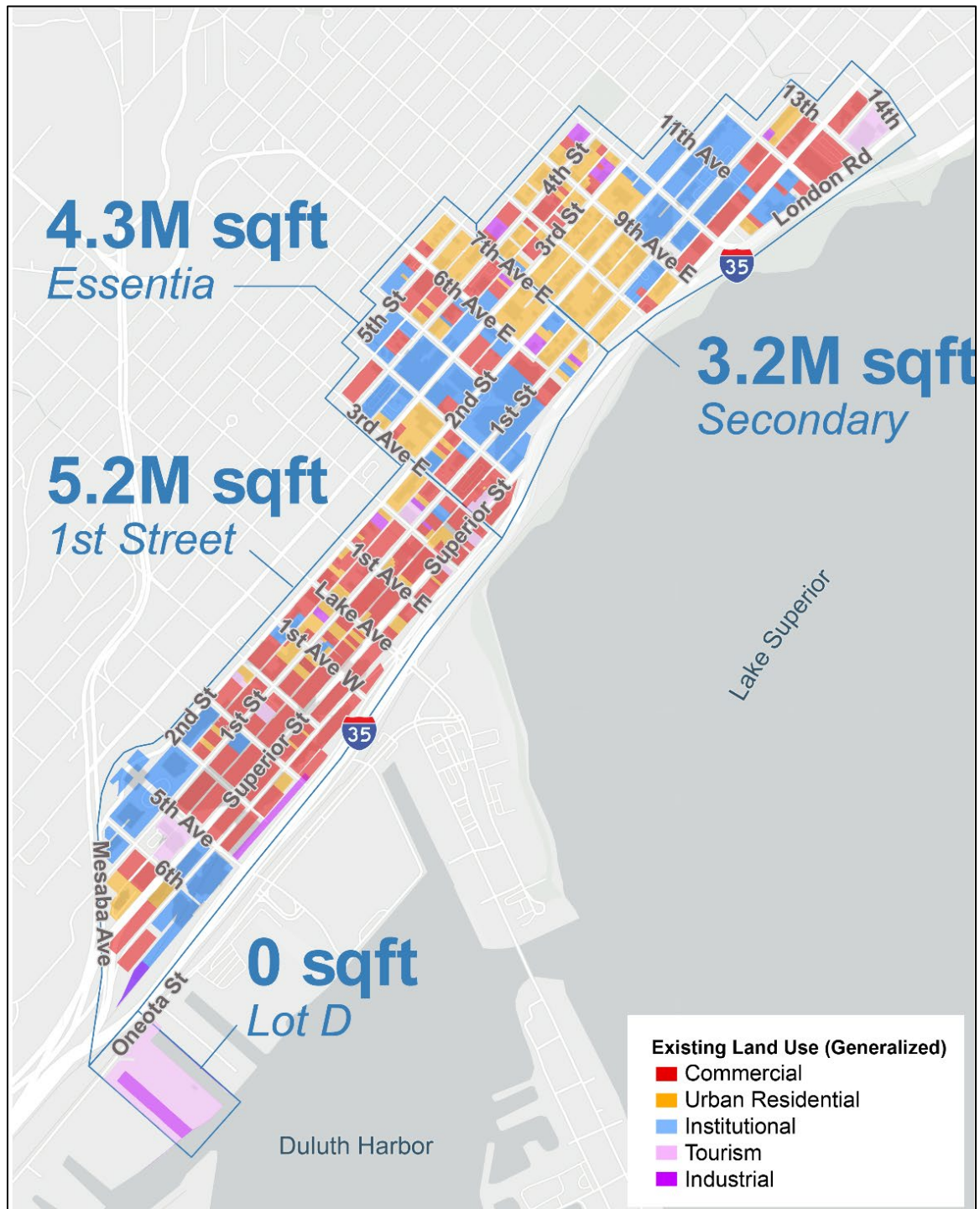
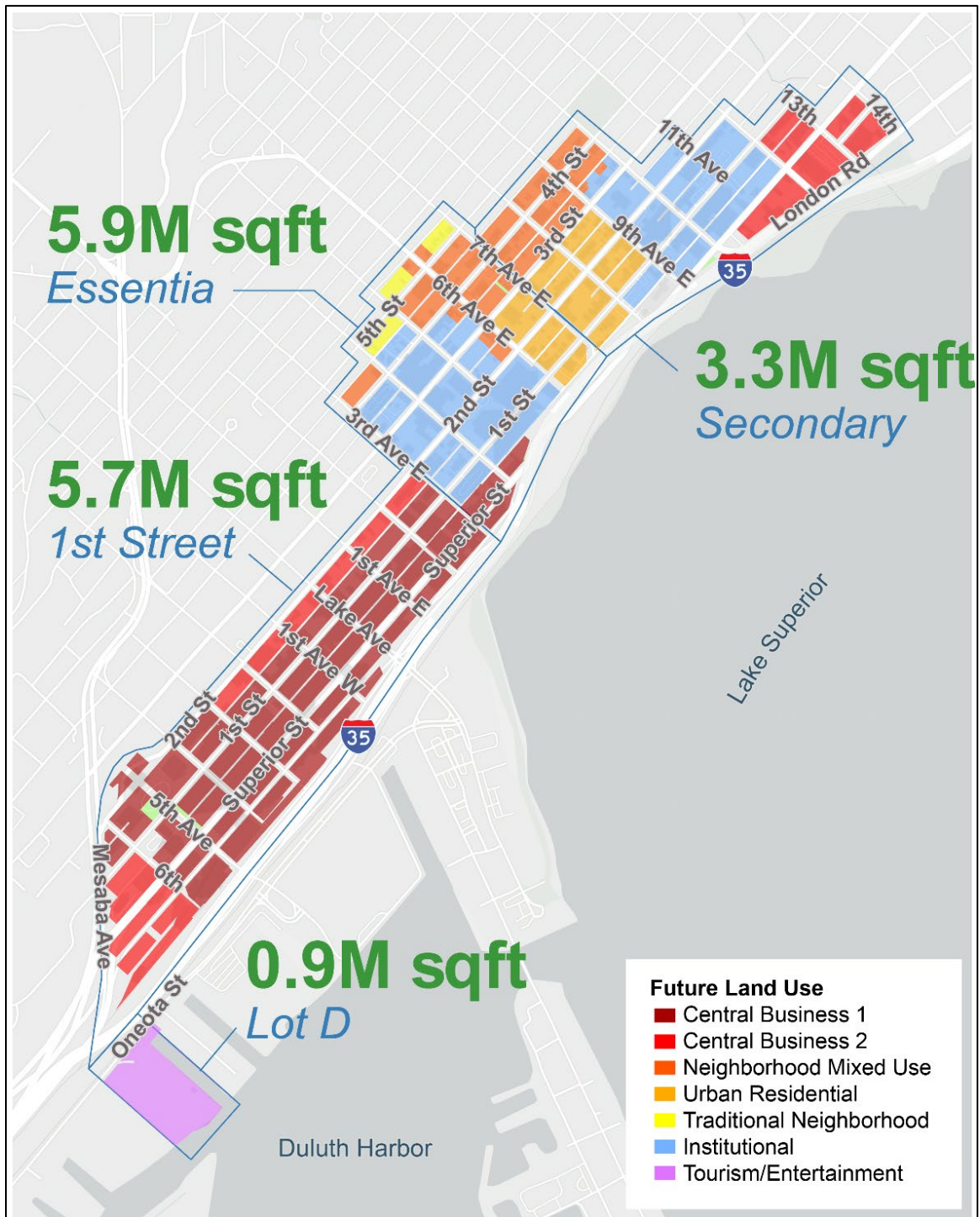


Exhibit 2. Development Scenario B – Maximum Development



Construction Activities

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

Development Scenario B would include construction of new buildings and associated access roadways, parking areas, and utility infrastructure improvements. Construction activities will primarily be redevelopment of previously developed land. Site preparation may include demolition, grading,

excavation and limited vegetation removal. Stormwater infrastructure would be modified or constructed depending on the change in impervious surface area.

2) *Modifications to existing equipment or industrial processes*

Not applicable – no planned modifications to existing equipment or industrial processes.

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

The AUAR area encompasses a developed, urban core. It is anticipated that redevelopment of the AUAR area may require demolition, removal, or remodeling of existing buildings or structures, which would be confirmed at the time future projects are proposed within the AUAR area. The potential for redevelopment within the AUAR area to result in the demolition of properties listed or eligible for inclusion on the National Register of Historic Places (NRHP) will be evaluated as part of Item 15 (Historic Properties) of the Draft AUAR.

4) *Timing and duration of construction activities*

It is anticipated that initial site preparation for redevelopment of Lot D may occur as early as 2026, which would include repair of the existing seawall, removal of the cement slab, and remediation and encapsulation of soil contamination. Construction of the Lot D Redevelopment Project is anticipated to be completed in 2028.

The timing and duration of development phases within the three other subareas is unknown and would be dependent on market conditions. However, it is DEDA's intention to procure developers for redevelopment of properties currently owned by DEDA in the 1st Street Subarea in 2026. For the purpose of the AUAR, the maximum build condition considered for Development Scenario B assumes a full buildout in ten years. The development assumptions and timeline would be re-assessed with the AUAR update in five years, based on anticipated conditions at that time.

c. Project magnitude

Table 1 summarizes the Project magnitude.

Table 1. Project Magnitude

Description	Scenario A - Existing Conditions	Scenario B – Maximum Development
Total Project Acreage	Total approx. 335	Total: approx. 335
Linear Project length	Not applicable (N/A)	N/A
Residential building area (in square feet)	1,948,000	4,069,000
Commercial building area (in square feet)	5,983,000	6,053,000
Industrial building area (in square feet)	67,000	67,000
Institutional building area (in square feet)	4,141,000	4,416,000
Other uses – Tourism (in square feet)	540,000	869,000
Total Project Square Footage	12,679,000	15,474,000
Lot D Subarea		
Subarea Acreage	Approx. 19	Approx. 19
Residential building area (in square feet)	0	802,000
Commercial building area (in square feet)	0	0
Industrial building area (in square feet)	0	0
Institutional building area (in square feet)	0	0
Other uses – Tourism (in square feet)	0	93,000
Total Project Square Footage	0	895,000

Description	Scenario A - Existing Conditions	Scenario B – Maximum Development
Structure height (feet)	0	Up to 120 ft. (approx. 10 stories)
Essentia Subarea		
Subarea Acreage	Approx. 83	Approx. 83
Residential building area (in square feet)	510,000	1,460,000
Commercial building area (in square feet)	1,191,000	1,241,000
Industrial building area (in square feet)	14,000	14,000
Institutional building area (in square feet)	2,456,000	2,731,000
Other uses – Tourism (in square feet)	174,000	410,000
Total Project Square Footage	4,345,000	5,856,000
Structure height (feet)	Up to 18 stories (St. Mary's Medical Center)	Up to 200 ft. (approx. 20 stories)
1st Street Subarea		
Subarea Acreage	Approx. 141	Approx. 141
Residential building area (in square feet)	808,000	1,051,000
Commercial building area (in square feet)	3,985,000	4,005,000
Industrial building area (in square feet)	30,000	30,000
Institutional building area (in square feet)	48,000	48,000
Other uses – Tourism (in square feet)	312,000	312,000
Total Project Square Footage	5,183,000	5,446,000
Structure height (feet)	Up to 15 stories (Alworth Building)	Up to 200 ft. (approx. 20 stories)
Secondary Subarea		
Subarea Acreage	Approx. 92	Approx. 92
Residential building area (in square feet)	630,000	756,000
Commercial building area (in square feet)	807,000	807,000
Industrial building area (in square feet)	23,000	23,000
Institutional building area (in square feet)	1,637,000	1,637,000
Other uses – Tourism (in square feet)	54,000	54,000
Total Project Square Footage	3,151,000	3,277,000
Structure height (feet)	Up to 114 ft. (St. Luke's Hospital)	Up to 200 ft. (approx. 20 stories)

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

The purpose of completing this AUAR is to holistically plan for and study potential redevelopment within the downtown area. The City anticipates that downtown could see significant infill and redevelopment within the coming years, and has elected to complete an AUAR to holistically study the environmental impacts of development and prepare appropriate mitigation strategies. The City recognizes the environmental benefits of encouraging additional development within its urban core, especially housing development. The AUAR will help the City to appropriately manage this growth and development.

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

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

It is anticipated that redevelopment of the AUAR area would occur in phases based on market conditions.

For the purpose of the analyses completed as part of the AUAR, it is assumed the full buildout contemplated in Development Scenario B would occur in the next ten years.

f. Is this Project a subsequent stage of an earlier Project? ☐ Yes ☒ No

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

7. Climate Adaptation and Resilience

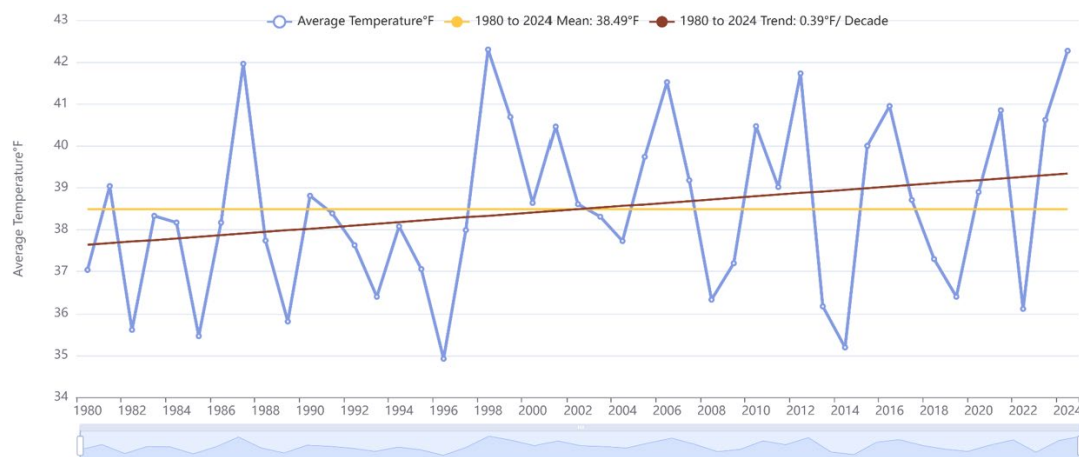
a. Describe the climate trends in the general location of the Project (see guidance: *Climate Adaptation and Resilience*) and how climate change is anticipated to affect that location during the life of the Project.

In general, Minnesota is anticipated to experience an increase in temperature, precipitation, and more frequent extreme precipitation events resulting from climate change. In Minnesota, annual average temperatures have risen two degrees over the past century and up to three degrees in the northern part of the state. The highest average temperature increases have occurred during the winter. Since 1895, temperatures during the winter have increased at a rate two to three times higher than during the summer. In particular, winter warming rates have risen more sharply in recent decades.³ Current climate warming trends, most notably during the winter, are anticipated to continue.⁴

Heavy rain events have become more frequent in Minnesota and more intense. From 1973 to 2020, Minnesota experienced 17 mega-rain events⁵ with a notable increase since 2000. Of these 17 events, three occurred in the 1970s, two in the 1980s, one in the 1990s, six mega-rain events occurred in the 2000s, four in the 2010s, and one in 2020. Thus, in the past 21 years (2000 to 2020), almost two times as many mega rain events occurred compared to the prior 27 years (1973 to 1999).⁶

Climate trends in St. Louis County parallel the overall statewide trends, indicating Minnesota's climate is becoming warmer and wetter. Exhibit 3 and Exhibit 4 illustrate historical average annual temperature and annual precipitation trends from 1980 to 2024, respectively. During this time period, the county experienced an average annual temperature increase of 0.39 degrees Fahrenheit (°F) per decade and an annual precipitation increase of 0.10 inches per decade.

Exhibit 3. Historical Annual Average Temperature in St. Louis County (1950 – 2024)



Source: DNR Climate Explorer available at <https://climate-explorer.dnr.state.mn.us/main/historical>

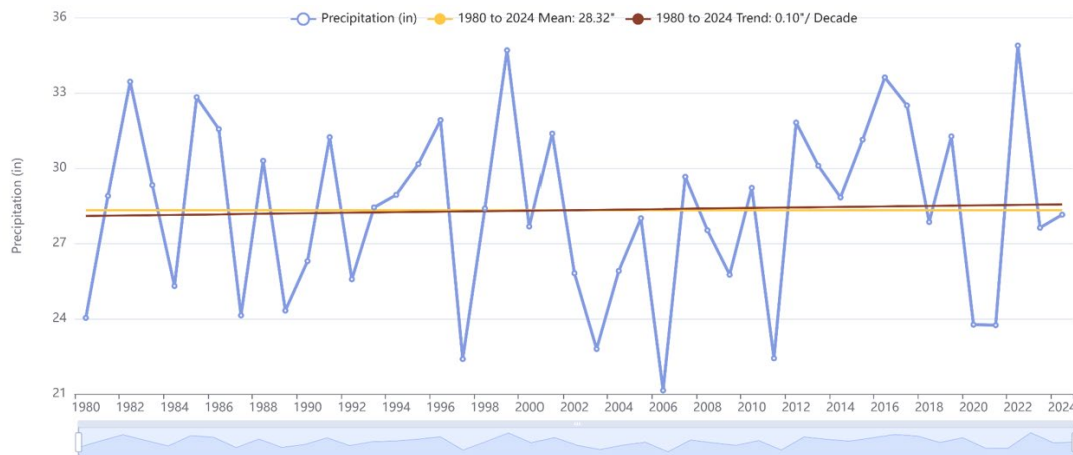
³ DNR, undated(a). Climate Trends. Available at: https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html. Accessed September 2025.

⁴ MnDOT, 2021. Minnesota Go Climate Change Report. Available at: <https://www.minnesotago.org/trends/climate-change>. Accessed September 2025.

⁵ Mega-rain events are defined as events in which six inches of rain covers more than 1,000 square miles and the core of the event tops eight inches. Definition is from the DNR's website cited in footnote 4.

⁶ DNR, 2024(a). Historic Mega-Rain Events in Minnesota. Available at: https://www.dnr.state.mn.us/climate/summaries_and_publications/mega_rain_events.html. Accessed September 2025.

Exhibit 4. Historical Annual Average Precipitation in St. Louis County (1950 – 2024)

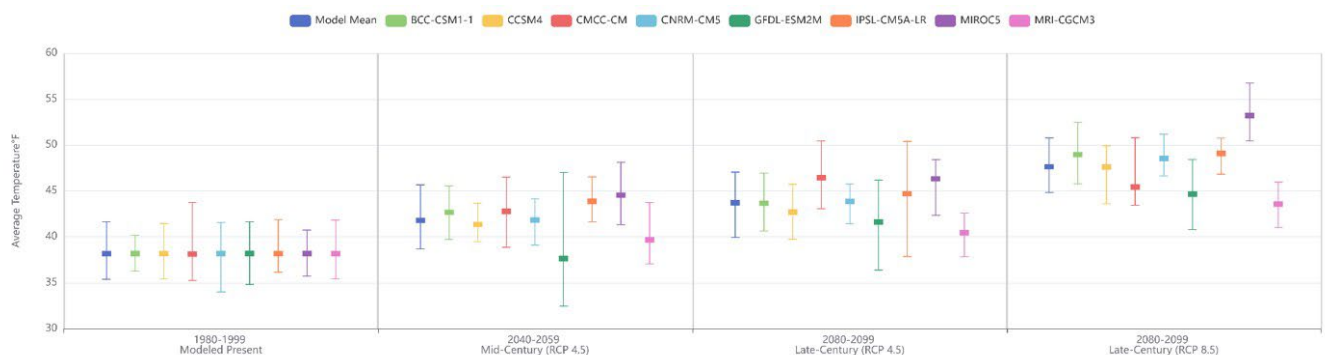


Source: DNR Climate Explorer available at <https://climate-explorer.dnr.state.mn.us/main/historical>

Projected climate trends indicate that temperatures within the county would continue to increase. Exhibit 4 illustrates projected temperatures for the county. Several climate models are shown in the projected temperature analysis. The model mean, shown in blue on the first boxplot to the left in each model category, illustrates the average of all models included in the analysis. Exhibit 5 shows the modeled present condition, mid-century (2040-2059) at Representative Concentration Pathway (RCP) 4.5, late-century (2080-2099) at RCP 4.5, and late-century (2080-2099) at RCP 8.5. RCP is a greenhouse gas concentration scenario used by the Intergovernmental Panel on Climate Change in the fifth assessment report.⁷ RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040 and RCP 8.5 represents a worst-case scenario in which emissions continue rising through the 21st century.

Under the RCP 4.5 scenario, the annual temperature is anticipated to increase within the county from a modeled present mean of 38.2°F (1980-1999) to a mid-century (2040-2059) model mean of 41.8°F and a late-century (2080-2099) model mean of 43.7°F. Under the RCP 8.5 worst-case scenario, the county would experience a late-century (2080-2099) model mean temperature of 47.6°F. In comparison to the modeled present mean (1980-1999), the late-century (2080-2099) modeled mean annual temperature would increase by approximately 13.4 percent under the RCP 4.5 scenario and increase by approximately 21.9 percent under the RCP 8.5 scenario.

Exhibit 5. Projected Temperatures in St. Louis County



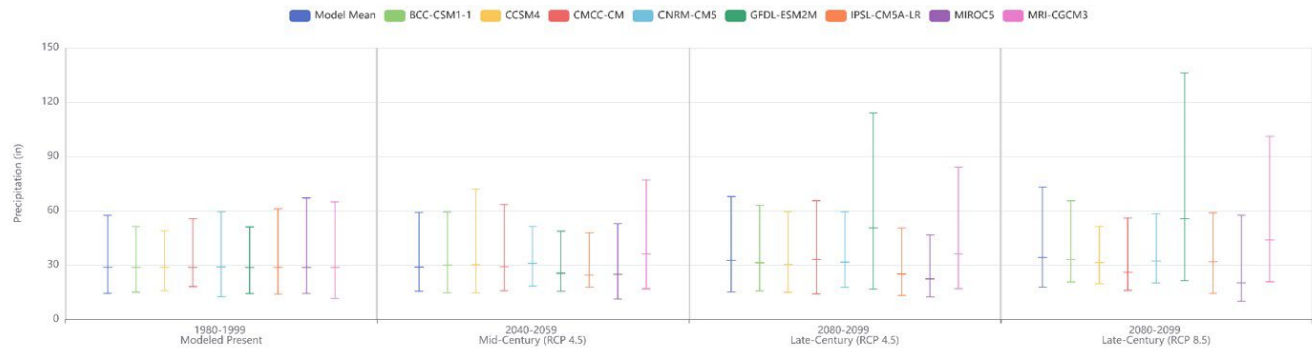
Source: DNR Climate Explorer available at <https://climate-explorer.dnr.state.mn.us/main/historical>

Exhibit 6 presents projected average annual precipitation for St. Louis County. Under the RCP 4.5 scenario, the annual precipitation is anticipated to increase within the county from a modeled present mean of 28.6 inches (1980-1999) to a mid-century (2040-2059) model mean of 28.8 inches and a late-

⁷ IPCC, undated. Fifth Assessment Report. Available at: <https://www.ipcc.ch/assessment-report/ar5/>. Accessed September 2025.

century (2080-2099) model mean of 32.4 inches. Under the RCP 8.5 worst-case scenario, the county would experience a late-century (2080-2099) model mean precipitation of 34.2 inches. In comparison to the modeled present mean (1980-1999), the late-century (2080-2099) modeled mean annual precipitation would increase by approximately 11.8 percent under the RCP 4.5 scenario and increase by approximately 17.1 percent under the RCP 8.5 scenario.

Exhibit 6. Projected Precipitation in St. Louis County



Source: DNR Climate Explorer available at <https://climate-explorer.dnr.state.mn.us/main/historical>

- 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 2 summarizes climate considerations related to the Project and adaptation considerations.

Table 2. Climate Considerations and Adaptations

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	Projected climate trends include increasing temperatures, precipitation, and frequency of heavy rainfall events. Minnesota is trending towards warmer temperatures. Urban heat islands occur when impervious surfaces, such as roofs and paved surfaces, absorb heat during the day and release it at night, amplifying the warming trend.	Construction of buildings, parking lots, and other impervious surfaces within the AUAR area may result in minor increases in impervious surface area. Given that the AUAR area consists of a developed, urban environment that is approximately 81 percent impervious, redevelopment would not result in significant increases in impervious surface area compared to existing conditions. Increased impervious surfaces would increase volume of stormwater runoff and potential flooding risk during heavy rain events. Impervious surfaces may create local heat island	Potential adaptations will be identified in the Draft AUAR.

Resource Category	Climate Considerations	Project Information	Adaptations
		effects by absorbing heat during daytimes hours and radiating it at night leading to an increase in surface temperatures.	
Land Use	Heavier rainfall expected to bring a higher risk of localized flooding. Increased temperatures may create public health crises primarily for vulnerable communities such as children and the elderly.	The majority of the AUAR area currently consists of urban development and limited grasslands and wooded areas. Any conversion from grasslands and wooded areas to more urban development would increase impervious surfaces and may contribute to local heat island effects.	Potential adaptations will be identified in the Draft AUAR.
Water Resources	Addressed in Item 12.		
Contamination/ Hazardous Materials/Wastes	The AUAR area is projected to experience an increase in precipitation and heavy rainfall events.	The redevelopment anticipated in the AUAR is not anticipated to involve the installation of chemical/ hazardous materials storage during operation. The Project may include building demolition.	Potential adaptations will be identified in the Draft AUAR.
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Addressed in Item 14.		

8. Cover Types

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

The majority of the AUAR area (approximately 81 percent) consists of developed, impervious surface areas including buildings, roadways, and parking areas. Limited wooded areas are present within the AUAR area (approximately 0.1 percent) and are primarily characterized as landscape trees and small wooded/vegetated areas adjacent to primarily residential uses. Table 3 and Figure 3, Appendix B summarize cover types within the AUAR area. Table 4 summarizes green infrastructure for each scenario and subarea. Table 5 summarizes tree canopy change information.

AUAR Scope

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

Table 3. Cover Types

Cover Types	Scenario A Before (acreage) ¹	Scenario B After (acreage)
Lot D Subarea		
Wetlands and shallow lakes (<2 meters deep)	0.0 (0.0%)	Future land cover for Scenario B to be evaluated in the Draft AUAR.
Deep lakes (>2 meters deep)	4.6 (24.8%)	
Wooded/forest	0.5 (2.7%)	
Brush/grassland	0.0 (0.0%)	
Cropland	0.0 (0.0%)	
Lawn/landscaping	5.0 (26.9%)	
Green infrastructure total (from table below*)	0.4 (1.9%)	
Impervious surface	8.1 (43.7%)	
Stormwater basins	0.0 (0.0%)	
Subarea Total	18.6	
Essentia Subarea		
Wetlands and shallow lakes (<2 meters deep)	0.0 (0.0%)	Future land cover for Scenario B to be evaluated in the Draft AUAR.
Deep lakes (>2 meters deep)	0.0 (0.0%)	
Wooded/forest	7.6 (9.1%)	
Brush/grassland	0.0 (0.0%)	
Cropland	0.0 (0.0%)	
Lawn/landscaping	5.2 6.3%	
Green infrastructure total (from table below*)	0.0 (0.0%)	
Impervious surface	70.1 (84.6%)	
Stormwater basins	0.0 (0.0%)	
Subarea Total	82.9	
1 st Street Subarea		
Wetlands and shallow lakes (<2 meters deep)	0.7 (0.5%)	Future land cover for Scenario B to be evaluated in the Draft AUAR.
Deep lakes (>2 meters deep)	0.0 (0.0%)	
Wooded/forest	8.8 (6.2%)	
Brush/grassland	0.0 (0.0%)	
Cropland	0.0 (0.0%)	
Lawn/landscaping	8.8 (6.2%)	
Green infrastructure total (from table below*)	0.0 (0.0%)	
Impervious surface	123.1 (87.1%)	
Stormwater basins	0.0 (0.0%)	
Subarea Total	141.4	
Secondary Subarea		
Wetlands and shallow lakes (<2 meters deep)	0.0 (0.0%)	Future land cover for Scenario B to be evaluated in the Draft AUAR.
Deep lakes (>2 meters deep)	0.0 (0.0%)	
Wooded/forest	12.6 (13.7%)	
Brush/grassland	0.0 (0.0%)	
Cropland	0.0 (0.0%)	
Lawn/landscaping	11.1 (12.1%)	
Green infrastructure total (from table below*)	0.0 (0.0%)	

Cover Types	Scenario A Before (acreage) ¹	Scenario B After (acreage)
Impervious surface	68.0 (74.2%)	
Stormwater basins	0.0 (0.0%)	
Subarea Total	91.7	
Total AUAR area		
Wetlands and shallow lakes (<2 meters deep)	0.7 (0.2%)	Future land cover for Scenario B to be evaluated in the Draft AUAR.
Deep lakes (>2 meters deep)	4.6(1.4%)	
Wooded/forest	29.4 (8.8%)	
Brush/grassland	0.0 (0.0%)	
Cropland	0.0 (0.0%)	
Lawn/landscaping	30.1 (9.0%)	
Green infrastructure total (from table below*)	0.4 (0.1%)	
Impervious surface	269.3 (80.5%)	
Stormwater basins	0.0 (0.0%)	
AUAR Area Total	334.5	

¹ Before acreages are approximate and based on Duluth 1-Meter Land Cover 2016.

Table 4. Green Infrastructure

Green Infrastructure	Before (acres)	After
Lot D Subarea		
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	Future green infrastructure will be evaluated in the Draft AUAR.
Constructed tree trenches and tree boxes	0	
Constructed wetlands	0	
Constructed green roofs	0	
Constructed permeable pavements	0	
Other (describe):	0	
Subarea Total	0	
Essentia Subarea		
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	Future green infrastructure will be evaluated in the Draft AUAR.
Constructed tree trenches and tree boxes	0	
Constructed wetlands	0	
Constructed green roofs	0.5*	
Constructed permeable pavements	0	
Other (describe):	0	
Subarea Total	0	
1 st Street Subarea		

Green Infrastructure	Before (acres)	After
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	Future green infrastructure will be evaluated in the Draft AUAR.
Constructed tree trenches and tree boxes	0	
Constructed wetlands	0	
Constructed green roofs	0.5*	
Constructed permeable pavements	0	
Other (describe):	0	
Subarea Total	0	
Secondary Subarea		
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	Future green infrastructure will be evaluated in the Draft AUAR.
Constructed tree trenches and tree boxes	0	
Constructed wetlands	0	
Constructed green roofs	0	
Constructed permeable pavements	0	
Other (describe):	0	
Subarea Total	0	
AUAR Area Total	1.0	

*A few existing green roofs are present in the AUAR area which include the Essentia Health – St. Mary's Medical Center and the St. Louis County Motor Pool building.

Table 5. Tree Canopy

Trees	Percent	Number
Lot D Subarea		
Percent tree canopy removed, or number of mature trees removed during development	To be determined (TBD)	Potential tree removal impacts will be evaluated in the AUAR.
Number of new trees planted		
Essentia Subarea		
Percent tree canopy removed, or number of mature trees removed during development	To be determined (TBD)	Potential tree removal impacts will be evaluated in the AUAR.
Number of new trees planted		
1 st Street Subarea		
Percent tree canopy removed, or number of mature trees removed during development	To be determined (TBD)	Potential tree removal impacts will

Trees	Percent	Number
Number of new trees planted		be evaluated in the AUAR.
Secondary Subarea		
Percent tree canopy removed, or number of mature trees removed during development	To be determined (TBD)	Potential tree removal impacts will be evaluated in the AUAR.
Number of new trees planted		

9. Permits and Approvals Required

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

Table 6 identifies anticipated permits and approvals that may be required for the proposed development within the AUAR area.

Table 6. Permits and Approvals

Unit of Government	Type of Application	Status
Federal		
U.S. Army Corps of Engineers (USACE)	Section 404 Permit	To be submitted, if required
USACE	Section 10 Permit	
U.S. Fish and Wildlife Service (USFWS)	Section 7 ESA Consultation (if federal nexus)	To be completed, if required
State		
Minnesota Department of Transportation (MnDOT)	(e.g., Drainage Permit, Right-of-way permit for work within or affecting MnDOT right-of-way)	To be submitted, if required
Minnesota Department of Health (MDH)	Water Main Plan Review	To be submitted, if required
Minnesota Department of Natural Resources (DNR)	Temporary Water Appropriation Permit for construction dewatering	To be submitted, if required
DNR	Public Waters Work Permit	To be submitted, if required.
DNR	Natural Heritage Information System (NHIS) concurrence	To be submitted, if required
MPCA	401 Water Quality Certification	To be submitted, if required
MPCA, City of Duluth	National Pollutant Discharge Elimination System (NPDES) MS4 Stormwater Discharge Permit, MS4 Statement of Compliance	To be submitted, if required
MPCA	Construction Site Stormwater Permit	To be submitted, if required
MPCA	Land Use Permit (under Brownfield Program)	To be submitted, if required.
Minnesota State Historic Preservation Office (SHPO)	Section 106 Consultation (if federal nexus)	To be submitted, if required.

Unit of Government	Type of Application	Status
Local		
City of Duluth	Preliminary and Final Plat, Minor Subdivision, and/or a CIC (Common Interest Communities) Plat	To be submitted, if required
City of Duluth	Planning Commission Review	To be completed, if required
City of Duluth	Sign Permits	To be submitted, if required
City of Duluth	Certificate of Occupancy	To be submitted, if required
City of Duluth	Fill Permit	To be submitted, if required
City of Duluth	Erosion and Sediment Control Permits	To be submitted, if required
City of Duluth	Shoreland Permit	To be submitted, if required.
City of Duluth	Floodplain Permit	To be submitted, if required.
City of Duluth	Water and Sewer Main Extension Permits	To be submitted, if required
City of Duluth	Water and Sewer Connection Permits	To be submitted, if required
City of Duluth	Utility Easement Dedications	To be submitted, if required
City of Duluth	Building Permits	To be submitted, if required
City of Duluth	Blasting Permit/ Blasting Plan	To be submitted, if required
City of Duluth	Wetland Conservation Act (Boundary Approval/Replacement Plan)	To be submitted, if required

10. Land Use

a. Describe:

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

Lot D Subarea

Lot D is a former industrial site and the existing land use consists of mostly vacant land, with a remnant cement building pad and foundations. These are anticipated to be removed in anticipation of redevelopment. Additionally, the property has a deteriorating seawall, which will be replaced prior to redevelopment of the site. It is anticipated that repair and replacement of the existing seawall would include reclamation of a portion of the land that has eroded and replacement of the dock wall around the entire property. Lot D is located on Railroad Street between the Pier B hotel and Compass Minerals, an industrial site. The I-35 corridor creates a barrier between the Lot D site and downtown, while Lake Superior generally forms the eastern boundary of the site. Lot D is separated from Bayfront Park to the north by Pier B and the small mooring areas in between each of these areas. The Baywalk Trail connects Canal Park to Pier B, while the Cross City Trail connects the Lakewalk to the Lincoln Park neighborhood. No cemeteries or prime or unique farmlands are within the subarea.

Essentia Subarea

Existing land uses in the Essentia area include the medical campus and a variety of housing and commercial uses. This area is adjacent to the downtown core to the southwest, also within the AUAR

area (1st Street subarea). The area to the northeast is also within the AUAR area (Secondary subarea). Areas uphill of the Essentia subarea generally consist of lower density housing. Lake Superior is downhill (to the east) from the Essentia Subarea. The Superior Street Boulevard connects over I-35 in this subarea with the Lakewalk along Lake Superior. The North Shore Scenic Drive also intersects this subarea. No cemeteries or prime or unique farmlands are within the subarea.

1st Street Subarea

The 1st Street subarea includes Duluth's historic downtown core, including a mix of office, commercial, hospitality uses, and high density housing. Several surface and structure parking lots are also present within this subarea, along with a limited amount of light industrial uses. Many historic buildings are located within the 1st Street subarea, which are described further in Item 15 of this AUAR. Parks and open spaces within this subarea include Civic Center, Ordean Court, Gateway Park, Rail Park, Minnesota Power Plaza and Lake Superior Plaza. The North Shore Scenic Drive also extends through this subarea. A spur of the Cross City Trail connects through the 1st Street subarea. No cemeteries or prime or unique farmlands are within the subarea.

Secondary Subarea

Existing land uses in the Secondary subarea include high, medium, and low density housing, the Aspirus St. Lukes Hospital campus, and a mix of commercial uses mostly located along Superior Street. Land use in the southwest portion of the subarea generally coincides with the Essentia subarea described above and uses to the north are mostly residential. Lake Superior is generally to the east. The Lakewalk, Leif Erikson Park and the Rose Gardens are adjacent to the subarea. No cemeteries or prime or unique farmlands are within the subarea.

- 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.***

AUAR Scope

Several plans will be reviewed and summarized in the Draft AUAR. These plans include:

- Imagine Duluth 2035 (City's Comprehensive Plan)
- Essential Spaces – Duluth Parks, Recreation, Open Space & Trails Plan
- Duluth Parks and Recreation Master Plan
- Duluth Trail and Bikeway Plan
- 2023 Downtown Housing Study
- 2025 Duluth Housing Needs Analysis (city-wide)
- Vision Northland Master Plan
- Duluth Market Study (Cushman Wakefield)
- Lot D – Minnesota Finance Plan

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

AUAR Scope

Lot D Subarea

Lot D is zoned MU-W Mixed Use Waterfront. A large portion of the Lot D subarea is also within the City's shoreland overlay zone associated with the Duluth/Superior Harbor Shoreline. Zoning surrounding this subarea includes industrial to the southwest and west, and MU-W to the northeast. These zoning districts will be described further in the AUAR and the maximum development scenario will be reviewed for potential incompatibilities with the districts and overlay. Figure 6, Appendix B identifies the zoning districts within the AUAR area. Figure 11, Appendix B shows the water resources

within the AUAR area and the City's shoreland management overlay zones.

Essentia Subarea

Zoning within the Essentia subarea includes predominately MU-I Mixed Use Institutional, with other districts including F-8 Downtown Mix, F-7 Downtown Shopping, F-6 Mid-Rise Neighborhood Shopping, MU-N Mixed Use Neighborhood, and R-2 Residential Urban. A portion of the Essentia subarea is also within the shoreland overlay zone associated with the Duluth/Superior Harbor Shoreline. These zoning districts will be described further in the AUAR and the maximum development scenario will be reviewed for potential incompatibilities with the districts and overlay. Figure 6, Appendix B identifies the zoning districts within the AUAR area. Figure 11, Appendix B shows the water resources within the AUAR area and the City's shoreland management overlay zones.

1st Street Subarea

Zoning within the 1st Street subarea includes predominately F-8 Downtown Mix, with other districts including F-7 Downtown Shopping, F-5 Mid-Rise Community Shopping and Office, and MU-C Mixed Use Commercial. A portion of the 1st Street subarea is also within the shoreland overlay zone associated with the Duluth/Superior Harbor Shoreline. These zoning districts will be described further in the AUAR and the maximum development scenario will be reviewed for potential incompatibilities with the districts and overlay. Figure 6, Appendix B identifies the zoning districts within the AUAR area. Figure 11, Appendix B shows the water resources within the AUAR area and the City's shoreland management overlay zones.

Secondary Subarea

Zoning within the Secondary subarea includes a mix of MU-I Mixed Use Institutional, F-8 Downtown Mix, F-6 Mid-Rise Neighborhood Shopping, F-4 Mid-Rise Community Mix, MU-N Mixed Use Neighborhood, and R-2 Residential Urban. A portion of the Secondary subarea is also within the shoreland overlay zone associated with Chester Creek and the Duluth/Superior Harbor Shoreline. These zoning districts will be described further in the AUAR and the maximum development scenario will be reviewed for potential incompatibilities with the districts and overlay. Figure 6, Appendix B identifies the zoning districts within the AUAR area. Figure 11, Appendix B shows the water resources within the AUAR area and the City's shoreland management overlay zones.

- 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.***

AUAR Scope

The maximum development scenario anticipates housing within the AUAR area. Portions of each subarea are within the shoreland overlay district and flood hazard zones. Appendix D provides the FEMA FIRMettes which are discussed in further detail in Item 12 (Water Resources). The AUAR will address the potential for localized flooding within each subarea.

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

AUAR Scope

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

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

AUAR Scope

This section will address potential mitigation strategies needed to ensure compatibility between the proposed maximum development scenario, the existing surrounding areas, and planned land use. The need for necessary changes to the Comprehensive Plan, which may be completed as a future Comprehensive Plan Amendment or in a subsequent update of the Comprehensive Plan, will be discussed in the Draft AUAR.

11. Geology, Soils and Topography/Land Forms

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

Lot D Subarea

The surficial geology across the Lot D subarea has been mapped by the Minnesota Geological Survey's (MGS) Geologic Atlas of St. Louis County⁸ as consisting mostly of constructed land deposited anthropogenically. The northwestern portion of Lot D near the railroad and I-35 has been mapped as post-glacial floodplain and channelized fluvial deposits consisting of sand, gravel, cobbles, boulders, and sandy loam to silt loam. The southeastern portion of Lot D includes the Duluth/Superior Harbor shoreline and has been mapped as post-glacial lacustrine sediments consisting of silt, sand and clay (Figure 7, Appendix B).

The bedrock geology has been mapped by MGS as being Mesoproterozoic age igneous rocks from the Duluth Complex of the Midcontinent Rift Intrusive Supersuite. Specifically, the bedrock is part of the Anorthositic series, a suite of plagioclase-rich cumulates emplaced relatively synchronously across the entire Duluth Complex just prior to the emplacement of the layered series. The Anorthositic series can contain anorthosite, troctolitic anorthosite, olivine gabbroic anorthosite, leucogabbro and leucotroctolite (Figure 8, Appendix B).

The depth to bedrock is mapped by MGS as being between 101 and 250 feet. According to the Minnesota Department of Health (MDH) Minnesota Well Index (MWI),⁹ no wells were identified within the Lot D Subarea (Figure 9, Appendix B).

The igneous bedrock formations in the Lot D subarea are not susceptible to the formation of karst features.

Essentia Subarea

The surficial geology across the Essentia subarea has been mapped by MGS as glacial lacustrine sediments of the Barnum Formation, consisting of clay and silty clay. These sediments are deposits of the Superior lobe and occur inland at the surface within approximately four miles of the present-day Lake Superior shoreline (Figure 7, Appendix B).

The bedrock geology has been mapped by MGS as being mostly Mesoproterozoic age igneous rocks

⁸ MGS. Geologic Atlas of St. Louis County, Minnesota, C-51, Bauer, E.J.; Jirsa, M.A.; Block, A.R.; Boerboom, T.J.; Chandler, V.M.; Peterson, D.M.; Wagner, K.G.; McDonald, J.M.; Dengler, E.L.; Meyer, G.N.; Hamilton, J.D. 2022. Retrieved from the University of Minnesota Digital Conservancy. Available at: <https://conservancy.umn.edu/items/1cea310b-ca8d-4345-acfa-450ab8ca17e6>. Accessed September 2025.

⁹ MDH. Minnesota Well Index. Undated. Available at: <https://www.health.state.mn.us/communities/environment/water/mwi/index.html>. Accessed September 2025.

from the Keweenawan Supergroup of the Midcontinent Rift Intrusive Supersuite. The components of the North Shore Volcanic Group identified within the Keweenawan Supergroup include undifferentiated basalt to basaltic andesite flows and porphyritic basalt. There is also a mapped intrusion called the Tunnel intrusion consisting of diabase (Figure 8, Appendix B).

The depth to bedrock is mapped by MGS as being between zero and 50 feet. According to the MDH MWI, ten verified wells were identified within the Essentia Subarea (Figure 9, Appendix B). Five of these wells have well logs and stratigraphic records which indicate the wells intersected bedrock between zero and five feet beneath the surface. The well logs and stratigraphic records are available in Appendix E.

The igneous bedrock formations in the Essentia Subarea are not susceptible to the formation of karst features.

1st Street Subarea

The surficial geology across the 1st Street subarea has been mapped by MGS as mostly being glacial lacustrine sediments of the Barnum Formation, consisting of clay and silty clay. A small portion in the southeast has been mapped as post-glacial floodplain and channelized fluvial deposits consisting of sand, gravel, cobbles, boulders, and sandy loam to silt loam. (Figure 7, Appendix B).

The bedrock geology has been mapped by MGS as being Mesoproterozoic age igneous rocks from the Midcontinent Rift Intrusive Supersuite. Specifically, the bedrock includes units from the Anorthositic series, miscellaneous intrusions, and components of the Keweenawan Supergroup. The Anorthositic series can contain anorthosite, troctolitic anorthosite, olivine gabbroic anorthosite, leucogabbro and leucotroctolite. The miscellaneous intrusions include two unnamed intrusions containing porphyritic ophitic olivine leucogabbro and ferromonzodiorite to granophyre, and a third intrusion called the Tunnel intrusion which contains diabase. The components of the North Shore Volcanic Group identified within the Keweenawan Supergroup include icelandite, undifferentiated basalt to basaltic andesite, and porphyritic basalt (Figure 8, Appendix B).

The depth to bedrock is mapped by MGS as being between zero and 50 feet. According to the MDH MWI, 13 verified wells were identified within the 1st Street Subarea (Figure 9, Appendix B). Ten of these wells have well logs and stratigraphic records which indicate the wells intersected bedrock between zero and 18 feet beneath the surface. The well logs and stratigraphic records are available in Appendix E.

The igneous bedrock formations in the 1st Street subarea are not susceptible to the formation of karst features.

Secondary Subarea

The surficial geology across the Secondary subarea has been mapped by MGS as glacial lacustrine sediments of the Barnum Formation, consisting of clay and silty clay (Figure 7, Appendix B).

The bedrock geology has been mapped by MGS as being Mesoproterozoic age igneous rocks from the Keweenawan Supergroup of the Midcontinent Rift Intrusive Supersuite. The components of the North Shore Volcanic Group identified within the Keweenawan Supergroup include undifferentiated basalt to basaltic andesite flow, porphyritic basalt, and interflow sandstone, siltstone, and conglomerate (Figure 8, Appendix B).

The depth to bedrock is mapped by MGS as being between zero and 50 feet. According to the MDH MWI, no wells were identified within the Secondary Subarea (Figure 9, Appendix B).

The igneous bedrock formations in the Secondary subarea are not susceptible to the formation of karst features.

AUAR Scope

The Draft AUAR will discuss construction in shallow bedrock in the AUAR area and the potential need for

blasting and identify appropriate mitigation measures as needed.

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

Table 7 below describes the 2024 United States Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO)¹⁰ soil map units within each Subarea of the AUAR area. Based on the SSURGO soils data, the majority of the AUAR area soils are expected to have shallow bedrock and large areas of disturbance related to previous development.

Lot D Subarea

Most of the Lot D subarea (approximately 74 percent) is mapped as some mix of Urban Land, Udorthents soils, and Aquents soil. The remaining area is mapped as water. The “Urban Land” designation is used to indicate areas of urban development and disturbance. These areas are highly altered from their natural condition and typically feature soils impacted by cutting, grading, filling, compaction, and impervious cover. Udorthents are also disturbed soils and are often found in areas affected by human activity. Aquents are soils formed in areas with frequent water saturation and are often found in coastal areas.

The Lot D subarea features a generally flat terrain, with an average elevation of approximately 610 feet. While most of the area maintains this elevation, the land transitions into a steep slope as it approaches the water’s edge, indicating a sharp drop in elevation near the shoreline.

Essentia Subarea

The entirety of the Essentia subarea is mapped as some mix of Urban Land, Rock Outcrop, Mesaba soil and Barto soil. As described above, Urban Land indicates highly disturbed and urbanized areas. Rock Outcrop areas feature surficial (at or near surface) bedrock with little or no soil cover. Mesaba and Barto are glacial till soils formed in bedrock-controlled surfaces and feature approximately 12 to 30 inches of gravelly sandy loam or gravelly loam over bedrock.

The Essentia subarea features a steep slope, descending from approximately 840 feet in the northwest to around 620 feet in the southeast. The northern portion near St. Mary’s Hospital Heliport sits on higher ground while the terrain gets steeper near the southeastern edge as the land drops towards lower elevations near I-35 and the lakefront.

1st Street Subarea

Most of the 1st Street subarea (approximately 75 percent) is also mapped as a mix of Urban Land, Rock Outcrop, Mesaba soil and Barto soil. Approximately 24 percent is mapped as a mix of Urban Land, Udorthents, and Aquents.

Similar to the Essentia subarea, the 1st Street subarea features a steep slope, descending from approximately 710 feet in the northwest to approximately 610 feet in the southeast.

Secondary Subarea

Most of the Secondary subarea (approximately 76 percent) is also mapped as a mix of Urban Land, Rock Outcrop, Mesaba soil and Barto soil. Approximately 22 percent of the subarea is mapped as a mix of

¹⁰ NRCS USDA. Soil Survey Geographic Database. 2024. Accessed September 2025 via ESRI ArcGIS Online Services

Urban Land, Amnicon soils, and Rock Outcrop. Amnicon is clayey glacial till formed through a combination of glacial processes, clay accumulation and climate-driven soil development.

The Secondary subarea also features a steep slope, descending from northwest to southeast. The highest elevation is approximately 800 feet on the western corner and the lowest elevation is approximately 650 feet near the eastern edge.

Table 7. Soil within the AUAR area

Map Unit Symbol	Map Unit Name	Hydrologic Group	Wind Erodibility Group	Water Erodibility Factor (Kf)	Acres	% of AUAR area
Lot D Subarea						
1028A	Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes	No Rating	5	No Rating	13.7	73.9
W	Water	Not Applicable	Not Applicable	Not Applicable	4.8	26.1
Total					18.5	100.0
Essentia Subarea						
F163D	Urban land-Mesaba-Rock outcrop complex, 1 to 18 percent slopes	No Rating	5	No Rating	82.8	100.0
Total					82.8	100.0
1st Street Subarea						
F163D	Urban land-Mesaba-Rock outcrop complex, 1 to 18 percent slopes	No Rating	5	No Rating	105.7	74.8
1028A	Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes	No Rating	5	No Rating	33.5	23.7
F160F	Rock outcrop-Mesaba-Barto complex, 18 to 60 percent slopes	No Rating	5	No Rating	2.1	1.5
Total					141.3	100.0
Secondary Subarea						
F163D	Urban land-Mesaba-Rock outcrop complex, 1 to 18 percent slopes	No Rating	5	No Rating	69.9	76.2
E25D	Urban land-Amnicon-Rock outcrop complex, 0 to 18 percent slopes	No Rating	6	No Rating	20.1	22.0
E23F	Miskoaki-Udifluvents, flooded, complex, 1 to 45 percent slopes	D	6	0.43	1.7	1.8
Total					91.7	100.0

The hydrologic soil groups are:

- **Group A:** Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- **Group B:** Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained, or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- **Group C:** Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- **Group D:** Soils having a very slow infiltration rate (high runoff potential). These consist chiefly of soils with high clay content, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.
- **Dual Groups:** Dual Group designations (A/D, B/D, or C/D) are used to indicate wet soils that belong to Group D due to a high water table but would meet the drainage or textural criteria for Group A, B, or C if drained. Dual Group soils should be treated as Group D soils in the absence of effective artificial drainage.

The soil erodibility factors are:

- **Wind Erodibility Group:** Soils are assigned a Wind Erodibility Group (WEG) rating based on their inherent vulnerability to soil particle detachment from wind forces. Values range from 1 (most erodible) to 8 (least erodible).
- **Water Erodibility Factor (K_f):** The Soil Erodibility Factor (K_f) is a unitless quantitative description of the inherent vulnerability of a soil to water erosion. It provides a measurement of soil particles' susceptibility to detachment from rain drops or surface runoff. Values range from 0.02 (least erodible) to 0.69 (most erodible).

Shallow bedrock, disturbed soils, gravelly soils, wet soils, and steep slopes create risks for water erosion, sloughing, and overall soil stability. Most of the soils throughout the AUAR area have undergone past development, with most areas having received past cut-fill, grading, and impervious surfaces which likely altered the characteristics beyond what can be interpreted from the SSURGO data. Non-disturbed areas of the AUAR area may have other limitations based on soil wetness, shallow bedrock, or other factors. Runoff rates may be high on steep slopes, previously disturbed areas, and areas of very shallow or exposed bedrock.

AUAR Scope

The Draft AUAR will address risk factors identified above and measures to mitigate soil stability and soil loss concerns.

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 the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the Project. Include MnDNR Public Waters Inventory number(s), if any.**

Surface Waters

Table 8 summarizes surface waters, wetlands, DNR Public Waters, and other waters with special designations within the AUAR area. The following paragraphs provide a summary of these features for each of the four subareas.

Lot D Subarea

A review of DNR geospatial data determined that there is one lake, the Duluth/Superior Harbor (also called the St. Louis River Estuary), within the Lot D subarea. The St. Louis River Estuary is designated as a lake of biological significance,¹¹ classified as outstanding. There are no state designated trout streams or lakes,¹² wildlife lakes,¹³ or migratory waterfowl feeding/resting lakes¹⁴ within the Lot D Subarea. The shoreland overlay zone associated with Lake Superior encompasses portions of Lot D.

The City of Duluth Streams dataset and the DNR Hydrography Dataset did not identify any streams or watercourses within the Lot D subarea.

Essentia Subarea

A review of DNR geospatial data determined that there are no lakes, state designated trout streams or lakes, wildlife lakes, migratory waterfowl feeding/resting lakes, or lakes of biological significance within the Essentia subarea.

The City of Duluth Streams dataset indicates Brewery Creek is located within the Essentia subarea.

1st Steet Subarea

A review of DNR geospatial data determined that there are no lakes, state designated trout streams or lakes, wildlife lakes, migratory waterfowl feeding/resting lakes, or lakes of biological significance within the 1st Street subarea.

The City of Duluth Streams dataset indicates Clarkhouse Creek is located within the 1st Street subarea.

Secondary Subarea

A review of DNR geospatial data determined that there are no lakes, migratory waterfowl feeding/resting lakes, or lakes of biological significance within the Secondary Subarea. The City of Duluth Streams dataset indicates Chester Creek, Greys Creek, and Brewery Creek are located within the Secondary subarea. Chester Creek is a trout stream, impaired water, and a DNR Public Water Watercourse.

Table 8. Surface Waters, Public Waters, and other Special Designations within the AUAR area

Water Resource	Type	PW ID / Kittle No. / Duluth Stream ID	Special Designation
Lot D Subarea			
Duluth/Superior Harbor (St. Louis River Estuary)	Lake	69129101 (69129100)	Public Water Basin, Impaired Lake, Lake of Biological Significance
Essentia Subarea			
Brewery Creek	Stream	E003470	None

¹¹ DNR. Lakes of Biological Significance. 2020. Available at: <https://gisdata.mn.gov/dataset/env-lakes-of-biological-significance>. Accessed September 2025.

¹² DNR. State Designated Trout Streams. 2020. Available at: <https://gisdata.mn.gov/dataset/env-trout-stream-designations>. Accessed September 2025.

¹³ DNR. Designated Wildlife Lakes. 2016. Available at: <https://gisdata.mn.gov/dataset/env-designated-wildlife-lakes>. Accessed September 2025.

¹⁴ DNR. Migratory Waterfowl Feeding and Resting Areas. 2016. Available at: <https://gisdata.mn.gov/dataset/env-migratory-waterfowl-areas>. Accessed January 2025.

Water Resource	Type	PW ID / Kittle No. / Duluth Stream ID	Special Designation
1st Street Subarea			
Clarkhouse Creek	Stream	W000110	None
Secondary Subarea			
Chester Creek	Stream	693861 / S-003 / E005930	Public Water Watercourse, Impaired Stream, Trout Stream
Greys Creek	Stream	E003980	None
Brewery Creek	Stream	E003470	None

DNR Public Waters

Figure 11, Appendix B identifies DNR Public Waters within and near the AUAR area.

Lot D Subarea

According to the DNR National wetland Inventory (NWI) Wetland Finder¹⁵ and geospatial data, one DNR Public Water Basin, Duluth/Superior Harbor (69129101), is located within the Lot D subarea. No Public Watercourses are located with the Lot D subarea.

Essentia Subarea

According to the DNR NWI Wetland Finder and geospatial data, there are no DNR Public Water Basins or Watercourses located within the Essentia subarea.

1st Steet Subarea

According to the DNR NWI Wetland Finder and geospatial data, there are no DNR Public Water Basins or Watercourses located within the 1st Street subarea.

Secondary Subarea

According to the DNR NWI Wetland Finder and geospatial data, one DNR Public Watercourse, Chester Creek (693861), is located within the Secondary Subarea. No Public Water Basins are located within the Secondary subarea.

Wetland Resources

The DNR NWI geospatial data identified two wetlands within the AUAR area. Figure 12, Appendix B shows NWI wetlands within and near the AUAR area. Table 9 identifies NWI wetlands within the AUAR area.

Lot D Subarea

The DNR NWI geospatial data identified one NWI feature, Lake Superior, within the Lot D subarea.

Essentia Subarea

No DNR NWI features were identified within the Essentia subarea.

¹⁵ DNR. NWI Wetland Finder. 2024. Available at: <https://wetland-finder.dnr.state.mn.us>. Accessed October 2025.

1st Steet Subarea

The DNR NWI geospatial data identified one wetland feature, a freshwater emergent wetland, within the 1st Street subarea.

Secondary Subarea

No DNR NWI features were identified within the Secondary subarea.

Table 9. Wetlands within the AUAR area

Wetland ID	Circular 39	Cowardin	Eggers and Reed	Acres within the Subarea
Lot D	Type 5	L1UBH	Lake	4.65
1 st Street Corridor	Type 1	PEM1A	Freshwater Emergent Wetland	0.82

MPCA 303d Impaired Waters List

A review of the MPCA's 2024 Impaired Waters List¹⁶ identified two impaired waters within the AUAR area (Figure 11, Appendix B). Lake Superior, Assessment Unit Identification (AUID 16-0001-00, is located adjacent to the AUAR area and is impaired for aquatic consumption due to the presence of mercury (Hg) and polychlorinated biphenyls (PCB). No Total Maximum Daily Load (TMDL) has been established for Lake Superior. Several aquatic invasive species (AIS) have been identified in Lake Superior and the St. Louis River including Eurasian watermilfoil, New Zealand mudsnail, round goby, ruffe, spiny waterflea, viral hemorrhagic septicemia (VHS), white perch and zebra mussels.¹⁷ Table 10 identifies impaired waters within the AUAR area.

Lot D Subarea

A review of the MPCA's Impaired Waters List identified one impaired lake, Duluth Superior Harbor, in the Lot D subarea. Duluth Superior Harbor, AUID 69-1291-01, is impaired for aquatic consumption due to the presence of toxaphene, PCB, dioxin, dichloro-diphenyl-trichloroethane (DDT), dieldrin, and mercury (Hg). No Total Maximum Daily Load (TMDL) has been established.

Essentia Health Medical Campus Subarea

A review of the MPCA's Impaired Waters List identified no impaired waters in the Essentia subarea.

1st Steet Subarea

A review of the MPCA's Impaired Waters List identified no impaired waters in the 1st Street subarea.

Secondary Subarea

A review of the MPCA's Impaired Waters List identified one impaired stream, Chester Creek, in the Secondary subarea. Chester Creek, Assessment Unit Identification (AUID) 04010102-545, is impaired for aquatic recreation due to the presence of Escherichia coli (E. coli) and for aquatic life due to chloride (Cl-). No Total Maximum Daily Load (TMDL) has been established.

¹⁶ MPCA. Impaired Wates Viewer. 2024. Available at: <https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=fcfc5a12d2fd4b16bc95bb535d09ae82>. Accessed October 2025.

¹⁷ St. Louis County. County Land Explorer GIS map. 2023. Available at: <https://www.stlouiscountymn.gov/departments-a-z/economic-community-development/enterprise-gis/county-land-explorer>. Accessed October 2025.

Table 10. Impaired Waters within the AUAR area

Waterbody Name	AUID ¹	Affected Designated Use	Pollutant or Stressor	TMDL ² ID
Lot D Subarea				
Duluth/Superior Harbor	69-1291-01	Aquatic Consumption	Toxaphene, PCB-F, PCB-W, Dioxin, DDT, Dieldrin, Hg-F, Hg-W	None
Secondary Subarea				
Chester Creek	04010102-545	Aquatic Life and Aquatic Recreation	E. coli and Cl-	None

¹ Assessment Unit Identification (AUID)

² Total Maximum Daily Load (TMDL)

Floodway/Floodplain

Portions of the AUAR area along the Lake Superior shoreline and Chester Creek are within the regulated 100-year floodplain and 500-year floodplain. Figure 11, Appendix B shows 100-year floodplain and 500-year floodplain areas within the AUAR area.

Lot D Subarea

The Federal Emergency Management (FEMA) Flood Insurance Rate Map (FIRM) panel 27137C3788E generated through the National Flood Hazard Layer (NFHL) mapping tool¹⁸ indicates that the southern and eastern portions of the Lot D subarea is within Zone AE (coastal floodplain), an area regulated 100-year floodplain (one percent annual chance of flooding). The remainder of the Lot D subarea is within Zone X (area of minimal flood hazard). Appendix D provides the FEMA FIRMette for the Lot D subarea.

Essentia Subarea

The FEMA FIRM panels 27137C3786E and 27137C3790E generated through the NFHL mapping tool indicates that the Essentia subarea is within Zone X (area of minimal flood hazard). Appendix D provides the FEMA FIRMette for the Essentia subarea.

1st Steet Subarea

The FEMA FIRM panels 27137C3788E and 27137C3786E generated through the NFHL mapping tool indicate that the 1st Street subarea is within Zone X (area of minimal flood hazard). Appendix D provides the FEMA FIRMette for the 1st Street subarea.

Secondary Subarea

The FEMA FIRM panel 27137C3790E generated through the NFHL mapping tool indicates that the Secondary subarea is within Zone X (area of minimal flood hazard). Appendix D provides the FEMA FIRMette for the Secondary subarea.

AUAR Scope

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

¹⁸ FEMA. NFHL Viewer. 2025. Available at: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>. Accessed October 2025.

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

A review of the MDH MWI identified 23 verified wells within the AUAR area.¹⁹ These wells are presented in Table 11 and Figure 9, Appendix B.

Lot D Subarea

A review of the MDH MWI identified no wells within the Lot D subarea. Based on a review of some wells located near the Lot D subarea, the depth to static water level ranges from approximately two to six feet.

Essentia Subarea

A review of the MDH MWI identified 10 verified wells within the Essentia subarea. Based on a review of the wells located in the Essentia subarea, where reported, the depth to static water level ranges from approximately six to nine feet.

1st Street Subarea

A review of the MDH MWI identified 13 verified wells within the 1st Street subarea. Based on a review of the wells located in the 1st Street Subarea, where reported, the depth to static water level ranges from approximately six to 10 feet.

Secondary Subarea

A review of the MDH MWI identified no verified wells within the Secondary subarea. Based on a review of the wells located in the Secondary subarea, which is adjacent to the Secondary subarea, where reported, the depth to static water ranges from approximately six to nine feet.

Table 11. MDH Well Records within the AUAR area

Well ID	Use Type	Status	Depth (ft.)	Static Water Level (ft.)
Essentia Subarea				
704162	Elevator	Active	50	-
758411	Monitoring	Sealed	9	6
669263	Monitoring	Sealed	12	-
669264	Monitoring	Sealed	12	-
698994	Monitoring	Sealed	10.5	9
669262	Monitoring	Sealed	12	-
704151	Elevator	Active	24	-
704152	Elevator	Active	42	-
739033	Elevator	Active	60	-
739032	Elevator	Active	54	-
1st Street Subarea				
701046	Monitoring	Sealed	10	-
701047	Monitoring	Sealed	13	-
703163	Monitoring	Sealed	16	10
454658	Air Conditioning	Sealed	312	-
533479	Elevator	Active	35	-
739031	Elevator	Active	56	-

¹⁹ MDH. Minnesota Well Index (MWI) Version 2.2.0. undated. Available at: <https://www.health.state.mn.us/communities/environment/water/mwi/index.html>. Accessed September 2025.

Well ID	Use Type	Status	Depth (ft.)	Static Water Level (ft.)
644513	Domestic	Active	11	-
704170	Elevator	Active	42	6
533478	Elevator	Active	34	-
739042	Elevator	Active	49	-
739041	Elevator	Active	49	10
533480	Elevator	Active	36	-
764826	Elevator	Active	34	-

According to the MDH Source Water Protection Map, the AUAR area is not within a MDH Wellhead Protection Area (WPA) or Drinking Water Supply Management Area (DWSMA). The AUAR area is within a Historical Source Water Assessment Area for surface water.²⁰

AUAR Scope

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

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

i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

- 1) *If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.*

The Western Lake Superior Sanitary District (WLSSD) serves a 530-square mile area that includes 17 municipal customers, including the City of Duluth. WLSSD conveys and treats approximately 36 million gallons per day (MGD) of wastewater. The flow and peak flow design capacity of the wastewater treatment facility (WWTF) is 48.4 MGD and 100 MGD, respectively.²¹ The Total suspended solids (TSS) and biochemical oxygen demand (BOD) design capacity of the WWTF is 112,000 lbs. per day and 121,000 lbs. per day, respectively.

The City of Duluth owns, operates, and maintains 53 wastewater pumping stations including five storage facilities with a storage capacity of 14 million gallons. The City's sanitary sewer infrastructure system is comprised of approximately 440 miles of collection sewer interceptors. Under existing conditions, the AUAR area is comprised of developed land that is connected to the City's sanitary sewer infrastructure.

AUAR Scope

The Draft AUAR will evaluate projected wastewater flows and loads generated by Development Scenario B and will qualitatively describe potential constraints of the existing wastewater system. Potential mitigation strategies required for the sanitary sewer system will be described in the Draft AUAR.

- 2) *If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the Project, describe the availability of septage disposal options within the*

²⁰ DNR. Source Water Protection Web Map Viewer. undated. Available at: <https://experience.arcgis.com/experience/14825b159b2e4dc686736d98e39ebce7>. Accessed October 2025.

²¹ WLSSD. Comprehensive Wastewater Plan. Adopted in 2023, amended in 2025. Available at: <https://wlssd.com/wp-content/uploads/2025/04/WLSSD-Wastewater-Comprehensive-Plan-Amended-2025.pdf>. Accessed October 2025.

region to handle the ongoing amounts generated as a result of the Project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.

A subsurface sewage treatment system would not be proposed for Development Scenario B. The AUAR area would not be allowed to utilize SSTS, per City of Duluth ordinance, disallowing SSTS in areas served by municipal sewer.

- 3) *If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects.*

Wastewater conveyed and treated by WLSSD is ultimately discharged into the St. Louis River. WLSSD treatment system staff closely monitor effluent discharged to the St. Louis River to prevent pollution. The WLSSD laboratory conducts regular sampling of effluent to ensure compliance with all State and Federal water quality standards.

AUAR Scope

The Draft AUAR will include a discussion of potential effects of wastewater discharge to surface water and considerations of climate trends on wastewater infrastructure and operations.

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

Existing Conditions

Lot D Subarea

Lot D subarea is located along Duluth's waterfront in the Bayfront District adjacent to Lake Superior. The subarea is approximately 44 percent impervious, primarily consisting of a cement slab and associated roadways. The area contains contaminated soils, which is planned for remediation in 2026. The proposed remediation plan includes encapsulating the contaminated soil and constructing new development atop the resulting soil cap.

Essentia Subarea

The Essentia subarea encompasses approximately 83 acres with approximately 85 percent impervious surface coverage. The area includes three primary land use zones: institutional mixed-use, neighborhood mixed use and urban residential.

1st Street Subarea

The 1st Street subarea covers approximately 141 acres with approximately 85 percent impervious surface. Land use within this area is predominantly commercial business.

Secondary Subarea

The Secondary subarea spans approximately 92 acres with approximately 74 percent impervious surface coverage. The area includes a mix of institutional mixed-use and residential land uses.

Proposed Conditions

Development in all four subareas will be required to comply with applicable stormwater management requirements and Duluth zoning regulations. Available information for the areas indicates limited stormwater best management practice (BMP) measures are currently present in the subareas. A few large-scale sediment channels are present under I-35 that were constructed to manage runoff generated from the public roads, however, these channels also receive runoff that drains down the hillside from 6th Avenue West to 1st Avenue East. All potential and future development within the AUAR area is located below the bluff line in downtown Duluth, within one mile of Lake Superior, a designated impaired water and identified as a wetland in the NWI. Due to the area's history of industrial activity, numerous MPCA-listed contamination sites may require further investigation and mitigation. All future development within the AUAR area must comply with regulations from the City of Duluth, MPCA, DNR, and USACE as applicable. While general stormwater management standards apply across all subareas, mitigation will be anticipated in the AUAR and site-specific requirements may be addressed with AUAR updates as development plans are refined. AUAR updates as development plans are refined.

Stormwater management must meet both temporary and permanent requirements for volume control, rate control, and water quality treatment, as outlined in:

- City of Duluth Natural Resources Overlay (Section 50-18), which includes additional standards for areas below the bluff line.
- MPCA's NPDES/SDS Construction Stormwater Permit, including Section 23 provisions for discharges to Lake Superior, a designated Outstanding Resource Water.

Lot D Subarea

Inland's preliminary concept plan proposes two multifamily buildings and a hotel with parking. Lot D, an undeveloped parcel, may be subject to stricter water quality standards than redevelopment sites under city rules. Due to its proximity to Lake Superior the development will need to consider shoreland setback requirements and floodplain fill/mitigation.

Essentia Subarea

The Essentia subarea includes 18 potential redevelopment sites. Due to the variability of development plans and site-specific conditions related to stormwater infrastructure implementation, most sites will require an individual treatment system. Adjacent lots developed in similar time frames may benefit from regional stormwater treatment systems, which allow for shared infrastructure and reduce the need for 95 percent of impervious runoff capture at each site if it is managed within a regional treatment watershed. However, these systems require increased coordination with the City and property owners to identify limitations to development and responsibilities of shared systems.

1st Street Subarea

The 1st Street subarea anticipates redevelopment of properties with high impervious cover (85 percent or greater) such as existing parking lots, vacant land, or unoccupied buildings. These areas

are expected to be converted to mixed-use residential and commercial land uses, which typically have a maximum impervious percentage of 85 percent. As a result, changes to impervious areas – whether decreasing or increasing - will impact the stormwater requirements (e.g. rate and water quality) and selection of appropriate stormwater BMP(s) (e.g. pond or pond with filter bench). Similar to the Essentia subarea, identifying opportunities for regional treatment would be beneficial if impervious areas increase from existing conditions. This depends on the availability of land and future development plans for adjacent parcels.

Secondary Subarea

While most of the Secondary Redevelopment Area watershed drains directly to Lake Superior, the northern portion of the site is adjacent to Chester Creek, a designated trout stream. It is anticipated that additional site-specific stormwater BMPs requirements in proximity to Chester Creek would be required related to temperature and construction timing.

AUAR Scope

Generally, filtration practices are utilized within the City of Duluth for stormwater management due to the soil types, existing shallow and exposed bedrock, and shallow groundwater conditions. Therefore, infiltration-based BMPs may be infeasible across much of the AUAR area. Additionally, special design considerations may be required near contaminated sites. Therefore, hydraulic and water quality modeling would be needed to determine appropriate BMP sizing and design criteria. These efforts will also incorporate climate resilience strategies to address future precipitation patterns and extreme weather events.

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

The AUAR area is connected to municipal water services. The City of Duluth owns, operates, and maintains the Lakewood Water Treatment Plant which provides city water sourced from Lake Superior. The City also owns, operates, and maintains 15 water reservoirs. The water system is capable of providing a maximum of approximately 68 MGD of treated water. On average, the Lakewood Water Treatment Plant provides approximately 13 MGD of treated water. Projected water demands for the area would be utilized in planning additional distribution infrastructure. Any new distribution infrastructure would be constructed in accordance with the City of Duluth's current Water Master Plan or Comprehensive Plan and according to the City's Engineering Guidelines

AUAR Scope

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

iv. Surface Waters

- a) *Wetlands - Describe any anticipated physical effects or alterations to wetland features***

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

Impacts to wetlands are regulated by the Minnesota Wetland Conservation Act (WCA) and the USACE under Section 404 of the Clean Water Act. The City of Duluth is the WCA local governmental unit (LGU) for the AUAR area. If wetland impacts associated with future development of the AUAR area are unavoidable, a wetland replacement plan will be required. Future developers would be required to demonstrate avoidance and minimization of wetland impacts to the greatest practicable extent. The USACE, LGU, and other appropriate stakeholders would be consulted during this process. The AUAR area is located within Bank Service Area (BSA) 1. Purchase of wetland bank credits may be used to provide mitigation if future proposed development were to result in unavoidable wetland impacts.

AUAR Scope

The Draft AUAR will include a desktop-level evaluation of potential impacts to wetlands within the AUAR area resulting from the development scenarios. Mitigation strategies will identify measures for avoidance, minimization, and mitigation for potential wetland impacts in accordance with local, state, and federal regulations.

- b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/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, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/ sedimentation while physically altering the water features. Discuss how the Project will change the number or type of watercraft on any water body, including current and Projected watercraft usage.***

AUAR Scope

As part of the Draft AUAR, potential impacts to surface waters resulting from Development Scenario B will be evaluated and measures to avoid, minimize, or mitigate impacts will be identified as applicable. BMPs will be proposed that are consistent with the requirements of the local, state, and federal regulations. The Draft AUAR will include a discussion of the potential for climate change to influence the impacts of future development within the AUAR area.

13. Contamination/Hazardous Materials/Wastes

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

environmental hazards. Include development of a Contingency Plan or Response Action Plan.

A review of MPCA's *What's in My Neighborhood* (WIMN) database²² was conducted to identify documented potentially contaminated sites within or in the vicinity of the AUAR area. Appendix F tabulates data from the WIMN database and Figure 13; Appendix B illustrates the location of potentially contaminated sites in close proximity to the AUAR area.

An additional review of the Minnesota Department of Agriculture (MDA) WIMN database²³ was conducted to identify documented potentially contaminated sites within or in the vicinity of the AUAR area. Three MDA spill or release sites were identified within the AUAR area or within a quarter-mile radius.

Lot D has a complex history of industrial use including lime manufacturing, scrap metal handling, oil storage, electrical equipment manufacturing, and warehouse/cold storage operations between the late 1800s and 1980s. Multiple environmental site assessments and investigations have been conducted since the early 1990s. These studies have identified contamination in soil, groundwater, and soil vapor, including exceedances of state and federal screening values for metals (arsenic, lead, mercury, cadmium, manganese), petroleum, hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, and volatile organic compounds. Soil vapor investigations have also indicated potential vapor intrusion risks.²⁴

Remedial actions have been implemented in both upland and adjacent harbor areas. In 2016, soils with elevated arsenic and PAHs were excavated, and a clean fill cap was placed over portions of the property. In 2018, the MPCA directed dredging and capping of approximately 6,700 cubic yards of contaminated sediment, addressing impacts from PAHs, PCBs, metals, and dioxins. Despite these actions, residual contamination remains in the Lot D subarea. A Response Action Plan and Construction Contingency Plan (CCP) was approved by the MPCA (dated October 7, 2025). The RAP/CCP identifies soil response actions related to site preparation. An implementation report describing completed response actions, sampling results, soil management and disposal and imported soils will be submitted to the MPCA.

More broadly, development activities across the AUAR area may also involve demolition of existing structures, which presents additional considerations related to regulated hazardous building materials. If future development proposes demolition of existing buildings within the AUAR area, there is potential for regulated hazardous building materials to be encountered. Common regulated materials in older structures include asbestos-containing materials, lead-based paint, mercury thermostats, fluorescent light ballasts containing PCBs, and other items subject to federal and state management requirements.

AUAR Scope

As part of the Draft AUAR, further review of available desktop resources will be conducted. The potential to encounter contamination and hazardous materials during site demolition and construction activities will be evaluated. Mitigation strategies consistent with state and federal laws will be developed for the Draft AUAR.

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

AUAR Scope

The Draft AUAR will identify solid waste that could be generated or stored from future development within the AUAR area, along with requirements for proper storage and disposal in accordance with state and federal regulations.

²² MPCA, 2025. What's in My Neighborhood. Available at: [What's in My Neighborhood | Minnesota Pollution Control Agency \(state.mn.us\)](https://www.mn.gov/what-s-in-my-neighborhood). Accessed October 2025.

²³ MDA, 2025. What's in my Neighborhood? – Agricultural. Available at: [What's In My Neighborhood \(arcgis.com\)](https://www.mn.gov/what-s-in-my-neighborhood). Accessed October 2025.

²⁴ Barr Engineering Co. 2024. *Lot D Historical and Contamination Summary*. Memorandum prepared for the City of Duluth, May 21, 2024.

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

AUAR Scope

The Draft AUAR will identify potential use and storage of hazardous materials and petroleum products from future development within the AUAR area, as well as requirements for their proper management in accordance with state and federal regulations.

- 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***

AUAR Scope

The Draft AUAR will identify potential generation and storage of hazardous wastes from future development within the AUAR area, along with requirements for managing these materials in accordance with state and federal regulations.

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 near the site.***

The AUAR area consists of a developed, urban environment predominately comprised of impervious surfaces, with some limited wooded and wetland areas. Approximately 81 percent of the AUAR area consists of paved roadways and buildings based on land cover data. Vegetated areas within the AUAR area primarily consist of landscaped lawn. Figure 3, Appendix B illustrates land cover types within the AUAR area based on geospatial data. Item 8 (Cover Types) details land cover types identified within the AUAR area.

Wetland and vegetated areas within the AUAR may provide limited foraging or roaming habitat for a variety of urban wildlife species, including squirrels, rabbits, deer, coyotes, foxes, passerine birds, raptors, and other small mammals. Minor water features (e.g., intermittent water collection features, recognized as rain puddles or similar) could provide limited habitat for aquatic species such as turtles, fish, frogs, and toads within the AUAR area. Chester Creek, a designated trout stream, intersects the northern portion of the Secondary subarea. Lake Superior and the St. Louis River Estuary provide habitat for aquatic species, including Lake Sturgeon, a State Species Concern Species. Given the urban environment of the AUAR area, limited habitat resources are present within the AUAR area due to the isolation of habitat and extent of past disturbance from development.

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

Native Plant Communities and Sites of Biodiversity Significance

Based on a review of the DNR Minnesota Conservation Explorer (MCE) portal and NHIS database, no native plant communities are present within one mile of the AUAR area. One Minnesota Biological Survey (MBS) site is located in proximity to the AUAR area.

One MBS site (Duluth Lakewalk to Lester River) borders the AUAR area starting in the 1st Street subarea and extends to the northern boundary of the Secondary subarea, along the Lake Superior shoreline. This MBS site has been determined to be below the minimum biodiversity threshold for statewide significance.

A formal NHIS review request was submitted to the DNR through the Minnesota Conservation Explorer (MCE) system for the AUAR area. An initial response for the AUAR area (MCE No. 2025-00850) was received from the DNR on October 15, 2025, and indicated that the review will be further evaluated by DNR NHIS staff. Appendix G provides the initial DNR MCE response letter. The final DNR NHIS review letter will be included with the Draft AUAR.

State – Listed Species

The NHIS search did indicate records within the AUAR area and its one-mile buffer zone. Records of no rare species, one threatened species, and six special concern species were identified within the AUAR area and one mile of the AUAR area:

Within AUAR Area

- Lake sturgeon (*Acipenser fulvescens*) – Special Concern

Within One-Mile Buffer of AUAR Area

- Least Moonwort (*Botrychium simplex*)– Special Concern
- Shortjaw Cisco (*Coregonus zenithicus*) – Special Concern
- Peregrine Falcon (*Falco peregrinus*) – Special Concern
- American Eel (*Anguilla rostrata*) – Special Concern
- Lake Chub (*Couesius plumbeus*) – Special Concern
- Common Tern (*Sterna Hirundo*) – Threatened

Federally – Listed Species

A review of the USFWS Information for Planning and Consultation (IPaC) tool identified four federally listed species and two proposed for federal listing with the potential to occur within the AUAR area, which are listed below. Appendix G includes the species lists generated through the USFWS IPaC review tool.

- Canada lynx (*Lynx canadensis*) – Threatened, Critical Habitat
- Gray wolf (*Canus lupus*) - Threatened
- Monarch butterfly (*Danaus plexippus*) – Proposed Threatened
- Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*) – Proposed Endangered
- Rufa red knot (*Calidris canutus rufa*) – Threatened
- Piping Plover (*Charadrius melodus*) – Endangered

Migratory Birds

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

Nineteen migratory bird species listed as USFWS Birds of Conservation Concern (BCC) and two eagle species have the potential to occur within the AUAR area according to the USFWS IPaC review (Appendix G). These species and their habitat requirements are detailed in Table 12 using data from the

Cornell Lab of Ornithology.²⁵ The Draft AUAR will assess the habitat requirements for nesting, foraging, and/or migration, as applicable, for each bird species in Table 12.

Duluth is located within the Mississippi Flyway, one of four major migration paths used by birds during spring and fall migration. When migrating birds reach neighboring Lake Superior, many species are more likely to follow the lakeshore than cross open water; flying over land provides opportunities to stop and refuel while the open water frequently does not. Therefore, raptors are funneled over Hawk Ridge, a migration observatory in Duluth, each fall. Given that the AUAR area includes the Lake Superior shoreline, it is anticipated that large numbers of migrating birds pass over or near the AUAR area each spring and fall.

Table 12. Migratory Birds Listed as BCC with the Potential to Occur within the AUAR area

Common Name	Scientific Name
Bald Eagle*	<i>Haliaeetus leucocephalus</i>
Black Tern	<i>Chlidonias niger surinamensis</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Canada Warbler	<i>Cardellina canadensis</i>
Chimney Swift	<i>Chaetura pelagica</i>
Common Tern	<i>Sterna hirundo</i>
Connecticut Warbler	<i>Oporornis agilis</i>
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>
Evening Grosbeak	<i>Coccothraustes vespertinus</i>
Golden Eagle*	<i>Aquila chrysaetos</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>
Le Conte's Sparrow	<i>Ammospiza leconteii</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Long-eared Owl	<i>Asio otus</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Pectoral Sandpiper	<i>Calidris melanotos</i>
Ruddy Turnstone	<i>Arenaria interpres morinella</i>
Veery	<i>Catharus fuscescens fuscescens</i>
Whimbrel	<i>Numenius phaeopus hudsonicus</i>
Wood Thrush	<i>Hylocichla mustelina</i>
*These species are not listed as BBC but warrant special attention under the Bald and Golden Eagle Protection Act (BGEPA).	

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

AUAR Scope

A desktop assessment (i.e., using aerial photographs and publicly available information) will be completed to evaluate the potential for impacts to fish, wildlife, plant communities, threatened and

²⁵ Cornell Lab of Ornithology, 2024. All About Birds. Ithaca, New York. Available at: <https://www.allaboutbirds.org/news/#>. Accessed October 2025.

endangered species, migratory birds, rare features, and ecosystems as a result of Development Scenario B.

The Draft AUAR will identify habitat requirements for state and federally listed species: the lake sturgeon, least moonwort, shortjaw cisco, peregrine falcon, American eel, lake chub, common tern, Canada lynx, gray wolf, monarch butterfly, Suckley's cuckoo bumble bee, rufa red knot, and piping plover. The Draft AUAR will assess potential impacts to these species and determine if suitable habitat for these species will be impacted by future development within the AUAR area. The Draft AUAR will also discuss how climate trends may influence the effects of future development on these species.

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

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

AUAR Scope

The Draft AUAR will evaluate the potential for future development within the AUAR area to affect suitable habitat for protected species and mitigation strategies to avoid, minimize, or mitigate potential impacts as applicable. Mitigation strategies will include considerations for bird-safe building design recommendations to minimize potential impacts to migratory birds.

15. Historic Properties

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

The AUAR area is primarily comprised of a developed, urban area which has been previously disturbed. As described in Item 10 (Land Use), the majority of the AUAR area consists of a mix of residential, commercial, and institutional uses. The Lot D subarea is a vacant, former industrial property.

The Minnesota Office of the State Archaeologist (OSA) portal provides an inventory of publicly-available archaeological and cultural resource sites mapped at the Public Land Survey System (PLSS) township-level. Based on review of this database, there are two OSA sites extend into the 1st Street and Essentia subareas.

Publicly available data from the Minnesota Statewide Historic Inventory portal (MnSHIP) was also reviewed to identify historic sites and districts within the AUAR area. A total of 475 records were reported in the AUAR area. Appendix H presents the publicly available data obtained for the MnSHIP portal database for each subarea.

AUAR Scope

The Draft AUAR will include a detailed desktop review of the Minnesota SHPO and OSA databases, local historic landmark and historic district data, and other applicable resources to identify to evaluate the potential for cultural resources to be affected by development within the AUAR area. The need for additional cultural resources investigations will be discussed as a part of the mitigation plan for the Draft AUAR. Comments on the Scoping EAW received from SHPO will be considered as a part of the development of the Draft AUAR.

16. Visual

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

AUAR Scope

The AUAR area consists of a developed, urban environment. The natural environment is largely limited to landscaped vegetation within limited lawn space and wooded areas. The AUAR area includes approximately two miles of Lake Superior shoreline. Residential neighborhoods surround the AUAR area.

The analysis in the Draft AUAR will identify any scenic views of community importance that should be protected and/or mitigated as part of the AUAR. Potential visual effects of future development within the AUAR area will be qualitatively assessed in the Draft AUAR. Mitigation measures may include recommendations for zoning overlays or other interventions to protect views of community importance, landscape screening, vegetative buffers, adjustment of lighting recommendations, and other measures in accordance with the City's zoning code.

17. Air

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

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

AUAR Scope

The Draft AUAR will include a qualitative discussion of potential sources of low-level air emissions typically associated with the development scenarios. Development Scenario B does not propose industrial uses that would have the potential to result in new stationary source emissions.

- 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.***

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

Criteria pollutants identified by the U.S. Environmental Protection Agency (EPA) are ozone, particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO₂), lead, and sulfur dioxide (SO₂). In Minnesota, air quality analysis for transportation projects primarily addresses localized CO emissions and Mobile Source Air Toxics (MSATs). The AUAR area (St. Louis County) is not located within a nonattainment area for criteria pollutants. The AUAR area is located within a maintenance area for Carbon Monoxide (1971

²⁶ EQB. Alternative Urban Area-wide Review Documents: Recommended Content and Format. Updated September 2008. <https://www.eqb.state.mn.us/sites/eqb/files/documents/AUAR%20guidance%20%28form%29%20-9-09.pdf>. Accessed September 2025.

standard), designated in June 1994.²⁷

AUAR Scope

The Draft AUAR will include a qualitative vehicle emissions assessment conducted in accordance with MnDOT air quality analysis guidance.²⁸ It is not anticipated that a quantitative air quality analysis for CO or MSATs would be required.

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

AUAR Scope

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

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

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

AUAR Scope

The Minnesota Environmental Quality Board's (EQB's) EAW climate adaptation and resilience guidance (June 2024)²⁹ will be used to develop the carbon footprint for the Draft AUAR. Greenhouse gas emissions will be calculated for existing conditions (baseline, development Scenario A) and the construction and operation of Development Scenario B. Land use changes will also be included in the greenhouse gas quantification.

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

Summary tables will be provided for the development scenarios, summarizing construction and operation emissions.

- b. *GHG Assessment***

- i. *Describe any mitigation considered to reduce the Project's GHG emissions.***

²⁷Environmental Protection Agency. EPA Green Book. Updated August 2025. Available at: https://www3.epa.gov/airquality/greenbook/anayo_mn.html. Accessed September 2025.

²⁸ MnDOT. Air Quality Process. <http://www.dot.state.mn.us/project-development/subject-guidance/air-quality/process.html>. Accessed September 2025.

²⁹ EQB. Environmental Assessment Worksheet (EAW) Guidance. June 2024 https://www.eqb.state.mn.us/sites/eqb/files/2024_eaw_climate_guidance_2.pdf. Accessed September 2025.

AUAR Scope

Reductions in greenhouse gas emissions associated with Development Scenario B compared to the baseline Development Scenario A will be described in the Draft AUAR. Potential mitigation measures will be identified, such as energy efficient lighting or other building efficiency specifications. Specific mitigation measures would be identified at the time that specific projects are proposed within the AUAR.

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

AUAR Scope

Potential opportunities for GHG emissions reductions will be qualitatively evaluated as part of the Draft AUAR. At the time that specific projects are proposed within the AUAR and design details are available, potential GHG emissions reductions may be quantified.

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

AUAR Scope

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

19. Noise

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

In accordance with the EQB's AUAR guidance document³⁰, it is not required to address construction noise unless there is some unusual reason to do so. No unusual circumstances are anticipated for the development scenarios that would warrant conducting a quantitative noise analysis.

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

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

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

³⁰ EQB. Alternative Urban Area-wide Review Documents: Recommended Content and Format. Updated September 2008. <https://www.eqb.state.mn.us/sites/default/files/documents/AUAR%20guidance%20%28form%29%20-9-09.pdf>

sound level by 3 dBA, whereas each doubling of distance over soft ground (such as vegetated or grassy ground) results in a sound level decrease of 4.5 dBA.

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

Existing noise is dominated by I-35 through downtown Duluth, Mesaba Avenue, London Road, and downtown arterial streets. Secondary sources include port and industrial activity along the waterfront, commercial loading/unloading activities in downtown, and event activity at the Bayfront Festival Park and Canal Park.

Lot D Subarea

Current noise levels are influenced by adjacent port facilities, I-35 vehicle traffic, Bayfront Festival Park traffic and event noise, and rail corridors.

Essentia Subarea

The existing medical campus produces noise from patient and visitor vehicle traffic, ambulance and emergency vehicles, and service deliveries.

1st Street Subarea

Noise is currently generated by vehicle traffic, transit operations, and downtown commercial activity.

Secondary Subarea

East of downtown, traffic on London Road and adjacent commercial uses are the dominant noise contributors.

2) *Nearby sensitive receptors*

Sensitive receptors within and adjacent to the AUAR area include residential neighborhoods west of downtown, hillside neighborhoods overlooking the central business district, residences and hotels in Canal Park, the Essentia Health Medical Campus, nearby schools and waterfront recreational areas.

Lot D Subarea

Sensitive receptors in proximity include Canal Park hotels and residences, and recreational/event users at Bayfront Festival Park. Pier B Hotel is adjacent to the Lot D subarea.

Essentia Subarea

Sensitive receptors would include patients and facilities at the hospital and medical campus, and hotels and residences, including the Sheraton Duluth Hotel, and nearby residential neighborhoods.

1st Street Subarea

Receptors include mixed-use, residential buildings, and hotels within the corridor and adjacent hillside neighborhoods. Hotels in the 1st Street subarea include the Radisson Hotel Duluth – Harborview and Holiday Inn & Suites Downtown.

Secondary Subarea

Receptors include residential blocks east of downtown, St. Luke's Hospital, schools along London Road, and parks and trails along the Lakewalk.

3) Conformance to State noise standards

Minnesota's noise pollution rules³¹ are based on statistical measurements that describe noise levels over a one-hour monitoring period. Two key values are used: L₁₀, the sound level exceeded 10 percent of the time (equivalent to six minutes per hour), and L₅₀ the sound level exceeded 50 percent of the time (30 minutes per hour). The rules do not establish an absolute maximum noise level.

For residential locations (Noise Area Classification 1), the daytime limits (7:00 a.m. – 10:00 p.m.) are 65 dBA for L₁₀ and 60 dBA for L₅₀ while the nighttime limits (10:00 p.m. – 7:00 a.m.) are 55 dBA for L₁₀ and 50 dBA for L₅₀. In practice, this means that during a one-hour period, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA for more than 50 percent of the time. Table 12 provides a summary of the Noise Area Classifications and associated standards.

Table 13. Noise Area Classifications

NAC	Common land use associated with the Noise Area Classification	Daytime (dBA)		Nighttime (dBA)	
		L ₁₀	L ₅₀	L ₁₀	L ₅₀
1	Residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services	65	60	55	50
2	Retail, business and government services, recreational activities, transit passenger terminals	70	65	70	65
3	Manufacturing, fairgrounds and amusement parks, agricultural and forestry activities	80	75	80	75

NACs are determined by the land use at the location where the noise is received, which does not always correspond to the zoning designation of the area. As a result, noise generated by an industrial facility adjacent to residential properties is subject to NAC 1 standards if it can be heard on those residential parcels.

By state law, all future development within the AUAR area must comply with Minnesota's noise standards. In addition, future land uses must comply with local noise requirements under Duluth's Legislative Code, which incorporates the City's ordinances.

AUAR Scope

Area-specific evaluations in the Draft AUAR will assess whether operational noise from maximum development could approach NAC limits. Where necessary, design strategies (setbacks, orientation, landscaping) or operational measures will be identified to maintain compliance.

4) Quality of life

Maximum development would likely increase background noise levels. However, these changes are anticipated to remain consistent with those of a typical urban environment. Quality of life considerations would focus on residential livability in adjacent hillside neighborhoods, lodging and residential uses in Canal Park, the sensitivity of medical campus operations within the Essentia Health Medical Campus, and recreational use of the waterfront and Lakewalk.

AUAR Scope

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

³¹ More information on Minnesota Noise rules, [Minn. Rules Ch. 7030](https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf), may be found at: <https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf>

20. Transportation

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

AUAR Scope

Per EQB's *AUAR Recommended Content and Format* guidance³², a traffic analysis is required in accordance with the Minnesota Department of Transportation (MnDOT) Traffic Impact Study (TIS) Guidance³³ and local guidance. MnDOT guidance establishes that a TIS is triggered if development generates more than 250 peak-hour vehicle trips or 2,500 average daily trips.

Given the scale of the AUAR area and that, with the exception of Lot D, specific development plans are not currently available, a comprehensive TIS will not be prepared for the entire AUAR area. Instead, the Draft AUAR will provide a qualitative discussion of the existing transportation network and the capacity of major roadway corridors.

For the Lot D subarea, a concept plan is currently proposed by Inland and a TIS will be prepared for the development for Lot D. The TIS will assess the following study intersections:

- Garfield Avenue/Railroad Street
 - Railroad Street/5th Avenue W
 - Harbor Drive/5th Avenue W
 - I-35 northbound ramps/Harbor Drive
 - I-35 southbound ramps/Harbor Drive
 - Railroad Street/Harbor Drive
- 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.**

AUAR Scope

The Draft AUAR will evaluate the potential effects of Development Scenario B on traffic congestion and roadway performance, focusing on major corridors such as I-35, Mesaba Avenue, London Road, and key downtown arterials. For the overall AUAR area, this analysis will remain qualitative, emphasizing network capacity and existing travel patterns.

For Lot D, the dedicated TIS will provide a quantitative assessment of traffic operations at the identified intersections. The analysis will develop in peak-hour trip generation estimates for the proposed development and evaluate intersection operations for the existing and proposed conditions.

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

³² Minnesota Environmental Quality Board (EQB). *Recommended Content and Format for AUAR Documents*. September 2008.

³³ Minnesota Department of Transportation (MnDOT). *Traffic Impact Study (TIS) Guidance*. Available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>. Accessed October 2025

AUAR Scope

As part of the TIS to be prepared for the Lot D subarea, mitigation measures will be identified if warranted by study results.

21. Cumulative Potential Effects

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

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

AUAR Scope

The cumulative potential effects analysis will consider land adjacent to and within approximately a one-mile radius of the AUAR area. This scale captures the neighborhoods, commercial districts, waterfront, and transportation corridors most likely to experience the combined effects of the development within the AUAR area. Maximum development under Development Scenario B is anticipated to occur in phases over several years, depending on market conditions. The cumulative potential effects analysis will consider reasonably foreseeable projects that are funded or planned for construction within the next ten years.

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

AUAR Scope

The Draft AUAR will include a review of reasonably foreseeable projects that may interact with environmental effects of the development scenarios within the identified geographic scale and timeframe. Desktop sources to be consulted will include the EQB's Environmental Review Projects Database,³⁴ the City of Duluth's capital improvement and redevelopment planning documents, MnDOT construction schedules, and St. Louis County public works projects. Additional input will be obtained from City of Duluth staff regarding current and planned development, transportation improvements, and downtown infrastructure projects.

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

AUAR Scope

If reasonably foreseeable projects are identified under Item 21.a, the Draft AUAR will evaluate how their environmental effects could interact with those of the development scenarios.

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 other potential environmental effects are anticipated that are not addressed by Items 1 through 21.

³⁴ EQB. Environmental Review Projects Database. <https://webapp.pca.state.mn.us/eqb-search/search>

Appendix A

List of Parcels within the AUAR area

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0173-00040
1st St	010-0410-00010
1st St	010-0410-00020
1st St	010-0410-00050
1st St	010-0410-00055
1st St	010-0410-00080
1st St	010-0410-00150
1st St	010-0410-00180
1st St	010-0410-00210
1st St	010-0410-00220
1st St	010-0410-00240
1st St	010-0410-00250
1st St	010-0410-00270
1st St	010-0410-00320
1st St	010-0410-00390
1st St	010-0410-00420
1st St	010-0410-00530
1st St	010-0410-00540
1st St	010-0410-00550
1st St	010-0410-00570
1st St	010-0410-00580
1st St	010-0410-00590
1st St	010-0410-00630
1st St	010-0410-00640
1st St	010-0410-00650
1st St	010-0410-00660
1st St	010-0410-00680
1st St	010-0410-00690
1st St	010-0410-00700
1st St	010-0410-00710
1st St	010-0410-00720
1st St	010-0410-00730
1st St	010-0410-00750
1st St	010-0410-00760
1st St	010-0410-00780
1st St	010-0410-00790
1st St	010-0410-00800
1st St	010-0410-00840
1st St	010-0410-00860
1st St	010-0410-00880
1st St	010-0410-00930
1st St	010-0410-00990
1st St	010-0410-01035
1st St	010-0410-01090
1st St	010-0410-01110
1st St	010-0410-01130
1st St	010-0410-01150
1st St	010-0410-01170
1st St	010-0410-01200
1st St	010-0410-01210
1st St	010-0410-01250

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0410-01290
1st St	010-0410-01330
1st St	010-0410-01340
1st St	010-0410-01350
1st St	010-0410-01370
1st St	010-0410-01390
1st St	010-0410-01411
1st St	010-0910-00020
1st St	010-0910-00090
1st St	010-0910-00180
1st St	010-0910-00200
1st St	010-0910-00220
1st St	010-0910-00230
1st St	010-0910-00240
1st St	010-0910-00260
1st St	010-0910-00270
1st St	010-0910-00280
1st St	010-0910-00290
1st St	010-0910-00420
1st St	010-0910-00435
1st St	010-0920-00020
1st St	010-0920-00030
1st St	010-0920-00050
1st St	010-0920-00060
1st St	010-0920-00070
1st St	010-0920-00080
1st St	010-0920-00120
1st St	010-0920-00125
1st St	010-0920-00130
1st St	010-0920-00140
1st St	010-0920-00160
1st St	010-0920-00180
1st St	010-0920-00210
1st St	010-0920-00230
1st St	010-0920-00260
1st St	010-0920-00270
1st St	010-0920-00280
1st St	010-0920-00300
1st St	010-0920-00320
1st St	010-0920-00410
1st St	010-0920-00421
1st St	010-0920-00422
1st St	010-0920-00440
1st St	010-0920-00450
1st St	010-0920-00460
1st St	010-0920-00470
1st St	010-0920-00480
1st St	010-0920-00490
1st St	010-0920-00500
1st St	010-0920-00510
1st St	010-0920-00540

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0920-00550
1st St	010-0920-00625
1st St	010-0930-00010
1st St	010-0930-00030
1st St	010-0930-00040
1st St	010-0930-00050
1st St	010-0930-00060
1st St	010-0930-00070
1st St	010-0930-00090
1st St	010-0930-00095
1st St	010-0930-00170
1st St	010-0930-00175
1st St	010-0930-00240
1st St	010-0930-00270
1st St	010-0930-00290
1st St	010-0930-00320
1st St	010-0930-00330
1st St	010-0930-00340
1st St	010-0930-00440
1st St	010-0930-00452
1st St	010-0930-00500
1st St	010-0930-00510
1st St	010-0930-00520
1st St	010-0930-00530
1st St	010-0930-00535
1st St	010-0930-00540
1st St	010-0930-00550
1st St	010-0930-00560
1st St	010-0930-00580
1st St	010-0930-00600
1st St	010-0930-00620
1st St	010-0930-00622
1st St	010-0930-00630
1st St	010-0930-00640
1st St	010-0930-00650
1st St	010-0930-00670
1st St	010-0930-00680
1st St	010-0930-00700
1st St	010-0930-00720
1st St	010-0930-00740
1st St	010-0930-00760
1st St	010-0930-00780
1st St	010-0930-00800
1st St	010-0930-00810
1st St	010-0930-00840
1st St	010-0940-00010
1st St	010-0940-00030
1st St	010-0940-00040
1st St	010-0940-00060
1st St	010-0940-00062
1st St	010-0940-00065

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0940-00066
1st St	010-0940-00085
1st St	010-0940-00086
1st St	010-0940-00090
1st St	010-0940-00130
1st St	010-0940-00150
1st St	010-0940-00160
1st St	010-0940-00180
1st St	010-0940-00200
1st St	010-0940-00220
1st St	010-0940-00240
1st St	010-0940-00290
1st St	010-0940-00300
1st St	010-0940-00302
1st St	010-0940-00303
1st St	010-0940-00320
1st St	010-0940-00330
1st St	010-0940-00340
1st St	010-0940-00350
1st St	010-0940-00360
1st St	010-0940-00380
1st St	010-0940-00420
1st St	010-0940-00430
1st St	010-0940-00450
1st St	010-0940-00460
1st St	010-0940-00480
1st St	010-0940-00570
1st St	010-0940-00580
1st St	010-0940-00590
1st St	010-0940-00610
1st St	010-0940-00630
1st St	010-0940-00650
1st St	010-0940-00670
1st St	010-0940-00680
1st St	010-0940-00690
1st St	010-0940-00700
1st St	010-0940-00710
1st St	010-0940-00712
1st St	010-0940-00720
1st St	010-0940-00725
1st St	010-0940-00730
1st St	010-0940-00770
1st St	010-0940-00790
1st St	010-0940-00820
1st St	010-0940-00840
1st St	010-0940-00850
1st St	010-0940-00860
1st St	010-0940-00870
1st St	010-0940-00880
1st St	010-0940-00920
1st St	010-0940-00960

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0940-00980
1st St	010-0940-00985
1st St	010-0940-01020
1st St	010-0940-01070
1st St	010-0940-01100
1st St	010-0940-01120
1st St	010-0940-01130
1st St	010-0940-01150
1st St	010-0940-01170
1st St	010-0940-01200
1st St	010-0940-01245
1st St	010-0940-01250
1st St	010-0940-01255
1st St	010-0950-00520
1st St	010-0950-00550
1st St	010-0950-00560
1st St	010-0950-00570
1st St	010-0950-00580
1st St	010-0950-00590
1st St	010-0950-00600
1st St	010-0950-00620
1st St	010-0950-00622
1st St	010-0950-00660
1st St	010-0950-00700
1st St	010-0950-00720
1st St	010-0950-00740
1st St	010-0950-00790
1st St	010-0950-00820
1st St	010-0950-00830
1st St	010-0950-00850
1st St	010-0950-00870
1st St	010-0950-00880
1st St	010-0960-00490
1st St	010-0960-00510
1st St	010-0960-00530
1st St	010-0960-00560
1st St	010-0960-00580
1st St	010-0960-00600
1st St	010-0960-00640
1st St	010-0960-00760
1st St	010-0960-00790
1st St	010-0960-00800
1st St	010-0960-00820
1st St	010-0960-00830
1st St	010-0960-00850
1st St	010-0960-00870
1st St	010-0960-00890
1st St	010-0960-01010
1st St	010-0960-01050
1st St	010-0960-01055
1st St	010-0960-01060

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-0960-01070
1st St	010-0960-01080
1st St	010-1250-00300
1st St	010-1270-00050
1st St	010-1230-00052
1st St	010-1230-00055
1st St	010-1230-00083
1st St	010-1230-00085
1st St	010-1230-00087
1st St	010-1230-00088
1st St	010-1230-00089
1st St	010-1230-00140
1st St	010-1230-00145
1st St	010-1230-00200
1st St	010-1230-00201
1st St	010-1230-00220
1st St	010-1230-00230
1st St	010-1230-00250
1st St	010-1230-00260
1st St	010-1230-00280
1st St	010-1230-00380
1st St	010-1230-00440
1st St	010-1230-00480
1st St	010-1230-00490
1st St	010-1230-00500
1st St	010-1230-00550
1st St	010-1230-00580
1st St	010-1230-00660
1st St	010-1230-00670
1st St	010-1230-01700
1st St	010-1230-01710
1st St	010-1230-01720
1st St	010-1230-01900
1st St	010-1230-01902
1st St	010-1230-01910
1st St	010-1230-01960
1st St	010-1230-02000
1st St	010-1230-02002
1st St	010-1230-02100
1st St	010-1230-02105
1st St	010-1230-02330
1st St	010-1230-02340
1st St	010-1230-02360
1st St	010-1230-02380
1st St	010-1230-02400
1st St	010-1230-02460
1st St	010-2710-06505
1st St	010-2710-06506
1st St	010-2710-06507
1st St	010-3595-00010
1st St	010-3595-00020

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
1st St	010-3595-00020
1st St	010-3595-00020
1st St	010-3595-00030
1st St	010-3595-00040
1st St	010-3595-00050
1st St	010-3943-00010
1st St	010-3957-00010
1st St	010-3957-00020
1st St	010-3964-00050
1st St	010-4448-00001
1st St	Unidentified
1st St	Unidentified
1st St	010-0410-00120
1st St	010-0410-00130
Essentia	010-0172-00930
Essentia	010-0172-00940
Essentia	010-0172-00950
Essentia	010-0990-00320
Essentia	010-0990-00420
Essentia	010-0990-00440
Essentia	010-0990-00460
Essentia	010-0990-00490
Essentia	010-0990-00510
Essentia	010-0990-00520
Essentia	010-0990-00540
Essentia	010-0990-00570
Essentia	010-0990-00580
Essentia	010-0990-00585
Essentia	010-0990-00610
Essentia	010-0990-00620
Essentia	010-0990-01120
Essentia	010-0990-01180
Essentia	010-0990-01210
Essentia	010-0990-01310
Essentia	010-0990-01320
Essentia	010-0990-01350
Essentia	010-0990-01360
Essentia	010-0930-00370
Essentia	010-1010-00810
Essentia	010-1010-00860
Essentia	010-1010-00870
Essentia	010-1010-00880
Essentia	010-1010-00900
Essentia	010-1010-00930
Essentia	010-1010-00950
Essentia	010-1010-00960
Essentia	010-1010-00970
Essentia	010-1010-00980
Essentia	010-1010-01700
Essentia	010-1010-01710
Essentia	010-1010-01760

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Essentia	010-1010-01800
Essentia	010-1010-01815
Essentia	010-1010-01830
Essentia	010-1010-01920
Essentia	010-1010-01930
Essentia	010-1010-01940
Essentia	010-1010-01950
Essentia	010-0950-00330
Essentia	010-0950-00980
Essentia	010-0950-01010
Essentia	010-0950-01020
Essentia	010-0950-01030
Essentia	010-0950-01040
Essentia	010-0970-00320
Essentia	010-0970-00340
Essentia	010-0970-00360
Essentia	010-0970-00370
Essentia	010-0970-00390
Essentia	010-0970-00400
Essentia	010-0970-00520
Essentia	010-0970-00780
Essentia	010-0970-00860
Essentia	010-0970-00930
Essentia	010-3820-01321
Essentia	010-3820-01330
Essentia	010-3820-01340
Essentia	010-3820-01342
Essentia	010-3820-01500
Essentia	010-3820-01520
Essentia	010-3820-01530
Essentia	010-3830-00200
Essentia	010-3830-00290
Essentia	010-3830-00310
Essentia	010-3830-02500
Essentia	010-3830-02520
Essentia	010-3830-02560
Essentia	010-3830-02580
Essentia	010-3830-02650
Essentia	010-3830-02750
Essentia	010-3830-02860
Essentia	010-3830-02870
Essentia	010-3830-02900
Essentia	010-3830-02940
Essentia	010-3830-03050
Essentia	010-3830-03090
Essentia	010-3830-03100
Essentia	010-3830-03110
Essentia	010-3830-03120
Essentia	010-3830-03140
Essentia	010-3830-03150
Essentia	010-3830-03170

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Essentia	010-3830-03240
Essentia	010-3830-03260
Essentia	010-3830-03360
Essentia	010-3830-03770
Essentia	010-3830-03780
Essentia	010-3830-03800
Essentia	010-3830-03810
Essentia	010-3830-03820
Essentia	010-3830-03830
Essentia	010-3830-03850
Essentia	010-3830-03870
Essentia	010-3830-03880
Essentia	010-3830-06160
Essentia	010-3830-06180
Essentia	010-3830-06190
Essentia	010-3830-06200
Essentia	010-3830-06205
Essentia	010-3830-06240
Essentia	010-3830-06360
Essentia	010-3830-06400
Essentia	010-3830-06760
Essentia	010-3830-06900
Essentia	010-3830-06930
Essentia	010-3830-07000
Essentia	010-3830-07020
Essentia	010-3830-17840
Essentia	010-3830-17860
Essentia	010-3830-17870
Essentia	010-3830-17880
Essentia	010-3830-17890
Essentia	010-3830-17910
Essentia	010-3830-17940
Essentia	010-3830-17970
Essentia	010-3830-18000
Essentia	010-3830-18010
Essentia	010-3830-18020
Essentia	010-3830-18030
Essentia	010-3830-18050
Essentia	010-3830-07030
Essentia	010-3830-07180
Essentia	010-3830-07200
Essentia	010-3915-00070
Essentia	010-3915-00080
Essentia	010-3830-09870
Essentia	010-3830-09980
Essentia	010-3830-10060
Essentia	010-3830-10110
Essentia	010-3830-10155
Essentia	010-3830-10160
Essentia	010-3830-10380
Essentia	010-3830-10420

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Essentia	010-3830-10540
Essentia	010-3830-10590
Essentia	010-3830-10595
Essentia	010-3830-10600
Essentia	010-3830-10620
Essentia	010-3830-10640
Essentia	010-3830-10650
Essentia	010-3830-10670
Essentia	010-3830-10690
Essentia	010-3830-10691
Essentia	010-3830-13880
Essentia	010-3830-13889
Essentia	010-3830-13890
Essentia	010-3830-13940
Essentia	010-3830-13970
Essentia	010-3830-13980
Essentia	010-3830-14070
Essentia	010-3830-14100
Essentia	010-3830-14110
Essentia	010-3830-14140
Essentia	010-3830-14190
Essentia	010-3830-14230
Essentia	010-3830-14410
Essentia	010-0160-00590
Essentia	010-3830-00320
Lot D	010-0200-01490
Lot D	010-0210-00010
Lot D	010-0210-00220
Lot D	010-0210-00340
Lot D	Unsurveyed Land
Lot D	Unsurveyed Land
Lot D	010-0210-00300
Secondary	010-0190-00030
Secondary	010-0190-00050
Secondary	010-0190-00060
Secondary	010-0190-00140
Secondary	010-0190-00150
Secondary	010-0190-00170
Secondary	010-0190-00180
Secondary	010-0190-00200
Secondary	010-0190-00250
Secondary	010-0190-00290
Secondary	010-0190-00330
Secondary	010-0190-00560
Secondary	010-0190-00590
Secondary	010-0190-00600
Secondary	010-0190-00610
Secondary	010-0190-00640
Secondary	010-0190-00650
Secondary	010-0190-00750
Secondary	010-0190-00770

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Secondary	010-0190-00790
Secondary	010-0190-00840
Secondary	010-0190-00860
Secondary	010-0190-00890
Secondary	010-0190-01120
Secondary	010-0190-01140
Secondary	010-0190-01160
Secondary	010-0190-01220
Secondary	010-0190-01250
Secondary	010-3830-00970
Secondary	010-3830-01090
Secondary	010-3830-01110
Secondary	010-3830-01120
Secondary	010-3830-01140
Secondary	010-3830-01150
Secondary	010-3830-01160
Secondary	010-3830-01170
Secondary	010-3830-01180
Secondary	010-3830-01190
Secondary	010-3830-01220
Secondary	010-3830-01230
Secondary	010-3830-01240
Secondary	010-3830-01250
Secondary	010-3830-01302
Secondary	010-3830-01530
Secondary	010-3830-01540
Secondary	010-3830-01560
Secondary	010-3830-01600
Secondary	010-3830-01620
Secondary	010-3830-01645
Secondary	010-3830-01660
Secondary	010-3830-01670
Secondary	010-3830-01675
Secondary	010-3830-01680
Secondary	010-3830-01740
Secondary	010-3830-01800
Secondary	010-3830-01820
Secondary	010-3830-01880
Secondary	010-3830-02000
Secondary	010-3830-02070
Secondary	010-3830-02080
Secondary	010-3830-02100
Secondary	010-3830-02110
Secondary	010-3830-02120
Secondary	010-3830-02130
Secondary	010-3830-02162
Secondary	010-3830-02195
Secondary	010-3830-02280
Secondary	010-3830-02340
Secondary	010-3830-02370
Secondary	010-3830-02390

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Secondary	010-3830-02410
Secondary	010-3830-02430
Secondary	010-3830-02450
Secondary	010-3830-02470
Secondary	010-3830-03920
Secondary	010-3830-03955
Secondary	010-3830-03965
Secondary	010-3830-03980
Secondary	010-3830-04000
Secondary	010-3830-04010
Secondary	010-3830-04020
Secondary	010-3830-04070
Secondary	010-3830-04080
Secondary	010-3830-04240
Secondary	010-3830-04460
Secondary	010-3830-04690
Secondary	010-3830-04695
Secondary	010-3830-04940
Secondary	010-3830-05080
Secondary	010-3830-05140
Secondary	010-3830-05280
Secondary	010-3830-05420
Secondary	010-3830-05450
Secondary	010-3830-05480
Secondary	010-3830-05490
Secondary	010-3830-05510
Secondary	010-3830-05520
Secondary	010-3830-05530
Secondary	010-3830-05550
Secondary	010-3830-05580
Secondary	010-3830-05600
Secondary	010-3830-05620
Secondary	010-3830-05640
Secondary	010-3830-05650
Secondary	010-3830-05675
Secondary	010-3830-05695
Secondary	010-3830-05730
Secondary	010-3830-05770
Secondary	010-3830-05780
Secondary	010-3830-05800
Secondary	010-3830-05860
Secondary	010-3830-05930
Secondary	010-3830-05930
Secondary	010-3830-05980
Secondary	010-3830-06010
Secondary	010-3830-07250
Secondary	010-3830-07280
Secondary	010-3830-07290
Secondary	010-3830-07300
Secondary	010-3830-07330
Secondary	010-3830-07340

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Secondary	010-3830-07350
Secondary	010-3830-07360
Secondary	010-3830-07380
Secondary	010-3830-07390
Secondary	010-3830-07400
Secondary	010-3830-07420
Secondary	010-3830-07470
Secondary	010-3830-07480
Secondary	010-3830-07490
Secondary	010-3830-07500
Secondary	010-3830-07510
Secondary	010-3830-07520
Secondary	010-3830-07560
Secondary	010-3830-07580
Secondary	010-3830-07590
Secondary	010-3830-07630
Secondary	010-3830-07640
Secondary	010-3830-07730
Secondary	010-3830-07840
Secondary	010-3830-07900
Secondary	010-3830-09450
Secondary	010-3830-09471
Secondary	010-3830-09480
Secondary	010-3830-09510
Secondary	010-3830-09520
Secondary	010-3830-09530
Secondary	010-3830-09560
Secondary	010-3830-09560
Secondary	010-3830-09580
Secondary	010-3830-09600
Secondary	010-3830-09630
Secondary	010-3830-09632
Secondary	010-3830-09642
Secondary	010-3830-09660
Secondary	010-3830-09670
Secondary	010-3830-09680
Secondary	010-3830-09720
Secondary	010-3830-09760
Secondary	010-3830-09770
Secondary	010-3830-09780
Secondary	010-3830-09790
Secondary	010-3830-09800
Secondary	010-3830-09810
Secondary	010-3830-09820
Secondary	010-3830-09830
Secondary	010-3830-09840
Secondary	010-3830-09860
Secondary	010-3830-09860
Secondary	010-3830-10710
Secondary	010-3830-10720
Secondary	010-3830-10730

Downtown Duluth AUAR area Parcels

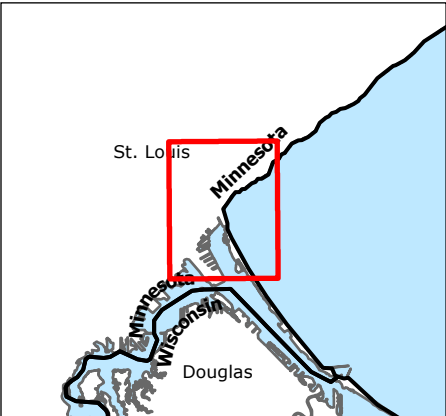
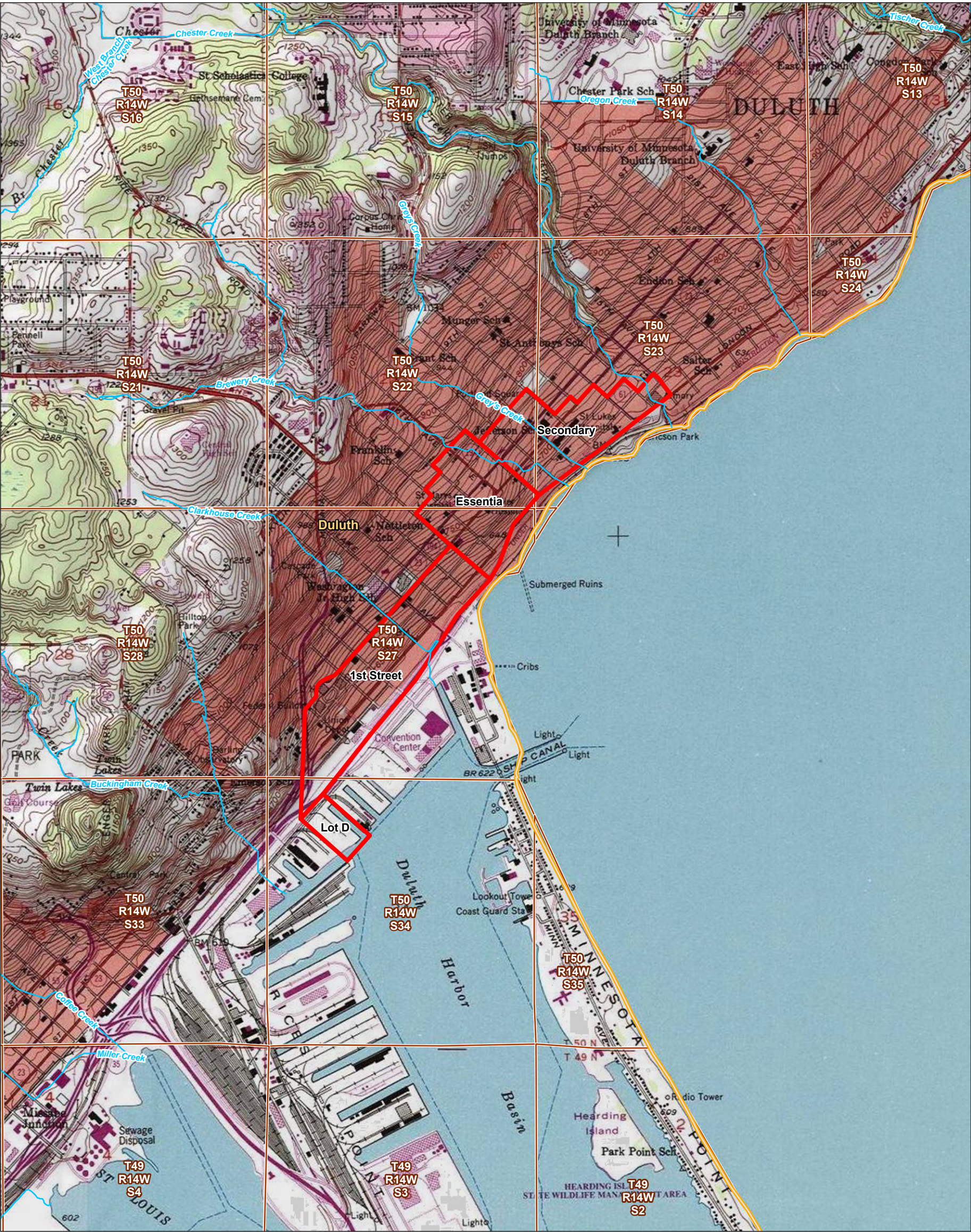
Subarea	Parcel ID No.
Secondary	010-3830-10750
Secondary	010-3830-10770
Secondary	010-3830-10840
Secondary	010-3830-10860
Secondary	010-3830-10880
Secondary	010-3830-10900
Secondary	010-3830-10930
Secondary	010-3830-10940
Secondary	010-3830-10950
Secondary	010-3830-10980
Secondary	010-3830-11000
Secondary	010-3830-11010
Secondary	010-3830-11020
Secondary	010-3830-11030
Secondary	010-3830-11040
Secondary	010-3830-11052
Secondary	010-3830-11060
Secondary	010-3830-11120
Secondary	010-3830-11160
Secondary	010-3830-11190
Secondary	010-3830-11210
Secondary	010-3830-11220
Secondary	010-3830-11230
Secondary	010-3830-11240
Secondary	010-3830-11250
Secondary	010-3830-11330
Secondary	010-3830-11335
Secondary	010-3830-11360
Secondary	010-3830-11380
Secondary	010-3860-00020
Secondary	010-3860-00040
Secondary	010-3860-00090
Secondary	010-3860-00130
Secondary	010-3860-00160
Secondary	010-3860-00180
Secondary	010-3860-00210
Secondary	010-3860-00220
Secondary	010-3830-13180
Secondary	010-3830-13230
Secondary	010-3830-13250
Secondary	010-3830-13260
Secondary	010-3830-13300
Secondary	010-3830-13350
Secondary	010-3830-13380
Secondary	010-3830-13410
Secondary	010-3830-13440
Secondary	010-3830-13480
Secondary	010-3830-13540
Secondary	010-3830-13550
Secondary	010-3830-13560
Secondary	010-3830-13610

Downtown Duluth AUAR area Parcels

Subarea	Parcel ID No.
Secondary	010-3830-13640
Secondary	010-3830-13660
Secondary	010-3830-13680
Secondary	010-3830-13740
Secondary	010-3830-13750
Secondary	010-3830-13760
Secondary	010-3830-13770
Secondary	010-3830-13780
Secondary	010-3830-13790
Secondary	010-3830-13810
Secondary	010-3830-13820
Secondary	010-3830-13821
Secondary	010-3830-13830
Secondary	010-3830-14560
Secondary	010-3830-14570
Secondary	010-3830-14630
Secondary	010-3830-14640
Secondary	010-3830-14710
Secondary	010-3830-14770
Secondary	010-3830-14780
Secondary	010-3830-14790
Secondary	010-3830-14800
Secondary	010-3830-14910
Secondary	010-3830-14930
Secondary	010-3830-14950
Secondary	010-3830-14970
Secondary	010-3830-15010
Secondary	010-3830-15030
Secondary	010-3830-15050
Secondary	010-3830-15070
Secondary	010-3830-15090
Secondary	010-3830-15150

Appendix B

Figures



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnGeo
3. Background: USGS 7.5' Quadrangle

- Legend**
- City of Duluth Streams
 - AUAR Area
 - Municipal Boundary
 - Township, Range & Section Boundary

0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000



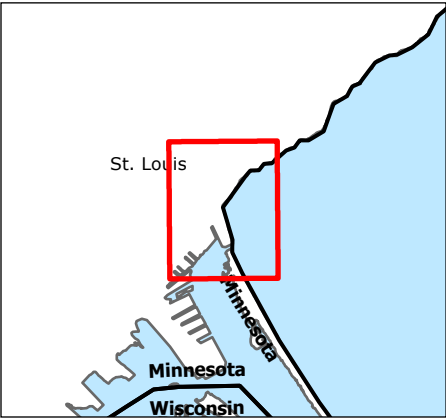
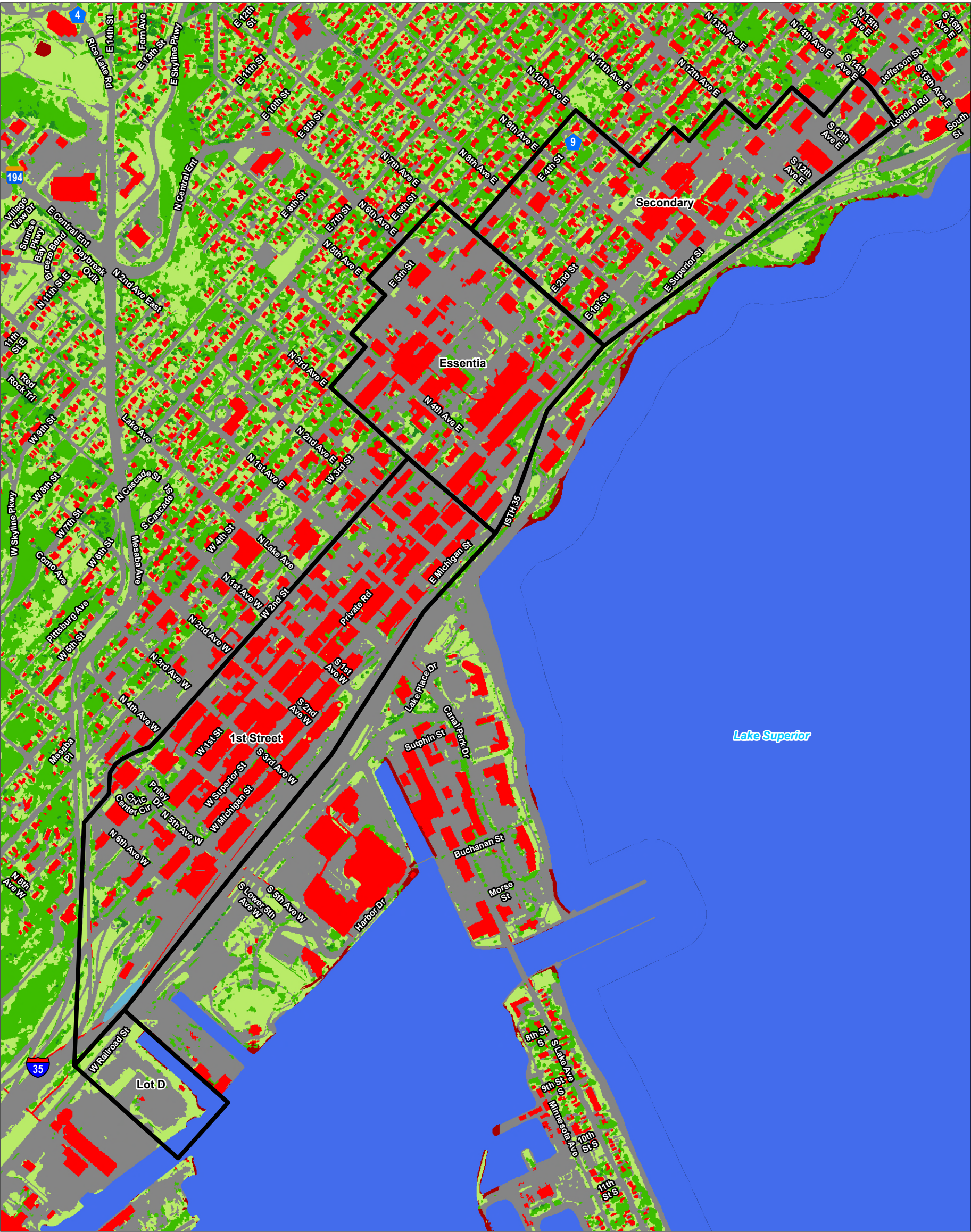
Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.
1

Title
Project Location USGS Topo Map



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT
3. Background: UMN Duluth 1-meter Land Cover 2016

- Legend**
- AUAR Area
 - Duluth Land Cover 2016
 - Grass/Shrub
 - Bare Soil
 - Buildings
 - Roads/Paved Surfaces
 - Lakes/Ponds
 - Deciduous Tree Canopy
 - Coniferous Tree Canopy
 - Emergent Wetland

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

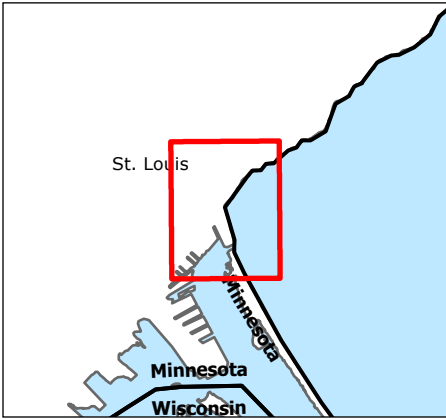
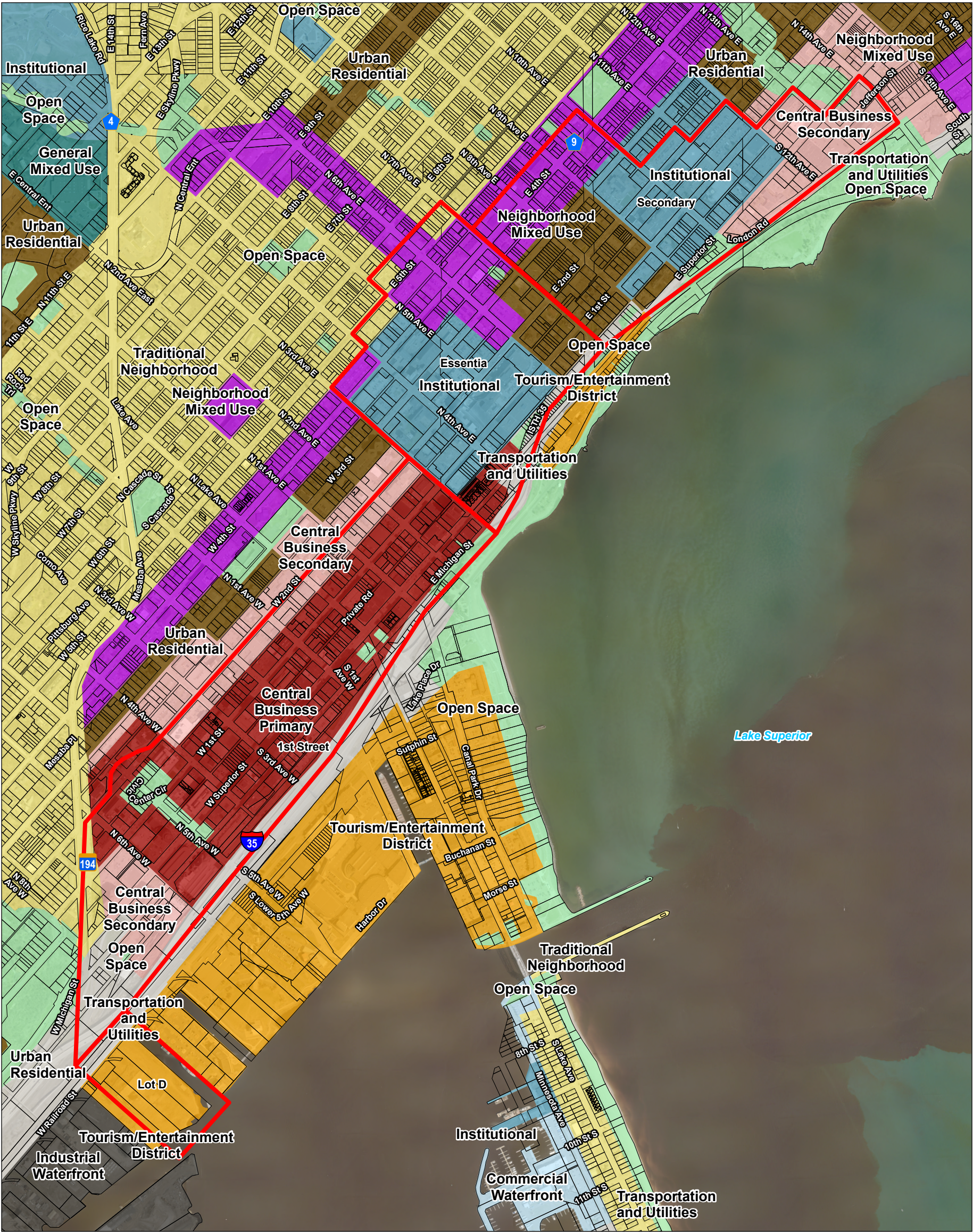
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

3

Title

Land Cover



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT
3. Background: 2023 St. Louis Co.

Legend

- AUAR Area
- Parcels
- Future Land Use**
- Central Business Primary
- Central Business Secondary
- Commercial Waterfront
- General Mixed Use
- Industrial Waterfront
- Institutional
- Neighborhood Mixed Use
- Open Space
- Tourism/Entertainment District
- Traditional Neighborhood
- Transportation and Utilities
- Urban Residential

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

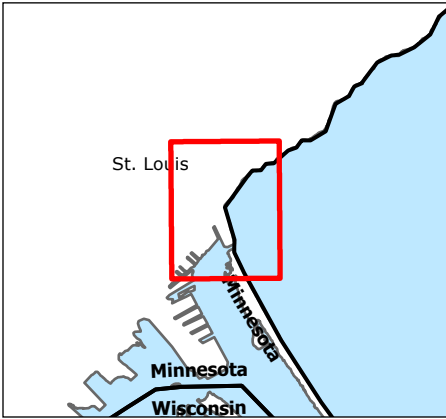
Figure No.

5

Title

Future Land Use

U:\2277\027708309\03_data\gis\pro227708309_duluth_downtown_auar.aprx
Revised: 2025-10-30 By: kjmueller



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MGS C-51
3. Background: 2023 St. Louis Co.

Legend

- AUAR Area
- Surficial Geology
- map_label, Descriptn
- bt - Glacial Till
- cs - Glacial Stream Sediment, Outwash
- ct - Glacial Till
- ctx - Diamicton, Sand/Gravel, Lacustrine Complex
- bl - Glacial Lacustrine Sediment
- sa - Floodplain and Channelized Fluvial Deposits
- mf - Constructed Land
- Water

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

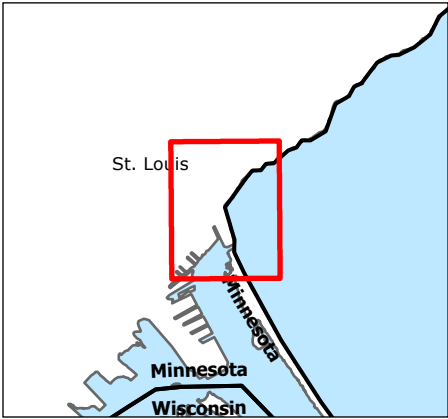
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.
7

Title
Surface Geology Map

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

U:\2277\027708309\03_data\gis\pro227708309_duluth_downtown_auar\pro227708309_duluth_downtown_auar.aprx Revised: 2025-10-30 By: kjmueller



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MGS C-51
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - Bedrock Geology**
 - Mns, interflow sandstone, siltstone, and conglomerate
 - Mtd, Tunnel intrusion - Diabase
 - Mdo, Porphyritic ophitic olivine leucogabbro
 - Mes, Diabase
 - Mdu, Upper contact zone - ferrodiorite, ferromonzodiorite, ferrogabbro
 - Mda, Anorthosite, troctolitic anorthosite, olivine gabbroic anorthosite, anorthositic gabbro
 - Mdg, Ferromonzodiorite to granophyre
 - Mnb, Undifferentiated basalt to basaltic andesite flows
 - Mnp, Porphyritic basalt
 - Mni, Icelandite

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

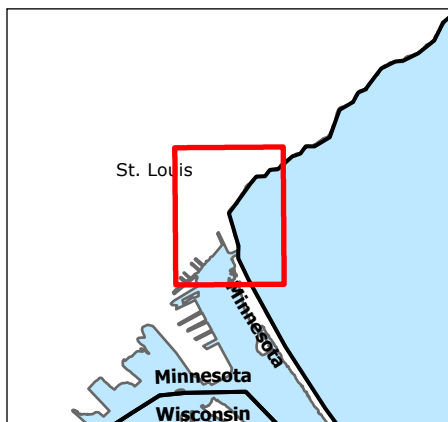
Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

8

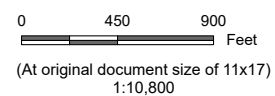
Bedrock Geology Map



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MDA, MGS
3. Background: 2023 St. Louis Co.

Legend

-  AUAR Area
- Field Verified Wells
-  Domestic
 -  Monitoring Well
 -  Environmental Bore Hole
 -  Air Conditioning
 -  Elevator



Project Location	Prepared by KJM on 2025-10-30
T50N, R14W, S22, 23, 27 & 34	TR by LW on 2025-10-30
C. of Duluth, St. Louis Co., MN	IR by ES on 2025-10-30
Client/Project	227708309

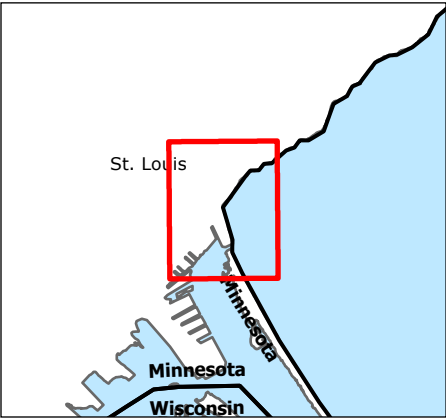
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

9

Title

Minnesota Well Index



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, NRCS
3. Background: 2023 St. Louis Co.

Legend
[Red Outline] AUAR Area
Soil Map Unit
Farmland Classification
[Yellow Outline] Not prime farmland

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW
Figure No.
10
Title
Soil and Farmland Classification

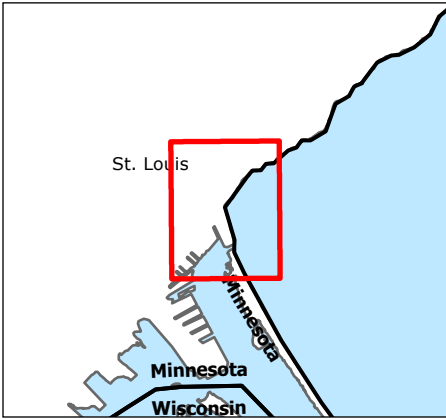
Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

10

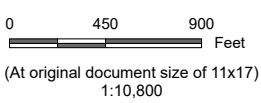
Title

Soil and Farmland Classification



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MNDNR, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - 2024 MPCA Impaired Lakes
 - 2024 MPCA Impaired Streams
 - Trout Stream
 - City of Duluth Streams
 - Shoreland Management Zones**
 - Cold Water
 - General Development
 - NE
 - Minnesota Public Waters Delineations**
 - Public Water Watercourse
 - Public Waters Basins
 - City of Duluth Flood Hazard**
 - 100 Year Flood Hazard
 - 500 Year Flood Hazard



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

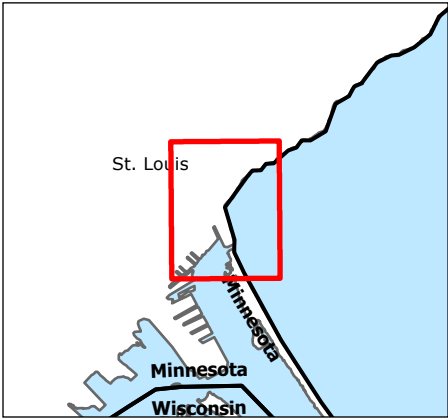
Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

11

Title

Water Resources Map



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MNDNR
3. Background: 2023 St. Louis Co.

- Legend**
- City of Duluth Streams
 - National Wetlands Inventory Feature
 - AUAR Area

0 450 900 Feet
(At original document size of 11x17)
1:10,800



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

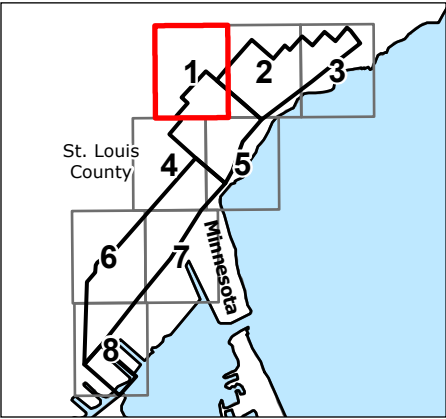
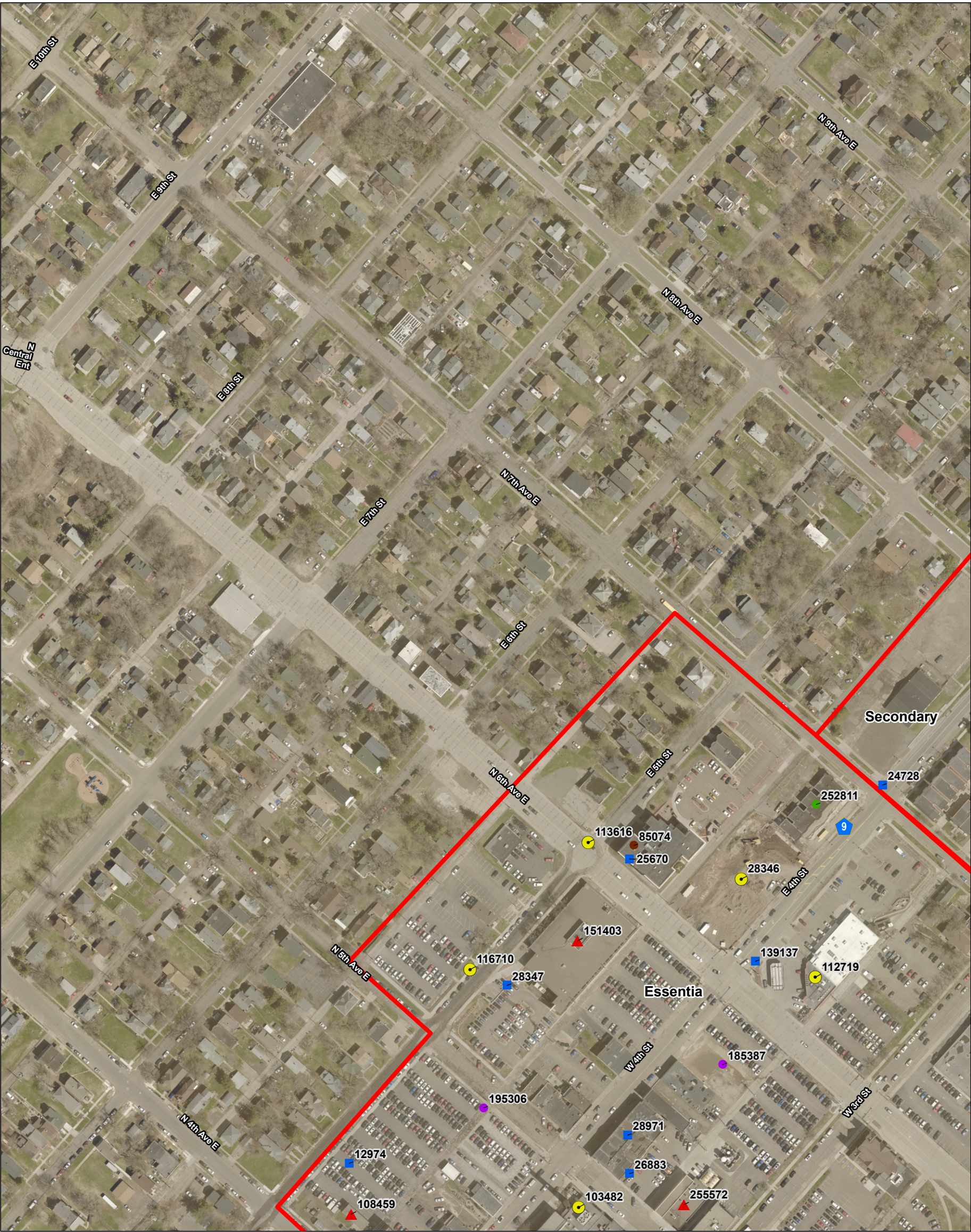
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

12

Title

Wetlands Map



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Hazardous Waste
 - Investigation and Cleanup
 - Solid Waste
 - Stormwater
 - ▲ Tanks

0 100 200 Feet
(At original document size of 11x17)
1:2,400



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

13

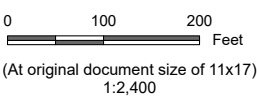
Title

MPCA Potentially Contaminated Sites



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Hazardous Waste
 - Investigation and Cleanup
 - Stormwater
 - ▲ Tanks



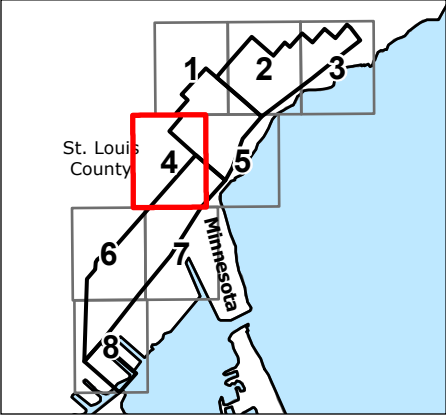
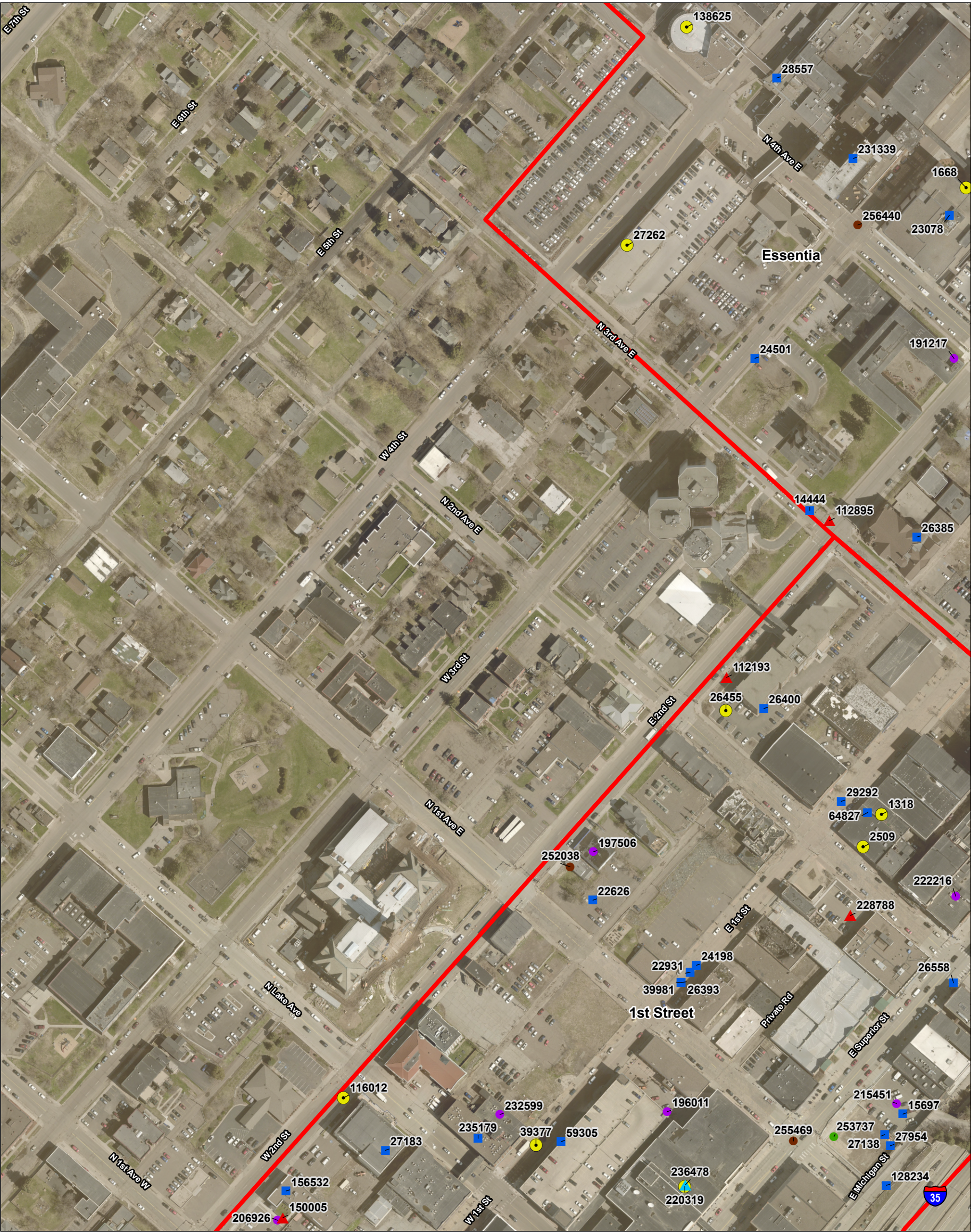
Project Location T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN
Client/Project City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW
Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

13

Title

MPCA Potentially Contaminated Sites



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Hazardous Waste
 - Investigation and Cleanup
 - Solid Waste
 - Stormwater
 - ▲ Tanks
 - ▲ Water Quality

0 100 200 Feet
(At original document size of 11x17)
1:2,400



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

13

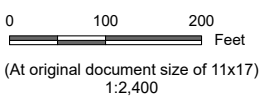
Title

MPCA Potentially Contaminated Sites



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Hazardous Waste
 - Investigation and Cleanup
 - Stormwater
 - ▲ Tanks



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

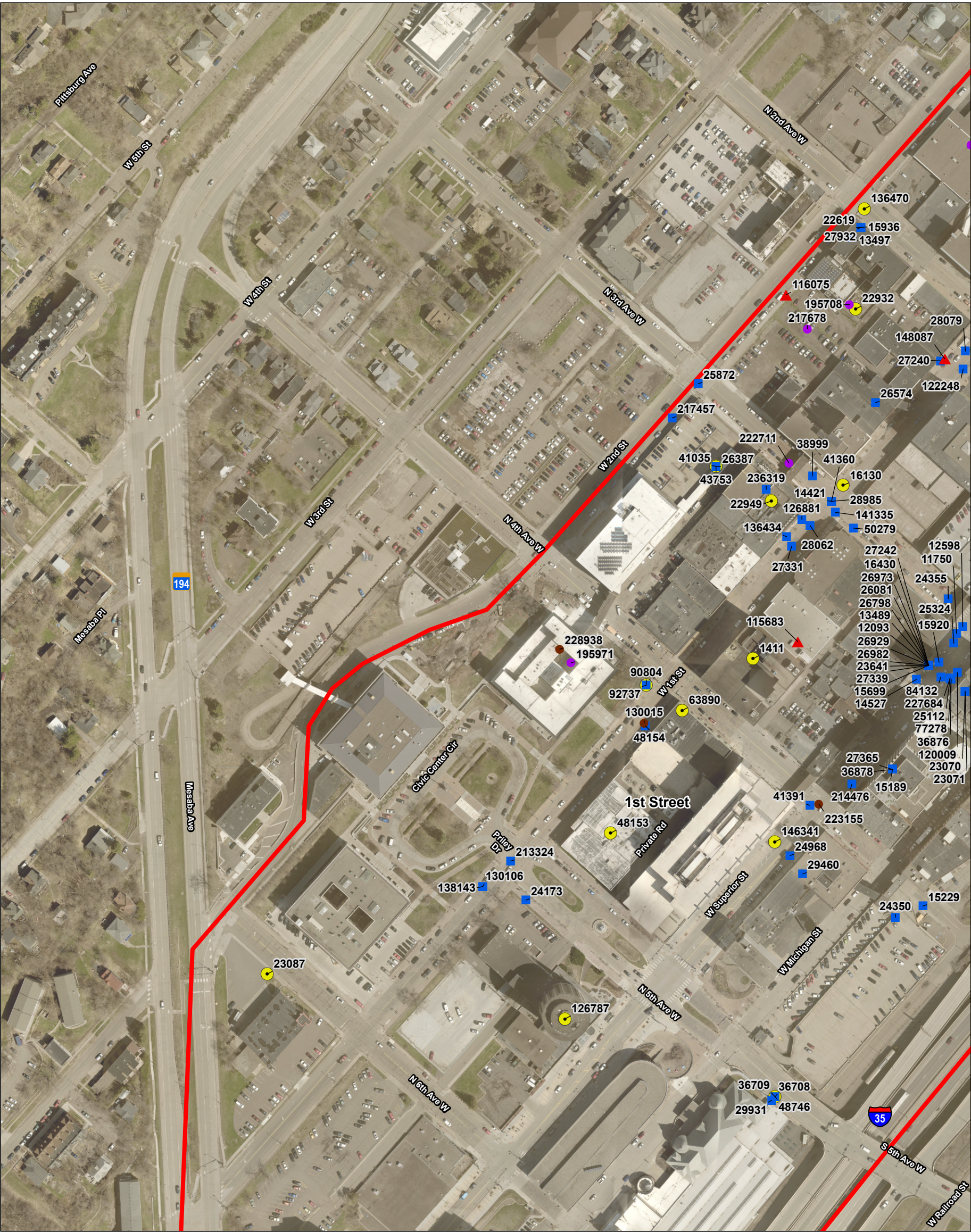
Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Figure No.

13

Title

MPCA Potentially Contaminated Sites



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Hazardous Waste
 - Investigation and Cleanup
 - Stormwater
 - ▲ Tanks

0 100 200 Feet
(At original document size of 11x17)
1:2,400



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

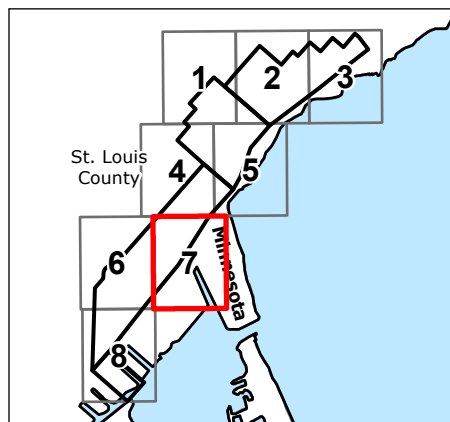
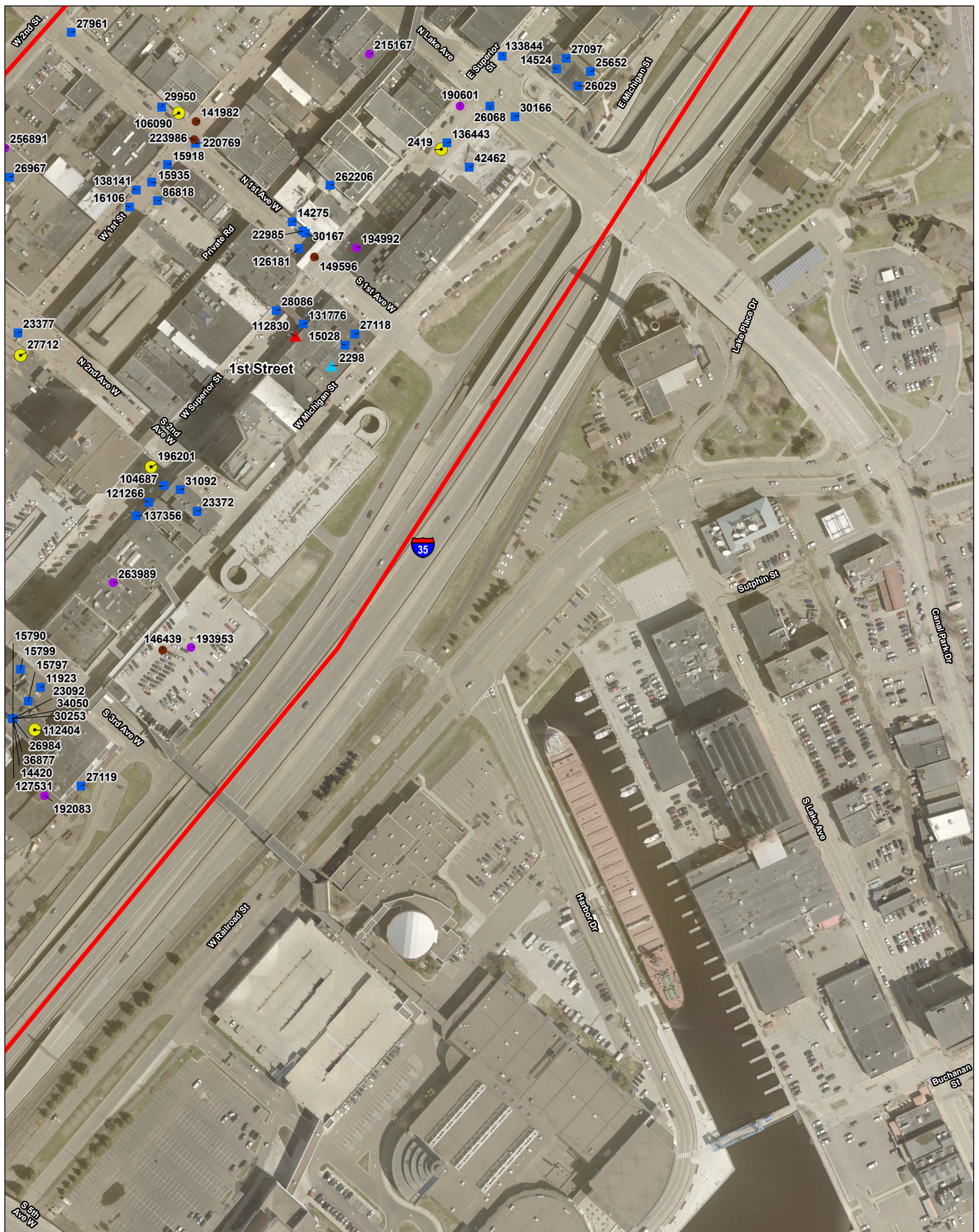
Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

13

Title

MPCA Potentially Contaminated Sites



Notes

1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

Legend

 AUAR Area

MPCA Sites

Program Name	Program Description	Program Status	Program Manager	Program Start Date	Program End Date	Program Budget	Program Actuals	Program Variance	Program Comments
Program A	Program A Description	Program A Status	Program A Manager	Program A Start Date	Program A End Date	Program A Budget	Program A Actuals	Program A Variance	Program A Comments
Program B	Program B Description	Program B Status	Program B Manager	Program B Start Date	Program B End Date	Program B Budget	Program B Actuals	Program B Variance	Program B Comments
Program C	Program C Description	Program C Status	Program C Manager	Program C Start Date	Program C End Date	Program C Budget	Program C Actuals	Program C Variance	Program C Comments
Program D	Program D Description	Program D Status	Program D Manager	Program D Start Date	Program D End Date	Program D Budget	Program D Actuals	Program D Variance	Program D Comments
Program E	Program E Description	Program E Status	Program E Manager	Program E Start Date	Program E End Date	Program E Budget	Program E Actuals	Program E Variance	Program E Comments
Program F	Program F Description	Program F Status	Program F Manager	Program F Start Date	Program F End Date	Program F Budget	Program F Actuals	Program F Variance	Program F Comments
Program G	Program G Description	Program G Status	Program G Manager	Program G Start Date	Program G End Date	Program G Budget	Program G Actuals	Program G Variance	Program G Comments
Program H	Program H Description	Program H Status	Program H Manager	Program H Start Date	Program H End Date	Program H Budget	Program H Actuals	Program H Variance	Program H Comments
Program I	Program I Description	Program I Status	Program I Manager	Program I Start Date	Program I End Date	Program I Budget	Program I Actuals	Program I Variance	Program I Comments
Program J	Program J Description	Program J Status	Program J Manager	Program J Start Date	Program J End Date	Program J Budget	Program J Actuals	Program J Variance	Program J Comments
Program K	Program K Description	Program K Status	Program K Manager	Program K Start Date	Program K End Date	Program K Budget	Program K Actuals	Program K Variance	Program K Comments
Program L	Program L Description	Program L Status	Program L Manager	Program L Start Date	Program L End Date	Program L Budget	Program L Actuals	Program L Variance	Program L Comments
Program M	Program M Description	Program M Status	Program M Manager	Program M Start Date	Program M End Date	Program M Budget	Program M Actuals	Program M Variance	Program M Comments
Program N	Program N Description	Program N Status	Program N Manager	Program N Start Date	Program N End Date	Program N Budget	Program N Actuals	Program N Variance	Program N Comments
Program O	Program O Description	Program O Status	Program O Manager	Program O Start Date	Program O End Date	Program O Budget	Program O Actuals	Program O Variance	Program O Comments
Program P	Program P Description	Program P Status	Program P Manager	Program P Start Date	Program P End Date	Program P Budget	Program P Actuals	Program P Variance	Program P Comments
Program Q	Program Q Description	Program Q Status	Program Q Manager	Program Q Start Date	Program Q End Date	Program Q Budget	Program Q Actuals	Program Q Variance	Program Q Comments
Program R	Program R Description	Program R Status	Program R Manager	Program R Start Date	Program R End Date	Program R Budget	Program R Actuals	Program R Variance	Program R Comments
Program S	Program S Description	Program S Status	Program S Manager	Program S Start Date	Program S End Date	Program S Budget	Program S Actuals	Program S Variance	Program S Comments
Program T	Program T Description	Program T Status	Program T Manager	Program T Start Date	Program T End Date	Program T Budget	Program T Actuals	Program T Variance	Program T Comments
Program U	Program U Description	Program U Status	Program U Manager	Program U Start Date	Program U End Date	Program U Budget	Program U Actuals	Program U Variance	Program U Comments
Program V	Program V Description	Program V Status	Program V Manager	Program V Start Date	Program V End Date	Program V Budget	Program V Actuals	Program V Variance	Program V Comments
Program W	Program W Description	Program W Status	Program W Manager	Program W Start Date	Program W End Date	Program W Budget	Program W Actuals	Program W Variance	Program W Comments
Program X	Program X Description	Program X Status	Program X Manager	Program X Start Date	Program X End Date	Program X Budget	Program X Actuals	Program X Variance	Program X Comments
Program Y	Program Y Description	Program Y Status	Program Y Manager	Program Y Start Date	Program Y End Date	Program Y Budget	Program Y Actuals	Program Y Variance	Program Y Comments
Program Z	Program Z Description	Program Z Status	Program Z Manager	Program Z Start Date	Program Z End Date	Program Z Budget	Program Z Actuals	Program Z Variance	Program Z Comments

- Multiple Programs

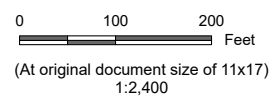
- Hazardous Waste

- Investigation and Cleanup

- Stormwater

▲ Tanks

▲ Water Quality



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

13

Title



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT, MPCA
3. Background: 2023 St. Louis Co.

- Legend**
- AUAR Area
 - MPCA Sites**
 - Program Name**
 - Multiple Programs
 - Investigation and Cleanup
 - Stormwater

0 100 200 Feet
(At original document size of 11x17)
1:2,400



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

13

Title

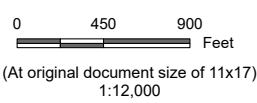
MPCA Potentially Contaminated Sites



Notes
1. Coordinate System: NAD 1983 HARN Adj MN St Louis CS96 Feet
2. Data Sources: Stantec, City of Duluth, St. Louis Co., MnDOT
3. Background: 2023 St. Louis Co.

- Legend**
- Transportation Study Intersections
 - AUAR Area

Map ID	Intersection
01	Garfield Avenue/Railroad Street
02	Railroad Street/5th Avenue W
03	Harbor Drive/5th Avenue W
04	I-35 northbound ramps/Harbor Drive
05	I-35 southbound ramps/Harbor Drive
06	Railroad Street/Harbor Drive



Project Location
T50N, R14W, S22, 23, 27 & 34
C. of Duluth, St. Louis Co., MN

Client/Project
City of Duluth, MN
Downtown Duluth AUAR
Scoping EAW

Prepared by KJM on 2025-10-30
TR by LW on 2025-10-30
IR by ES on 2025-10-30
227708309

Figure No.

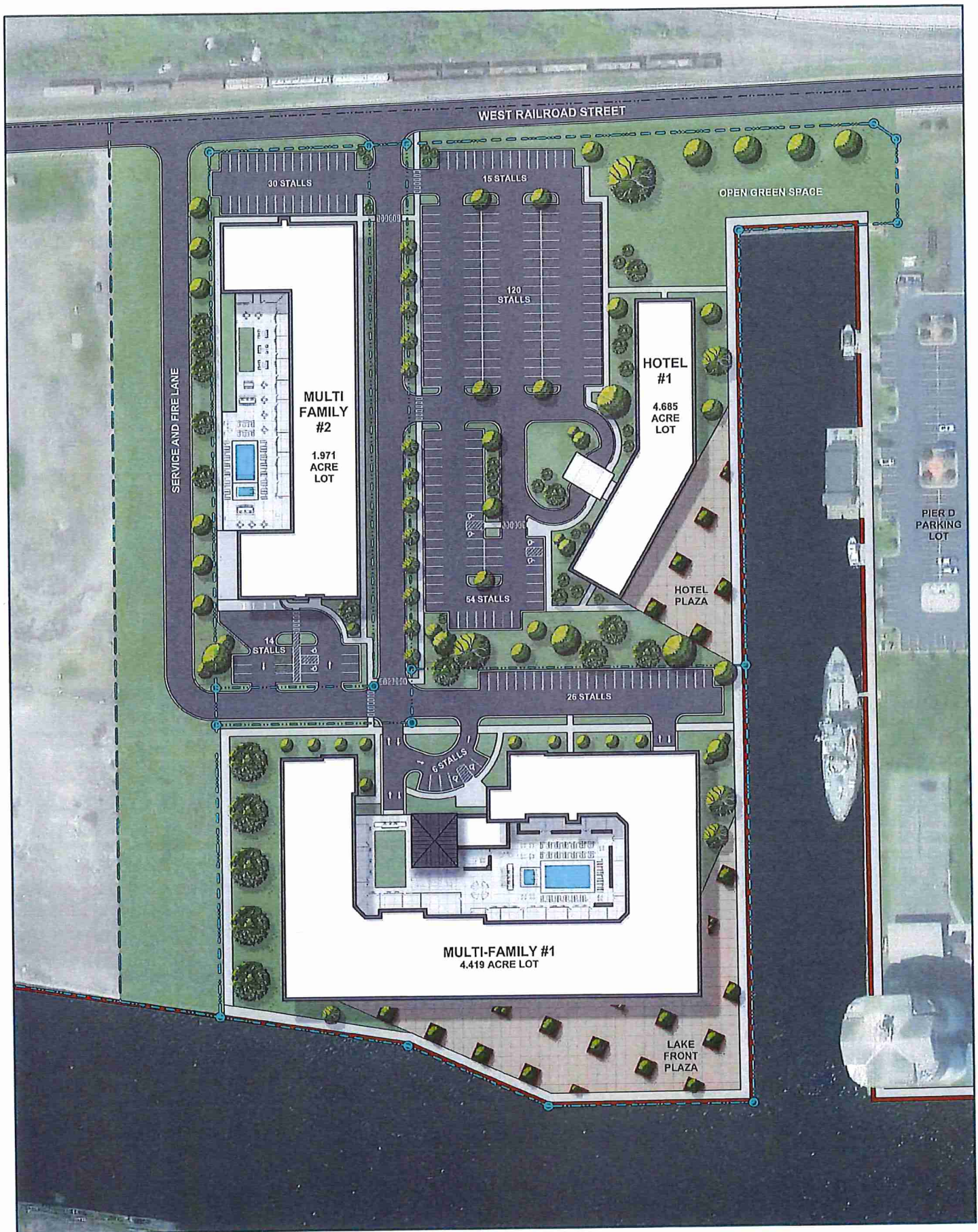
14

Title

Transportation Study Intersections

Appendix C

Lot D Concept Plan



Appendix D

FEMA FIRMette

National Flood Hazard Layer FIRMette



92°6'40"W 46°46'45"N



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

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

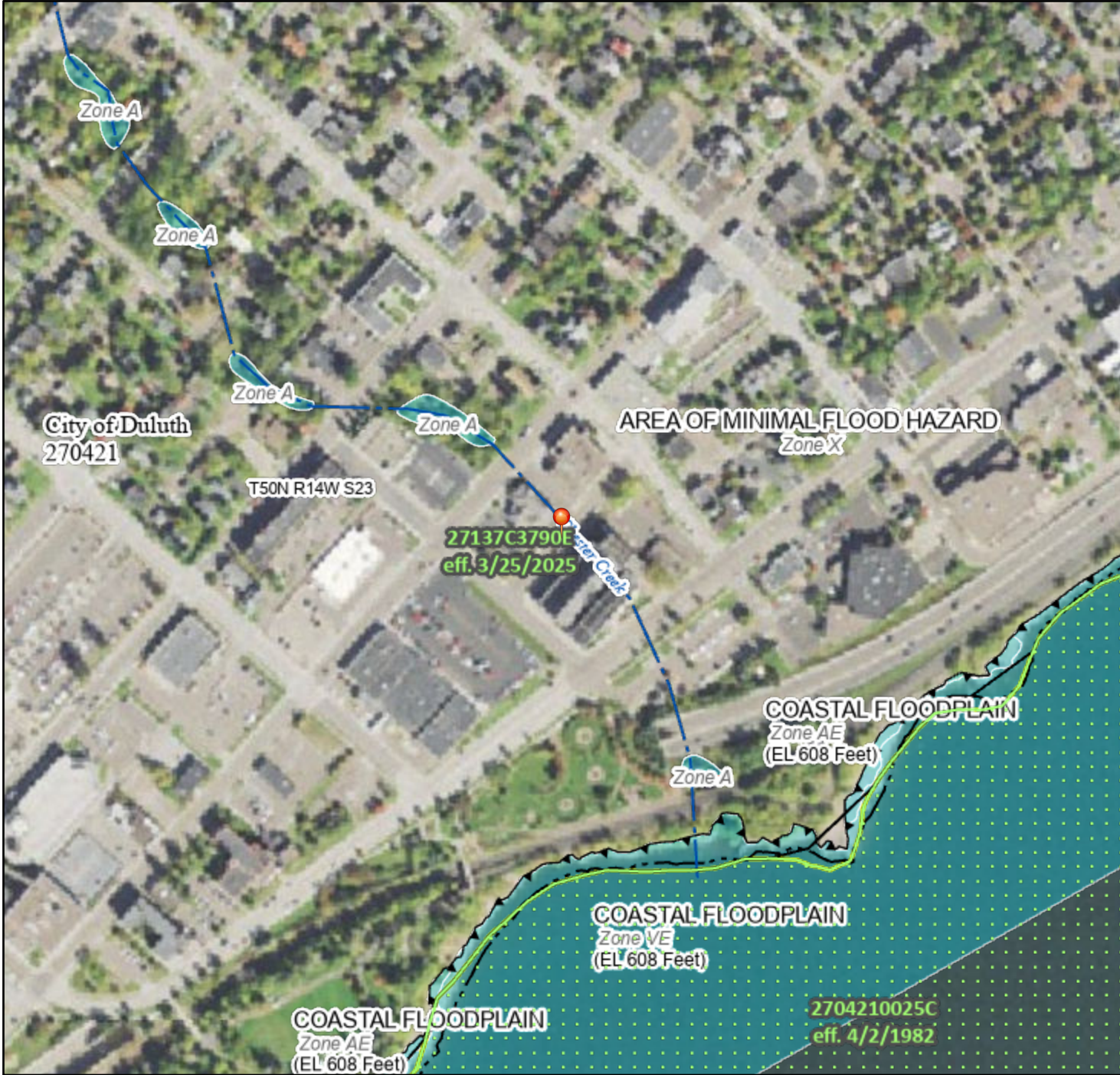
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/3/2025 at 2:47 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

National Flood Hazard Layer FIRMette



92°5'10"W 46°48'10"N



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

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

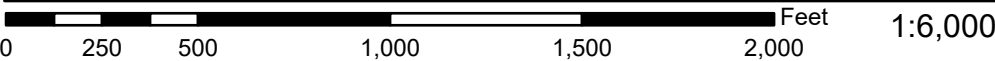
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/3/2025 at 3:15 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

National Flood Hazard Layer FIRMette



92°5'51"W 46°47'41"N



Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/3/2025 at 3:10 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Appendix E

MDH Well Log Reports

Minnesota Unique Well No.

454658

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 10/31/1990
Update
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed		Date Well Completed			Lic/Reg. No.				
BOWMAN		50	14	W	27	CABCDC	air conditioning	S	312 ft.	312 ft.		05/11/1989			69183				
Elevation	697 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Duluth Complex		Depth to Bedrock	10	ft	Open Hole	25	-	312	ft	Static Water Level	ft
Field Located By		Minnesota Geological Survey				Locate Method	Digitization (Screen) - Map (1:24,000) (15 meters				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -								
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		568310						
Geological Interpretation		Amy Block				Input Date	04/24/2018				UTM Northing (Y)		518160						
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k						
						Depth (ft.)		Elevation (ft.)											
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology		Secondary		Minor Lithology					
SAND FILL		BROWN	SOFT	0	10	10	697	687	man-made fill	fill		sand							
GABBRO		BLACK	MEDIUM	10	312	302	687	385	Duluth Complex	icelandite		volcanics,							
Minnesota Well Index - Stratigraphy Report								454658		Printed on 09/30/2025									

Minnesota Unique Well No.

533478

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 06/16/1994
Update
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
3		50	14	W	27	ACACBC	elevator	A	34 ft.	33.5 ft.	12/28/1993		L0006		
Elevation	648 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		568855		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518202		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
						Depth (ft.)		Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
FRACTURED BEDROCK		RED		0	5	5	648	643	upper southwest volc	basalt	basaltic andesite				
BLUE GRANITE		BLUE		5	34	29	643	614	upper southwest volc	basalt	basaltic andesite				
Minnesota Well Index - Stratigraphy Report								533478		Printed on 09/30/2025					

Minnesota Unique Well No.

533479

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 06/16/1994
Update
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.			
JAUSS, JAMES		50	14	W	27	CACADC	elevator	A	35 ft.	34.5 ft.	02/04/1994		L0006			
Elevation	650 ft.	Elev. Method		LiDAR 1m DEM (MNDNR)			Aquifer		Depth to Bedrock	18	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method		GPS SA Off (averaged) (15 meters)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified		Address verification				Input Source		Minnesota Geological Survey			UTM Easting (X)		568412			
Geological Interpretation		Amy Block				Input Date		04/06/2018			UTM Northing (Y)		518145			
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k			
				Depth (ft.)				Elevation (ft.)								
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology				
SAND & COBBLES				0	18	18	650	632	sand +larger	sand	cobble					
ROCK		BLUE		18	35	17	632	615	upper southwest volc	icelandite						

Minnesota Unique Well No.

533480

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 07/03/1995
Update
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
NEW APOLLO APT.		50	14	W	27	ACABCD	elevator	A	36 ft.	36 ft.	07/27/1994		L0006		
Elevation	654 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	2	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey			UTM Easting (X)		568874			
Geological Interpretation		Amy Block				Input Date	04/06/2018			UTM Northing (Y)		518207			
Agency (Interpretation)										Interpretaion Method		Geologic study 1:24k to 1:100k			
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
CLAYEY SAND & COBBLES		BROWN		0	2	2	654	652	pebbly sand/silt/clay-	sand	cobble	clay			
GRANITE		BLUE	HARD	2	36	34	652	618	upper southwest volc	basalt	basaltic andesite				

Minnesota Unique Well No.

644513

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 05/29/2001
Update
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
OFFICE DEPOT,		50	14	W	27	CAADBA	domestic	A	11 ft.	11 ft.	04/08/2000		L0004		
Elevation	642 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	4	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		568577		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518164		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
				Depth (ft.)		Elevation (ft.)									
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
CLAY/GRAVEL		RED	MEDIUM	0	4	4	642	638	pebbly sand/silt/clay-	clay	gravel				
KEWEENAWAN FORMATION		BLACK	HARD	4	11	7	638	631	upper southwest volc	icelandite					

Minnesota Unique Well No.

701046

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 02/21/2008
Update 07/05/2007
Received Date 02/26/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
MW-2		50	14	W	27	CDBBCA	monitor well	S	10 ft.	9.31 ft.	06/28/2007		1381		
Elevation	644 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock		ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		Minnesota Geological Survey				Locate Method	Digitization (Screen) - Map (1:12,000) (>15				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Site Plan				Input Source	Minnesota Geological Survey				UTM Easting (X)		568268		
Geological Interpretation		Bruce Bloomgren				Input Date	03/17/2016				UTM Northing (Y)		518129		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
SANDY FILL MATEIAL		BROWN	SOFT	0	10	10	644	634	man-made fill	fill	sand	clay			
Minnesota Well Index - Stratigraphy Report									701046		Printed on 09/30/2025				

Minnesota Unique Well No.

701047

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 07/05/2007
Received Date 02/26/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.			
MW-3		50	14	W	27	CDBBCA	monitor well	S	13 ft.	12.17 ft.	06/28/2007		1381			
Elevation	644 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Quat. Water Table		Depth to Bedrock	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		Minnesota Geological Survey				Locate Method	Digitization (Screen) - Map (1:12,000) (>15				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified		Site Plan				Input Source	Minnesota Geological Survey				UTM Easting (X)		568284			
Geological Interpretation		Bruce Bloomgren				Input Date	03/17/2016				UTM Northing (Y)		518128			
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k			
				Depth (ft.)				Elevation (ft.)								
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology				
SANDY FILL MATERIAL		BROWN	SOFT	0	3	3	644	641	man-made fill	fill	sand					
CLAY W/SAND & SILT FIRM		RED/BRN		3	13	10	641	631	clay/sand/silt-no peb.	clay	sand	silt				
Minnesota Well Index - Stratigraphy Report								701047		Printed on 09/30/2025						

Minnesota Unique Well No.

703163

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 02/28/2008
Update 06/27/2007
Received Date 02/26/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed			Lic/Reg. No.					
MW-1		50	14	W	27	CDBBCA	monitor well	S	16 ft.	16 ft.	05/04/2007			1688					
Elevation	643 ft.	Elev. Method		LiDAR 1m DEM (MNDNR)			Aquifer	Quat. Water Table		Depth to Bedrock		ft	Open Hole	-	ft	Static Water Level	10	ft	
Field Located By		Minnesota Geological Survey				Locate Method		Digitization (Screen) - Map (1:12,000) (>15			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -								
Unique No. Verified		Site Plan				Input Source		Minnesota Geological Survey			UTM Easting (X)		568281						
Geological Interpretation		Bruce Bloomgren				Input Date		03/17/2016			UTM Northing (Y)		518129						
Agency (Interpretation)												Interpretaion Method		Geologic study 1:24k to 1:100k					
						Depth (ft.)				Elevation (ft.)									
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology							
SAND/GRAVEL		BROWN	SOFT	0	16	16	643	627	sand +larger-brown	sand	gravel								
Minnesota Well Index - Stratigraphy Report									703163		Printed on 09/30/2025								

Minnesota Unique Well No.

704170

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 01/17/2006
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.				
A & L DOWNTOWN		50	14	W	27	ACBDCD	elevator	A	42 ft.	42 ft.	01/05/2006		L0008				
Elevation	655 ft.	Elev. Method		LiDAR 1m DEM (MNDNR)			Aquifer		Depth to Bedrock	2	ft	Open Hole	-	ft	Static Water Level	6	ft
Field Located By		County Planning & Zoning				Locate Method		GPS SA Off (averaged) (15 meters)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -						
Unique No. Verified		Address verification				Input Source		Minnesota Geological Survey			UTM Easting (X)		568790				
Geological Interpretation		Amy Block				Input Date		04/06/2018			UTM Northing (Y)		518196				
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k				
				Depth (ft.)				Elevation (ft.)									
Geological Material			Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology				
CONCRETE			GRAY	M.HARD	0	2	2	655	653	pavement	pavement (man-made)						
ROCK			GRAY	HARD	2	42	40	653	613	upper southwest volc	basalt						

Minnesota Well Index - Stratigraphy Report	704170	Printed on 09/30/2025
--	--------	-----------------------

Minnesota Unique Well No.

739031

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 05/08/2006
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
SHERMAN		50	14	W	27	CAACDC	elevator	A	56 ft.	56 ft.	04/28/2006		L0008		
Elevation	639 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		568517		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518156		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
						Depth (ft.)			Elevation (ft.)						
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
GRANITE		GRAY	HARD	0	28	28	639	611	upper southwest volc	icelandite					
GRANITE		RED	HARD	28	56	28	611	583	upper southwest volc	volcanics,					
Minnesota Well Index - Stratigraphy Report								739031		Printed on 09/30/2025					

Minnesota Unique Well No.

739041

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 06/29/2009
Update 10/29/2007
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.					
A & L PROPERTIES		50	14	W	27	ACDABB	elevator	A	49 ft.	49 ft.	10/10/2007		1832					
Elevation	614 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	upper southwest		Depth to Bedrock	2	ft	Open Hole	-	ft	Static Water Level	10	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -							
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		568951					
Geological Interpretation		Amy Block				Input Date	10/11/2017				UTM Northing (Y)		518195					
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k					

Geological Material	Color	Hardness	Depth (ft.)			Elevation (ft.)		Stratigraphy	Primary Lithology	Secondary	Minor Lithology
			From	To	Thickness	From	To				
GRAVEL	GRAY	MEDIUM	0	2	2	614	612	gravel (+larger)-gray	gravel		
BROKEN ROCK	DK. GRY	MEDIUM	2	9	7	612	605	upper southwest volc	basalt	basaltic andesite	crevice
GRANITE	DK. GRY	HARD	9	49	40	605	565	upper southwest volc	basalt	basaltic andesite	

Minnesota Well Index - Stratigraphy Report	739041	Printed on 09/30/2025
--	--------	-----------------------

Minnesota Unique Well No.

739042

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 06/30/2009
Update 10/29/2007
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.						
A & L PROPERTIES		50	14	W	27	ACDABB	elevator	A	49 ft.	49 ft.	10/18/2007		1832						
Elevation	615 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	upper southwest		Depth to Bedrock	2	ft	Open Hole	-	ft	Static Water Level	10	ft	
Field Located By		County Planning & Zoning				Locate Method		GPS SA Off (averaged) (15 meters)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -								
Unique No. Verified		Address verification				Input Source		Minnesota Geological Survey			UTM Easting (X)		568946						
Geological Interpretation		Amy Block				Input Date		10/11/2017			UTM Northing (Y)		518195						
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k						
						Depth (ft.)				Elevation (ft.)									
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary		Minor Lithology						
GRAVEL		GRAY	MEDIUM	0	2	2	615	613	gravel (+larger)-gray	gravel									
BROKEN ROCK		DK. GRY	MEDIUM	2	8	6	613	607	upper southwest volc	basalt	basaltic andesite		crevice						
GRANITE		DK. GRY	HARD	8	49	41	607	566	upper southwest volc	basalt	basaltic andesite								
Minnesota Well Index - Stratigraphy Report									739042		Printed on 09/30/2025								

Minnesota Unique Well No.

764826

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 07/28/2009
Update 10/23/2009
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
HURLBUT-ZEPPA		50	14	W	27	ADBBBA	elevator	A	34 ft.	34 ft.	03/03/2009		1832		
Elevation	628 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		Minnesota Geological Survey				Locate Method	Digitization (Screen) - Map (1:12,000) (>15				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		569103		
Geological Interpretation		Amy Block				Input Date	04/28/2016				UTM Northing (Y)		518213		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
BROKEN GRANITE		BLACK	HARD	0	5	5	628	623	upper southwest volc	basalt	basaltic andesite	crevice			
GRANITE		BLACK	HARD	5	34	29	623	594	upper southwest volc	basalt	basaltic andesite				
Minnesota Well Index - Stratigraphy Report								764826		Printed on 09/30/2025					

454658

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 10/31/1990
Update Date 12/05/2019
Received Date

Well Name BOWMAN	Township 50	Range 14	Dir Section W 27	Subsection CABCD															
Elevation 697 ft.	Elev. Method LiDAR 1m DEM (MNDNR)																		
Address Well 330 2ND ST W DULUTH MN 55802 Contact 700 FIRST BANK PL DULUTH MN 55802																			
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SAND FILL</td><td>0</td><td>10</td><td>BROWN</td><td>SOFT</td></tr><tr><td>GABBRO</td><td>10</td><td>312</td><td>BLACK</td><td>MEDIUM</td></tr></table>					Geological Material	From	To (ft.)	Color	Hardness	SAND FILL	0	10	BROWN	SOFT	GABBRO	10	312	BLACK	MEDIUM
Geological Material	From	To (ft.)	Color	Hardness															
SAND FILL	0	10	BROWN	SOFT															
GABBRO	10	312	BLACK	MEDIUM															
Well Depth 312 ft. Depth Completed 312 ft. Date Well Completed 05/11/1989																			
Drill Method Air Rotary Drill Fluid Foam																			
Use air conditioning Status Sealed																			
Well Hydrofractured? Yes ☐ No ☐ From To																			
Casing Type Single casing Joint Welded																			
Drive Shoe? Yes ☒ No ☐ Above/Below 1 ft.																			
Casing Diameter 6 in. Weight 25 lbs./ft. Hole Diameter 6 in.																			
Open Hole From 25 ft. To 312 ft.																			
Screen? ☐ Type Make																			
Static Water Level																			
Pumping Level (below land surface)																			
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☒ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)																			
Grouting Information Well Grouted? ☐ Yes ☒ No ☐ Not Specified																			
Nearest Known Source of Contamination 100 feet East Direction Septic tank/drain field Type Well disinfected upon completion? ☒ Yes ☐ No																			
Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ																			
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No																			
Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No																			
Miscellaneous First Bedrock upper southwest volc Aquifer Duluth Complex Last Strat Duluth Complex Depth to Bedrock 10 ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or System UTM - NAD83, Zone 15, Meters X 568310 Y 5181602 Unique Number Verification Address verification Input Date 04/24/2018																			
Angled Drill Hole																			
Well Contractor Petersen Well Co. 69183 PETERSEN, D. Licensee Business Lic. or Reg. No. Name of Driller																			

533478

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 06/16/1994
Update Date 12/05/2019
Received Date

Well Name 3	Township 50	Range 14	Dir Section W 27	Subsection ACACBC	Well Depth 34 ft.	Depth Completed 33.5 ft.	Date Well Completed 12/28/1993														
Elevation 648 ft.	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Foam														
Address C/W 32 1ST ST E DULUTH MN 55802					Use elevator	Status Active															
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>FRACTURED BEDROCK</td><td>0</td><td>5</td><td>RED</td><td></td></tr><tr><td>BLUE GRANITE</td><td>5</td><td>34</td><td>BLUE</td><td></td></tr></table>					Geological Material	From	To (ft.)	Color	Hardness	FRACTURED BEDROCK	0	5	RED		BLUE GRANITE	5	34	BLUE		Well Hydrofractured? Yes ☐ No ☐	From To
					Geological Material	From	To (ft.)	Color	Hardness												
					FRACTURED BEDROCK	0	5	RED													
					BLUE GRANITE	5	34	BLUE													
					Casing Type Single casing	Joint															
					Drive Shoe? Yes ☐ No ☐	Above/Below															
					Casing Diameter 16 in. To 32 ft.	Weight 62.5 lbs./ft.	Hole Diameter 20 in. To 33.5 ft.														
					Open Hole From _____ ft. To _____ ft.																
					Screen? ☐	Type	Make														
					Static Water Level																
Pumping Level (below land surface)																					
Wellhead Completion Pitless adapter manufacturer _____ Model _____ ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)																					
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 20 Sacks 0 ft. 32.5 ft.																					
Nearest Known Source of Contamination _____ feet Direction _____ Type _____ Well disinfected upon completion? ☐ Yes ☐ No																					
Pump ☐ Not Installed Date Installed _____ Manufacturer's name _____ Model Number _____ HP _____ Volt _____ Length of drop pipe _____ ft Capacity _____ g.p. Typ _____																					
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No																					
Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No																					
Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 0 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 568855 Y 5182026 Unique Number Verification Address verification Input Date 04/06/2018																					
Angled Drill Hole																					
Well Contractor Rudy's Contracting, Inc L0006 ZIMBAUER, R. Licensee Business Lic. or Reg. No. Name of Driller																					

Remarks

533479

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 06/16/1994
Update Date 12/05/2019
Received Date

Well Name JAUSS, JAMES	Township 50	Range 14	Dir Section W 27	Subsection CACADC	Well Depth 35 ft.	Depth Completed 34.5 ft.	Date Well Completed 02/04/1994
Elevation 650 ft.	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Cable Tool	Drill Fluid Foam
Address					Use elevator	Status Active	
Contact 1931 2ND ST E DULUTH MN 55812					Well Hydrofractured? Yes ☐ No ☐ From To		
Well 403 SUPERIOR ST W DULUTH MN 55802					Casing Type Step down Joint		
Stratigraphy Information					Drive Shoe? Yes ☐ No ☐ Above/Below		
Geological Material		From	To (ft.)	Color	Hardness	Casing Diameter Weight Hole Diameter	
SAND & COBBLES		0	18			12 in. To 34 ft. lbs./ft. 20 in. To 34.5 ft.	
ROCK		18	35	BLUE		20 in. To 18 ft. lbs./ft.	
Open Hole From ft. To ft.							
Screen? ☐ Type Make							
Static Water Level							
Pumping Level (below land surface)							
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)							
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified							
Material		Amount		From		To	
neat cement		40 Sacks		0		ft. 34.5 ft.	
Nearest Known Source of Contamination							
feet		Direction				Type	
Well disinfected upon completion? ☐ Yes ☐ No							
Pump ☐ Not Installed Date Installed							
Manufacturer's name							
Model Number		HP		Volt			
Length of drop pipe		ft Capacity		g.p. Typ			
Abandoned							
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No							
Variance							
Was a variance granted from the MDH for this well? ☐ Yes ☐ No							
Miscellaneous							
First Bedrock		upper southwest volc		Aquifer			
Last Strat		upper southwest volc		Depth to Bedrock		18 ft	
Located by Minnesota Geological Survey							
Locate Method GPS SA Off (averaged) (15 meters)							
System		UTM - NAD83, Zone 15, Meters		X 568412		Y 5181452	
Unique Number Verification		Address verification		Input Date		04/06/2018	
Angled Drill Hole							
Well Contractor							
Rudy's Contracting, Inc		L0006		ZIMBAUER, R.			
Licensee Business		Lic. or Reg. No.		Name of Driller			

533480

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 07/03/1995
Update Date 12/05/2019
Received Date

Well Name NEW APOLLO	Township 50	Range 14	Dir Section W 27	Subsection ACABCD	Well Depth 36 ft.	Depth Completed 36 ft.	Date Well Completed 07/27/1994
Elevation 654 ft.	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary	Drill Fluid Foam
Address Well 102 1ST ST E DULUTH MN 55802 Contact P.O. BOX 39 DULUTH MN 55802					Use elevator	Status Active	
Stratigraphy Information					Well Hydrofractured? Yes ☐ No ☐	From	To
					Casing Type Single casing	Joint Welded	
					Drive Shoe? Yes ☐ No ☒	Above/Below	
Geological Material CLAYEY SAND & GRANITE					From 0 2	To (ft.) 2 36	Color BROWN BLUE
					Hardness HARD		
					Casing Diameter 16 in.	Weight 35 ft.	Hole Diameter 19 in.
					Open Hole Screen? ☐	From ft.	To ft.
					Type	Make	
					Static Water Level		
					Pumping Level (below land surface)		
					Wellhead Completion Pitless adapter manufacturer ☐ Casing Protection ☐ At-grade (Environmental Wells and Borings ONLY)		
					Model ☐ 12 in. above grade		
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified		
					Material neat cement	Amount 30 Sacks	From 0 ft.
						To 36 ft.	
					Nearest Known Source of Contamination feet Direction Well disinfected upon completion? ☐ Yes ☐ No		
					Type		
					Pump Manufacturer's name	☐ Not Installed Date Installed	
					Model Number	HP	Volt
					Length of drop pipe ft	Capacity g.p.	Typ
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No		
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No		
					Miscellaneous First Bedrock upper southwest volc Last Strat upper southwest volc Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 568874 Y 5182072 Unique Number Verification Address verification Input Date 04/06/2018		
					Angled Drill Hole		
					Well Contractor Rudy's Contracting, Inc L0006 ZIMBAUER, R. Licensee Business Lic. or Reg. No. Name of Driller		

Remarks
START OF HOLE IN APPROX. 12 FT BELOW NORTH SIDEWALK.

567858

County St. Louis
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 09/16/2008
Update Date 12/05/2019
Received Date

Well Name MW-2 CITY OF	Township 50	Range 14	Dir W	Section 27	Subsection null	Well Depth null	Depth Completed null	Date Well Completed						
Elevation	Elev. Method					Drill Method	Drill Fluid							
Address C/W 411 W. 1ST. ST MN						Use		Status						
						Well Hydrofractured?		Yes ☐	No ☐	From	To			
						Casing Type		Joint						
Stratigraphy Information						Drive Shoe?		Yes ☐	No ☐	Above/Below				
						Open Hole				From	ft.	To	ft.	
						Screen?		☐	Type	Make				
						Static Water Level								
						Pumping Level (below land surface)								
						Wellhead Completion								
						Pitless adapter manufacturer								Model
						☐ Casing Protection								☐ 12 in. above grade
						☐ At-grade (Environmental Wells and Borings ONLY)								
						Grouting Information						Well Grouted?	☐ Yes	☐ No
Nearest Known Source of Contamination														
feet						Direction		Type						
Well disinfected upon completion?						☐ Yes	☐ No							
Pump						☐ Not Installed	Date Installed							
Manufacturer's name														
Model Number						HP	Volt							
Length of drop pipe						ft	Capacity	g.p.	Typ					
Abandoned														
Does property have any not in use and not sealed well(s)?						☐ Yes	☐ No							
Variance														
Was a variance granted from the MDH for this well?						☐ Yes	☐ No							
Miscellaneous														
First Bedrock						Aquifer								
Last Strat						Depth to Bedrock			ft					
Located by														
Locate Method														
System						UTM - NAD83, Zone 15, Meters	X	Y						
Unique Number Verification						Input Date								
Angled Drill Hole														
Well Contractor														
Earth Burners, Inc.						M0142								
Licensee Business						Lic. or Reg. No.	Name of Driller							

Remarks
MW-2 NOT INSTALLED

644513

County

St. Louis

Quad

Duluth

Quad ID

244D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date

05/29/2001

Update Date

12/05/2019

Received Date

Well Name OFFICE DEPOT, Township 50 Range 14 Dir Section W 27 Subsection CAADBA	Well Depth 11 ft. Depth Completed 11 ft. Date Well Completed 04/08/2000
Elevation 642 ft. Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Cable Tool Drill Fluid
Address	Use domestic Status Active
Contact 2200 OLD GERMANTOWN RD DEL RAY BEACH FL 33445 Well 207W SUPERIOR ST DULUTH MN 55802	Well Hydrofractured? Yes No From To
Stratigraphy Information	Casing Type Step down Joint Welded
Geological Material From To (ft.) Color Hardness CLAY/GRAVEL 0 4 RED MEDIUM KEWEENAWAN 4 11 BLACK HARD	Drive Shoe? Yes ☒ No Above/Below
	Casing Diameter Weight Hole Diameter 16 in. To 11 ft. 62.5 lbs./ft. 24 in. To 11 ft. 24 in. To 5 ft. 63.4 lbs./ft.
	Open Hole From ft. To ft.
	Screen? Type Make
	Static Water Level
	Pumping Level (below land surface)
	Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)
	Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 16 Sacks 0 ft. 11 ft.
	Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No
	Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ
	Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No
	Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No
	Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 4 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 568577 Y 5181647 Unique Number Verification Address verification Input Date 04/06/2018
	Angled Drill Hole
	Well Contractor Midwest Drilling L0004 STANGRET, J. Licensee Business Lic. or Reg. No. Name of Driller

Remarks

PIT 5 FT. BELOW GRADE.

701046

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 02/21/2008
Update Date 02/26/2019
Received Date 07/05/2007

Well Name MW-2	Township 50	Range 14	Dir Section W 27	Subsection CDBBCA	Well Depth 10 ft.	Depth Completed 9.31 ft.	Date Well Completed 06/28/2007
Elevation 644 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Auger (non-specified) Drill Fluid					
Address Well 505 SUPERIOR ST W DULUTH MN 55802					Use monitor well Status Sealed		
Stratigraphy Information Geological Material From To (ft.) Color Hardness SANDY FILL MATEIAL 0 10 BROWN SOFT					Well Hydrofractured? Yes ☐ No ☒ From To		
					Casing Type Single casing Joint		
					Drive Shoe? Yes ☐ No ☐ Above/Below		
					Casing Diameter Weight Hole Diameter 2 in. To 4.3 ft. 0 lbs./ft. 4.2 in. To 9.3 ft.		
					Open Hole From ft. To ft.		
					Screen? ☒ Type plastic Make JOHNSON Diameter Slot/Gauze Length Set 2 in. 10 5 ft. 4.3 ft. 9.3 ft.		
					Static Water Level		
					Pumping Level (below land surface)		
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☒ At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To bentonite 0.5 Sacks 0.5 ft. 3.3 ft.		
Nearest Known Source of Contamination 20 feet South Direction Type Well disinfected upon completion? ☐ Yes ☒ No							
Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ							
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No							
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No							
Miscellaneous First Bedrock Aquifer Last Strat man-made fill Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 568268 Y 5181292 Unique Number Verification Site Plan Input Date 03/17/2016							
Angled Drill Hole							
Well Contractor Twin Ports Testing, Inc. 1381 DINNAN, L. Licensee Business Lic. or Reg. No. Name of Driller							

Remarks
SEALED 02-04-2010 BY 1381.
NO WATER ENCOUNTERED.

701047

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 02/26/2019
Received Date 07/05/2007

Well Name MW-3	Township 50	Range 14	Dir Section W 27	Subsection CDBBCA	Well Depth 13 ft.	Depth Completed 12.17 ft.	Date Well Completed 06/28/2007																
Elevation 644 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Auger (non-specified)				Drill Fluid																	
Address Well 505 SUPERIOR ST W DULUTH MN 55802					Use monitor well			Status Sealed															
Stratigraphy Information					Well Hydrofractured? Yes ☐ No ☒ From To																		
<table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>SANDY FILL MATERIAL</td><td>0</td><td>3</td><td>BROWN</td><td>SOFT</td></tr><tr><td>CLAY W/SAND & SILT</td><td>3</td><td>13</td><td>RED/BRN</td><td></td></tr></table>					Geological Material	From	To (ft.)	Color	Hardness	SANDY FILL MATERIAL	0	3	BROWN	SOFT	CLAY W/SAND & SILT	3	13	RED/BRN		Casing Type Single casing Joint			
Geological Material	From	To (ft.)	Color	Hardness																			
SANDY FILL MATERIAL	0	3	BROWN	SOFT																			
CLAY W/SAND & SILT	3	13	RED/BRN																				
					Drive Shoe? Yes ☐ No ☐ Above/Below																		
					Casing Diameter Weight Hole Diameter																		
					2 in. To 12.2 ft. 0 lbs./ft. 4.2 in. To 12.1 ft.																		
					Open Hole From ft. To ft.																		
					Screen? ☒ Type plastic Make JOHNSON																		
					Diameter Slot/Gauze Length Set																		
					2 in. 10 5 ft. 7.2 ft. 12.2 ft.																		
					Static Water Level																		
					Pumping Level (below land surface)																		
					Wellhead Completion																		
					Pitless adapter manufacturer Model																		
					☐ Casing Protection ☐ 12 in. above grade																		
					☒ At-grade (Environmental Wells and Borings ONLY)																		
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified																		
					Material Amount From To																		
					bentonite 0.5 Sacks 0.8 ft. 5.1 ft.																		
					Nearest Known Source of Contamination																		
					20 feet North Direction Type																		
					Well disinfected upon completion? ☐ Yes ☒ No																		
					Pump ☒ Not Installed Date Installed																		
					Manufacturer's name																		
					Model Number HP Volt																		
					Length of drop pipe ft Capacity g.p. Typ																		
					Abandoned																		
					Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No																		
					Variance																		
					Was a variance granted from the MDH for this well? ☐ Yes ☒ No																		
					Miscellaneous																		
					First Bedrock Aquifer Quat. Water																		
					Last Strat clay/sand/silt-no peb. Depth to Bedrock ft																		
					Located by Minnesota Geological Survey																		
					Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters)																		
					System UTM - NAD83, Zone 15, Meters X 568284 Y 5181281																		
					Unique Number Verification Site Plan Input Date 03/17/2016																		
					Angled Drill Hole																		
					Well Contractor																		
					Twin Ports Testing, Inc. 1381 DINNAN, L.																		
					Licensee Business Lic. or Reg. No. Name of Driller																		

Remarks
SEALED 02-04-2010 BY 1381.
NO WATER ENCOUNTERED.

704170

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 01/17/2006

Well Name A & L					Township 50	Range 14	Dir W	Section 27	Subsection ACBDCD	Well Depth 42 ft.			Depth Completed 42 ft.			Date Well Completed 01/05/2006								
Elevation 655 ft.					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Non-specified Rotary			Drill Fluid											
Address										Use elevator			Status Active											
Contact 16W 1ST ST DULUTH MN 55802										Well Hydrofractured? Yes ☐ No ☒			From			To								
Well 10W 1ST ST DULUTH MN 55805										Casing Type Step down			Joint Welded											
Stratigraphy Information										Drive Shoe? Yes ☒ No ☐			Above/Below											
Geological Material					From	To (ft.)	Color	Hardness		Casing Diameter			Weight			Hole Diameter								
CONCRETE					0	2	GRAY	M.HARD		16 in. To 42 ft. 62.6 lbs./ft.			19. in. To 42 ft.											
ROCK					2	42	GRAY	HARD		2 in. To 20 ft. 52.7 lbs./ft.														
Open Hole															From		ft.		To		ft.			
Screen? ☐															Type		Make							
Static Water Level															6 ft.		land surface		Measure		01/05/2006			
Pumping Level (below land surface)																								
Wellhead Completion															Pitless adapter manufacturer					Model				
☐ Casing Protection															☐ 12 in. above grade									
☐ At-grade (Environmental Wells and Borings ONLY)																								
Grouting Information															Well Grouted?		☒ Yes ☐ No ☐ Not Specified							
Material					Amount					From		To												
neat cement					2.25 Cubic yards					ft. 42		ft.												
Nearest Known Source of Contamination															feet		Direction		Type					
Well disinfected upon completion?															☐ Yes ☐ No									
Pump ☐ Not Installed															Date Installed									
Manufacturer's name																								
Model Number					HP					Volt														
Length of drop pipe					ft Capacity					g.p. Typ														
Abandoned															Does property have any not in use and not sealed well(s)?					☐ Yes ☐ No				
Variance															Was a variance granted from the MDH for this well?					☐ Yes ☒ No				
Miscellaneous															First Bedrock upper southwest volc					Aquifer				
Last Strat					upper southwest volc					Depth to Bedrock					2		ft							
Located by Minnesota Geological Survey																								
Locate Method GPS SA Off (averaged) (15 meters)																								
System					UTM - NAD83, Zone 15, Meters					X 568790		Y 5181966												
Unique Number Verification					Address verification					Input Date		04/06/2018												
Angled Drill Hole																								
Well Contractor															United Drilling, Inc.					L0008		GRABER, K.		
Licensee Business					Lic. or Reg. No.					Name of Driller														
Minnesota Well Index Report										704170					Printed on 09/30/2025 HE-01205-15									

739031

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 05/08/2006

Well Name SHERMAN					Township 50		Range 14		Dir Section W 27		Subsection CAACDC	
Elevation 639 ft.		Elev. Method LiDAR 1m DEM (MNDNR)										
Address												
Contact		233 PARK AV S DULUTH MN										
Well		301 SUPERIOR ST E DULUTH MN 55802										
Stratigraphy Information												
Geological Material		From		To (ft.)		Color		Hardness				
GRANITE		0		28		GRAY		HARD				
GRANITE		28		56		RED		HARD				
Well Depth 56 ft.												
Depth Completed 56 ft.												
Date Well Completed 04/28/2006												
Drill Method		Non-specified Rotary						Drill Fluid				
Use		elevator						Status		Active		
Well Hydrofractured?		Yes ☐		No ☒		From		To				
Casing Type		Step down						Joint		Welded		
Drive Shoe?		Yes ☒		No ☐		Above/Below						
Casing Diameter		Weight		Hole Diameter								
18 in. To		56 ft. 82.2 lbs./ft.		24 in. To 56 ft.								
24 in. To		3 ft. 63.4 lbs./ft.										
Open Hole		From		ft.		To		ft.				
Screen?		☐		Type		Make						
Static Water Level												
Pumping Level (below land surface)												
Wellhead Completion												
Pitless adapter manufacturer						Model						
☐		Casing Protection				☐		12 in. above grade				
☐		At-grade (Environmental Wells and Borings ONLY)										
Grouting Information		Well Grouted?		☒ Yes ☐ No ☐ Not Specified								
Material		Amount		From		To						
neat cement		2.5 Cubic yards		ft. 56		ft.						
Nearest Known Source of Contamination												
feet		Direction		Type								
Well disinfected upon completion?		☐ Yes ☐ No										
Pump		☐ Not Installed		Date Installed								
Manufacturer's name												
Model Number		HP		Volt								
Length of drop pipe		ft		Capacity		g.p.		Typ				
Abandoned												
Does property have any not in use and not sealed well(s)?		☐ Yes ☐ No										
Variance												
Was a variance granted from the MDH for this well?		☐ Yes ☒ No										
Miscellaneous												
First Bedrock		upper southwest volc				Aquifer						
Last Strat		upper southwest volc				Depth to Bedrock		0		ft		
Located by		Minnesota Geological Survey										
Locate Method		GPS SA Off (averaged) (15 meters)										
System		UTM - NAD83, Zone 15, Meters				X 568517		Y 5181566				
Unique Number Verification		Address verification		Input Date		04/06/2018						
Angled Drill Hole												
Well Contractor												
United Drilling, Inc.		L0008				LUTZ, D.						
Licensee Business		Lic. or Reg. No.				Name of Driller						
Minnesota Well Index Report				739031		Printed on 09/30/2025 HE-01205-15						

739041

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 06/29/2009
Update Date 12/05/2019
Received Date 10/29/2007

Well Name A & L	Township 50	Range 14	Dir Section W 27	Subsection ACDABB	Well Depth 49 ft.	Depth Completed 49 ft.	Date Well Completed 10/10/2007
Elevation 614 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid	
Address C/W 38 SUPERIOR ST E DULUTH MN 55807					Use elevator	Status Active	
Stratigraphy Information Geological Material From To (ft.) Color Hardness GRAVEL 0 2 GRAY MEDIUM BROKEN ROCK 2 9 DK. GRY MEDIUM GRANITE 9 49 DK. GRY HARD					Well Hydrofractured? Yes ☐ No ☒ From To		
					Casing Type Step down Joint Welded		
					Drive Shoe? Yes ☒ No ☐ Above/Below		
					Casing Diameter Weight Hole Diameter 16 in. To 49 ft. 62.6 lbs./ft. 19. in. To 49 ft. 20 in. To 9 ft. 52.7 lbs./ft.		
					Open Hole From ft. To ft.		
					Screen? ☐ Type Make		
					Static Water Level 10 ft. land surface Measure 10/10/2007		
					Pumping Level (below land surface)		
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 1.75 Cubic yards ft. 49 ft.		
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No							
Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ							
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No							
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No							
Miscellaneous First Bedrock upper southwest volc Aquifer upper southwest Last Strat upper southwest volc Depth to Bedrock 2 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 568951 Y 5181951 Unique Number Verification Address verification Input Date 10/11/2017							
Angled Drill Hole							
Well Contractor United Drilling, Inc. 1832 SIMON, G. Licensee Business Lic. or Reg. No. Name of Driller							

Remarks
HARD ROCK.

739042

County

St. Louis

Quad

Duluth

Quad ID

244D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date

06/30/2009

Update Date

12/05/2019

Received Date

10/29/2007

Well Name A & L Township 50 Range 14 Dir Section W 27 Subsection ACDABB	Well Depth 49 ft. Depth Completed 49 ft. Date Well Completed 10/18/2007																				
Elevation 615 ft. Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary Drill Fluid																				
Address C/W 38 SUPERIOR ST E DULUTH MN 55807	Use elevator Status Active																				
Stratigraphy Information <table><tr><td>Geological Material</td><td>From</td><td>To (ft.)</td><td>Color</td><td>Hardness</td></tr><tr><td>GRAVEL</td><td>0</td><td>2</td><td>GRAY</td><td>MEDIUM</td></tr><tr><td>BROKEN ROCK</td><td>2</td><td>8</td><td>DK. GRY</td><td>MEDIUM</td></tr><tr><td>GRANITE</td><td>8</td><td>49</td><td>DK. GRY</td><td>HARD</td></tr></table>	Geological Material	From	To (ft.)	Color	Hardness	GRAVEL	0	2	GRAY	MEDIUM	BROKEN ROCK	2	8	DK. GRY	MEDIUM	GRANITE	8	49	DK. GRY	HARD	Well Hydrofractured? Yes ☐ No ☒ From To
	Geological Material	From	To (ft.)	Color	Hardness																
	GRAVEL	0	2	GRAY	MEDIUM																
	BROKEN ROCK	2	8	DK. GRY	MEDIUM																
	GRANITE	8	49	DK. GRY	HARD																
	Casing Type Step down Joint Welded																				
	Drive Shoe? Yes ☒ No ☐ Above/Below																				
	Casing Diameter Weight Hole Diameter																				
	16 in. To 49 ft. 62.6 lbs./ft.	19. in. To 49 ft.																			
	20 in. To 8 ft. 52.7 lbs./ft.																				
Open Hole From ft. To ft.																					
Screen? ☐ Type Make																					
Static Water Level 10 ft. land surface Measure 10/18/2007																					
Pumping Level (below land surface)																					
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)																					
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To																					
neat cement	1.75 Cubic yards	ft. 49	ft.																		
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No																					
Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ																					
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No																					
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No																					
Miscellaneous First Bedrock upper southwest volc Aquifer upper southwest Last Strat upper southwest volc Depth to Bedrock 2 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 568946 Y 5181954 Unique Number Verification Address verification Input Date 10/11/2017																					
Angled Drill Hole																					
Well Contractor United Drilling, Inc. 1832 SIMON, G. Licensee Business Lic. or Reg. No. Name of Driller																					

Remarks

HARD ROCK.

764826

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date07/28/2009

Update Date12/05/2019

Received Date10/23/2009

Well NameTownshipRangeDir SectionSubsection HURLBUT-5014W 27ADBBBA Elevation628 ft.Elev. MethodLiDAR 1m DEM (MNDNR)	Well DepthDepth CompletedDate Well Completed 34 ft.34 ft.03/03/2009 Drill MethodNon-specified RotaryDrill Fluid
Address C/W222 SUPERIOR ST E DULUTH MN 55802	UseelevatorStatusActive Well Hydrofractured?YesNoFromTo Casing TypeStep downJointWelded Drive Shoe?YesNoAbove/Below Casing DiameterWeightHole Diameter 16 in. To 34 ft. 62.6 lbs./ft.20 in. To 34 ft. 20 in. To 5 ft. 52.7 lbs./ft. Open HoleFromft.Toft. Screen?TypeMake Static Water Level Pumping Level (below land surface) Wellhead Completion Pitless adapter manufacturerModel Casing Protection12 in. above grade At-grade (Environmental Wells and Borings ONLY) Grouting InformationWell Grouted?YesNoNot Specified MaterialAmountFromTo neat cement1.5 Cubic yardsft. 34 ft. Nearest Known Source of Contamination feetDirectionType Well disinfected upon completion?YesNo PumpNot InstalledDate Installed Manufacturer's name Model NumberHPVolt Length of drop pipeftCapacityg.p.Typ Abandoned Does property have any not in use and not sealed well(s)?YesNo Variance Was a variance granted from the MDH for this well?YesNo Miscellaneous First Bedrockupper southwest volcAquifer Last Stratupper southwest volcDepth to Bedrock0ft Located byMinnesota Geological Survey Locate MethodDigitization (Screen) - Map (1:12,000) (>15 meters) SystemUTM - NAD83, Zone 15, MetersX 569103Y 5182134 Unique Number VerificationAddress verificationInput Date04/28/2016 Angled Drill Hole Well Contractor United Drilling, Inc.1832LANGSDORF, A. Licensee BusinessLic. or Reg. No.Name of Driller
Stratigraphy Information Geological MaterialFromTo (ft.)ColorHardness BROKEN GRANITE05BLACKHARD GRANITE534BLACKHARD	Remarks

703163

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 02/28/2008
Update Date 02/26/2019
Received Date 06/27/2007

Well Name MW-1	Township 50	Range 14	Dir Section W 27	Subsection CDBBCA	Well Depth 16 ft.	Depth Completed 16 ft.	Date Well Completed 05/04/2007	
Elevation 643 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Auger (non-specified)				Drill Fluid		
Address Well 505 SUPERIOR ST W DULUTH MN 55812					Use monitor well			Status Sealed
Stratigraphy Information					Well Hydrofractured? Yes ☐ No ☒ From To			
Geological Material SAND/GRAVEL					Casing Type Single casing Joint			
From To (ft.) Color Hardness 0 16 BROWN SOFT					Drive Shoe? Yes ☐ No ☒ Above/Below			
					Casing Diameter Weight Hole Diameter 3 in. To 6 ft. 0 lbs./ft. 8.2 in. To 16 ft.			
					Open Hole From ft. To ft.			
					Screen? ☒ Type plastic Make JOHNSON Diameter Slot/Gauze Length Set 3 in. 10 10 ft. 6 ft. 16 ft.			
					Static Water Level 10 ft. land surface Measure 05/04/2007			
					Pumping Level (below land surface)			
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☒ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)			
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To high solids bentonite 0.5 Sacks ft. 4 ft.			
					Nearest Known Source of Contamination <u>5</u> feet <u>East</u> Direction <u>Tanks</u> Type Well disinfected upon completion? ☐ Yes ☒ No			
					Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ			
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No			
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No			
					Miscellaneous First Bedrock Aquifer Quat. Water Last Strat sand +larger-brown Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 568281 Y 5181291 Unique Number Verification Site Plan Input Date 03/17/2016			
					Angled Drill Hole			
					Well Contractor Environmental 1688 DANSEREAU, J. Licensee Business Lic. or Reg. No. Name of Driller			

Remarks
SEALED 02-14-2010 BY 1381.

Minnesota Unique Well No.

704151

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 12/07/2004
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.			
ST. MARY’S		50	14	W	27	AABADD	elevator	A	24 ft.	24 ft.	11/09/2004		L0008			
Elevation	687 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock		0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	Digitization (Screen) - Map (1:12,000) (>15				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified		Plat Book				Input Source	Minnesota Geological Survey				UTM Easting (X)		569253			
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518248			
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k			
				Depth (ft.)				Elevation (ft.)								
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology				
GRANITE		GRAY	V.HARD	0	24	24	687	663	upper southwest volc	basalt						
Minnesota Well Index - Stratigraphy Report								704151		Printed on 09/30/2025						

Minnesota Unique Well No.

704152

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 12/07/2004
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
ST. MARY’S		50	14	W	27	AABDCB	elevator	A	42 ft.	42 ft.	11/10/2004		L0008		
Elevation	684 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Plat Book				Input Source	Minnesota Geological Survey				UTM Easting (X)		569180		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518240		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
GRANITE		GRAY	V.HARD	0	42	42	684	642	upper southwest volc	basalt					
Minnesota Well Index - Stratigraphy Report								704152		Printed on 09/30/2025					

Minnesota Unique Well No.

704162

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 04/28/2005
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
VP DEVELOPMENT		50	14	W	22	DCAADA	elevator	A	50 ft.	50 ft.	04/22/2005		L0008		
Elevation	821 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	5	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)			Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -					
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey			UTM Easting (X)		569012			
Geological Interpretation		Amy Block				Input Date	04/06/2018			UTM Northing (Y)		518289			
Agency (Interpretation)										Interpretaion Method		Geologic study 1:24k to 1:100k			
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
SANDY CLAY		BROWN	SOFT	0	5	5	821	816	clay+sand-brown	clay	sand				
GRANITE		GRAY	HARD	5	50	45	816	771	upper southwest volc	basalt					
Minnesota Well Index - Stratigraphy Report								704162		Printed on 09/30/2025					

Minnesota Unique Well No.

739032

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date
Update 04/11/2006
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
CITY OF DULUTH		50	14	W	27	AACBCD	elevator	A	54 ft.	54 ft.	03/23/2006		L0008		
Elevation	663 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		569073		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518226		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
						Depth (ft.)		Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
GRANITE		RED/BLK	HARD	0	54	54	663	609	upper southwest volc	basalt	basaltic andesite				
Minnesota Well Index - Stratigraphy Report								739032		Printed on 09/30/2025					

Minnesota Unique Well No.

739033

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes Chapter 1031

Entry Date 08/03/2006
Update 04/11/2006
Received Date 12/05/2019

Well Name		Township	Range	Dir	Section	Subsection	Use	Status	Well Depth	Depth Completed	Date Well Completed		Lic/Reg. No.		
CITY OF DULUTH		50	14	W	27	AACBDC	elevator	A	60 ft.	60 ft.	03/23/2006		L0008		
Elevation	662 ft.	Elev. Method	LiDAR 1m DEM (MNDNR)				Aquifer	Depth to Bedrock	0	ft	Open Hole	-	ft	Static Water Level	ft
Field Located By		County Planning & Zoning				Locate Method	GPS SA Off (averaged) (15 meters)				Universal Transverse Mercator (UTM) - NAD83 - Zone 15 -				
Unique No. Verified		Address verification				Input Source	Minnesota Geological Survey				UTM Easting (X)		569091		
Geological Interpretation		Amy Block				Input Date	04/06/2018				UTM Northing (Y)		518227		
Agency (Interpretation)											Interpretaion Method		Geologic study 1:24k to 1:100k		
				Depth (ft.)				Elevation (ft.)							
Geological Material		Color	Hardness	From	To	Thickness	From	To	Stratigraphy	Primary Lithology	Secondary	Minor Lithology			
GRANITE		RED/BLK	HARD	0	60	60	662	602	upper southwest volc	basalt	basaltic andesite				
Minnesota Well Index - Stratigraphy Report								739033		Printed on 09/30/2025					

533481

County St. Louis
Quad
Quad ID

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 04/01/2013
Update Date 02/09/2018
Received Date 10/23/2008

Well Name ANDA	Township 50	Range 14	Dir Section W 22	Subsection DDD	Well Depth 7.5 ft.	Depth Completed 7.5 ft.	Date Well Completed 07/00/1994		
Elevation	Elev. Method				Drill Method	Drill Fluid			
Address Well 730 2ND ST E DULUTH MN					Use elevator	Status	Sealed		
					Well Hydrofractured? Yes ☐ No ☐ From			To	
Stratigraphy Information					Casing Type Single casing	Joint			
					Drive Shoe? Yes ☐ No ☐	Above/Below			
					Casing Diameter 20 in. To 7.5 ft. lbs./ft.			Weight	
					Open Hole From ft. To ft.				
					Screen? ☐ Type			Make	
					Static Water Level				
					3 ft. land surface			Measure 10/12/2006	
					Pumping Level (below land surface)				
					Wellhead Completion				
					Pitless adapter manufacturer			Model	
☐ Casing Protection			☐ 12 in. above grade						
☐ At-grade (Environmental Wells and Borings ONLY)									
Grouting Information					Well Grouted? ☒ Yes ☐ No ☐ Not Specified				
Material neat cement					Amount 12 Sacks	From	To ft. 7.5 ft.		
Nearest Known Source of Contamination									
feet Direction					Type				
Well disinfected upon completion?					☐ Yes ☐ No				
Pump ☐ Not Installed					Date Installed				
Manufacturer's name									
Model Number					HP	Volt			
Length of drop pipe ft					Capacity	g.p.	Typ		
Abandoned									
Does property have any not in use and not sealed well(s)?					☐ Yes ☒ No				
Variance									
Was a variance granted from the MDH for this well?					☐ Yes ☐ No				
Miscellaneous									
First Bedrock					Aquifer				
Last Strat					Depth to Bedrock ft				
Located by									
Locate Method									
System UTM - NAD83, Zone 15, Meters					X	Y			
Unique Number Verification					Input Date				
Angled Drill Hole									
Well Contractor									
Dennys Drilling, Inc.					1779	KOEPP, D.			
Licensee Business					Lic. or Reg. No.	Name of Driller			

Remarks
ORIGINAL USE: ELEVATOR SHAFT.
ORIGINAL UNIQUE NO. FROM JULY 1994 WAS 533481. MDH SHOWS CANCELLED.

669262

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 12/13/2001
Update Date 02/26/2019
Received Date 10/16/2001

Well Name MW-3				Township 50	Range 14	Dir Section W 22	Subsection DDBCDB
Elevation 789 ft.		Elev. Method LiDAR 1m DEM (MNDNR)					
Address Well 602 4TH ST E DULUTH MN 55805 Contact 4997 MILLER TRUNK HY HERMANTOWN MN 55811							
Stratigraphy Information							
Geological Material		From	To (ft.)	Color	Hardness		
SANDY CLAY		0	8	BROWN	MEDIUM		
CLAY		8	12	BROWN	HARD		
Well Depth 12 ft.							
Depth Completed 12 ft.				Date Well Completed 09/24/2001			
Drill Method Auger (non-specified)		Drill Fluid					
Use monitor well				Status Sealed			
Well Hydrofractured? Yes ☐ No ☒ From To							
Casing Type Single casing				Joint			
Drive Shoe? Yes ☐ No ☐		Above/Below					
Casing Diameter 2 in. To 3 ft.		Weight lbs./ft.			Hole Diameter 8 in. To 12 ft.		
Open Hole From ft. To ft.							
Screen? ☒		Type plastic		Make JOHNSON (SCH 40)			
Diameter		Slot/Gauze		Length		Set	
2 in.		10		9 ft.		3 ft. 12 ft.	
Static Water Level							
Pumping Level (below land surface)							
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☒ At-grade (Environmental Wells and Borings ONLY)							
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified							
Material		Amount		From		To	
high solids bentonite		1 Sacks		0 ft.		3 ft.	
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No							
Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ							
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No							
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No							
Miscellaneous First Bedrock Aquifer Quat. Water Last Strat clay-brown Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 569094 Y 5182808 Unique Number Verification Site Plan Input Date 03/17/2016							
Angled Drill Hole							
Well Contractor Bergerson-Caswell 27058 LENZMEIER, D. Licensee Business Lic. or Reg. No. Name of Driller							
Remarks SEALED 05-19-2008 BY 1767.							

669263

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 12/13/2001
Update Date 02/26/2019
Received Date 10/16/2001

Well Name MW-1					Township 50	Range 14	Dir W	Section 22	Subsection DDBCBD	Well Depth 12 ft.		Depth Completed 12 ft.		Date Well Completed 09/24/2001			
Elevation 793 ft.					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Auger (non-specified)		Drill Fluid					
Address Well 602 4TH ST E DULUTH MN 55805 Contact 4997 MILLER TRUNK HY HERMANTOWN MN 55811										Use monitor well		Status Sealed					
Stratigraphy Information Geological Material From To (ft.) Color Hardness CLAY 0 12 BROWN MEDIUM										Well Hydrofractured? Yes ☐ No ☒		From		To			
										Casing Type Single casing		Joint					
										Drive Shoe? Yes ☐ No ☐		Above/Below					
										Casing Diameter 2 in. To 3 ft.		Weight lbs./ft.					
										Open Hole From ft. To ft.							
										Screen? ☒		Type plastic		Make JOHNSON			
										Diameter 2 in.		Slot/Gauze 10		Length 9 ft.		Set 3 ft. 12 ft.	
Static Water Level																	
Pumping Level (below land surface)																	
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☒ At-grade (Environmental Wells and Borings ONLY)																	
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To high solids bentonite 1 Sacks 0 ft. 3 ft.																	
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No																	
Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ																	
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No																	
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No																	
Miscellaneous First Bedrock Aquifer Quat. Water Last Strat clay-brown Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 569076 Y 5182825 Unique Number Verification Site Plan Input Date 03/17/2016																	
Angled Drill Hole																	
Well Contractor Bergerson-Caswell 27058 LENZMEIER, D. Licensee Business Lic. or Reg. No. Name of Driller																	
Remarks SEALED 05-19-2008 BY 1767.																	

669264

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 12/13/2001
Update Date 02/26/2019
Received Date 10/16/2001

Well Name MW-2					Township 50	Range 14	Dir W	Section 22	Subsection DDBCAC	Well Depth 12 ft.		Depth Completed 12 ft.		Date Well Completed 09/24/2001	
Elevation 772 ft.					Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Auger (non-specified)		Drill Fluid			
Address Well 602 4TH ST E DULUTH MN 55805 Contact 4997 MILLER TRUNK HY HERMANTOWN MN 55811										Use monitor well		Status Sealed			
Stratigraphy Information Geological Material From To (ft.) Color Hardness SAND 0 5 BROWN MEDIUM BROWN CLAY 5 12 BROWN HARD										Well Hydrofractured? Yes ☐ No ☒		From		To	
										Casing Type Single casing		Joint			
										Drive Shoe? Yes ☐ No ☐		Above/Below			
										Casing Diameter 2 in.		Weight 3 ft.		lbs./ft.	
										Open Hole From ft.		To ft.			
										Screen? ☒		Type plastic		Make JOHNSON	
										Diameter 2 in.		Slot/Gauze 10		Length 9 ft.	
												Set 3 ft.		ft. 12 ft.	
Static Water Level															
Pumping Level (below land surface)															
Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☒ At-grade (Environmental Wells and Borings ONLY)															
Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To high solids bentonite 1 Sacks 0 ft. 3 ft.															
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No															
Pump ☒ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ															
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No															
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No															
Miscellaneous First Bedrock Aquifer Quat. Water Last Strat clay-brown Depth to Bedrock ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 569088 Y 5182825 Unique Number Verification Site Plan Input Date 03/17/2016															
Angled Drill Hole															
Well Contractor Bergerson-Caswell 27058 LENZMEIER, D. Licensee Business Lic. or Reg. No. Name of Driller															

Remarks
SEALED 05-19-2008 BY 1767.

698994

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 03/09/2017
Received Date 03/18/2004

Well Name MW-5	Township 50	Range 14	Dir W	Section 22	Subsection DDBDBA	Well Depth 10.5 ft.	Depth Completed 10.5 ft.	Date Well Completed 02/10/2004
Elevation 764 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Auger (non-specified)						
Address Well 407 3RD ST E DULUTH MN 55805						Drill Fluid		
Stratigraphy Information						Use monitor well		
Geological Material From To (ft.) Color Hardness						Status Sealed		
SANDY CLAY 0 4 RED/BRN HARD						Well Hydrofractured? Yes ☐ No ☒		
SANDY CLAY WOOD 4 8 RED/BRN HARD						From To		
WET SANDY CLAY 8 11 RED/BRN HARD						Casing Type Single casing ☐ Joint ☒		
						Drive Shoe? Yes ☐ No ☒		
						Above/Below		
						Casing Diameter 2 in. To 5.5 ft. 0 lbs./ft.		
						Weight 8 in. To 0 ft.		
						Hole Diameter		
						Open Hole From ft. To ft.		
						Screen? ☒ Type plastic Make JOHNSON		
						Diameter Slot/Gauze Length Set		
						2 in. 10 5 ft. 5.5 ft. 10.5 ft.		
						Static Water Level		
						9 ft. land surface Measure 02/10/2004		
						Pumping Level (below land surface)		
						Wellhead Completion		
						Pitless adapter manufacturer Model		
						☒ Casing Protection ☐ 12 in. above grade		
						☐ At-grade (Environmental Wells and Borings ONLY)		
						Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified		
						Material Amount From To		
						bentonite 0.5 Sacks 3.5 ft. 4.5 ft.		
						neat cement 2 Sacks ft. 3.5 ft.		
						Nearest Known Source of Contamination		
						feet Direction Type		
						Well disinfected upon completion? ☐ Yes ☒ No		
						Pump ☐ Not Installed Date Installed		
						Manufacturer's name		
						Model Number HP Volt		
						Length of drop pipe ft Capacity g.p. Typ		
						Abandoned		
						Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No		
						Variance		
						Was a variance granted from the MDH for this well? ☐ Yes ☒ No		
						Miscellaneous		
						First Bedrock Aquifer Quat. Water		
						Last Strat clay+sand Depth to Bedrock ft		
						Located by Minnesota Geological Survey		
						Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters)		
						System UTM - NAD83, Zone 15, Meters X 569161 Y 5182848		
						Unique Number Verification Site Plan Input Date 03/17/2016		
						Angled Drill Hole		
						Well Contractor		
						Thein Well Co. 34625 HILBRANDS, B.		
						Licensee Business Lic. or Reg. No. Name of Driller		

Remarks
GEOLOGICAL MATERIALS: WET SANDY CLAY WOOD FROM 8 TO 10.5.
SEALED 05-19-2008 BY 1767.

704151

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 12/07/2004

Well Name ST. MARY'S	Township 50	Range 14	Dir Section W 27	Subsection AABADD	Well Depth 24 ft.	Depth Completed 24 ft.	Date Well Completed 11/09/2004		
Elevation 687 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid			
Address Well 402 1ST ST E DULUTH MN 55802					Use elevator			Status Active	
Stratigraphy Information Geological Material From To (ft.) Color Hardness GRANITE 0 24 GRAY V.HARD					Well Hydrofractured? Yes ☐ No ☒ From To				
					Casing Type Step down			Joint Welded	
					Drive Shoe? Yes ☒ No ☐			Above/Below	
					Casing Diameter 16 in. To 24 ft. 62.6 lbs./ft. 20 in. To 1 ft. 52.7 lbs./ft.				
					Open Hole From ft. To ft.				
					Screen? ☐ Type Make				
					Static Water Level				
					Pumping Level (below land surface)				
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)				
					Grouting Information Material Amount From To neat cement 18 Sacks ft. 24 ft.			Well Grouted? ☒ Yes ☐ No ☐ Not Specified	
Remarks BROKEN ROCK FROM 19 TO 21 FT, BACK INTO SOLID.					Nearest Known Source of Contamination 0 feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No				
					Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ				
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No				
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No				
					Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 0 ft Located by Minnesota Geological Survey Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters) System UTM - NAD83, Zone 15, Meters X 569253 Y 5182485 Unique Number Verification Plat Book Input Date 04/06/2018				
					Angled Drill Hole				
					Well Contractor United Drilling, Inc. L0008 SCHERER, B. Licensee Business Lic. or Reg. No. Name of Driller				

704152

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 12/07/2004

Well Name ST. MARY'S	Township 50	Range 14	Dir Section W 27	Subsection AABDCB	Well Depth 42 ft.	Depth Completed 42 ft.	Date Well Completed 11/10/2004	
Elevation 684 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Air Rotary				Drill Fluid		
Address Well 402 1ST ST E DULUTH MN 55802					Use elevator			Status Active
Stratigraphy Information					Well Hydrofractured? Yes ☐ No ☒ From To			
Geological Material GRANITE					Casing Type Step down Joint Welded			
From To (ft.) Color Hardness 0 42 GRAY V.HARD					Drive Shoe? Yes ☒ No ☐ Above/Below			
					Casing Diameter Weight 16 in. To 42 ft. 62.6 lbs./ft. 20 in. To 1 ft. 52.7 lbs./ft.			
					Open Hole From ft. To ft.			
					Screen? ☐ Type Make			
					Static Water Level			
					Pumping Level (below land surface)			
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)			
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 2 Sacks ft. 42 ft.			
					Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No			
					Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ			
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No			
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No			
					Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 0 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 569180 Y 5182404 Unique Number Verification Plat Book Input Date 04/06/2018			
					Angled Drill Hole			
					Well Contractor United Drilling, Inc. L0008 SCHERER, B. Licensee Business Lic. or Reg. No. Name of Driller			

Remarks
BROKEN ROCK FROM 19 TO 21 FT, BACK INTO SOLID.

704162

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 04/28/2005

Well Name VP	Township 50	Range 14	Dir Section W 22	Subsection DCAADA	Well Depth 50 ft.	Depth Completed 50 ft.	Date Well Completed 04/22/2005	
Elevation 821 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid		
Address Well 602 5TH ST E DULUTH MN 55805					Use elevator			Status Active
Stratigraphy Information Geological Material From To (ft.) Color Hardness SANDY CLAY 0 5 BROWN SOFT GRANITE 5 50 GRAY HARD					Well Hydrofractured? Yes ☐ No ☒ From To			
					Casing Type Step down Joint Welded			
					Drive Shoe? Yes ☒ No ☐ Above/Below			
					Casing Diameter Weight 16 in. To 50 ft. 62.6 lbs./ft. 20 in. To 5 ft. 52.7 lbs./ft.			
					Open Hole From ft. To ft.			
					Screen? ☐ Type Make			
					Static Water Level			
					Pumping Level (below land surface)			
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)			
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 4 Cubic yards ft. 50 ft.			
Remarks DRY HOLE.					Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No			
					Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ			
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No			
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No			
					Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 5 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 569012 Y 5182896 Unique Number Verification Address verification Input Date 04/06/2018			
					Angled Drill Hole			
					Well Contractor United Drilling, Inc. L0008 GRABER, K. Licensee Business Lic. or Reg. No. Name of Driller			

739032

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date
Update Date 12/05/2019
Received Date 04/11/2006

Well Name CITY OF	Township 50	Range 14	Dir Section W 27	Subsection AACBCD	Well Depth 54 ft.	Depth Completed 54 ft.	Date Well Completed 03/23/2006
Elevation 663 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid	
Address Well 302 1ST ST E DULUTH MN 55805					Use elevator	Status Active	
Stratigraphy Information Geological Material From To (ft.) Color Hardness GRANITE 0 54 RED/BLK HARD					Well Hydrofractured? Yes ☐ No ☒ From To		
					Casing Type Single casing Joint Welded		
					Drive Shoe? Yes ☒ No ☐ Above/Below		
					Casing Diameter 18 in. To 54 ft. Weight 70.6 lbs./ft. Hole Diameter 24 in. To 54 ft.		
					Open Hole From ft. To ft.		
					Screen? ☐ Type Make		
					Static Water Level		
					Pumping Level (below land surface)		
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)		
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 3 Cubic yards ft. 54 ft.		
Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No							
Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ							
Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No							
Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No							
Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 0 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 569073 Y 5182268 Unique Number Verification Address verification Input Date 04/06/2018							
Angled Drill Hole							
Well Contractor United Drilling, Inc. L0008 LANGSDORF, A. Licensee Business Lic. or Reg. No. Name of Driller							

Remarks
NO DRILL CASING.

739033

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 08/03/2006
Update Date 12/05/2019
Received Date 04/11/2006

Well Name CITY OF	Township 50	Range 14	Dir Section W 27	Subsection AACBDC	Well Depth 60 ft.	Depth Completed 60 ft.	Date Well Completed 03/23/2006	
Elevation 662 ft.	Elev. Method LiDAR 1m DEM (MNDNR)	Drill Method Non-specified Rotary				Drill Fluid		
Address Well 302 1ST ST E DULUTH MN 55805					Use elevator			Status Active
Stratigraphy Information Geological Material From To (ft.) Color Hardness GRANITE 0 60 RED/BLK HARD					Well Hydrofractured? Yes ☐ No ☒ From To			
					Casing Type Single casing Joint Welded			
					Drive Shoe? Yes ☒ No ☐ Above/Below			
					Casing Diameter 18 in. To 60 ft. Weight 70.6 lbs./ft. Hole Diameter 24 in. To 60 ft.			
					Open Hole From ft. To ft.			
					Screen? ☐ Type Make			
					Static Water Level			
					Pumping Level (below land surface)			
					Wellhead Completion Pitless adapter manufacturer Model ☐ Casing Protection ☐ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)			
					Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified Material Amount From To neat cement 3.25 Cubic yards ft. 60 ft.			
					Nearest Known Source of Contamination feet Direction Type Well disinfected upon completion? ☐ Yes ☐ No			
					Pump ☐ Not Installed Date Installed Manufacturer's name Model Number HP Volt Length of drop pipe ft Capacity g.p. Typ			
					Abandoned Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No			
					Variance Was a variance granted from the MDH for this well? ☐ Yes ☒ No			
					Miscellaneous First Bedrock upper southwest volc Aquifer Last Strat upper southwest volc Depth to Bedrock 0 ft Located by Minnesota Geological Survey Locate Method GPS SA Off (averaged) (15 meters) System UTM - NAD83, Zone 15, Meters X 569091 Y 5182277 Unique Number Verification Address verification Input Date 04/06/2018			
					Angled Drill Hole			
					Well Contractor United Drilling, Inc. L0008 LANGSDORF, A. Licensee Business Lic. or Reg. No. Name of Driller			

Remarks
NO DRILL CASING.

758411

County St. Louis
Quad Duluth
Quad ID 244D

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING REPORT
Minnesota Statutes Chapter 1031

Entry Date 02/26/2013
Update Date 02/26/2019
Received Date 10/17/2008

Well Name MW	Township 50	Range 14	Dir W	Section 22	Subsection DDBCBA	Well Depth 9 ft.	Depth Completed 9 ft.	Date Well Completed 11/21/2007
Elevation 794 ft.	Elev. Method LiDAR 1m DEM (MNDNR)					Drill Method Auger (non-specified)	Drill Fluid	
Address Well 601 4TH ST E DULUTH MN 55805						Use monitor well	Status Sealed	
Stratigraphy Information						Well Hydrofractured? Yes ☐ No ☒	From	To
						Casing Type Single casing	Joint	
						Drive Shoe? Yes ☐ No ☒	Above/Below	
Geological Material						Casing Diameter	Weight	Hole Diameter
FILL						2 in. To	4 ft. lbs./ft.	8.5 in. To 9 ft.
CLAY								
NO DATA								
SAND								
						Open Hole	From ft.	To ft.
						Screen? ☒	Type plastic	Make ECT
						Diameter	Slot/Gauze Length	Set
						2 in.	10	5 ft. 4 ft. 9 ft.
						Static Water Level		
						6 ft.	land surface	Measure 11/21/2007
						Pumping Level (below land surface)		
						Wellhead Completion		
						Pitless adapter manufacturer Model		
						☐ Casing Protection ☐ 12 in. above grade		
						☒ At-grade (Environmental Wells and Borings ONLY)		
						Grouting Information	Well Grouted? ☐ Yes ☐ No ☒	Not Specified
						Material	Amount	From To
						bentonite		1 ft. 3 ft.
						Nearest Known Source of Contamination		
						feet	Direction	Type
						Well disinfected upon completion? ☐ Yes ☐ No		
						Pump ☒	Not Installed	Date Installed
						Manufacturer's name		
						Model Number	HP	Volt
						Length of drop pipe	ft Capacity	g.p. Typ
						Abandoned		
						Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No		
						Variance		
						Was a variance granted from the MDH for this well? ☐ Yes ☒ No		
						Miscellaneous		
						First Bedrock	Aquifer	Quat. Water
						Last Strat	sand-brown	Depth to Bedrock ft
						Located by Minnesota Geological Survey		
						Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters)		
						System	UTM - NAD83, Zone 15, Meters	X 569074 Y 5182857
						Unique Number Verification	Site Plan	Input Date 03/17/2016
						Angled Drill Hole		
						Well Contractor		
						Northeast Technical	1635	SECABA, S.
						Licensee Business	Lic. or Reg. No.	Name of Driller

Remarks
SEALED 9-26-2008 BY 1635.

Appendix F

List of MPCA WIMN Sites within the AUAR area

MPCA Potentially Contaminated Sites within One-Quarter Mile of the AUAR area

Site ID	Site Name	MPCA Program	Status
Lot D Subarea			
205357	Bayfront Lot D	• Brownfields (5)	Active
192538	SLIP 3	• Environmental Review	Active
Essentia Subarea			
215131	Hacienda Del Sol	• Brownfields	Inactive
146463	E 1st St Medical Parking Facility	• Petroleum Remediation • Underground Tanks	Inactive
16441	Northland Chiropractic Center	• Hazardous Waste	Inactive
23329	Lake Superior Cust Photolab Inc	• Hazardous Waste	Inactive
109460	Voyageur Motel/lakewalk Inn	• Brownfields • Petroleum Remediation • Underground Tanks	Inactive
26385	State Farm Mutual Insurance	• Hazardous Waste	Inactive
56856	Northern Access Transportation	• Hazardous Waste	Inactive
112895	Grandview Manor	• Underground Tanks	Inactive
14444	Harbor Centers Inc	• Hazardous Waste	Inactive
23708	A Quality Lube Center	• Aboveground Tanks • Hazardous Waste	Inactive
27688	Dunbar's Auto Body	• Hazardous Waste	Inactive
1998	Rainbow Auto Body Inc	• Air Quality • Hazardous Waste	Inactive
191217	SMDC Campus Addition	• Brownfields • Site Assessment	Inactive
24501	Saint Anns Home & Residence	• Hazardous Waste	Inactive
256441	Essentia Health-Duluth	• Hazardous Waste	Inactive
109580	Miller Dwan Medical Center	• Aboveground Tanks • Underground Tanks	Inactive
213953	Essentia Health Duluth 1st Street Pharmacy	• Hazardous Waste	Inactive
27262	Kaarbo's Auto Repair Inc	• Aboveground Tanks • Hazardous Waste	Inactive
23379	Joes Peerless Auto Body	• Hazardous Waste • Underground Tanks	Inactive
23078	Essentia Health Duluth 3rd Street Pharmacy	• Hazardous Waste	Inactive
24220	Miller Dwan Medical Center	• Hazardous Waste	Inactive
1668	Saint Mary's Medical Center	• Air Quality • Hazardous Waste • Site Assessment • Solid Waste	Inactive
231339	Life Link III-Duluth Base	• Hazardous Waste	Inactive
256068	Essentia Health Duluth 2nd Street Pharmacy	• Hazardous Waste	Inactive
11766	Twice But Nice	• Hazardous Waste	Inactive

Site ID	Site Name	MPCA Program	Status
130013	Former American Linen Building	• Underground Tanks	Inactive
25057	Downtown Service Skafte Ent	• Hazardous Waste	Inactive
28557	Chart & Mohs Dentistry PA	• Hazardous Waste	Inactive
23552	Expert Tire - Duluth	• Hazardous Waste	Inactive
16411	Polinsky Medical Rehabilitation Center	• Hazardous Waste	Inactive
138625	Support Services Building	• Aboveground Tanks • Petroleum Remediation • Underground Tanks	Inactive
27239	Johnson-Crawford Funeral Home	• Hazardous Waste	Inactive
108459	Saint Mary's Medical Center	• Aboveground Tanks	Inactive
103482	Saint Mary's Medical Center	• Petroleum Remediation • Underground Tanks	Inactive
255572	Essentia Health	• Aboveground Tanks	Inactive
26883	Fifield Portrait Design	• Hazardous Waste	Inactive
12974	Midtown Auto Service	• Hazardous Waste	Inactive
28971	Daugherty Hardware & Appliances	• Hazardous Waste	Inactive
195306	Na Auto Electric	• Petroleum Remediation	Inactive
250020	Aspirus St. Luke's Behavioral Health Clinic - Duluth	• Hazardous Waste	Inactive
185387	Bell Building	• Petroleum Remediation	Inactive
28347	Auto Medics	• Hazardous Waste	Inactive
112719	Speedway #4896	• Petroleum Remediation • Underground Tanks	Inactive
116710	Spur Station #4885	• Petroleum Remediation • Underground Tanks	Inactive
139137	Whole Foods Coop	• Hazardous Waste	Inactive
151403	Involta Duluth 6th Ave	• Aboveground Tanks	Inactive
28346	Brewery Creek Apartments LLLP	• Aboveground Tanks • Brownfields • Hazardous Waste • Petroleum Remediation • Solid Waste • Underground Tanks	Inactive
25670	Holiday Stationstore 089	• Hazardous Waste	Inactive
113616	Holiday Stationstore #89	• Petroleum Remediation • Underground Tanks	Inactive
252811	Portland Land Co LLC	• Solid Waste	Inactive
1st Street Subarea			
262165	Mesaba Ave Bridge/Filling Station	• Petroleum Remediation	Active
27709	Lenox Place	Brownfields (2) • Hazardous Waste	Inactive
27338	Gateway Tower	• Brownfields (2) • Hazardous Waste	Inactive
29931	The Depot	• Hazardous Waste	Inactive

Site ID	Site Name	MPCA Program	Status
36708	Northshore Scenic Railroad	• Hazardous Waste	Inactive
48746	Duluth Art Institute	• Hazardous Waste	Active
36709	Saint Louis County Heritage & Arts Center	• Hazardous Waste • Wastewater	Inactive
126787	Radisson Hotel	• Aboveground Tanks • Petroleum Remediation • Underground Tanks	Active
23087	Duluth Fire Department	• Aboveground Tanks • Hazardous Waste • Petroleum Remediation • Underground Tanks	Active
24350	Wahl & Wahl Inc	• Hazardous Waste	Inactive
15229	Otis Elevator	• Hazardous Waste	Inactive
24173	USDA NRCS	• Hazardous Waste	Active
130106	Atlas Abatement & Contracting LLC - Duluth	• Hazardous Waste	Active
138143	Gerald W Heaney Federal Building	• Hazardous Waste	Active
29460	425 Development	• Hazardous Waste	Active
213324	Lake Superior Consulting - Landsmenn Building	• Hazardous Waste	Active
24968	Lutheran Social Service	• Hazardous Waste	Inactive
146341	Maurices Headquarters	• Brownfields	Active
48153	ISD 709 DNT Building	• Hazardous Waste • Industrial Stormwater • Site Assessment	Active
41391	Saint Louis County Safety & Risk	• Hazardous Waste	Inactive
192083	Medical Arts Annex	• Petroleum Remediation	Active
214476	Genoa Healthcare	• Hazardous Waste	Active
27119	Stewart Taylor Company	• Hazardous Waste	Inactive
27365	Midwest Podiatry Centers - Duluth	• Hazardous Waste	Active
36878	Aspirus St. Luke's Eye Care - Duluth	• Hazardous Waste	Inactive
15189	Bluestone OMS	• Hazardous Waste	Active
112404	Medical Arts Garage	• Aboveground Tanks • Petroleum Remediation • Underground Tanks	Active
48154	Ray Bob & Associates Inc	• Hazardous Waste	Inactive
130015	Duluth Budgeteer	• Industrial Stormwater	Active
30253	Michael Bussa DDS	• Hazardous Waste	Active
127531	Downtown Dental Care of Duluth	• Hazardous Waste	Active
14420	PS Rudie Medical Clinic - Suite 302	• Hazardous Waste	Inactive
26984	Robert D Le Vasseur DDS	• Hazardous Waste	Inactive
34050	Steven D Johnson DDS	• Hazardous Waste	Active
23092	The Dental Specialists Duluth	• Hazardous Waste	Active
15790	William J Schuldt DDS PA	• Hazardous Waste	Active
36877	Wolf Frank MD	• Hazardous Waste	Inactive

Site ID	Site Name	MPCA Program	Status
63890	Duluth News Tribune	• Industrial Stormwater • Petroleum Remediation • Underground Tanks	Active
15797	Secretarial Services	• Hazardous Waste	Inactive
23071	Duluth Camera Exchange 1	• Hazardous Waste	Inactive
23070	Duluth Camera Exchange	• Hazardous Waste	Inactive
92737	Duluth City of	• Hazardous Waste	Active
90804	Duluth city of	• MS4 • Wastewater	Active
11923	Oneida Realty Co	• Hazardous Waste	Active
77278	Sandelin Rodney E DDS	• Hazardous Waste	Inactive
36876	Sarvela Leonard A DDS	• Hazardous Waste	Inactive
14527	First Properties	• Hazardous Waste	Inactive
227684	Oneida Realty	• Hazardous Waste	Active
25112	Madison Nelson Family Dental	• Hazardous Waste	Active
84132	Douglas M Erickson DDS MS Inc	• Hazardous Waste	Active
120009	Saint Luke's Medical Arts Clinic	• Hazardous Waste	Active
15799	Security Jewelers	• Hazardous Waste	Active
26929	Patterson Family Dental	• Hazardous Waste	Active
26798	Young Allen A DDS	• Hazardous Waste	Inactive
16430	Northern Oral & Maxillofacial Surgeons	• Hazardous Waste	Inactive
23641	Eugene T Altieri DDS MS	• Hazardous Waste	Active
26982	Layon Roger E DDS	• Hazardous Waste	Inactive
27242	Johnson William O DDS	• Hazardous Waste	Inactive
26081	J Marco Hearing Service	• Hazardous Waste	Inactive
12093	Medical Arts Orthodontic Lab	• Hazardous Waste	Inactive
13489	Northern Prosthodontics	• Hazardous Waste	Inactive
15699	Northern Endodontics Associates Ltd	• Hazardous Waste	Inactive
26973	Park Dental Downtown Duluth	• Hazardous Waste	Active
27339	Wayne C Gatlin DDS	• Hazardous Waste	Active
195971	City Hall And Police Garage	• Petroleum Remediation	Active
15920	Jewelers Bench	• Hazardous Waste	Active
1411	Qwest Corp dba CenturyLink QC - Duluth	• Aboveground Tanks • Air Quality • Hazardous Waste	Active
193953	DTA Multimodal Transportation Center	• Brownfields (2)	Active
25324	Toys For Keeps	• Hazardous Waste	Inactive
115683	At&t Building	• Underground Tanks	Active
11750	Shoreline Dental Associates Downtown	• Hazardous Waste	Inactive
12598	Reporters Diversified Service	• Hazardous Waste	Inactive
24355	Third Avenue Dental Clinic	• Hazardous Waste	Inactive

Site ID	Site Name	MPCA Program	Status
263989	The Herald Building	• Brownfields (2)	Active
27331	Garrett Hr	• Hazardous Waste	Inactive
136434	Saint Louis County Public Health	• Hazardous Waste	Active
50279	Lake Superior Painting	• Hazardous Waste	Inactive
28062	Telespectrum Communications	• Hazardous Waste	Inactive
126881	Nalco Co - Duluth	• Hazardous Waste	Inactive
137356	Innovative Living Inc	• Hazardous Waste	Active
141335	Duluth Area Family YMCA	• Hazardous Waste	Active
23372	Jiran D H Design Inc	• Hazardous Waste	Inactive
28985	Decora Painting & Wallcovering	• Hazardous Waste	Inactive
14421	Psycholgist	• Hazardous Waste	Inactive
41360	MSA Professional Services	• Hazardous Waste	Inactive
22949	Hawley Music Inc	• Brownfields • Hazardous Waste	Inactive
121266	Duluth Budgeteer News	• Hazardous Waste	Inactive
236319	Duluth Board of Trade Lofts	• Hazardous Waste	Active
31092	D T A Transit Center	• Hazardous Waste	Inactive
16130	Former Peter Pan Cleaners	• Brownfields • Emergency Response • Hazardous Waste • Site Assessment	Active
104687	Ace Hardware Downtown	• Hazardous Waste	Active
38999	Arrowhead Printing	• Hazardous Waste	Inactive
26387	State Labor & Industry Dept	• Hazardous Waste	Inactive
43753	Oneida Realty Co - Duluth	• Aboveground Tanks • Hazardous Waste • Underground Tanks	Active
41035	St. Louis County GSC	• Hazardous Waste	Inactive
196201	NorShor Theatre	• Brownfields • Hazardous Waste	Active
222711	Board of Trade Building	• Brownfields	Active
217457	Saint Louis County GSC	• Hazardous Waste	Active
26574	Advantage Hearing Center	• Hazardous Waste	Inactive
25872	Whitefish Mfg Co	• Hazardous Waste	Inactive
122248	Twi Port Mailing	• Hazardous Waste	Inactive
2298	Great Lakes Gas Transmission LP	• Wastewater	Active
27240	Johnson Supply Co	• Hazardous Waste	Active
148087	Saint Louis County Public Works Garage	• Aboveground Tanks	Active
27712	Leones Tailors Cleaners Shop	• Brownfields • Hazardous Waste	Inactive
28079	Skywalk Chiropractic	• Hazardous Waste	Inactive
15028	Sawmill Unpainted Furniture	• Hazardous Waste	Inactive

Site ID	Site Name	MPCA Program	Status
112830	Us Bank	• Underground Tanks	Inactive
27118	Stewart Taylor Co	• Hazardous Waste	Active
23377	JNT Printery Co Inc	• Hazardous Waste	Inactive
217678	Duluth Board of Trade Building Parking Lot	• Brownfields	Active
131776	Sheldon Group Inc Pressroom	• Hazardous Waste	Active
22932	Duluth Auto Repair & Quick Lube	• Aboveground Tanks • Hazardous Waste • Petroleum Remediation • Underground Tanks	Inactive
28086	US Bank - Duluth	• Hazardous Waste	Active
195708	Parking Lot	• Petroleum Remediation	Active
116075	Como Quick Lube - City Center	• Underground Tanks	Inactive
126181	Cooper Enterprises	• Hazardous Waste	Inactive
194992	Superior Street Reconstruction Corridor	• Brownfields (2)	Inactive
13497	Planned Parenthood - Duluth	• Hazardous Waste	Inactive
30167	Etcetera Studio & Gallery	• Hazardous Waste	Inactive
22985	Gopher Shoe Repair Co Inc	• Hazardous Waste	Inactive
15936	Wilson Environmental Laboratories Inc	• Hazardous Waste	Inactive
22619	Arrowhead Security Systems Inc	• Hazardous Waste	Inactive
27932	Courage Center	• Hazardous Waste	Inactive
14275	Printing Express The	• Hazardous Waste	Inactive
136470	American Indian Community Housing Organization	• Hazardous Waste • Petroleum Remediation • Underground Tanks	Inactive
16106	Paper Hog Inc	• Hazardous Waste	Active
86818	New Garrick Building	• Hazardous Waste	Active
138141	Advanstar	• Hazardous Waste	Active
262206	Children's Dental Services	• Hazardous Waste	Active
15935	Insty Prints Litho Printing	• Hazardous Waste	Inactive
26967	Us Dea	• Hazardous Waste	Inactive
42462	Earth Burners Inc	• Hazardous Waste	Inactive
15918	Jersey City	• Hazardous Waste	Inactive
2419	Minnesota Power Inc- General Office	• Hazardous Waste • Site Assessment • Wastewater	Active
256891	Human Development Center	• Petroleum Remediation • Site Assessment	Active
220769	PETSMART 2735	• Hazardous Waste	Active
136443	Aspirus St. Luke's Clinic - Duluth - 26 E Superior St	• Hazardous Waste	Active
30166	Eslabon Designer Jewelry	• Hazardous Waste	Inactive
106090	Women In Construction Co LLC	• Hazardous Waste • Petroleum Remediation • Site Assessment	Inactive

Site ID	Site Name	MPCA Program	Status
29950	Commercial Electric Company	• Hazardous Waste	Inactive
190601	Lakehead Pipe Line Company	• Petroleum Remediation	Active
26068	Southwest Windpower	• Hazardous Waste	Inactive
26029	Masters Piano Shop The	• Hazardous Waste	Inactive
25652	Carters Spring	• Hazardous Waste	Inactive
14524	Music Center	• Hazardous Waste	Inactive
27097	Johns Used Furniture	• Hazardous Waste	Inactive
133844	EMR Inc	• Hazardous Waste	Active
215167	Lewis Lake Avenue Building	• Brownfields	Active
27961	Carlton & Co	• Hazardous Waste	Inactive
206926	The Scottish Rite Foundation	• Petroleum Remediation	Active
150005	Former Service Station	• Underground Tanks	Active
156532	Scottish Rite Clinic	• Hazardous Waste	Active
220319	Enbridge Energy Line 3 Replacement Project	• Integrated Remediation • Wastewater	Inactive
128234	Jes Durfee Glass Art	• Hazardous Waste	Active
236478	Enbridge Energy LP - Former Brunos Truck Stop	• Wastewater	Active
27183	Fuhr Printing Co Inc	• Hazardous Waste	Inactive
27954	Carlson & Kirwan Inc	• Hazardous Waste	Inactive
39377	Duluth Soft Center	• Hazardous Waste • Underground Tanks	Inactive
59305	WE Health Clinic	• Hazardous Waste	Active
235179	Cove Apartments	• Hazardous Waste	Active
253737	North Creek Investors II LLC	• Solid Waste	Active
27138	Superior Computer Prod Inc	• Hazardous Waste	Inactive
232599	Proposed 1st Aveue Lofts	• Brownfields	Active
15697	Northern Electric Supply C	• Hazardous Waste	Inactive
196011	Duluth Technology Village - City Block	• Petroleum Remediation	Active
215451	Former Muffler Clinic	• Brownfields • Petroleum Remediation	Active
116012	Teachers Credit Union	• Petroleum Remediation • Underground Tanks	Inactive
26558	Johnson's Auto Repair of Duluth	• Hazardous Waste	Inactive
26393	Den's AutoBody	• Hazardous Waste	Active
39981	Automotive Maintenance & Repair	• Hazardous Waste	Inactive
28366	Balcum Appliance Inc	• Hazardous Waste	Inactive
22931	Duluth Auto Body	• Hazardous Waste	Inactive
24198	Viking Micrographics	• Hazardous Waste	Inactive
23341	Tv Spotlight Inc	• Hazardous Waste	Inactive
25868	Whirlwind Power Co	• Hazardous Waste	Inactive
228788	Former Carter Hotel	• Underground Tanks	Active

Site ID	Site Name	MPCA Program	Status
22626	Winslow's Inc	• Hazardous Waste	Inactive
222216	Temple Opera Block	• Brownfields	Active
232507	Zeitgiest Building - Superior St Utlty Reconstruction Proj	• Underground Tanks	Active
197506	Former Ncr	• Brownfields • Site Assessment	Active
2509	Gene's Auto Body	• Air Quality • Hazardous Waste	Active
23711	A1 Auto Body	• Hazardous Waste	Inactive
1318	202 E 1st LLC	• Air Quality • Hazardous Waste	Active
64827	SMDC	• Hazardous Waste	Inactive
29292	Clean As New Auto Cleaning	• Hazardous Waste	Inactive
24721	Greysolon Plaza Property	• Brownfields (2) • Hazardous Waste • Petroleum Remediation • Underground Tanks	Active
16117	Paul Bunyan Press	• Hazardous Waste	Inactive
24529	Arrowhead Hearing Aid Cente	• Hazardous Waste	Inactive
186951	Sheraton Hotel/Condominiums	• Brownfields	Active
193848	Greysolon Plaza Parking Lot	• Brownfields • Site Assessment	Active
26455	HealthEast Transportation	• Aboveground Tanks • Hazardous Waste	Active
26400	Housing & Redevelopment Authority Duluth	• Hazardous Waste	Active
112193	King Manor	• Underground Tanks	Inactive
Secondary Subarea			
194260	Duluth Gas Mfg Site	• CERCLIS Site	Active
196404	JAS Duluth LLC Property	• Petroleum Remediation • Underground Tanks	Active
193704	Apartment Complex	• Petroleum Remediation	Active
127456	Sir Benedicts Tavern On The Lake	• Underground Tanks	Inactive
114321	Formerly Service Station	• Underground Tanks	Inactive
34697	Wick Marvin G Dental Office	• Hazardous Waste	Inactive
108514	Pat Schelhom Property-apt Comp	• Underground Tanks	Inactive
195630	Shehon Property	• Petroleum Remediation	Active
24518	C & H Automotive Service	• Hazardous Waste	Inactive
108525	Louis Pichetti Est (henlock Gar)	• Petroleum Remediation • Site Assessment • Underground Tanks	Inactive
27341	General Cleaning Specialists	• Hazardous Waste	Inactive
27651	Fochs & Associates Inc Adve	• Hazardous Waste	Inactive
201505	Northland Medical Center South Lmted	• Petroleum Remediation	Active
252046	Saint Lukes Hospital of Duluth	• Solid Waste	Active

Site ID	Site Name	MPCA Program	Status
24483	Sorcerer Lures	• Hazardous Waste	Inactive
27657	Foreign Affairs Of Duluth Inc	• Hazardous Waste	Inactive
24728	Guardian Pest Solutions Inc	• Hazardous Waste	Active
30159	Pavilion Surgery Center LLC	• Hazardous Waste	Active
12976	Midwest Engine Rebuilders	• Hazardous Waste	Active
26797	Yorkleigh Apartments	• Brownfields • Hazardous Waste	Inactive
112188	Gaidas Amoco Gas Station	• Underground Tanks	Inactive
38439	Haighs Electric Service	• Hazardous Waste	Inactive
47261	Waynes Radiator	• Hazardous Waste	Inactive
23085	Duluth Family Practice Center	• Hazardous Waste	Active
24503	Saint Germain Co	• Hazardous Waste	Inactive
47262	Litmans Garage	• Brownfields • Hazardous Waste • Petroleum Remediation • Underground Tanks	Inactive
194636	Pavillion 2	• Petroleum Remediation	Active
195695	Saint Lukes Hospital Parking Lot	• Petroleum Remediation	Active
14860	Aspirus St. Lukes Hospital	• Aboveground Tanks • Brownfields • Hazardous Waste • Underground Tanks	Active
12100	Somers James M DDS MS PA	• Hazardous Waste	Inactive
16443	Northland Ear Nose & Throat	• Hazardous Waste	Active
11924	Oral & Maxillofacial Surgical	• Hazardous Waste	Inactive
27684	Duluth Urology Group Ltd	• Hazardous Waste	Inactive
13348	Saint Luke's Obstetrics & Gynecology Associates	• Hazardous Waste	Inactive
125021	Saint Lukes Center for Diagnostic Imaging	• Hazardous Waste	Inactive
16431	Northern Photo	• Hazardous Waste • Underground Tanks	Inactive
139590	Orthopedic Associates	• Hazardous Waste	Active
16446	Oral & Maxillofacial Surgical Associates	• Hazardous Waste	Active
225637	Northland Pharmacy	• Hazardous Waste	Active
191429	Saint Lukes Hospital	• Petroleum Remediation	Active
134035	Jefferson Square	• Underground Tanks	Inactive
41034	Duluth Detoxifcation Center	• Hazardous Waste	Inactive
109975	Duluth Family Practice Center	• Petroleum Remediation	Inactive
214703	First Lutheran Church	• Petroleum Remediation	Active
253861	Genoa Healthcare	• Hazardous Waste	Active

Site ID	Site Name	MPCA Program	Status
28988	Dee Independent Cleaners	• Brownfields • Hazardous Waste • Petroleum Remediation • Site Assessment • Underground Tanks	Active
13511	Plaza Dental Center	• Hazardous Waste	Inactive
28092	Basgen Photography Inc	• Hazardous Waste	Inactive
26456	Hearing Associates	• Hazardous Waste	Inactive
130083	Walgreen's Store 13877	• Hazardous Waste	Active
133110	Saint Lukes Hospital Apartments	• Hazardous Waste	Active
193024	Heikkila Property	• Petroleum Remediation	Active
23561	Family Chiropractic	• Hazardous Waste	Inactive
113851	Plaza Shopping Center	• Underground Tanks	Inactive
29937	Cm Business Equipment	• Hazardous Waste	Inactive
27134	Sunset Antiques	• Hazardous Waste	Inactive
143913	O'Reilly Auto Parts - 1543	• Hazardous Waste	Active
42459	Duluth Public Works Dept Central Tool	• Hazardous Waste	Inactive
105532	City Of Duluth-street Maintenance-dist 3	• Aboveground Tanks • Petroleum Remediation • Underground Tanks	Active
190579	Proposed CVS Pharmacy Store 6691	• Brownfields (2) • Petroleum Remediation	Active
111124	Former SuperAmerica 4895	• Hazardous Waste • Petroleum Remediation • Underground Tanks	Active
250996	Alaskef Coffee Building	• Hazardous Waste	Active
148125	Former Car Dealership	• Underground Tanks	Inactive
49089	Center for Alcohol & Drug Treatment	• Aboveground Tanks • Hazardous Waste • Petroleum Remediation • Underground Tanks	Inactive

Appendix G

USFWS IPaC Unofficial Species List and DNR NHIS Review Letter



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: Downtown Duluth AUAR

Project Proposer: City of Duluth

Project Type: Development, Mixed Use

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

TRS: T50 R14 S22, T50 R14 S23, T50 R14 S27, T50 R14 S34

County(s): St. Louis

DNR Admin Region(s): Northeast

Reason Requested: Other

Project Description: The City of Duluth is preparing an AUAR for an approximately 335-acre area encompassing the traditional downtown, Essentia Health Medical Campus and surrounding ...

Existing Land Uses: Land use within the AUAR area includes a mix of residential, commercial, institutional, and limited industrial activities. Some sections of the AUAR area ...

Landcover / Habitat Impacted: The AUAR area is consists of a developed, urban environment predominately comprised of impervious surfaces, with limited wooded and wetland areas. Approximately ...

Waterbodies Affected: Lot D includes the Lake Superior shoreline. As part of the planned redevelopment of the project, it is anticipated that improvements would be made to the ...

Groundwater Resources Affected: Future development within the AUAR area may require temporary dewatering during construction, which would need to be confirmed at the time a project is proposed.

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	Comments	Lakeshore - Recommendations Tree Removal - Recommendations
Ecologically Significant Area	Comments	MBS Sites - Recommendations Potential Local Conservation Value Lakes - Recommendations
State-Listed Endangered or Threatened Species	Needs Further Review	State-protected Species - Needs Further Review

Category	Results	Response By Category
State-Listed Species of Special Concern	Comments	Recommendations
Federally Listed Species	No Records	Visit IPaC For Federal Review



October 15, 2025

Project Name: Downtown Duluth AUAR
Project Proposer: City of Duluth
Project Type: Development, Mixed Use
Project ID: MCE #2025-00850

AUTOMATED RESULTS: FURTHER REVIEW IS NEEDED

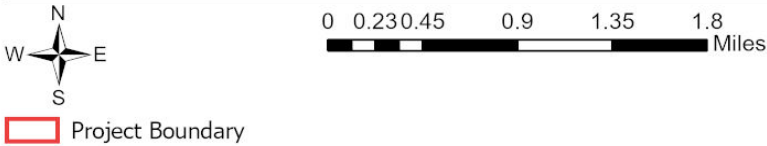
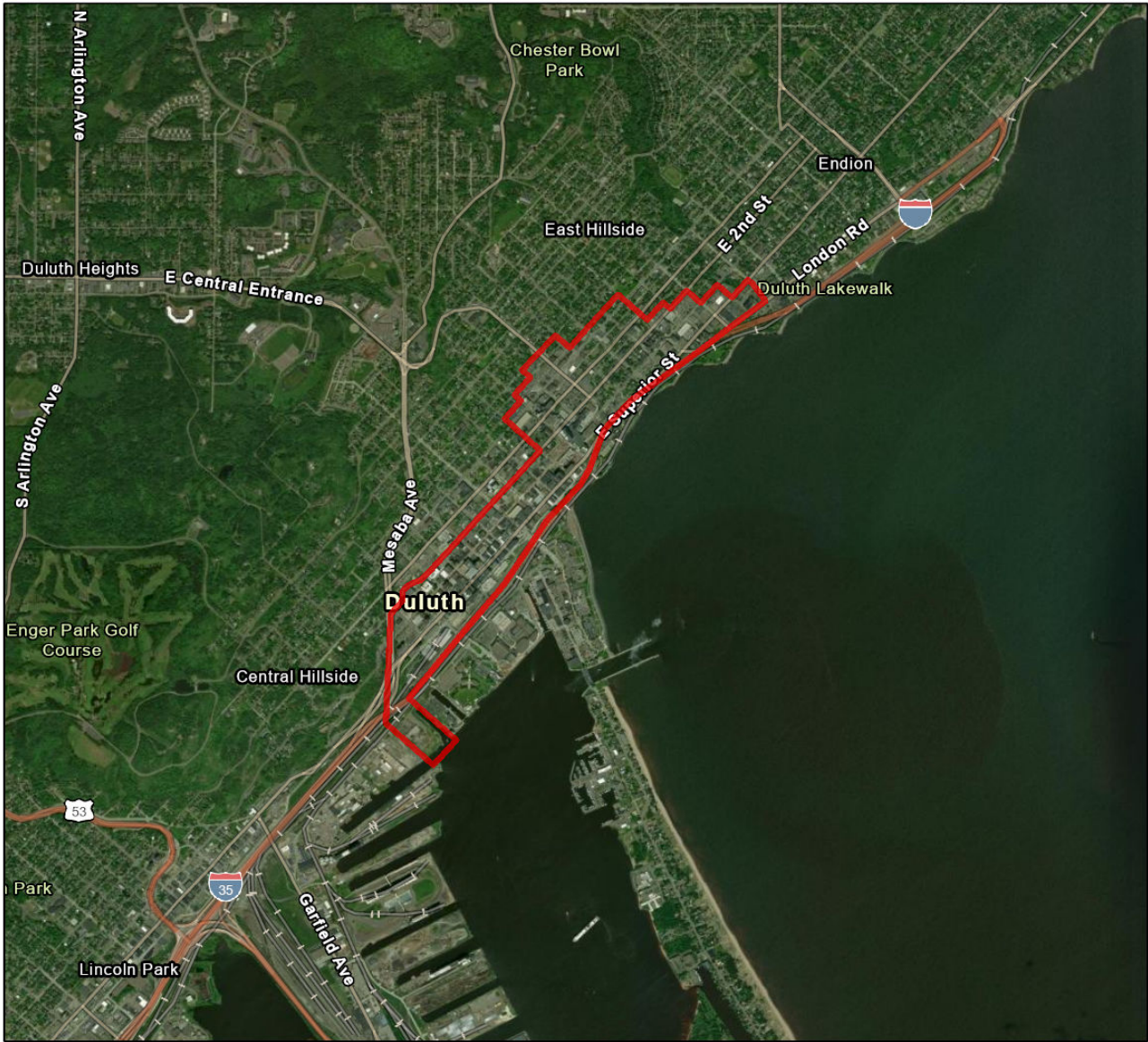
As requested, the above project has undergone an automated review for potential impacts to rare features. Based on this review, one or more rare features may be impacted by the proposed project and further review by the Natural Heritage Review Team is needed. You will receive a separate notification email when the review process is complete and the Natural Heritage Review letter has been posted.

Please refer to the table on the cover page of this report for a summary of potential impacts to rare features. For additional information or planning purposes, use the Explore Page in Minnesota Conservation Explorer to view the potentially impacted rare features or to create a Conservation Planning Report for the proposed project.

If you have additional information to help resolve the potential impacts listed in the summary results, please attach related project documentation in the Edit Details tab of the Project page. Relevant information includes, but is not limited to, additional project details, completed habitat assessments, or survey results. This additional information will be considered during the project review.

Downtown Duluth AUAR

Aerial Imagery With Locator Map



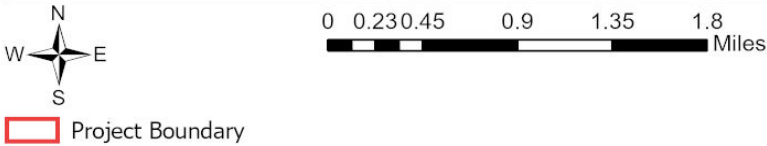
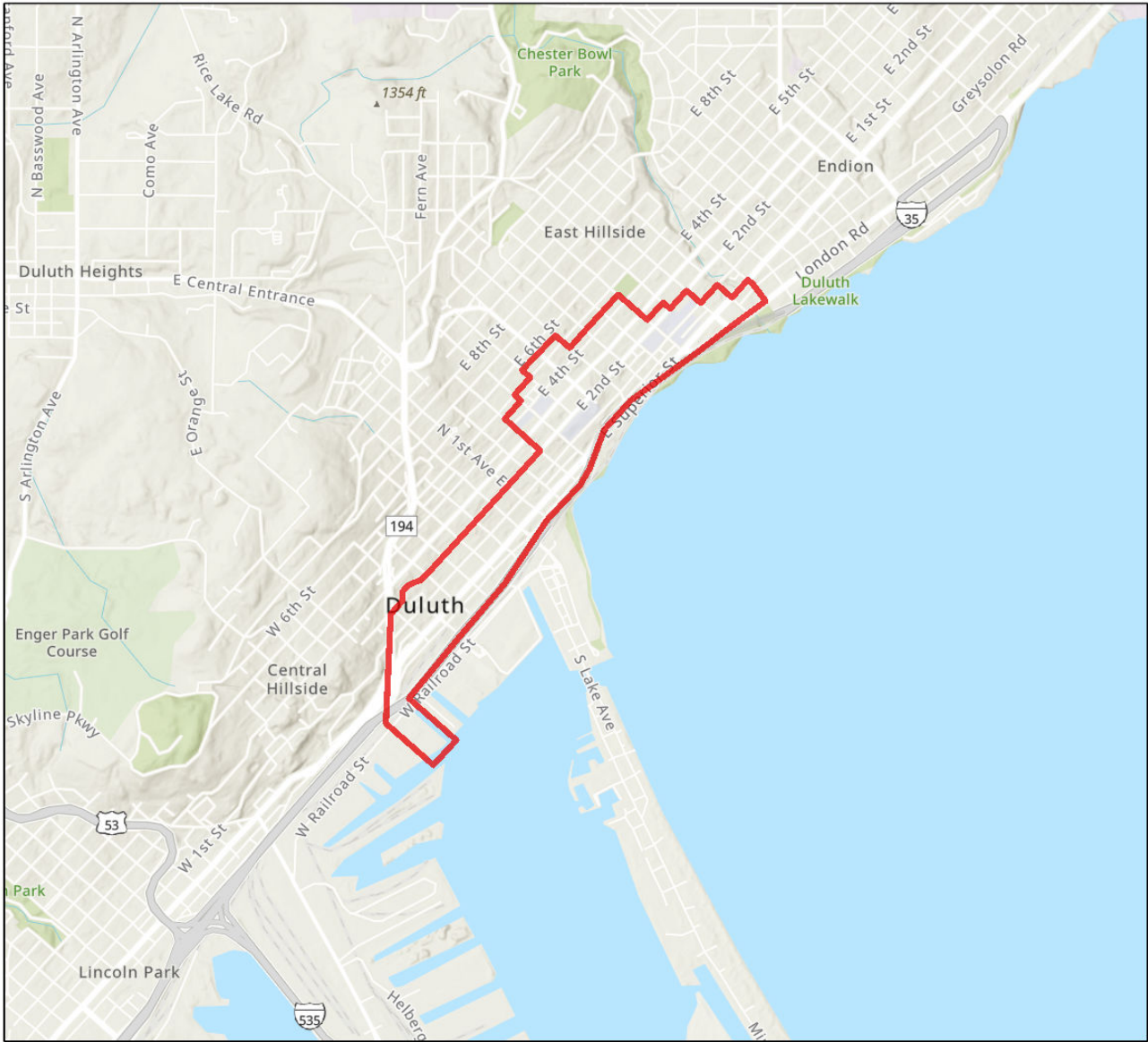
Project Type: Development, Mixed Use
Project Size (acres): 334.05
County(s): St. Louis
TRS: T50 R14 S22, T50 R14 S23, T50 R14 S27, T50 R14 S34

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
St. Louis County (MN), MN Dept Natural Resources, Esri, TomTom, Garmin,
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA,



Downtown Duluth AUAR

USA Topo Basemap With Locator Map



Project Type: Development, Mixed Use
Project Size (acres): 334.05
County(s): St. Louis
TRS: T50 R14 S22, T50 R14 S23, T50 R14 S27, T50 R14 S34

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
St. Louis County (MN), MN Dept Natural Resources, Esri, TomTom, Garmin,
SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA,



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

St. Louis County, Minnesota



Local office

Minnesota-Wisconsin Ecological Services Field Office

☎ (952) 858-0793

3815 American Blvd East
Bloomington, MN 55425-1659

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
Canada Lynx <i>Lynx canadensis</i> There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf <i>Canis lupus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4488	Threatened

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Endangered
Rufa Red Knot <i>Calidris canutus rufa</i> Wherever found There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found There is proposed critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Suckley's Cuckoo Bumble Bee <i>Bombus suckleyi</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
Canada Lynx <i>Lynx canadensis</i> https://ecos.fws.gov/ecp/species/3652#crithab	Final

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. 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 avoidance and minimization measures, as described in the various links on this page.

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-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

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. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</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. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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 ["Supplemental](#)

[Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "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.

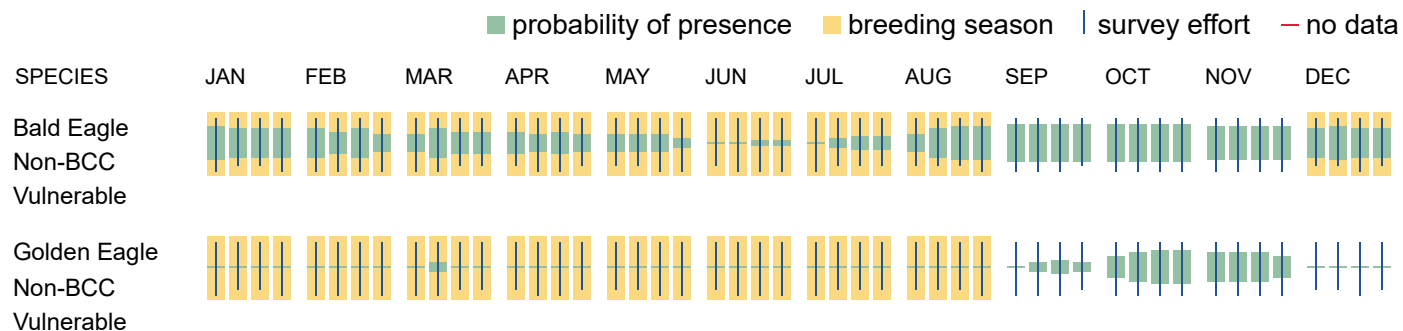
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.



Bald & Golden Eagles FAQs

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 an eagle ([Bald and Golden Eagle Protection Act](#) requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). 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 line or no data line (red horizontal) 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 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 and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are 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 resident), you may query your location using the [RAIL Tool](#) and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), 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.

Interpreting the Probability of Presence Graphs

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 taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

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

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.

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 $0.05/0.25 = 0.2$.

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.

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.

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.

Migratory birds

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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:

- 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 avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases [birds of concern](#), including [Birds of Conservation Concern \(BCC\)](#), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the [Nationwide avoidance and minimization measures for birds](#) document, and any other project-specific avoidance and minimization measures suggested at the link [Measures for avoiding and minimizing impacts to birds](#) for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles document](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

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. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Tern <i>Chlidonias niger surinamensis</i> 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
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

Bobolink *Dolichonyx oryzivorus***Breeds May 20 to Jul 31**

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

Canada Warbler *Cardellina canadensis***Breeds May 20 to Aug 10**

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

Chimney Swift *Chaetura pelagica***Breeds Mar 15 to Aug 25**

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

Common Tern *Sterna hirundo***Breeds May 1 to Aug 31**

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

<https://ecos.fws.gov/ecp/species/4963>

Connecticut Warbler *Oporornis agilis***Breeds Jun 15 to Aug 10**

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

Eastern Whip-poor-will *Antrostomus vociferus***Breeds May 1 to Aug 20**

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

Evening Grosbeak *Coccothraustes vespertinus***Breeds May 15 to Aug 10**

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

Golden Eagle *Aquila chrysaetos***Breeds Jan 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.

<https://ecos.fws.gov/ecp/species/1680>

Golden-winged Warbler *Vermivora chrysoptera***Breeds May 1 to Jul 20**

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

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

Le Conte's Sparrow *Ammospiza leconteii*

Breeds Jun 1 to Aug 15

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

Lesser Yellowlegs *Tringa flavipes*

Breeds elsewhere

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

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

Long-eared Owl *asio otus*

Breeds Mar 1 to Jul 15

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

<https://ecos.fws.gov/ecp/species/3631>

Olive-sided Flycatcher *Contopus cooperi*

Breeds May 20 to Aug 31

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

<https://ecos.fws.gov/ecp/species/3914>

Pectoral Sandpiper *Calidris melanotos*

Breeds elsewhere

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

Ruddy Turnstone *Arenaria interpres morinella*

Breeds elsewhere

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

Veery *Catharus fuscescens fuscescens*

Breeds May 15 to Jul 15

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

Whimbrel *Numenius phaeopus hudsonicus*

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 ["Supplemental Information on Migratory Birds and Eagles"](#), specifically the FAQ section titled "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 (|)

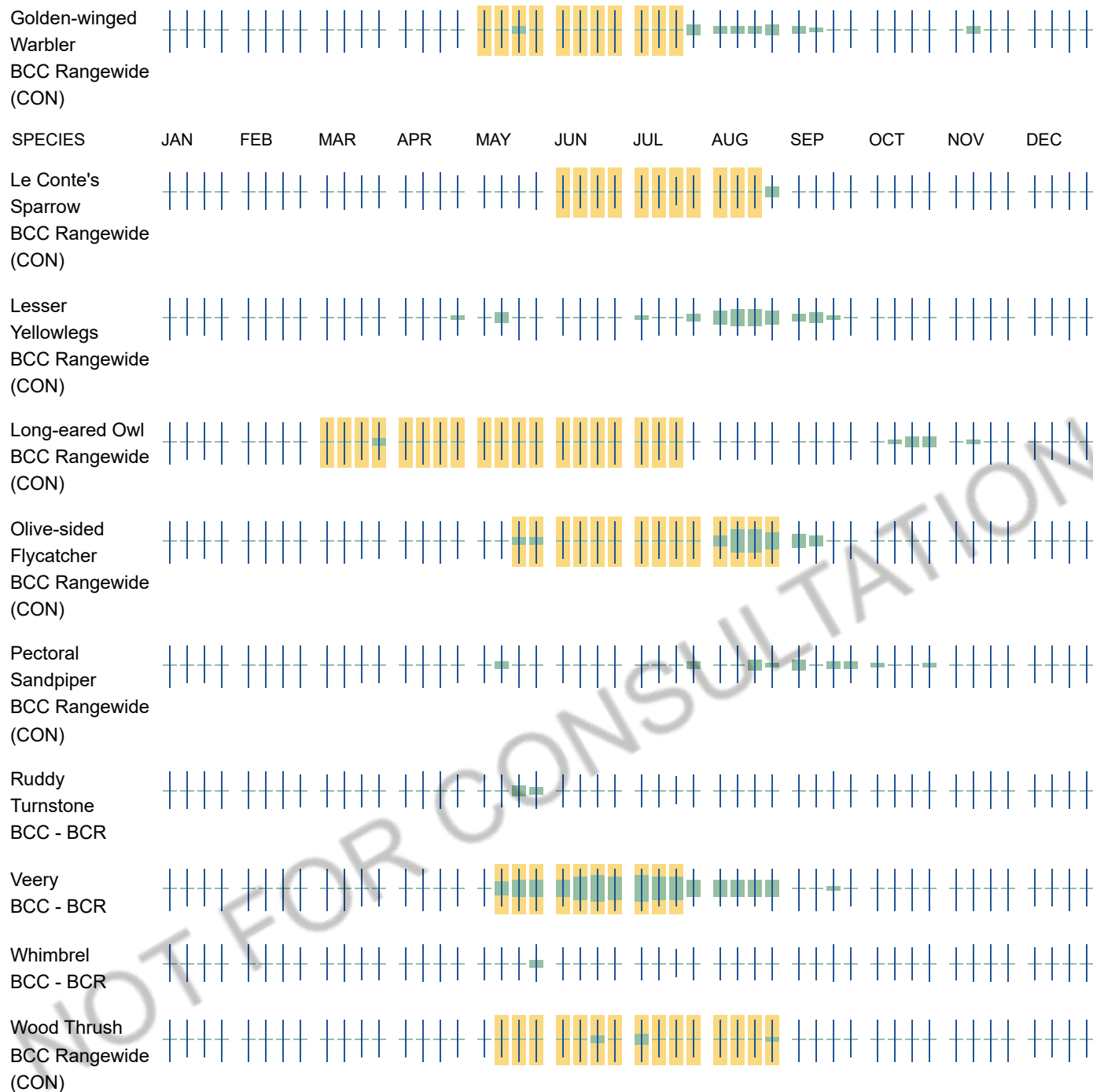
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

No Data (—)

Survey Timeframe

SPECIES	probability of presence breeding season survey effort no data											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable												
Black Tern BCC Rangewide (CON)												
Black-billed Cuckoo BCC Rangewide (CON)												
Bobolink BCC Rangewide (CON)												
Canada Warbler BCC Rangewide (CON)												
Chimney Swift BCC Rangewide (CON)												
Common Tern BCC - BCR												
Connecticut Warbler BCC Rangewide (CON)												
Eastern Whip- poor-will BCC Rangewide (CON)												
Evening Grosbeak BCC Rangewide (CON)												
Golden Eagle Non-BCC Vulnerable												



Migratory Bird FAQs

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

[Nationwide Avoidance & Minimization Measures for Birds](#) describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed 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 [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the [Bald and Golden Eagle Protection Act](#) and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

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) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle ([Bald and Golden Eagle Protection 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, and to verify survey effort when no results present, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

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 resident), you may query your location using the [RAIL Tool](#) and view 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 IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), 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 [Bald and Golden Eagle Protection 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 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 BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

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.

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 look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). 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 does not represent all birds present in your project area. 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 and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs

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 taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

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

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.

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 $0.05/0.25 = 0.2$.

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.

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.

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.

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](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

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

Appendix H

MnSHIP Sites within the AUAR area

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
Lot D Subarea (2 Resources)			
SL-DUL-00056	Huron-Portland Cement	Building	8th Ave. W. and waterfront
SL-DUL-02441	U.S. Coast Guard Cutter Sundew	Structure (Boat)	Waterfront (No address)
Essentia Subarea (134 Resources)			
SL-DUL-04120	Bridge 69817	Transportation, Road-Related (Vehicular)	Michigan Street and I-35 Interchange
SL-DUL-00212	Mutual Auto Company-Bresnan Communications	Commerce/Trade, Specialty Store	302 Superior St. E.
SL-DUL-00213	Burrell and Harmon Metal Work	Commerce/Trade, Specialty Store	308 Superior St. E.
SL-DUL-00214	Hotel Florham	Commerce/Trade, Specialty Store	310-312 Superior St. E.
SL-DUL-00215	Northwest Cadillac Company	Commerce/Trade, Specialty Store	314 Superior St. E.
SL-DUL-00180	Commercial building	Commerce/Trade, Specialty Store	309-317 Superior St. E.
SL-DUL-00216	McNamara Automobiles	Commerce/Trade, Specialty Store	318 Superior St. E.
SL-DUL-00217	Buffalo Saloon	Commerce/Trade, Specialty Store	320 Superior St. E.
SL-DUL-00815	Monte Carlo Apartments	Domestic, Multiple Dwelling	324-326 E. Superior St.
SL-DUL-00814	Commercial building	Commerce/Trade, Specialty Store	322 Superior St. E.
SL-DUL-00181	Carlson Bakery	Commerce/Trade, Specialty Store	319 Superior St. E.
SL-DUL-00182	Vacant lot - Paul Bunyan Printing	Commerce/Trade, Specialty Store	321 Superior St. E.
SL-DUL-00183	Parker Millinery	Commerce/Trade, Specialty Store	323 Superior St. E.
SL-DUL-00184	The Voyageur Motel	Domestic, Hotel	331 Superior St. E.
SL-DUL-00817	Mathhason Tire Company	Commerce/Trade, Specialty Store	400 Superior St. E.
SL-DUL-00819	Kenzen Used Cars	Commerce/Trade, Specialty Store	410 Superior St. E.
SL-DUL-00821	Branch's Hall	Commerce/Trade, Specialty Store	416 Superior St. E.
SL-DUL-00822	Kenzen Auto Sales	Commerce/Trade, Specialty Store	430 Superior St. E.
SL-DUL-00116	House	Domestic, Single Dwelling	311 1st St. E.
SL-DUL-00818	Dodge Block	Commerce/Trade, Specialty Store	401-407 Superior St. E.
SL-DUL-00115	brownstone apartments	Domestic, Multiple Dwelling	309 1/2 1st St. E.
SL-DUL-00117	Duplex	Domestic, Multiple Dwelling	315 1st St. E.
SL-DUL-00118	Duplex	Domestic, Multiple Dwelling	317 1st St. E.
SL-DUL-00244	Harbor View Apartments	Domestic, Multiple Dwelling	17-19 North 4th Ave. E.
SL-DUL-00119	New York apartments	Domestic, Multiple Dwelling	319-321 1st St. E.
SL-DUL-00121	Duplex	Domestic, Multiple Dwelling	323 1st St. E.
SL-DUL-01075	Kellerhais Auto Body	Domestic, Secondary Structure	402 1st St. E.
SL-DUL-00122	House	Domestic, Single Dwelling	325 1st St. E.
SL-DUL-00245	Harbor View Apartments	Domestic, Multiple Dwelling	21-23 North 4th Ave. E.
SL-DUL-00820	Arrowhead Glass Company	Commerce/Trade, Specialty Store	415 Superior St. E.
SL-DUL-00246	Harbor View Apartments	Domestic, Multiple Dwelling	25-27 North 4th Ave. E.
SL-DUL-00088	First Presbyterian Church	Religion, Religious Facility	302 2nd St. E.
SL-DUL-00089	Portland Apartments	Domestic, Multiple Dwelling	316 2nd St. E.
SL-DUL-00123	House	Domestic, Single Dwelling	331 1st St. E.
SL-DUL-01077	Duplex	Domestic, Multiple Dwelling	408-410 1st St. E.
SL-DUL-01076	House	Domestic, Single Dwelling	406 1st St. E.
SL-DUL-00247	Harbor View Apartments	Domestic, Multiple Dwelling	29-31 North 4th Ave. E.
SL-DUL-00248	Harbor View Apartments	Domestic, Multiple Dwelling	33-35 North 4th Ave. E.
SL-DUL-01079	Berkely Apartments	Domestic, Multiple Dwelling	416-420 1st St. E.
SL-DUL-00090	house-Almquist insurance	Domestic, Single Dwelling	320 2nd St. E.
SL-DUL-01078	Warehouse	Commerce/Trade, Warehouse	412 1st St. E.
SL-DUL-00249	House	Domestic, Single Dwelling	109 North 4th Ave. E.
SL-DUL-01266	Grandview Manor	Domestic, Multiple Dwelling	301 2nd St. E.
SL-DUL-01080	House	Domestic, Single Dwelling	422 1st St. E.
SL-DUL-01081	House	Domestic, Single Dwelling	424 1st St. E.
SL-DUL-00091	House	Domestic, Single Dwelling	322 2nd St. E.
SL-DUL-01082	Duluth Auto Body	Domestic, Secondary Structure	426-428 1st St. E.
SL-DUL-00092	Miller-Dawn Medical	Health Care, Medical Business/Office	330 2nd St. E.
SL-DUL-02813	Temple Adas Israel Synagogue	Religion, Religious Facility	302 E 3RD ST
SL-DUL-03942	Bridge 69821 (Brewery Historic District Tunnel/ Superior West Tunnel)	Transportation, Road-Related (Vehicular)	I-35 between 4th and 6th Avenues East
SL-DUL-01419	Apartments	Domestic, Multiple Dwelling	301-307 3rd St. E.
SL-DUL-01422	St. Anne's Home	Domestic, Multiple Dwelling	330 3rd St. E.
SL-DUL-01268	House	Domestic, Single Dwelling	420 2nd St. E.
SL-DUL-01420	Apartments	Domestic, Multiple Dwelling	317 3rd St. E.
SL-DUL-01592	Messiah Lutheran Church	Religion, Religious Facility	4th St. and 3rd Ave. E.
SL-DUL-01074	Commercial building	Commerce/Trade, Specialty Store	401 1st St. E.
SL-DUL-01267	Shoreview Apartments	Domestic, Multiple Dwelling	401 2nd St. E.
SL-DUL-01083	Hampshire Apartments	Domestic, Multiple Dwelling	514-518 1st St. E.
SL-DUL-02815	Essentia Health-Duluth Clinic 3rd Street Building & Parking Ramp	Health Care, Clinic	400 E 3RD ST

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-02814	St. Mary Star of the Sea Catholic Church (St. Mary's Polish Catholic Church)	Religion, Religious Facility	325 E 3RD ST
SL-DUL-03751	Essentia Health	Health Care	400 3rd St E
SL-DUL-02008	House	Domestic, Single Dwelling	329 North 4th Ave. E.
SL-DUL-01593	Jeffrey Black Building	Commerce/Trade, Specialty Store	332 4th St. E.
SL-DUL-03746	Commercial building	Commerce/Trade, Specialty Store	532 1st St E
SL-DUL-01084	Peerless Auto Body	Domestic, Secondary Structure	532 1st St. E.
SL-DUL-01270	Miller-Dawn Hospital	Health Care, Hospital	504 2nd St. E.
SL-DUL-02816	St. Mary's Hospital	Health Care, Hospital	407 E 3RD ST
SL-DUL-01269	House	Domestic, Single Dwelling	501 2nd St. E.
SL-DUL-02817	Kaarbos Auto Repair	Commerce	331 4th Street East
SL-DUL-01594	Commercial building	Commerce/Trade, Specialty Store	401 4th St. E.
SL-DUL-03750	Unknown	-	620 1st St E
SL-DUL-01085	Apartment	Domestic, Multiple Dwelling	601-603 E 1st St
SL-DUL-01087	House	Domestic, Single Dwelling	610 1st St. E.
SL-DUL-01088	Commercial Building	Commerce/Trade, Specialty Store	614 E 1st St
SL-DUL-03679	Apartment	Domestic, Multiple Dwelling	605 E 1st St
SL-DUL-01425	Ashtabula Apartments	Domestic, Multiple Dwelling	502 3rd St. E.
SL-DUL-03747	Duplex	Domestic, Multiple Dwelling	601-603 1st St E
SL-DUL-03748	Duplex	Domestic, Multiple Dwelling	605 1st St E
SL-DUL-03749	Duplex	Domestic, Multiple Dwelling	607-609 1st St E
SL-DUL-01086	Apartments	Domestic, Multiple Dwelling	607-609 E 1st St
SL-DUL-01595	Commercial building	Commerce/Trade, Specialty Store	407 4th St. E.
SL-DUL-01271	House	Domestic, Single Dwelling	517 2nd St. E.
SL-DUL-01868	Apartments	Domestic, Multiple Dwelling	110-114 N 6th Ave E
SL-DUL-02818	Goering Bldg.	-	413 4th Street East
SL-DUL-01092	Expert Tire (Commercial Building)	Commerce/Trade, Specialty Store	624 E 1st St
SL-DUL-02819	Beschenbossel Building	-	415 4th Street East
SL-DUL-01272	Daugherty Funeral Home	Funerary, Mortuary	600 2nd St. E.
SL-DUL-01089	House	Domestic, Multiple Dwelling	619 E 1st St
SL-DUL-01427	Johnson Mortuary	Funerary, Mortuary	514 3rd St. E.
SL-DUL-01704	Evergreen Apartments	Domestic, Multiple Dwelling	402-404 5th St. E.
SL-DUL-01091	Double House	Domestic, Multiple Dwelling	621-623 E 1st St
SL-DUL-01090	House	Domestic, Single Dwelling	621 1st St. E.
SL-DUL-01596	The Barber	Commerce/Trade, Specialty Store	419 4th St. E.
SL-DUL-04087	Commercial Building	Commerce/Trade, Business	421 East 4th Street
SL-DUL-01007	Vermillion Trail Marker	-	Washington Ave. & 1st St.
SL-DUL-01093	Double House	Domestic, Multiple Dwelling	629 E 1st St
SL-DUL-01873	House	Domestic, Single Dwelling	119 North 7th Ave. E.
SL-DUL-01870	Gloria Dei Church	Religion, Religious Facility	219 North 6th Ave. E.
SL-DUL-03617	Swedish Evangelical Lutheran Church	Religion, Religious Facility	219 N. 6th Ave. E.
SL-DUL-01426	Fifth Avenue Apartments	Domestic, Multiple Dwelling	503 3rd St. E.
SL-DUL-02820	Bell Apartment	Domestic, Multiple Dwelling	502 E 4th St.
SL-DUL-01274	House (parish center)	Religion, Religious Facility	620 E 2nd St
SL-DUL-02838	Commercial building	Commerce/Trade, Specialty Store	512-514 4th St E
SL-DUL-01273	House	Domestic, Single Dwelling	617 2nd St. E.
SL-DUL-02822	Daugherty Bldg.	Commerce/Trade, Specialty Store	516 E 4th St.
SL-DUL-01279	Twelve Holy Apostles Greek Orthodox Church	Religion, Religious Facility	632 E 2nd St
SL-DUL-02836	Bartholdi Block	Commerce/Trade, Specialty Store	501 4th Street East
SL-DUL-03614	SMDC Health System building	-	412 N. 5th Ave. E.
SL-DUL-03615	Commercial Building	Commerce	520 E. 4th St.
SL-DUL-01275	House	Domestic, Single Dwelling	621 E 2nd St
SL-DUL-01277	House	Domestic, Single Dwelling	629 2nd St. E.
SL-DUL-01278	House	Domestic, Single Dwelling	631 2nd St. E.
SL-DUL-03616	Commercial Building	Commerce	526 E. 4th St.
SL-DUL-02823	Potswald Block	Commerce/Trade, Specialty Store	522 E 4th St.
SL-DUL-02821	Tufia Bldg.	Commerce/Trade, Specialty Store	513 E 4th St.
SL-DUL-01276	House	Domestic, Single Dwelling	627 2nd St. E.
SL-DUL-01429	Kohagen Flats	Domestic, Multiple Dwelling	632 E 3rd St
SL-DUL-03602	Grocery Store	Commerce	610 E. 4th St.
SL-DUL-01428	Schaf Flats	Domestic, Multiple Dwelling	631 3rd St. E.
SL-DUL-03601	Commercial Building and Gas Station	Commerce	619 E. 4th St.
SL-DUL-03613	Auto Repair - Retail Store	Commerce	531 E. 5th St.
SL-DUL-03618	Brewery Creek Culvert	Transportation, Road-Related (Vehicular)	unknown
SL-DUL-01709	House	Domestic, Single Dwelling	618 5th St. E.
SL-DUL-03693	Brooks Terrace	Domestic, Multiple Dwelling	621 E 4th St

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-03612	Automotive Parts Headquarters Inc.	Commerce	502 N. 6th Ave. E.
SL-DUL-03611	House	Domestic	609 E. 5th St.
SL-DUL-01711	House	Domestic, Single Dwelling	620 5th St. E.
SL-DUL-01712	Krause Building	Domestic, Multiple Dwelling	624-626 E 5th St
SL-DUL-03610	2 Houses	Domestic, Multiple Dwelling	613 E. 5th St.
SL-DUL-01708	Duplex	Domestic, Multiple Dwelling	617 E 5th St
SL-DUL-01710	Duplex	Domestic, Multiple Dwelling	619 E 5th St
SL-DUL-03609	House	Domestic	623 E. 5th St.
SL-DUL-03608	House	Domestic	627 E. 5th St.
SL-DUL-03607	House	Domestic	629 E. 5th St.
1st Street Subarea (249 Resources)			
SL-DUL-04109	Bridge 69818S	Transportation, Road-Related (Vehicular)	I-35 between Mesaba Avenue and 5th Avenue West
SL-DUL-03038	Bridge 69840	Transportation, Road-Related (Vehicular)	0.2 MI N OF JCT TH 35 (carries MN 194 NB over SUPERIOR ST(MSAS171))
SL-DUL-00959	Bible House Building	Commerce/Trade, Business	715 Superior St. W.
SL-DUL-00958	Lenox Place	Domestic, Multiple Dwelling	701 Superior St. W.
SL-DUL-04107	Bridge 69818B	Transportation, Road-Related (Vehicular)	5th Avenue West and I-35 Interchange
SL-DUL-03115	Gateway Tower	Domestic, Multiple Dwelling	600 Superior St W
SL-DUL-00957	Gateway Towers Apartments	Domestic, Multiple Dwelling	600-612 Superior St. W.
SL-DUL-04110	Bridge 69870A	Transportation, Road-Related (Vehicular)	5th Avenue West and I-35 Interchange
SL-DUL-00658	Duluth Union Depot	Transportation, Rail-Related	506 Michigan St.
SL-DUL-03040	69870	Transportation, Road-Related (Vehicular)	unknown
SL-DUL-04111	Bridge 69870B	Transportation, Road-Related (Vehicular)	5th Avenue West and I-35 Interchange
SL-DUL-02465	William Crooks Locomotive	Transportation, Rail-Related	Duluth Union Depot - 506 Michigan St.
SL-DUL-03113	Parking Structure	Landscape, Parking Lot	N/A Michigan St W
SL-DUL-00955	Radison Duluth Hotel	Domestic, Hotel	505 Superior St. W.
SL-DUL-00953	Ordean Building	Commerce/Trade, Business	424 Superior St. W.
SL-DUL-01240	Gerald W. Heaney Federal Building & US Courthouse/US Custom House/ US Post Office/Civic Center Station	Government, Post Office	515 1st St. W.
SL-DUL-02375	Duplicate Number - See SL-DUL-01240	Government, Government Office	unknown
SL-DUL-00952	Duluth Business University Building	Commerce/Trade, Specialty Store	418 Superior St. W.
SL-DUL-02504	Bridge L6125	Transportation, Road-Related (Vehicular)	Skyway Michigan St. .1 miles east of 5th Ave. W
SL-DUL-00951	Commercial building	Commerce/Trade, Specialty Store	404 Superior St. W.
SL-DUL-01239	Duluth Herald & News Tribune	Commerce/Trade, Business	424 1st St. W.
SL-DUL-00954	KDLH TV	Commerce/Trade, Business	425 Superior St. W.
SL-DUL-00950	Palladis Building	Commerce/Trade, Business	403 Superior St. W.
SL-DUL-00948	Providence Building	Commerce/Trade, Financial Institution	332 Superior St. W.
SL-DUL-01238	Duluth Water & Gas Department Offices	Commerce/Trade, Business	414 1st St. W.
SL-DUL-02373	Soldiers and Sailors Monument	Recreation and Culture, Monument/Marker	unknown
SL-DUL-00947	Medical Arts Building	Health Care, Medical Business/Office	324 Superior St. W.
SL-DUL-00949	Phoenix Building	Commerce/Trade, Specialty Store	333 Superior St. W.
SL-DUL-01236	Duluth Water & Gas Warehouse	Social, Meeting Hall	408-410 1st St. W.
SL-DUL-00943	Torrey Building	Commerce/Trade, Business	314-316 Superior St. W.
SL-DUL-01235	Duluth Athletic Club	Social, Meeting Hall	402 1st St. W.
SL-DUL-02372	St. Louis County Courthouse	Government, Courthouse	unknown
SL-DUL-03953	Bridge 93729 (Skyway)	Transportation, Road-Related (Vehicular)	Skyway Bridge
SL-DUL-00941	Moore Memorial Building	Commerce/Trade, Specialty Store	312 Superior St. W.
SL-DUL-00946	Commercial building	Commerce/Trade, Specialty Store	323 Superior St. W.
SL-DUL-00939	Alworth Building	Commerce/Trade, Specialty Store	306-310 Superior St. W.
SL-DUL-00945	Duluth Common Exchange	Commerce/Trade, Specialty Store	321 Superior St. W.
SL-DUL-00940	Boyce Drug	Commerce/Trade, Specialty Store	306 Superior St. W.
SL-DUL-00944	Black Steer	Commerce/Trade, Restaurant	319 Superior St. W.
SL-DUL-00937	Lonsdale Building	Commerce/Trade, Professional	302 Superior St. W.
SL-DUL-00204	Duluth City Hall	Government, City Hall	132 Superior St. E.
SL-DUL-00942	Bagley & Company	Commerce/Trade, Specialty Store	313-315 Superior St. W.
SL-DUL-01237	Duluth City Hall	Government, City Hall	411 1st St. W.
SL-DUL-01234	J.J. Summers Agency	Commerce/Trade, Specialty Store	322 1st St. W.
SL-DUL-00218	Norwest Bank Building	Commerce/Trade, Financial Institution	230 Superior St. W.
SL-DUL-01233	Northwest Bell Telephone Company	Commerce/Trade, Specialty Store	322 1st St. W.
SL-DUL-02651	Winthrop Building	Commerce/Trade, Specialty Store	325-333 1st St. W
SL-DUL-01230	Commercial building	Commerce/Trade, Specialty Store	314 1st St. W.
SL-DUL-00938	Commercial building	Commerce/Trade, Specialty Store	303-305 Superior St. W.

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-00219	Duluth Hardware Company/Smith, Farwell & Steele Building	Commerce/Trade, Financial Institution	222 Superior St. W.
SL-DUL-00220	The Herald Building	Commerce/Trade, Specialty Store	220 Superior St. W.
SL-DUL-01232	Commercial building	Commerce/Trade, Specialty Store	321-323 1st St. W.
SL-DUL-01228	Duluth YMCA	Recreation and Culture, Sports Facility	302 1st St. W.
SL-DUL-00221	Watterworth & Fee Block	Commerce/Trade, Specialty Store	218 Superior St. W.
SL-DUL-00222	Clague & Prindle Block	Commerce/Trade, Specialty Store	216 Superior St. W.
SL-DUL-01231	Central Garage	Recreation and Culture, Sports Facility	315 1st St. W.
SL-DUL-02770	Duluth Transit Authority (DTA) Transit Center - Skyway Entrance	Government, Government Office	214 Superior St. W.
SL-DUL-00223	Commercial Building (razed)	Commerce/Trade, Specialty Store	214 Superior St. W.
SL-DUL-02771	Ace Hardware	Commerce/Trade, Specialty Store	212 Superior St. W.
SL-DUL-00936	Lyric Block	Commerce/Trade, Specialty Store	209 Superior St. W.
SL-DUL-02772	West Hotel	Domestic, Hotel	210 Superior St. W.
SL-DUL-00225	Commercial building	Commerce/Trade, Specialty Store	208 Superior St. W.
SL-DUL-00224	Commercial building	Commerce/Trade, Specialty Store	210-212 Superior St. W.
SL-DUL-01229	Elk's Club-Court house bldg	Commerce/Trade, Specialty Store	309-311 1st St. W.
SL-DUL-00226	Argone Hotel	Domestic, Hotel	206 Superior St. W.
SL-DUL-01227	Duluth Board of Trade	Commerce/Trade, Business	301-307 1st St. W.
SL-DUL-00227	Sellwood Building	Commerce/Trade, Specialty Store	202 Superior St. W.
SL-DUL-00074	Commercial building	Commerce/Trade, Specialty Store	226-232 1st St. W.
SL-DUL-00073	Commercial building	Commerce/Trade, Specialty Store	222-224 1st St. W.
SL-DUL-02503	Bridge 92849	Transportation, Road-Related (Vehicular)	Skyway Michigan St. E of 3rd Ave W
SL-DUL-00185	First Bank Place	Commerce/Trade, Financial Institution	130 Superior St. W.
SL-DUL-01226	Wolvin Building	Commerce/Trade, Specialty Store	225-231 1st St. W.
SL-DUL-00068	Salvation Army	Commerce	118 North 3rd Ave. W.
SL-DUL-01224	LeTourneau Printing Company	Commerce/Trade, Specialty Store	219-221 1st St. W.
SL-DUL-00186	commercial building-Saw Mill unpainted furniture	Commerce/Trade, Specialty Store	120 Superior St. W.
SL-DUL-01223	Armstead Building	Commerce/Trade, Specialty Store	217 1st St. W.
SL-DUL-00934	Commercial building	Commerce/Trade, Specialty Store	118 Superior St. W.
SL-DUL-00935	First Bank Place	Commerce/Trade, Financial Institution	131 Superior St. W.
SL-DUL-02006	Northwestern Bank of Commerce Drive-In	Commerce/Trade, Financial Institution	23 North 2nd Ave. W.
SL-DUL-00188	Commercial building - Swor Shoes	Commerce/Trade, Specialty Store	114 Superior St. W.
SL-DUL-01221	Central Club Café	Commerce/Trade, Specialty Store	213-215 1st St. W.
SL-DUL-00228	Commercial building	Commerce/Trade, Specialty Store	125-127 Superior St. W.
SL-DUL-00189	F.W. Woolworth	Commerce/Trade, Specialty Store	104-106 Superior St. W.
SL-DUL-00154	Gately Store	Commerce/Trade, Specialty Store	123 Superior St. W.
SL-DUL-00155	Walgreen's Drug Store	Commerce/Trade, Specialty Store	121 Superior St. W.
SL-DUL-00069	Peter Pan Cleaners	Commerce/Trade, Specialty Store	122 North 3rd Ave. W.
SL-DUL-01220	Gilbert Building	Commerce/Trade, Specialty Store	209-211 1st St. W.
SL-DUL-01219	Altman Clothing	Commerce/Trade, Specialty Store	201-207 1st St. W.
SL-DUL-00156	George Gray Department Store	Commerce/Trade, Department Store	113-119 Superior St. W.
SL-DUL-00190	Harbor Building	Commerce/Trade, Specialty Store	102 Superior St. W.
SL-DUL-00153	Commercial building - North shore bank of commerce	Commerce/Trade, Specialty Store	129-131 Superior St. W.
SL-DUL-00231	Parking ramp (Nonextant)	Landscape, Parking Lot	16-20 North 2nd Ave. W.
SL-DUL-00071	Natchios Greek Restaurant	Commerce/Trade, Restaurant	109 North 2nd Ave. W.
SL-DUL-00157	Aster Theatre	Recreation and Culture, Theater	109 Superior St. W.
SL-DUL-00070	Leone's Cleaners and Tailors	Commerce/Trade, Specialty Store	115 North 2nd Ave. W.
SL-DUL-00230	Commercial building	Commerce/Trade, Financial Institution	202 1st St. W.
SL-DUL-00093	Bayha and Company Furniture	Commerce/Trade, Business	131 1st St. W.
SL-DUL-00229	Commercial building	Commerce/Trade, Specialty Store	105 Superior St. W.
SL-DUL-02390	Young Women's Christian Association of Duluth (YWCA)	Social, Civic	202 2nd St. W.
SL-DUL-04116	Bridge 69816E	Transportation, Road-Related (Vehicular)	Lake Avenue and I-35 Interchange
SL-DUL-00124	Commercial building	Commerce/Trade, Specialty Store	118-138 1st St. W.
SL-DUL-00126	Pasek Pharmacy, Jerry Lee's Restaurant, commercial building	Commerce/Trade, Specialty Store	114-116 1st St. W.
SL-DUL-00125	Deluxe Coney Island-Rowley Building	Commerce/Trade, Specialty Store	112 1st St. W.
SL-DUL-00191	Great Northern Power Company/Minnesota Power & Light	Industry/Processing/Extraction, Extractive Facility	30 W Superior St
SL-DUL-00158	Hunter Building	Commerce/Trade, Specialty Store	31 Superior St. W.
SL-DUL-00159	Commercial building	Commerce/Trade, Specialty Store	29 Superior St. W.
SL-DUL-02004	Gulleson Shoe Store	Commerce/Trade, Specialty Store	21 North 1st Ave. W.
SL-DUL-00127	Ideal Market & Bakery	Commerce/Trade, Specialty Store	102 1st St. W.
SL-DUL-01212	Rowley Building	Commerce/Trade, Specialty Store	108 1st St. W.
SL-DUL-00072	Auto Garage	Transportation, Road-Related (Vehicular)	120-122 North 2nd Ave. W.

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-00160	Commercial building	Commerce/Trade, Specialty Store	25 Superior St. W.
SL-DUL-02391	Duplicate Number - See SL-DUL-000127 (Ideal Market & Bakery)	Commerce/Trade, Specialty Store	102 1st St W
SL-DUL-00094	Gershgol Grocery	Commerce/Trade, Specialty Store	123 1st St. W.
SL-DUL-00233	Action Pawn and Gopher Shoe Repair	Commerce/Trade, Specialty Store	16-18 North 1st Ave. W.
SL-DUL-00075	Duplicate Number - See SL-DUL-00072 (Auto Garage)	Transportation, Road-Related (Vehicular)	120 2nd St. W.
SL-DUL-00236	Crown Christian Center	Religion, Religious Facility	13-15 Lake Ave. N.
SL-DUL-00234	Printing Express	Commerce/Trade, Specialty Store	22-26 North 1st Ave. W.
SL-DUL-00096	Frederick Hotel	Commerce/Trade, Specialty Store	105 W 1st St.
SL-DUL-00095	Columbia Block-Norman's Bar Bldg	Commerce/Trade, Specialty Store	113-115 1st St. W.
SL-DUL-00161	Commercial Building	Commerce/Trade, Specialty Store	21-23 Superior St. W.
SL-DUL-00164	Wirth Building	Commerce/Trade, Specialty Store	13 Superior St. W.
SL-DUL-00128	Pearson Block-Duluth Liquor	Commerce/Trade, Specialty Store	26-32 1st St. W.
SL-DUL-00162	Commercial building-sportsman's headquarters	Commerce/Trade, Specialty Store	17-23 Superior St. W.
SL-DUL-00101	European Bakery-New England Hotel	Commerce/Trade, Specialty Store	109-111 W 1st St.
SL-DUL-00097	East End Ice and Coal- Life House Youth Center	Commerce/Trade, Specialty Store	31 1st St. W.
SL-DUL-00129	Cantonese House-commercial building	Commerce/Trade, Specialty Store	24 1st St. W.
SL-DUL-00166	Norris-MacDougal Block	Commerce/Trade, Specialty Store	5-7 Superior St. W.
SL-DUL-00163	Commercial Building	Commerce/Trade, Specialty Store	15 Superior St. W.
SL-DUL-04117	Bridge 69816F	Transportation, Road-Related (Vehicular)	Lake Avenue and I-35 Interchange
SL-DUL-00098	commercial building-Life House Youth Center	Commerce/Trade, Specialty Store	29 1st St. W.
SL-DUL-00130	Young at Heart	Commerce/Trade, Specialty Store	22 1st St. W.
SL-DUL-00800	Commercial building	Commerce/Trade, Specialty Store	3-9 Superior St. E.
SL-DUL-00167	Bell and Eyster	Commerce/Trade, Specialty Store	3 Superior St. W.
SL-DUL-00803	Old Jolly Fisher Restaurant	Commerce/Trade, Specialty Store	27 Superior St. E.
SL-DUL-00066	Merrit and Hector Printers	Commerce/Trade, Specialty Store	108-114 North 1st Ave. W.
SL-DUL-00131	E.F. Berg Hotel Supplies	Commerce/Trade, Specialty Store	20 1st St. W.
SL-DUL-00251	Plaunt Company Plumbing	Commerce/Trade, Specialty Store	121-123 North 1st Ave. W.
SL-DUL-00168	Poirier's Boots and Shoes	Commerce/Trade, Specialty Store	1 Superior St. W.
SL-DUL-00099	Arthurs Formal Wear	Commerce/Trade, Specialty Store	25 1st St. W.
SL-DUL-00132	Sanitary Plumbing-Glenwood trophy	Commerce/Trade, Specialty Store	18 1st St. W.
SL-DUL-00165	Silberstein and Bondy Dry Goods Company	Commerce/Trade, Specialty Store	9-11 Superior St. W.
SL-DUL-00252	Chum Drop-In Center	Social, Civic	125 N. 1st Ave. W
SL-DUL-00237	Commercial building-Bayly building	Commerce/Trade, Specialty Store	17-19 Lake Ave. N.
SL-DUL-00193	Vacant lot	Recreation and Culture, Theater	16 Superior St. E.
SL-DUL-00238	Nortun Lodge #126 Sons of Norway	Social, Meeting Hall	21-23 Lake Ave. N.
SL-DUL-02644	Parking lot	Landscape, Parking Lot	9-23 1st St. W.
SL-DUL-00133	Bridgeman & Russell	Commerce/Trade, Specialty Store	14-16 1st St. W.
SL-DUL-00067	Commercial Electric Company	Commerce/Trade, Specialty Store	118 North 1st Ave. W.
SL-DUL-00135	Spina Building-Dreamland bar;Willis Supply Co./Shishka Bar	Commerce/Trade, Specialty Store	2-8 1st St. W.
SL-DUL-00134	Bridgeman-Russell Block	Commerce/Trade, Specialty Store	10-16 1st St. W.
SL-DUL-00235	Tremont Hotel	Domestic, Hotel	12 Lake Ave. N.
SL-DUL-00076	Commercial building - Duluth Teachers Credit Union	Commerce/Trade, Specialty Store	28 2nd St. W.
SL-DUL-00196	Wieland Block	Commerce/Trade, Specialty Store	26 Superior St. E.
SL-DUL-00194	J. J. Costello Hardware and Stoves	Commerce/Trade, Specialty Store	22-24 Superior St. E.
SL-DUL-00169	Commercial building	Commerce/Trade, Specialty Store	13 Superior St. E.
SL-DUL-00136	First Bank Drive-In	Commerce/Trade, Financial Institution	10 1st St. E.
SL-DUL-03922	Bridge 69857	Transportation, Pedestrian-Related	Connecting Superior Street to Gichi-Ode' Akiing Park
SL-DUL-00802	Jeronimus Floral	Commerce/Trade, Specialty Store	11 1/2 Superior St. E.
SL-DUL-00170	Commercial building	Commerce/Trade, Specialty Store	17 Superior St. E.
SL-DUL-00801	Bridgemen's	Commerce/Trade, Specialty Store	11 Superior St. E.
SL-DUL-00171	Commercial building	Commerce/Trade, Specialty Store	21 Superior St. E.
SL-DUL-00100	HBJ Publications Inc	Commerce/Trade, Specialty Store	1-7 1st St. W.
SL-DUL-00172	Commercial building - music center	Commerce/Trade, Specialty Store	23-25 Superior St. E.
SL-DUL-00078	Duluth Masonic Temple	Social, Meeting Hall	4 2nd St. W.
SL-DUL-00197	Hayes Block	Commerce/Trade, Specialty Store	30-38 Superior St. E.
SL-DUL-00198	Astoria Hotel-Northern lights/Chinese Dragon	Commerce/Trade, Specialty Store	102-108 Superior St. E.
SL-DUL-02645	Granite retaining wall	Landscape, Street Furniture/Object	9 1st St. E.
SL-DUL-00137	Commercial building	Commerce/Trade, Specialty Store	18 1st St. E.
SL-DUL-00173	Last place on earth	Commerce/Trade, Specialty Store	29-33 Superior St. E.

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-00103	Interstate Auto	Commerce/Trade, Specialty Store	5-7 1st St. E.
SL-DUL-00138	Duluth Candy Factory	Commerce/Trade, Specialty Store	20 1st St. E.
SL-DUL-01208	Hockin Furniture Co.	Commerce/Trade, Specialty Store	5 1st St. W. (formerly 1 - 7 W 1st St)
SL-DUL-00102	Builders Exchange Building	Commerce/Trade, Specialty Store	1-3 1st St. E.
SL-DUL-02353	Granada Theater	Recreation and Culture, Theater	109 Superior St. E.
SL-DUL-00139	Commercial building - Duluth Teachers Retirement Fund	Commerce/Trade, Specialty Store	22 1st St. E.
SL-DUL-00804	Granada News & Book	Commerce/Trade, Specialty Store	111 Superior St. E.
SL-DUL-00805	China Night Restaurant	Commerce/Trade, Restaurant	113 Superior St. E.
SL-DUL-00199	Vacant lot - Sears parking lot	Commerce/Trade, Specialty Store	110-116 Superior St. E.
SL-DUL-00174	Grand Hotel	Domestic, Hotel	101-105 Superior St. E.
SL-DUL-00200	Peterson Buffet-chamber of commerce	Commerce/Trade, Specialty Store	118 Superior St. E.
SL-DUL-00807	C.H. Oppel Block	Commerce/Trade, Restaurant	117 Superior St. E.
SL-DUL-00201	Delray Hotel	Commerce/Trade, Specialty Store	120 Superior St. E.
SL-DUL-01071	Singer and Associates	Commerce/Trade, Specialty Store	26 E. 1st St.
SL-DUL-00808	Commercial building	Commerce/Trade, Specialty Store	119 Superior St. E.
SL-DUL-02646	US Bank Parking Garage	Landscape, Parking Lot	2-28 1st St. E
SL-DUL-01072	Corner Cafe	Commerce/Trade, Specialty Store	35 1st St. E.
SL-DUL-00202	Service Motor Company, Drivers' Union Hall	Commerce/Trade, Specialty Store	124 Superior St. E.
SL-DUL-00152	Duplex	Domestic, Multiple Dwelling	316 1st St. E.
SL-DUL-00104	Salo Building-Dunlap Building	Commerce/Trade, Specialty Store	15-17 1st St. E.
SL-DUL-00203	Duluth City Jail	Government, Correctional Facility	126 Superior St. E.
SL-DUL-00810	Commercial building	Commerce/Trade, Specialty Store	123 Superior St. E.
SL-DUL-00106	Sher Brothers and Company	Commerce/Trade, Specialty Store	25 1st St. E.
SL-DUL-00080	Chatham Apartments	Domestic, Multiple Dwelling	10 2nd St. E.
SL-DUL-00175	Parking ramp, Fond-du-Luth Casino	Transportation, Road-Related (Vehicular)	107-123 Superior St. E.
SL-DUL-02648	Hobart Manufacturing Company	Commerce/Trade, Specialty Store	31 1st St. E
SL-DUL-00240	Duluth Steam Bath	Commerce/Trade, Specialty Store	18-20 North 1st Ave. E.
SL-DUL-01073	Mobil Service - Frenchy's	Commerce/Trade, Specialty Store	101 East 1st St.
SL-DUL-01853	House	Domestic, Single Dwelling	117 North 1st Ave. E.
SL-DUL-00105	Parking lot	Transportation	19-23 1st St. E.
SL-DUL-01854	Amity Furniture Restoration	Commerce/Trade, Specialty Store	123 North 1st Ave. E.
SL-DUL-00140	Yale Laundry-H & J (stge)	Commerce/Trade, Specialty Store	30-32 1st St. E.
SL-DUL-01211	Commercial building (razed)	Commerce/Trade, Specialty Store	106-110 1st St. W.
SL-DUL-00107	Lake Superior Liquors-commercial building	Commerce/Trade, Specialty Store	27-35 1st St. E.
SL-DUL-02505	Fire Hall #1	Government, Fire Station	22 East Second St
SL-DUL-01214	Coney Island	Commerce/Trade, Specialty Store	110 1st St. W.
SL-DUL-00205	Knudsen Automobile Company Building	Commerce/Trade, Specialty Store	202 Superior St. E.
SL-DUL-00176	Sears, Roebuck and Company	Commerce/Trade, Department Store	125-131 Superior St. E.
SL-DUL-00141	Toverilla Hotel-First Street Exchange	Commerce/Trade, Specialty Store	102-108 1st St. E.
SL-DUL-00142	Union Fur Company/Thorsell-Nesgoda Garage	Commerce/Trade, Specialty Store	110-112 1st St. E.
SL-DUL-00144	Gray Brothers Bakery-Duluth auto sales	Commerce/Trade, Specialty Store	118-120 1st St. E.
SL-DUL-00206	Interstate Auto Company	Commerce/Trade, Specialty Store	206-214 Superior St. E.
SL-DUL-03923	Bridge 69858	Transportation, Pedestrian-Related	Connecting Superior Street to Gichi-Ode' Akiing Park
SL-DUL-02647	Parking lot	Landscape, Parking Lot	101-121 1st St. E
SL-DUL-00177	Masonic Temple Opera House	Recreation and Culture, Music Facility	201-205 Superior St. E.
SL-DUL-00239	Apartment	Domestic, Multiple Dwelling	114 N. 1st Ave. E
SL-DUL-00143	Moose 505 Lodge-International Harvester Company	Social, Meeting Hall	114-116 1st St. E.
SL-DUL-00145	Model Laundry	Commerce/Trade, Specialty Store	126 1st St. E.
SL-DUL-01858	Carter Hotel	Domestic, Hotel	17-25 North 2nd Ave. E.
SL-DUL-00178	NorShor Theatre-Orpheum Service Garage	Commerce/Trade, Specialty Store	207-213 Superior St. E.
SL-DUL-02354	Jimmy's Used Cars	Commerce/Trade, Specialty Store	27 North 2nd Ave. E.
SL-DUL-00208	Gannon Auto Supplies	Commerce/Trade, Specialty Store	216-218 Superior St. E.
SL-DUL-00812	Sunnyside Cafe	Commerce/Trade, Specialty Store	214 Superior St. E.
SL-DUL-00108	Northwest Radio	Commerce/Trade, Specialty Store	123 1st St. E.
SL-DUL-02649	Clayton Jackson McGhie Memorial	Landscape, Park	130 1st St. E
SL-DUL-00241	Orpheum Theatre	Recreation and Culture, Theater	8-12 North 2nd Ave. E.
SL-DUL-00210	Rockhill Buick Company-St, Louis Cty health Dept.	Commerce/Trade, Specialty Store	222 Superior St. E.
SL-DUL-00083	House	Domestic, Single Dwelling	108 2nd St. E.
SL-DUL-00243	Duluth Cleaners and Dyers	Commerce/Trade, Specialty Store	16-18 North 2nd Ave. E.

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-00084	Commercial building	Commerce/Trade, Specialty Store	112 2nd St. E.
SL-DUL-00109	Surplus electronics-commercial building	Commerce/Trade, Specialty Store	125 1st St. E.
SL-DUL-00211	Jacob Kohn Autos and Television Center Building	Commerce/Trade, Specialty Store	228-230 Superior St. E.
SL-DUL-00147	Jenswold Motor Company-Sturm brothers supply Co.	Commerce/Trade, Specialty Store	202-206 1st St. E.
SL-DUL-02550	KBIR TV	Commerce/Trade, Specialty Store	230 E. Superior St.
SL-DUL-00209	Albert Salter Saloon	Commerce/Trade, Specialty Store	220 Superior St. E.
SL-DUL-03874	Pastoret Terrace	Domestic, Multiple Dwelling	101-107-109-111-113 N 2nd Ave E
SL-DUL-00085	House	Domestic, Single Dwelling	118 2nd St. E.
SL-DUL-00148	Parisian Dry Cleaners	Commerce/Trade, Specialty Store	208 1st St. E.
SL-DUL-00149	Motor Mart	Commerce/Trade, Specialty Store	210 1st St. E.
SL-DUL-00110	Pastoret Terrace	Commerce/Trade, Specialty Store	127-129 1st St. E.
SL-DUL-00150	Duluth Ford Exchange	Commerce/Trade, Specialty Store	214-216 1st St. E.
SL-DUL-00151	Turner Automobiles	Commerce/Trade, Specialty Store	218-222 1st St. E.
SL-DUL-00111	Shrine Temple	Social, Meeting Hall	201-207 1st St. E.
SL-DUL-00086	St. Regis Apartments	Domestic, Multiple Dwelling	117-129 North 2nd Ave. E.
SL-DUL-00179	Hotel Duluth	Domestic, Hotel	219-231 Superior St. E.
SL-DUL-00112	Peterson Building-Scarlett Feed Store	Commerce/Trade, Specialty Store	213-215 1st St. E.
SL-DUL-02650	Parking lot	Landscape, Parking Lot	226-232 1st St. E.
SL-DUL-00113	Union Gospel Mission-Martin Hotel	Commerce/Trade, Specialty Store	217-219 1st St. E.
SL-DUL-00114	Johnson Supply Co. -commercial building	Commerce/Trade, Specialty Store	231 1st St. E.
SL-DUL-00087	King Manor	Domestic, Multiple Dwelling	222 2nd St. E.
Secondary Subarea (80 Resources)			
SL-DUL-03941	Bridge 69820 (Jay Cooke Plaza Tunnel/Superior East Tunnel)	Transportation, Road-Related (Vehicular)	I-35 between 8th and 9th Avenues East
SL-DUL-01096	House	Domestic, Multiple Dwelling	712 E 1st St
SL-DUL-01098	Double House	Domestic, Multiple Dwelling	718-720 E 1st St
SL-DUL-01871	Apartment	Domestic, Multiple Dwelling	116 N 7th Ave E
SL-DUL-01095	Double House	Domestic, Multiple Dwelling	709-711 E 1st St
SL-DUL-01100	Apartments	Domestic, Multiple Dwelling	722-724 E 1st St
SL-DUL-01094	House	Domestic, Single Dwelling	707 1st St. E.
SL-DUL-01872	Duplex	Domestic, Multiple Dwelling	118-120 N 7th Ave E
SL-DUL-00831	Sir Benedict's Tavern on the Lake	Commerce/Trade, Specialty Store	805 E Superior St
SL-DUL-01874	Duplex	Domestic, Multiple Dwelling	122 N 7th Ave E
SL-DUL-01097	Adams	Domestic, Multiple Dwelling	715 E 1st St
SL-DUL-01280	Williams Apartments	Domestic, Multiple Dwelling	702-704 E 2nd St
SL-DUL-01099	St. Elmo Building	Domestic, Multiple Dwelling	721 E 1st St
SL-DUL-01101	Oxford Building	Domestic, Multiple Dwelling	725-727 E 1st St
SL-DUL-00581	Jay Cooke Monument	Recreation and Culture, Monument/Marker	London Rd. & Superior St.
SL-DUL-03682	Hollywood	Domestic, Multiple Dwelling	708-710 E 2nd St
SL-DUL-01102	Berkshire Apartments	Domestic, Multiple Dwelling	731 E 1st St
SL-DUL-00832	Kitchi Gammi Club	Social, Meeting Hall	831 E Superior St
SL-DUL-01281	Apartment	Domestic, Multiple Dwelling	711 E 2nd St
SL-DUL-01282	Apartments	Domestic, Multiple Dwelling	713-717 E 2nd St
SL-DUL-01283	Apartment	Domestic, Multiple Dwelling	719 E 2nd St
SL-DUL-01877	Duplex	Domestic, Multiple Dwelling	118-120 N 8th Ave
SL-DUL-01878	Apartment	Domestic, Multiple Dwelling	122-126 N 8th Ave E
SL-DUL-01103	Lafayette Apartments	Domestic, Multiple Dwelling	815 E 1st St
SL-DUL-01106	United Baptist Christian Church	Religion, Religious Facility	830 E 1st St
SL-DUL-01879	Duplex	Domestic, Multiple Dwelling	128-130 N 8th Ave E
SL-DUL-01104	Apartment	Domestic, Multiple Dwelling	821 E 1st St
SL-DUL-01430	House	Domestic, Single Dwelling	707 E 3rd St
SL-DUL-01286	House	Domestic, Single Dwelling	824 E 2nd St
SL-DUL-01105	Greysolon Apartments	Domestic, Multiple Dwelling	823-833 1st St E
SL-DUL-01431	House	Domestic, Single Dwelling	711 3rd St. E.
SL-DUL-01284	Duplex	Domestic, Multiple Dwelling	812-814 E 2nd St
SL-DUL-01107	Karpeles Manuscript Library	Recreation and Culture, Museum	902 E 1st St
SL-DUL-01875	Apartments	Domestic, Multiple Dwelling	318 North 7th Ave. E.
SL-DUL-01882	Kimball Flats	Domestic, Multiple Dwelling	109-111 N 9th Ave E
SL-DUL-03165	House	Domestic, Multiple Dwelling	814 E. 2nd St.
SL-DUL-01285	House	Domestic, Single Dwelling	822 E 2nd St
SL-DUL-01599	Willow Apartment	Domestic, Multiple Dwelling	702-712 E 4th St
SL-DUL-03816	Duplex	Domestic, Multiple Dwelling	801-803-805 2nd St E
SL-DUL-03030	Rowhouse	Domestic, Multiple Dwelling	121 North 9th Ave. E.

MnSHIP Sites within the AUAR area

Resource No.	Name	Resource Type	Address/Location
SL-DUL-01288	Row Flats	Domestic, Multiple Dwelling	826-834 E 2nd St
SL-DUL-03031	Rowhouse	Domestic, Multiple Dwelling	123 North 9th Ave. E.
SL-DUL-03032	Rowhouse	Domestic, Multiple Dwelling	125 North 9th Ave. E.
SL-DUL-01880	Apartments	Domestic, Multiple Dwelling	301 N 8th Ave E
SL-DUL-01600	Henry Halkman Store & Flats	Commerce/Trade, Specialty Store	701-705 E 4th St
SL-DUL-01883	Row Flats	Domestic, Multiple Dwelling	119-125 N 9th Ave E
SL-DUL-01881	Duplex	Domestic, Multiple Dwelling	305-307 N 8th Ave E
SL-DUL-01108	Albemarle Apartments	Domestic, Multiple Dwelling	914-916 1st St. E.
SL-DUL-03694	House	Domestic, Single Dwelling	716 E 4th St
SL-DUL-03676	Yorkleigh	Domestic, Multiple Dwelling	1017 London Rd
SL-DUL-01110	Apartments	Domestic, Multiple Dwelling	926-926 1/2 1st St. E.
SL-DUL-01287	Apartment	Domestic, Multiple Dwelling	825-827 E 2nd St
SL-DUL-03820	Apartment Building	Domestic, Multiple Dwelling	810-812 3rd St E
SL-DUL-03695	Duplex	Domestic, Multiple Dwelling	720 E 4th St
SL-DUL-03821	Apartment Building	Domestic, Multiple Dwelling	820-822 3rd St E
SL-DUL-04002	Bridge L6130	Transportation, Road-Related (Vehicular)	PLAZA over MSAS 148(10TH AVE E)
SL-DUL-03677	First Lutheran ELCA	Religion, Religious Facility	1100 E Superior St
SL-DUL-01432	House	Domestic, Single Dwelling	831 E 3rd St
SL-DUL-03734	Melrose	Domestic, Multiple Dwelling	402-414 N 8th Ave E
SL-DUL-04123	Mechanical Building	Other, (Blank)	1121 London Road
SL-DUL-01434	Jefferson School	Domestic, Multiple Dwelling	916 E 3rd St
SL-DUL-03832	Duplex	Domestic, Multiple Dwelling	822-824 4th St E
SL-DUL-03831	Duplex	Domestic, Multiple Dwelling	811 4th St E
SL-DUL-01291	House	Domestic, Single Dwelling	1020 2nd St. E.
SL-DUL-01884	Apartment	Domestic, Multiple Dwelling	312-314 N 9th Ave E
SL-DUL-00582	Apartments	Domestic, Multiple Dwelling	1121-1123 London Rd.
SL-DUL-01289	House	Domestic, Single Dwelling	1007-1009 2nd St. E.
SL-DUL-01293	House	Domestic, Single Dwelling	1030 2nd St. E.
SL-DUL-00833	Louis S. Loeb House	Domestic, Single Dwelling	1123 Superior St. E.
SL-DUL-01436	St. Paul's German Evangelical Lutheran Church	Religion, Religious Facility	932 E 3rd St
SL-DUL-01290	Duplex	Domestic, Multiple Dwelling	1017-1019 2nd St. E.
SL-DUL-01435	Apartments	Domestic, Multiple Dwelling	929-931 E 3rd St
SL-DUL-01292	Apartments	Domestic, Multiple Dwelling	1021-1025 2nd St. E.
SL-DUL-01113	House	Domestic, Single Dwelling	1131 1st St. E.
SL-DUL-01111	House	Domestic, Single Dwelling	1115 1st St. E.
SL-DUL-03696	Double House	Domestic, Multiple Dwelling	920-922 E 4th St
SL-DUL-00192	Bijou Theater	Commerce/Trade, Specialty Store	12-14 Superior St. E.
SL-DUL-01294	Apartment	Domestic, Multiple Dwelling	1106 E 2nd St
SL-DUL-01601	House	Domestic, Single Dwelling	915 4th St. E.
SL-DUL-03683	Apartment	Domestic, Multiple Dwelling	1031 E 2nd St
SL-DUL-01602	Apartments	Domestic, Multiple Dwelling	932 4th St. E.
SL-DUL-01603	Mandan Block	Commerce/Trade, Specialty Store	926-932 E 4th St
SL-DUL-03877	Rowhouse	Domestic, Multiple Dwelling	201-203-205-207 N 11th Ave E
SL-DUL-01112	William Heimbach House	Domestic, Single Dwelling	1123 1st St. E.
SL-DUL-01895	Hillman Realty & House	Commerce/Trade, Specialty Store	20 N 12th Ave E
SL-DUL-03684	Apartment	Domestic, Multiple Dwelling	1108-1110 E 2nd St
SL-DUL-03685	Apartment	Domestic, Multiple Dwelling	1112-1114 E 2nd St
SL-DUL-01297	Apartment	Domestic, Multiple Dwelling	1120-1124 E 2nd St
SL-DUL-01114	Chester Terrace Apartments	Domestic, Multiple Dwelling	1210-1232 E 1st St
SL-DUL-00583	Duluth Armory	Defense, Arms Storage	1301-1305 London Rd