

Final Draft

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Final Draft

1 1 Foreword

2 In 1955, the Minnesota State Legislature enacted the initial Minnesota Watershed Act (Act),
3 previously called Minnesota Statute (M.S.) Chapter 112. Pursuant to this statutory authority, five
4 counties (Hennepin, Ramsey, Dakota, Scott, and Carver) petitioned for a watershed district. On
5 March 23, 1960, the Minnesota Water Resources Board, now the Board of Water and Soil Resources
6 (BWSR), established the Lower Minnesota River Watershed District (District or LMRWD). The
7 District, as stated in M.S. 103D.201, is responsible for conserving the state’s natural resources by
8 land use planning, flood control, and other conservation projects. The District uses sound scientific
9 principles for the protection of public health and welfare and the provident use of natural resources.

10 The District is located in the southwest part of the Twin Cities metropolitan area along the
11 Minnesota River. It encompasses 80 square miles of Carver, Hennepin, Dakota, Scott, and Ramsey
12 Counties, which includes the Minnesota River Valley from Fort Snelling, at the confluence of the
13 Minnesota and Mississippi Rivers, upstream to Carver, Minnesota. The width of the District includes
14 the bluffs on both sides of the Minnesota River within this reach of the river. Portions of the
15 communities of Mendota Heights, Mendota, Lilydale, Egan, Bloomington, Burnsville, Savage,
16 Shakopee, Eden Prairie, Chanhassen, Chaska, Jackson Township, Louisville Township, and Carver
17 are located within the District’s boundaries.

18 The Act, and its successors, necessitates that the District prepare and implement a watershed
19 management plan (Plan) for the lower Minnesota River watershed area. Additionally, the
20 Metropolitan Surface Water Management Act (M.S.103B.201-.253) requires certain plan components
21 and local government compliance. The District has adopted a Plan pursuant to the Act. These
22 Standards implement the Plan’s principles and objectives. If the Standards identified are not
23 implemented, the District will exercise its authority granted under M.S. 103B to enforce these
24 Standards through the creation of rules and a permitting program.

25 2 Relationship with Municipalities

26 The District recognizes that the control and determination of appropriate land use is the
27 responsibility of the municipalities or local government units (LGU). Given its desire for local
28 implementation and coordination of regulatory authorities, the District anticipates implementation
29 and enforcement of the Standards outlined in this document by the appropriate LGU. The
30 exception being, the Shoreline and Streambank Alteration, Water Appropriations and Water
31 Crossing Standards which will be administered by the Minnesota Department of Natural Resource
32 with input from District.

33 In accordance with M.S. 103B.235, LGUs are responsible for adopting Local Water Plans (LWP)
34 and local controls necessary to implement the directives and standards set forth in the Plan and
35 presented herein. The District recognizes that the authorities and procedures used by the various

1 LGUs in implementing these Standards will not be identical, and therefore, some LGUs may
2 occasionally need language and procedures that vary from the language and procedures outlined
3 herein. In all cases, the District reserves the right to conduct periodic audits/inspections of LGU
4 programs, project approvals, permits, and other processes to assess conformance with these
5 Standards. The Standards are intended as a minimum threshold requirement that must be met, and
6 LGUs may adopt more restrictive requirements.

7 The District prefers to allow LGUs to serve as the permitting authority for these Standards. To
8 avoid unnecessary duplication of permitting programs, the District anticipates providing oversight in
9 order to confirm that LWPs, including the Standards, are properly implemented and enforced. If an
10 LGU, however, fails to properly implement an adopted LWP, or fails to adopt and implement local
11 controls necessary to implement these Standards, as determined by the District, the District may
12 revoke the LWP approval and take enforcement actions as required to ensure compliance with these
13 Standards. The District will not be responsible for liabilities, costs, and damages caused by the lack
14 of proper implementation by an LGU.

15 **3 Definitions**

16 Regarding these Standards, unless the context otherwise requires, the following terms are defined
17 below. References in these Standards to specific sections of the Minnesota Statutes or Minnesota
18 Rules include amendments, revisions, or recodifications of such sections. The words “shall” and
19 “must” indicate a mandatory standard; the word “may” indicates a permissive standard.

20 **Abstractions:** Removal of stormwater from runoff, by such methods as infiltration, evaporation,
21 transpiration by vegetation, and capture and reuse, such as capturing runoff for use as irrigation
22 water.

23 **Agricultural Activity:** The use of land for the growing and/or production of agronomic,
24 horticultural, or silvicultural crops, including nursery stock, sod, fruits, vegetables, flowers, cover
25 crops, grains, Christmas trees, and grazing.

26 **Alteration or Alter:** When used in connection with public waters or wetlands, is any activity that will
27 change or diminish the supply, course, current or cross-section, of public waters or wetlands.

28 **Atlas 14:** Precipitation frequency estimates released by the National Oceanic and Atmospheric
29 Administration’s National Weather Service Hydrometeorological Design Studies Center. The
30 information supersedes precipitation frequency estimates in Technical Paper No. 40 (1961), National
31 Weather Service HYDRO-35 (1977) and Technical Paper No. 49 (1964).

32 **Base Flood Elevation:** The computed elevation to which floodwater is anticipated to rise during
33 the base flood. Base flood elevations are shown on Flood Insurance Rate Maps (FIRMs) and on the
34 flood profiles.

35 **Best Management Practices or BMPs:** Structural or non-structural methods used to treat runoff,
36 including such diverse measures as ponding, street sweeping, filtration through a rain garden and

1 infiltration to a gravel trench.

2 **Bioengineering:** Various shoreline and streambank stabilization techniques using aquatic vegetation
3 and native upland plants, along with techniques such as willow wattling, brush layering, and willow-
4 posts.

5 **Buffer zone:** An area of maintained grassy or woody vegetation adjacent to a waterbody.

6 **Compensatory storage:** Excavated volume of material below the floodplain elevation required to
7 offset floodplain fill.

8 **Construction activity:** Disturbance to the land that results in a change in the topography, existing
9 soil cover (both vegetative and non-vegetative), or existing soil topography that may result in
10 accelerated stormwater runoff, leading to soil erosion, and the movement of sediment into surface
11 waters or drainage systems.

12 **Development:** The construction of any public or private improvement project, infrastructure,
13 structure, street, or road, or the subdivision of land.

14 **Dewatering:** The removal of water for construction activity.

15 **Drain or Drainage:** Any method for removing or diverting water from waterbodies, including
16 excavation of an open ditch, installation of subsurface drainage tile, filling, diking or pumping.

17 **Easement:** The right to use the land of another owner for a specified use and may be granted for
18 the purpose of constructing and maintaining walkways, roadways, subsurface sewage treatment
19 systems, utilities, drainage, driveways, and other uses.

20 **Erosion:** The wearing away of the ground surface as a result of wind, flowing water, ice movement,
21 or land-disturbing activities.

22 **Erosion and Sediment Control Plan:** A plan of BMPs or equivalent measures designed to control
23 runoff and erosion and to retain or control sediment on land during the period of land-disturbing
24 activities in accordance with the applicable standard.

25 **Excavation:** The artificial removal of soil or other earth material.

26 **Existing conditions:** Site conditions at the time of application consideration by the LGU or
27 District, before any of the work has commenced, except that when impervious surfaces have been
28 fully or partially removed from a previously developed parcel, but no intervening use has been legally
29 or practically established, “existing conditions” denotes the previously established, developed use and
30 condition of the parcel.

31 **FEMA:** Federal Emergency Management Agency

32 **Fens:** Rare and distinctive wetlands characterized by a substrate of non-acidic peat and dependent
33 on a constant supply of cold, oxygen-poor groundwater rich in calcium and magnesium
34 bicarbonates.

35 **Fill:** Any rock, soil, gravel, sand, debris, plant cuttings, or other material placed onto land or into

- 1 water.
- 2 **Floodplain:** The area adjacent to a waterbody that is inundated during a 100-year flood.
- 3 **Floodway:** The channel of the river or stream and the adjacent land that must remain free from
4 obstruction, so the 100-year flood can be conveyed downstream.
- 5 **Fully reconstructed:** The reconstruction of an existing impervious surface that involves site grading
6 and subsurface excavation so that soil is exposed. Mill and overlay and other resurfacing activities are
7 not considered fully reconstructed.
- 8 **Groundwater Recharge:** The replenishment of groundwater storage through infiltration of surface
9 runoff into subsurface aquifers.
- 10 **Hardship:** As defined in Minnesota Statutes, Chapter 394.
- 11 **High Value Resource Area or HVRA:** Portion of land (or a watershed) contributing runoff to a
12 trout water and/or fen within the Lower Minnesota River Watershed District.
- 13 **Impervious Surface:** A constructed hard surface that either prevents or retards the entry of water
14 into the soil and causes water to run off the surface in greater quantities and at an increased rate of
15 flow than prior to development. Examples include rooftops, sidewalks, patios, driveways, parking
16 lots, storage areas, and concrete, asphalt, or gravel roads.
- 17 **Infiltration:** A passage of water into the ground through the soils.
- 18 **Infrastructure:** The system of public works for a county, state, or municipality including, but not
19 limited to, structures, roads, bridges, culverts, sidewalks; stormwater management facilities,
20 conveyance systems and pipes; pump stations, sanitary sewers and interceptors, hydraulic structures,
21 permanent erosion control and stream bank protection measures, water lines, gas lines, electrical lines
22 and associated facilities, and phone lines and supporting facilities.
- 23 **Land-Disturbing Activity:** Any change of the land surface to include removing vegetative cover,
24 excavation, fill, grading, stockpiling soil, and the construction of any structure that may cause or
25 contribute to erosion or the movement of sediment into water bodies. The use of land for new and
26 continuing agricultural activities shall not constitute a land-disturbing activity under these standards.
- 27 **Landlocked basin:** A localized depression that does not have a natural outlet at or below the 100-
28 year flood elevation.
- 29 **Linear project:** Construction or reconstruction of a public road, sidewalk or trail, or construction,
30 repair or reconstruction of a utility or utilities that is not a component of a larger contemporaneous
31 development or redevelopment project.
- 32 **Local Government Unit (LGU):** Local government unit, such as cities and counties.
- 33 **Local Water Plan (LWP):** A plan adopted by each municipality pursuant to Minnesota Statute 27
34 103B.235.
- 35 **MNDOT:** Minnesota Department of Transportation

1 **MPCA: Minnesota Pollution Control Agency**

2 **MPCA General Construction Permit: General Permit Authorization to Discharge Storm Water**
3 **Associated with Construction Activity under the National Pollutant Discharge Elimination**
4 **System/State Disposal System Permit Program Permit MN R100001 (NPDES General Construction**
5 **Permit) issued by the Minnesota Pollution Control Agency, August 1, 2013, and as amended.**

6 **Municipality: Any city or township wholly or partly within the Lower Minnesota River Watershed**
7 **District.**

8 **Natural Vegetation: Any combination of ground cover, understory, and tree canopy that, while it**
9 **may have been altered by human activity, continues to stabilize soils, retain and filter runoff, provide**
10 **habitat, and recharge groundwater.**

11 **Nested: A hypothetical precipitation distribution where the precipitation depths for various**
12 **durations within a storm have the same exceedance probabilities. This distribution maximizes the**
13 **rainfall intensities by incorporating selected short-duration intensities within those needed for longer**
14 **durations at the same probability level. As a result, the various storm durations are “nested” within a**
15 **single hypothetical distribution. Nested-storm distribution (or frequency-based hyetograph)**
16 **development must be completed utilizing the most recent applicable National Weather Service**
17 **reference data (e.g., Atlas 14), in accordance with:**

- 18 1. **the alternating block methodology as outlined in Chapter 4 of the HEC-HMS (Hydrologic**
19 **Engineering Center - Hydrologic Modeling System) Technical Reference Manual, (USACE,**
20 **2000);**
- 21 2. **methods in HydroCAD;**
- 22 3. **methods established by the Natural Resources Conservation Service; or**
- 23 4. **otherwise as approved by the District.**

24 **Reference: U.S. Army Corps of Engineers. 2000. Hydrologic Modeling System HEC-HMS Technical**
25 **Reference Manual.**

26 **NPDES: National Pollutant Discharge Elimination System**

27 **Nondegradation: For purposes of these rules, nondegradation refers to the regulatory policy stated**
28 **in Minnesota Rules 7050.0185, as it may be amended.**

29 **Ordinary High Water Level (OHW): Ordinary high water level, as defined by the Minnesota**
30 **Department of Natural Resources, means the boundary of water basins, watercourses, public waters,**
31 **and public waters wetlands, and:**

- 32 a. **The OHW is an elevation delineating the highest water level that has been maintained for a**
33 **sufficient period of time to leave evidence upon the landscape, commonly the point where**
34 **the natural vegetation changes from predominantly aquatic to predominantly terrestrial.**
- 35 b. **For watercourses, the OHW is the elevation of the top of the bank of the channel.**

1 c. For reservoirs and flowages, the OHW is the operating elevation of the normal summer
2 pool.

3 **Overlay District:** A district established by Lower Minnesota River Watershed District
4 standards/regulations that may be more or less restrictive than the primary District's
5 standards/regulations. Where a property is located within an overlay district, it is subject to the
6 provisions of both the primary standards/regulations and those of the overlay district.

7 **Owner:** Any individual, firm, association, partnership, corporation, trust, or any other legal entity
8 having proprietary interest in the land.

9 **Person:** Any individual, trustee, partnership, unincorporated association, limited liability company,
10 or corporation.

11 **Public Drainage System:** Any drainage system as defined in Minnesota Statutes Section 103E.005,
12 subdivision 12.

13 **Public Project:** Land development or redevelopment or other land-disturbing activities for which a
14 District permit is required that is conducted or sponsored by a federal, state, or local governmental
15 entity.

16 **Public Waters:** Any waters as defined in Minnesota Statute 103G.005, subdivision 15.

17 **Qualified Professional:** A person, compensated for her/his service, possessing the education,
18 training, experience, or credential to competently perform or deliver the service provided.

19 **Redevelopment:** Any construction or improvement performed on sites where the existing land use
20 is commercial, industrial, institutional, or residential.

21 **Runoff:** Rainfall, snowmelt, or irrigation water flowing over the ground surface.

22 **Sediment:** The solid mineral or organic material that is in suspension, is being transported, or has
23 been moved from its original location by erosion and has been deposited at another location.

24 **Sedimentation:** The process or action of depositing sediment.

25 **Shoreland District:** Shoreland areas regulated by a local municipal or county Shoreland Ordinance,
26 or by Minnesota Statutes Section 103F. Generally, Shoreland District consists of land located within a
27 floodplain, within 1,000 feet of the ordinary high water level of a public water or public waters
28 wetland, or within 300 feet of a stream or river.

29 **Shoreline:** The lateral measurement along the contour of the ordinary high water mark of
30 waterbodies other than watercourses, and the top of the bank of the channel of watercourses, and
31 the area waterward thereof.

32 **Site:** A contiguous area of land under common ownership, designated and described in official
33 public records and separated from other lands.

34 **Standard:** A preferred or desired level of quantity, quality, or value.

35 **Steep slope:** A natural topographic feature having average slopes of 18 percent or greater measured

1 over a horizontal distance of 25 feet or more.

2 **Steep Slopes Overlay District.** A district containing steep slope areas established by Lower
3 Minnesota River Watershed District standards/regulations and is subject to the provisions of both
4 the primary standards/ regulations and those of the overlay district.

5 **Stormwater:** Stormwater runoff, snow melt runoff, and surface runoff and drainage.

6 **Structure:** Anything manufactured, constructed, or erected that is normally attached to or
7 positioned on land, including portable structures, earthen structures, water and storage systems,
8 drainage facilities and parking lots.

9 **Subsurface Sewage Treatment System or SSTS:** A sewage treatment system, or part thereof,
10 servicing a dwelling, or other establishment, or group thereof, and using sewage tanks followed by soil
11 treatment and disposal or using advanced treatment devices that discharge below final grade.
12 Subsurface sewage treatment system includes holding tanks and privies.

13 **Subwatershed:** A portion of land (or a watershed) contributing runoff to a particular point of
14 discharge.

15 **Surface Water:** All streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage
16 systems, waterways, watercourses, and irrigation systems regardless of whether natural or artificial,
17 public or private.

18 **Thalweg:** A line following the lowest points of a valley, river, stream, or creek bed.

19 **Trout waters:** Trout lakes or streams that support a population of stocked or naturally produced
20 trout.

21 **Waterbody:** All surface waters, watercourses, and wetlands as defined in these Policies.

22 **Watershed:** A region draining to a specific watercourse or water basin.

23 **Wellhead Protection Plan:** A document that provides for the protection of a public water supply,
24 submitted to the Minnesota Department of Health, is implemented by the public water supplier, and
25 complies with: (a) the wellhead protection elements specified in the 1986 amendments to the Federal
26 Safe Drinking Water Act, United States Code, title 42, chapter 6A, subchapter XII, part C, section
27 300h-7 (1986 and as subsequently amended); and (b) Minnesota Rules parts 4720.5200 to 4720.5290.

28 **Wetland:** Any wetland as defined in Minnesota Statutes Section 103G.005, subdivision 19.

29 4 Administrative Procedures

30 The LMRWD is a political subdivision of the state under the Minnesota Watershed Act, and a
31 watershed management organization as defined in the Metropolitan Surface Water Management Act.
32 These Acts provide the District with power to accomplish its statutory purpose – to protect,
33 preserve and restore water resources and to improve Minnesota River navigation within the
34 boundaries of the District through sound scientific principles. The Plan, developed through an

1 extensive stakeholder process and adopted by the District pursuant to the Acts, provides the
2 principles, objectives and scientific basis for these Standards.

3 These Standards protect the public health, safety and water and natural resources of the District by
4 responsively regulating improvement or alteration of land and waters within the District to reduce the
5 severity and frequency of high water level and the erosive nature of high flows, to preserve floodplain
6 and wetland storage capacity, to improve the chemical and physical quality of surface and ground
7 waters, to reduce sedimentation, to preserve unique resources (such as fens, trout waters and bluffs/
8 steep slopes), and to promote and preserve natural infiltration areas.

9 **4.1 Variance and Conditional Use**

10 4.1.1 Policy Statement

11 It is the District's policy to allow LGUs to grant variances or issue conditional use permits according to
12 processes for such actions contained in existing local controls, except for the professional certification
13 requirement for steep slopes. The District will cooperate with and, if requested, provide technical
14 and other assistance to LGUs when considering variances from these Standards.

15 4.1.2 Standards

16 Each LGU shall notify the District of requested variances and conditional use permits and allow the
17 District to provide comment on the requested action. Variances that would circumvent the intent
18 and purposes of the Standards shall not be granted.

19 **4.2 Enforcement**

20 In accordance with M.S. 103B.235, each LGU within the District is required to prepare an LWP,
21 capital improvement plan, and official controls as necessary to bring local water management into
22 conformance with the District's Plan. LGUs shall enforce and implement the requirements of these
23 Standards through the development and implementation of an LWP and supporting ordinances.
24 Each LGU shall amend and/or update its official controls, regulations, and permitting processes as
25 necessary to implement and enforce these Standards. The District reserves the right to conduct
26 periodic audits/inspections of LGU's programs and/or projects to verify the Plan and these
27 Standards are being followed. In addition, the District reserves the right to audit project approvals
28 and permits by LGUs to assess conformance with District's policies, standards, objectives, and
29 criteria. If an LGU fails to properly implement an approved LWP, or any of these Standards, the
30 District may revoke the LGU's Local Plan Approval and administer the Standards for that LGU.

31 The District shall not be responsible for any liabilities, costs, damages, or other negative impacts
32 caused by the failure of an LGU to implement or enforce these Standards.

5 Erosion and Sediment Control Standard

5.1 Policy Statement

It is the District's policy to:

- Minimize erosion and sediment transport to lakes, streams, fens, and the Minnesota River.
- Retain or control sediment on land during land-disturbing activities.
- Prevent the resource degradation and the loss or damage of property due to erosion and sedimentation.
- Protect receiving water bodies, wetland, and storm sewer inlets.
- Require the preparation and implementation of erosion and sediment control plans to control runoff and erosion.

5.2 Regulated Activity and Threshold

5.2.1 General

Land-disturbing activities of one (1) acre or more.

5.2.2 High Value Resources Area (HVRA) Overlay District, as shown on the Lower Minnesota River Watershed District – High Value Resources Area Overlay District Map (Figure K1).

Land-disturbing activities that involve the displacement or removal of 5,000 square feet or more of surface area or vegetation, or the excavation of 50 cubic yards or more of earth within the HVRA overlay district.

5.3 Exceptions

No erosion control plan or permit shall be required for the following land-disturbing activities:

- Minor land-disturbing activities such as home gardens contained within a residential lot, landscape repairs, and maintenance work.
- Installation of any fence, sign, telephone or electric poles, or other kinds of posts or poles.
- Emergency activity necessary to protect life or prevent substantial harm to persons or property.
- All maintenance, repair, resurfacing, and reconditioning activities of existing road, bridge, and highway systems that do not involve land-disturbing activities outside of the existing surfaced roadway.

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- Agricultural activity.

5.4 **Standards**

5.4.1 General

An erosion and sediment control plan and inspection and maintenance strategy shall be required for all regulated activities meeting the thresholds defined above.

5.4.1.1 Erosion and sediment control plan including:

- a) Topographic maps of existing and proposed conditions that clearly indicate all hydrologic features and areas where grading will expose soils to erosive conditions, as well as the flow direction of all runoff; temporary erosion and sediment control BMP, and permanent erosion control BMPs.
- b) Construction schedule with implementation of best management practices highlighted.
- c) Construction staging plan.
- d) Name, address, and phone number of the individual (s) responsible for inspection and maintenance of all erosion and sediment control measures.
- e) Documentation on the status of the project’s General Permit Authorization to Discharge Storm Water Associated with Construction Activity Under the National Pollutant Discharge Elimination System (NDPES)/State Disposal System (SDS) Permit Program, Permit MN R100001 (NPDES General Construction Permit), issued by the Minnesota Pollution Control Agency, August 1, 2013, as amended.

5.4.1.2 Inspection and Maintenance

5.4.1.2.1 Inspection

Routine inspections shall be conducted at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours by the Owner or the Owner’s representative. Following a rainfall inspection, the next inspection shall be conducted within seven (7) days. The inspection schedule will be modified for the following conditions:

- a) Where parts of the construction site have permanent cover, but work remains on other parts of the site. Inspections of the areas with permanent cover shall be reduced to once per month.
- b) Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, monthly inspections shall be

1 performed for 12 months (except during frozen ground conditions). After the 12th month of
2 permanent cover and no construction activity, inspections may cease until construction
3 activity resumes, or sooner if notified by the District or the LGU.

- 4 c) Where work has been suspended due to frozen ground conditions, the inspection and
5 maintenance schedule shall resume within 24 hours after runoff occurs at the site or upon
6 resuming construction, whichever comes first.

7 Routine inspections shall include:

- 8 a) All areas disturbed by construction activity and areas used for storage of materials that are
9 exposed to precipitation.
10 b) Discharge locations, inaccessible locations, and nearby downstream locations where
11 inspections are practicable.
12 c) Locations where vehicles enter or exit the site for evidence of off-site sediment tracking.

13 Records for each inspection and maintenance activity shall be kept on file with the owner and
14 shall contain the following information:

- 15 a) Date and time of inspection.
16 b) Name, title, and qualifications of person(s) conducting inspection.
17 c) Date, duration, and amount of all rainfall events that produce more than 0.5 inches of rain in
18 a 24-hour period, and whether any discharges occurred.
19 d) Inspection findings, including corrective action recommendations and implementation dates.
20 e) Locations of the following:
21 i. Sediment discharges or other pollutants from the site.
22 ii. BMPs that need to be maintained.
23 iii. BMPs that have failed to operate as designed or proven inadequate for a particular
24 location.
25 iv. BMPs that are needed and did not exist at the time of inspection.
26 f) Documented changes to the erosion and sediment control plan.
27 g) Inspector's signature.

28 An Inspection Log shall be kept by the Owner with the Erosion and Sediment Control Plan for a
29 period of three (3) years from completion of the project.

30 5.4.1.2.2 Maintenance

31 All maintenance conducted during construction must be recorded in writing, and these records must

1 be kept. All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs
2 within 24 hours after discovery, or as soon as field conditions allow access unless another period is
3 specified below. Maintenance will include the following:

- 4 a. Excess sediment behind silt fences and biorolls shall be removed and properly disposed of
5 when sediments reach one-third the height of the structure. Such sedimentation shall be
6 corrected within 24 hours of discovery.
- 7 b. Construction site vehicle exit locations shall be inspected for evidence of off-site sediment
8 tracking onto paved surfaces. Tracked sediment will be removed from all paved surfaces
9 within 24 hours of discovery, or if applicable, within a shorter time.
- 10 c. Surface waters, including drainage ditches and conveyance systems, shall be inspected for
11 evidence of erosion and sediment deposition. Evidence of erosion and/or sediment
12 deposition will be addressed within seven (7) days.
- 13 d. Infiltration areas shall be maintained to ensure no compaction or sedimentation occurs.
- 14 e. Construction entrances shall be maintained daily.
- 15 f. Turf shall be maintained until final stabilization is established.

16 The maintenance of temporary erosion and sediment controls and implementation of additional
17 controls shall be performed as soon as possible and before the next storm event, whenever
18 practicable. All remaining temporary erosion and sediment controls and accumulated sediments from
19 silt fences will be removed within 30 days of achieving final stabilization at the site.

20 5.4.2 HVRA Overlay District, as shown on the Lower Minnesota River Watershed District – High
21 Value Resources Area Overlay District Map (Figure K1).

22 5.4.2.1 Grading/Erosion Control Plan

23 The grading/erosion control plan must meet all of the requirements of section 5.4.1.1 subsections a
24 – d.

25 5.4.2.2 Inspection and Maintenance

26 All of the requirements set forth in section 5.4.1.2 must be met.

27 6 Floodplain and Drainage Alteration

28 6.1 Policy Statement

29 It is the District's policy to:

- 30 • Regulate alterations within the floodplain and drainageways within the watershed to provide

1 flood protection to natural resources, permanent structures, and private lands, in accordance
2 with M.S. 103F.

- 3 • Preserve existing water storage capacity below the 100-year high water elevation of all public
4 waters, wetlands subject to the Wetland Conservation Act, and public drainage systems
5 subject to Minnesota’s buffer law in the watershed to minimize the frequency and severity of
6 high water.
- 7 • Minimize development below the Federal Emergency Management Agency (FEMA) base
8 flood elevation that will unduly restrict flood flows or aggravate known high water problems.

9 **6.2 Regulated Activity and Threshold**

10 Alteration to or filling land below the 100-year flood elevation of any wetland, public water, or
11 landlocked subwatershed (as identified by municipalities) shall be subject to the following regulations
12 and shall be completed in accordance with a state-approved floodplain management and shoreland
13 ordinance:

- 14 a) No filling is allowed within the 100-year floodplain which causes a rise in the 100-year flood
15 elevation without providing compensatory floodplain storage equal to or greater than the
16 volume of fill. A no-rise certification by a professional engineer satisfies this requirement.
- 17 b) No grading or filling is allowed within the 100-year floodplain which reduces the flood
18 carrying capacity of the watercourse.
- 19 c) The lowest floor of the lowest enclosed area of proposed structures must be a minimum of
20 two (2) feet above the 100-year high water level of nearby surface waters or one (1) foot
21 above the emergency overflow elevation, whichever is greater, unless they have protection
22 through floodproofing or by another approved construction technique.
- 23 d) No permanent structure, with the exception of drainage conveyance structures and
24 monitoring equipment, may be constructed in the floodway as it is shown on FEMA flood
25 maps.

26 **6.3 Exceptions**

27 If the 100-year high water elevation of a waterbody is entirely within a municipality, the waterbody
28 does not outlet during the 100-year event, and the municipality has adopted a floodplain ordinance
29 prescribing an allowable degree of floodplain encroachment, the ordinance governs the allowable
30 degree of encroachment.

31 **6.4 Standards**

- 32 a. Fill shall not cause a net decrease in storage capacity below the projected 100-year high water
33 elevation nor an increase in the 100-year elevation of a waterbody.

- 1 b. The allowable fill area shall be calculated by a professional engineer registered in the state of
2 Minnesota. Creation of floodplain storage capacity to offset fill shall occur before any fill is
3 placed in the floodplain, unless it has been demonstrated to the District and the municipality that
4 doing so is impractical and that placement of fill and creation of storage capacity can be achieved
5 concurrently. Any placement of fill prior to creation of floodplain storage capacity will only be
6 allowed upon a demonstration by a registered professional engineer that such work will not
7 aggravate high water conditions.
- 8 c. Fill or grading shall not cause a decrease in the conveyance capacity of a waterbody below the
9 projected 100-year high water elevation.
- 10 d. The conveyance capacity shall be calculated by a professional engineer registered in the state of
11 Minnesota. The analysis must demonstrate no decrease in conveyance upstream and
12 downstream of the proposed fill or grading.
- 13 e. All new residential, commercial, industrial, and institutional structures shall be constructed such
14 that the lowest floor of the lowest enclosed area (including basement or crawl space) is at a
15 minimum of two (2) feet above the 100-year high water elevation.
- 16 f. No person shall install or remove a culvert or other artificial means to remove or drain surface
17 water, create artificial pond areas, or obstruct the natural flow of waters without demonstrating
18 that there is no adverse impact on upstream or downstream landowners or water quality, habitat,
19 or fisheries.
- 20 g. Temporary placement of fill within the floodway for staging or processing of river dredge or fill
21 material, including facilities for such activities, shall be allowed when conducted, in whole or part,
22 pursuant to a cooperative or local sponsorship agreement with the United States under the
23 Rivers and Harbors Act and it meets requirements of the LGU.

24 7 Stormwater Management Standard

25 7.1 Policy Statement

26 It is the District's strategy to:

- 27 • Manage new development, redevelopment, and drainage alternations, by requiring each
28 development or land-disturbing activity to manage its stormwater effectively, either on or
29 off-site.
- 30 • Promote and encourage a reduction in runoff rates, to encourage infiltration, and to promote
31 groundwater recharge.
- 32 • Encourage infiltration and stormwater storage in the upland areas of the District.
- 33 • Maximize groundwater recharge as a means of maintaining drinking water supplies,
34 preserving base flows in streams and water levels in fens, and limiting discharges of

1 stormwater to downstream receiving waters.

- 2 • Protect and maintain existing groundwater flow, promote groundwater recharge, and
3 improve groundwater quality and aquifer protection.
- 4 • Require that property owners control the rate and volume of stormwater runoff originating
5 from their property so that surface water and groundwater quantity and quality is protected
6 or improved, soil erosion is minimized, and flooding potential is reduced.
- 7 • Protect and improve natural resources within the watershed to prevent further degradation.

8 **7.2 Regulated Activity and Threshold**

9 7.2.1 General

10 Development, redevelopment, and drainage alterations (including roads) creating new impervious
11 areas greater than one (1) acre.

12 7.2.2 High Value Resources Area (HVRA) Overlay District, as shown on the Lower Minnesota 13 River Watershed District – High Value Resources Area Overlay District Map (Figure K1).

14 Development, redevelopment, and drainage alterations (including roads) creating new impervious
15 areas greater than 10,000 square feet (sq. ft.).

16 **7.3 Standards**

17 7.3.1 General

18 7.3.1.1 Rate Control

19 Stormwater runoff rate from development, redevelopment, and drainage alterations shall not exceed
20 the existing runoff rates for the 1-year or 2-year, 10-year, and 100-year 24-hour events using Atlas 14
21 nested distribution.

22 7.3.1.2 Volume

23 Projects that create one (1) acre or more of new impervious surface on sites without restrictions, the
24 post-construction stormwater runoff volume retained onsite shall be equivalent to 1-inch of runoff
25 from impervious surfaces or the MPCA's Construction General Permit abstraction requirements (as
26 amended), whichever is greater.

27 7.3.1.3 Water Quality

28 Projects shall have no net increase from existing conditions in total phosphorus (TP) and total
29 suspended solids (TSS) to receiving waterbodies.

1 7.3.2 HVRA Overlay District, as shown on the Lower Minnesota River Watershed District – High
2 Value Resources Area Overlay District Map (Figure K1).

3 7.3.2.1 Rate Control

4 Stormwater runoff rate from development, redevelopment, and drainage alterations shall not exceed
5 the existing rates for the 1-year or 2-year, 10-year, and 100-year 24-hour events using Atlas 14 nested
6 distribution.

7 7.3.2.2 Volume

- 8 1. New Development: For new, nonlinear developments that create 10,000 sq. ft. or more of
9 new impervious surface on sites without restrictions, the post-construction stormwater
10 runoff volume retained onsite shall be equivalent to 1.1 inches of runoff from impervious
11 surfaces.
- 12 2. Redevelopment: Nonlinear redevelopment projects on sites without restrictions that create
13 10,000 sq. ft. or more of new and/or fully reconstructed impervious surfaces shall capture
14 and retain onsite 1.1 inches of runoff from the new and/or fully reconstructed impervious
15 surfaces.
- 16 3. Linear projects on sites without restrictions that create 10,000 sq. ft. or greater of new
17 and/or fully reconstructed impervious surfaces, shall capture and retain the larger of the
18 following:
 - 19 a. 0.55 inches of runoff from the new and fully reconstructed impervious surfaces.
 - 20 b. 1.1 inches of runoff from the net increase in impervious area.

21 To the maximum extent practicable, volume control shall be fully met onsite. Site conditions may
22 make infiltration undesirable or impossible. The Owner must make soil corrections and/or
23 investigate other locations on the site for feasible infiltration locations. Infiltration of stormwater
24 should avoid areas of contaminated soil. Infiltration practices are not allowed in:

- 25 a) Areas that receive discharges from vehicle fueling and maintenance facilities.
- 26 b) Areas with less than three (3) feet of separation distance from the bottom of the
27 infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
- 28 c) Areas that receive discharges from industrial facilities which are not authorized to
29 infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit
30 issued by the Minnesota Pollution Control Agency (MPCA).
- 31 d) Areas where high levels of contaminants in soil or groundwater will be mobilized by the
32 infiltrating stormwater.
- 33 e) Areas of predominately Hydrologic Soil Group D (clay) soils unless allowed by an LGU

- 1 with a current NPDES/SDS Municipal Separate Storm Sewer Systems (MS4) permit.
- 2 f) Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features
- 3 unless allowed by an LGU with a current MS4 permit.
- 4 g) Areas within a Drinking Water Supply Management Area (DWSMA) as defined in
- 5 Minnesota Rule 4720.5100, subp. 13., unless allowed by an LGU with a current MS4
- 6 permit.
- 7 h) Areas where soil infiltration rates are more than 8.3 inches per hour unless soils are
- 8 amended to slow the infiltration rate below 8.3 inches per hour, or as allowed by an
- 9 LGU with a current MS4 permit.

10 If the Owner claims that infiltration is not feasible or allowed onsite, sufficient supporting

11 documentation must be provided. Filtration technologies may be an acceptable alternative for type C

12 and D soils and other sites where infiltration is infeasible given the criteria above.

13 7.3.2.3 Water Quality

14 7.3.2.3.1 Total Phosphorus and Total Suspended Solids

15 All projects shall have a net decrease TP and TSS to receiving waterbodies from existing conditions.

16 For new development projects, the decrease in TP and TSS shall be 60 percent and 80 percent from

17 existing conditions, respectively.

18 7.3.2.3.2 Buffer Zone

19 An undisturbed buffer zone of 100 linear feet from trout waters shall be maintained at all times, both

20 during construction and as a permanent feature after construction, except where a water crossing, or

21 other encroachment is necessary to complete the project.

22 Exceptions: Buffer encroachments (circumstance and reason) and restoration activities must be

23 documented. The replacement of existing impervious surfaces within the buffer zone is allowed. All

24 potential water quality, scenic, and other environmental impacts of these exceptions must be

25 minimized by the use of additional or redundant BMPs and documented.

26 7.3.2.3.3 Temperature Controls

27 Permanent Stormwater Management facilities shall be designed to minimize any increase in the

28 temperature of trout waters receiving waters resulting from the 1-year and 2-year 24-hour

29 precipitation events. This includes all tributaries of designated trout streams within the Public Land

30 Survey System (PLSS) Section where a trout water is located. Projects that discharge to trout waters

31 must minimize the impact using one or more of the following measures, in order of preference:

- 32 a. Minimize new impervious surfaces.

- b. Minimize the discharge from connected impervious surfaces by discharging to vegetated areas, or grass swales, and using other nonstructural controls.
- c. Use Infiltration or other volume reduction practices to reduce stormwater runoff in excess of pre-project conditions (up to the 2-year, 24-hour precipitation event).
- d. Design appropriate combination of measures such as shading, filtered bottom withdrawal, vegetated swale discharges, or constructed wetland treatment cells that will limit temperature increases when incorporating ponding. Also, design the pond to draw down in 24 hours or less.
- e. Use other methods that will minimize any increase in the temperature of the trout water.

7.3.3 Maintenance and Easement

1. All stormwater management structures and facilities must be designed for maintenance access and properly maintained in perpetuity so that they continue to function as designed.
2. A maintenance plan shall identify and protect the design, capacity, and functionality of onsite and offsite stormwater management facilities; specify the methods; and schedule responsible parties for maintenance for every stormwater management facility.
3. The maintenance agreement shall be recorded with the applicable county (Carver, Dakota, Hennepin, Scott, or Ramsey) as part of the LGU development approval process.
4. A public entity assuming a maintenance obligation may submit a written executed agreement in lieu of the recorded maintenance agreement.

7.3.4 Alternative Measures

Sites where infiltration is infeasible, should comply with the NPDES General Construction Permit, issued by the Minnesota Pollution Control Agency, August 1, 2013 as amended.

8 Shoreline and Streambank Alteration Standard

8.1 Policy Statement

It is the District's policy to:

- Manage stable, intact, and vegetated shorelines and streambanks that provide valuable functions to the associated water resource, including erosion prevention, reinforcement of soils through root structure, trapping of nutrients and sediments, and provision of fish and wildlife habitat.
- Promote the preservation and enhancement of the ecological integrity and natural appearance of shorelines and streambanks with the intent of preventing erosion.
- Encourage practices such as bioengineering and preservation of natural vegetation practices,

1 when alterations are necessary.

- 2 • Preserve water quality and the ecological integrity of the riparian environment, including
3 wildlife and fisheries habitat, and recreational water resources.

4 **8.2 Regulated Activity and Threshold**

- 5 a. Improvement or alteration below the ordinary high water mark of a lake or wetland, or the
6 bankfull height of a watercourse; including but not limited to, bioengineered installations,
7 placement of riprap, retaining walls, sand blankets, or boat ramps.
- 8 b. Maintenance of an existing riprap or hard-armored shoreline or streambank that involves the
9 addition of new material or structural change.

10 **8.3 Standards**

- 11 a. Use bioengineering techniques to the extent possible. The use of bioengineering is
12 encouraged as an alternative to traditional engineered stabilization techniques for cost
13 advantage, aesthetic superiority, and ecological integrity. If bioengineering cannot provide a
14 stable shoreline, a combination of riprap and bioengineering may be used to restore or
15 maintain shoreline. If a combination of riprap and bioengineering cannot provide a stable
16 shoreline within a reasonable period, riprap may be used to restore or maintain shoreline.
 - 17 ○ Live plantings incorporated in shoreline bioengineering must be native aquatic vegetation
18 and/or native upland plants.
 - 19 ○ Riprap used in shoreline erosion protection must be sized appropriately in relation to the
20 erosion potential of the wave or current action of the particular water body, but in no
21 case shall the riprap rock average less than six (6) inches in diameter or more than 30
22 inches in diameter. Riprap shall be durable, natural stone, and of a gradation that will
23 result in a stable shoreline embankment. Stone, granular filter, and geotextile material
24 shall conform to standard Minnesota Department of Transportation (MNDOT)
25 specifications, except that neither limestone nor dolomite shall be used for shoreline or
26 stream bank riprap but may be used at stormwater outfalls. All materials used must be
27 free from organic material, soil, clay, debris, trash, or any other material that may cause
28 siltation or pollution.
 - 29 ○ Riprap placement shall conform to the natural alignment of the shoreline/streambank.
 - 30 ○ A transitional layer consisting of graded gravel, at least six (6) inches deep, and an
31 appropriate geotextile filter fabric shall be placed between the existing shoreline and any
32 riprap. The thickness of riprap layers should be at least 1.25 times the maximum stone
33 diameter. Toe boulders, if used, must be at least 50 percent buried.
 - 34 ○ Riprap must not cover emergent vegetation, unless authorized by a Department of
35 Natural Resources (DNR) permit.

- 1 o Riprap shall extend no higher than the top of bank or two feet above the 100-year high
2 water elevation, whichever is lower.
- 3 b. Stabilize the shoreline with minimal horizontal encroachment and without interference of
4 water flow or navigation. No riprap or filter material shall be placed more than six (6) feet
5 waterward of the OHW. Streambank riprap shall not reduce the cross-sectional area of the
6 channel or result in a stage increase of more than 0.01 feet at or upstream of the treatment.
- 7 c. Design of shoreline erosion protection must reflect the engineering properties of the
8 underlying soils and any soil corrections or reinforcements necessary. The design shall
9 conform to engineering principles for wave energy dispersion and resistance to deformation
10 from ice pressures and movement, considering prevailing winds, fetch, and other factors that
11 induce wave energy.
- 12 d. Use of riprap for merely cosmetic purposes is prohibited.
- 13 e. Use retaining walls only when there is no adequate stabilization alternative and in accordance
14 with MN Rules 6115.0211. Retaining walls extending below the OHW of a water body are
15 prohibited, except where:
- 16 o There is a demonstrable need for a retaining wall in a public improvement project.
17 o The design of the retaining wall has been certified by a registered engineer.

18 A determination by the District for a project meeting this Standard does not preclude it from
19 needing a DNR Public Waters Work Permit.

20 9 Steep Slopes Standard

21 **9.1 Policy Statement**

22 It is the District's policy to:

- 23 • Protect water quality down gradient steep slopes from pollutant loadings of sediment,
24 nutrient, bacteria, and other contaminants.
- 25 • Maintain stability of steep slopes, shorelines, and other areas prone to erosion.
- 26 • Sustain and enhance the biological and ecological functions of non-invasive vegetation on
27 steep slopes.
- 28 • Minimize impacts to and preserve the natural character and topography of steep slopes.
- 29 • Protect properties and waterbodies adjacent to steep slopes from erosion, sedimentation,
30 flooding, and other damage.
- 31 • Promote public safety by requiring certification from qualified individuals before land-
32 disturbing activities and other changes to land on steep slopes.

1 **9.2 Regulated Activity and Threshold**

- 2 • Land-disturbing activities that involves the excavation of 50 cubic yards or more of earth, or
3 displacement or removal of 5,000 square feet or more of surface area or vegetation within
4 the Steep Slopes Overlay District, as shown on the Lower Minnesota River Watershed
5 District - Steep Slopes Overlay District Map (Figure K2).
- 6 • Activities requiring municipal/LGU grading, building, parking lot, and foundations permits
7 that result in a net increase in impervious surface or stormwater runoff within the Steep
8 Slopes Overlay District as illustrated on Figure K2.

9 **9.3 Exceptions**

- 10 • Upon showing, to the satisfaction of the LMRWD, that the LGU has enacted and is
11 following official controls necessary to meet the intent of these standards, the LMRWD may
12 issue an exception to the standard for projects with land-disturbing activities that require a
13 municipal grading, building, parking lot, or foundation permit that impact less than 50 cubic
14 yards or less than 5,000 square feet of surface area or vegetation. The exception, if issued,
15 will be documented in a Memorandum of Agreement wherein the LGU must agree: (1) that
16 it will enforce its official controls; (2) that the exception will terminal if the LGU amends its
17 official controls, so they no longer meet the intent of these standards; and (3) that it will
18 provide notice to the LMRWD of all permits issued under the exception.
- 19 • New impervious areas associated with driveway widenings that drains to the street where
20 runoff water is managed by a municipal storm sewer system.
- 21 • Maintenance, repair, or replacement of existing structures, public roads, utilities, and
22 drainage systems within the Steep Slopes Overlay District.
- 23 • Disturbances that are part of an approved local water plan (LWP) to repair, grade, or re-
24 slope existing steep slopes that are eroding or unstable to establish stable slopes and
25 vegetation.
- 26 • Native plantings that enhance natural vegetation of steep slopes.
- 27 • Selective removal of noxious, exotic, or invasive vegetation using locally recognized methods
28 to control and/or minimize their spread.
- 29 • Pruning of trees or vegetation that are dead, diseased or pose a public hazard, and removal
30 of vegetation in emergency situations from steep slopes.
- 31 • Maintenance of existing lawns, landscaping, and gardens.
- 32 • Agricultural and forestry activities.

1 **9.4 Standard**

2 The standards outlined in this section apply to the areas identified on the Lower Minnesota River
3 Watershed District - Steep Slopes Overlay District Map (Figure K2).

4 A. Land disturbing activities as regulated in this section may occur within the Steep Slopes
5 Overlay District, provided a qualified professional/professional engineer registered in the
6 state of Minnesota certifies the suitability of the area for the proposed activities, structures or
7 uses resulting from the activities and the following requirements are addressed:

8 1. Minimum erosion and sediment control best management practices (BMPs) include
9 site stabilization and slope restoration measures to ensure the proposed activity will
10 not result in:

11 i. adverse impacts to adjacent and/or downstream properties or water bodies;

12 ii. unstable slopes conditions; and

13 iii. degradation of water quality due to erosion, sedimentation, flooding, and
14 other damage.

15 2. Preservation of existing hydrology and drainage patterns. Land-disturbing activities
16 may not result in any new water discharge points on steep slopes or along the bluff.

17 Stormwater ponds, swales, infiltration basins, or other soil saturation-type features shall not be
18 constructed within Steep Slopes Overlay District.

19 **10 Water Appropriations Standard**

20 **10.1 Policy Statement**

21 It is the District's policy to:

22 • Maintain groundwater recharge and protect groundwater from contamination.

23 • Promote management practices that protect groundwater recharge and quality.

24 • Support enforcement of Wellhead Protection Plans, Individual Sewage Treatment
25 Systems/ISTS, and community septic ordinances.

26 • Support development and implementation of Wellhead Protection Plans.

27 • Review appropriations requests for groundwater in HVRAs.

28 • Evaluate the potential impacts of public or private infrastructure (including private and
29 municipal groundwater appropriations) interference of flows on groundwater recharge,
30 transmission, and discharge.

1 **10.2 Regulated Activity and Threshold**

2 Temporary withdrawal of groundwater for construction dewatering, landscaping, dust control, and
3 hydrostatic testing of pipelines, tanks, and wastewater ponds, and groundwater withdrawal of more
4 than 10,000 gallons of water per day or 1 million gallons per year within HVRA Overlay District, as
5 shown on the Lower Minnesota River Watershed District – High Value Resources Area Overlay
6 District Map (Figure K1).

7 **10.3 Standards**

8 10.3.1

- 9 A. In all cases of groundwater appropriation requiring a DNR permit in the District, a copy of
10 the permit application and information on the location of the discharge/withdrawal shall be
11 filed with the District for review.
- 12 B. Develop and submit a discharge management plan to the District.
- 13 C. Demonstrate no net change in groundwater levels to adjacent fen.

14 **11 Water Crossing Standard**

15 **11.1 Policy Statement**

16 It is the District’s policy to:

- 17 • Prohibit the use of beds and banks of streams and lakes for the placement of roads, driveways,
18 and utilities.
- 19 • Regulate crossings of watercourses for driveways, roads, and utilities to maintain stream
20 stability, conveyance capacity, and the ability to transport, without adverse effect, the flows
21 and detritus of its watershed.
- 22 • Preserve the ecological integrity of the riparian and aquatic environment, including wildlife
23 and fisheries habitat and recreational water resources.
- 24 • Encourage improvement of wildlife passage and habitat, especially for projects involving
25 culvert and public right-of-way in or near natural corridors.

26 **11.2 Regulated Activity and Threshold**

27 Horizontal drilling under or placement of a road, highway, utility, bridge, boardwalk or associated
28 structure in contact with the bed or bank of any waterbody, including alteration of a waterbody to
29 enclose it within a pipe or culvert.

1 **11.3 Exceptions**

2 Ecological restoration of a waterbody that has been significantly altered from its natural state or
3 degraded, for which the proposed application would provide a greater degree of resource protection
4 and restoration than would strict compliance with the standard.

5 **11.4 Standards**

- 6 a. Show the effects of the project through analysis completed by a qualified professional on the
7 stream's physical characteristics, hydraulic capacity, and water quality.
- 8 b. Time construction by taking advantage of seasons with no or low stream flow as appropriate.
- 9 c. Time construction to avoid spawning seasons, if applicable.
- 10 d. Demonstrate a public benefit and ensure the crossing will retain adequate hydraulic and
11 navigational capacity for the portion of a road, highway, utility, or associated structure that
12 crosses the bed or bank of any waterbody. If applicable, the project should not adversely
13 affect water quality, and represent the "minimal impact" solution to a specific need with
14 respect to all other reasonable alternatives.
- 15 e. Projects must follow the DNR manual *Best Practices for Meeting DNR General Public Waters*
16 *Work Permit GP 2004-0001*, and as amended, when applicable.
- 17 f. Size and place stream crossings, as follows:
- 18 o Regardless of the stream's width-to-depth ratio (bankfull width/mean depth), minimum
19 culvert width shall match or exceed stream bankfull width (water surface width at
20 discharge associated with the 1.5-year return period). Combined width of multiple
21 culverts is satisfactory.
- 22 o Culvert length shall extend beyond side slope toe and be buried one-sixth of its height.
- 23 o Slope of culvert shall match stream thalweg (the deepest continuous line along a
24 watercourse) slope.
- 25 o When using multiple culverts, offset culvert inverts. Use the fewest and largest multiples
26 possible. A minimum vertical separation of 1-foot is required between the lowest placed
27 culvert and multiples.
- 28 o Alignment of culvert shall match stream alignment.
- 29 o Additional consultation is required with DNR, the District, and other regulatory agency
30 staff when the stream is a designated trout stream or contains endangered or threatened
31 species.
- 32 g. Provide a maintenance agreement. A declaration, or other recordable instrument, stating
33 terms for hydraulic capacity maintenance shall be recorded in the County recorder's office or
34 registrar before activity commences. In lieu of recordation, a public body or project proposer

1 without a property interest sufficient for recordation may assume the maintenance obligation
2 by means of a written agreement. The agreement shall state that if the ownership of the
3 structure is transferred, the public body shall require the transferee to comply with this
4 requirement.

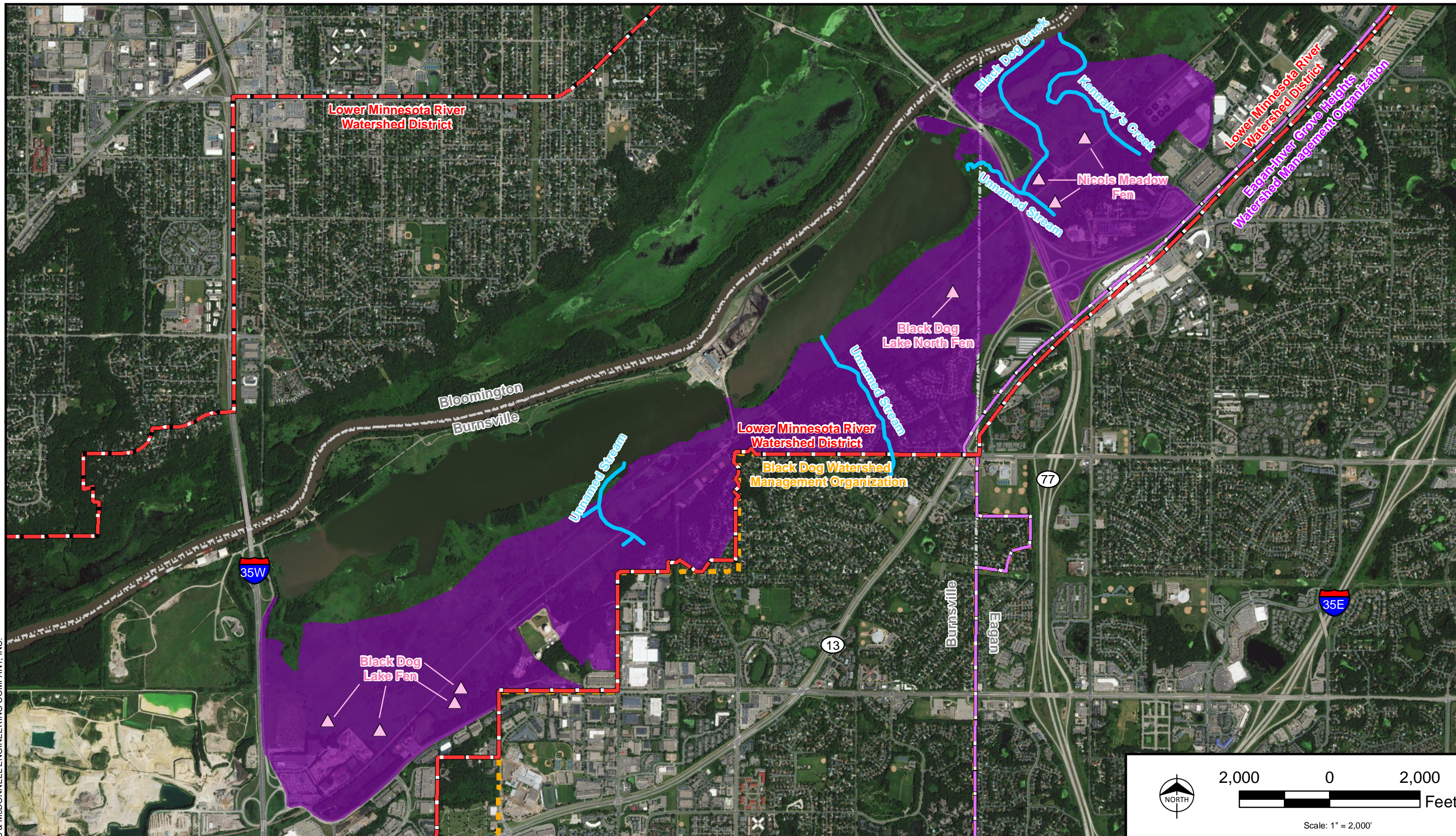
5 h. Preserve aquatic and upland wildlife passages.

6
7

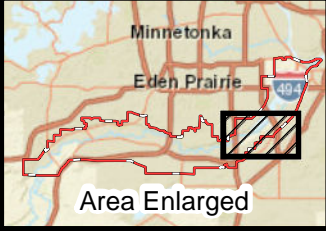
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- 1 Figure K1: Lower Minnesota River Watershed District – High Value Resources Area Overlay
- 2 District Map

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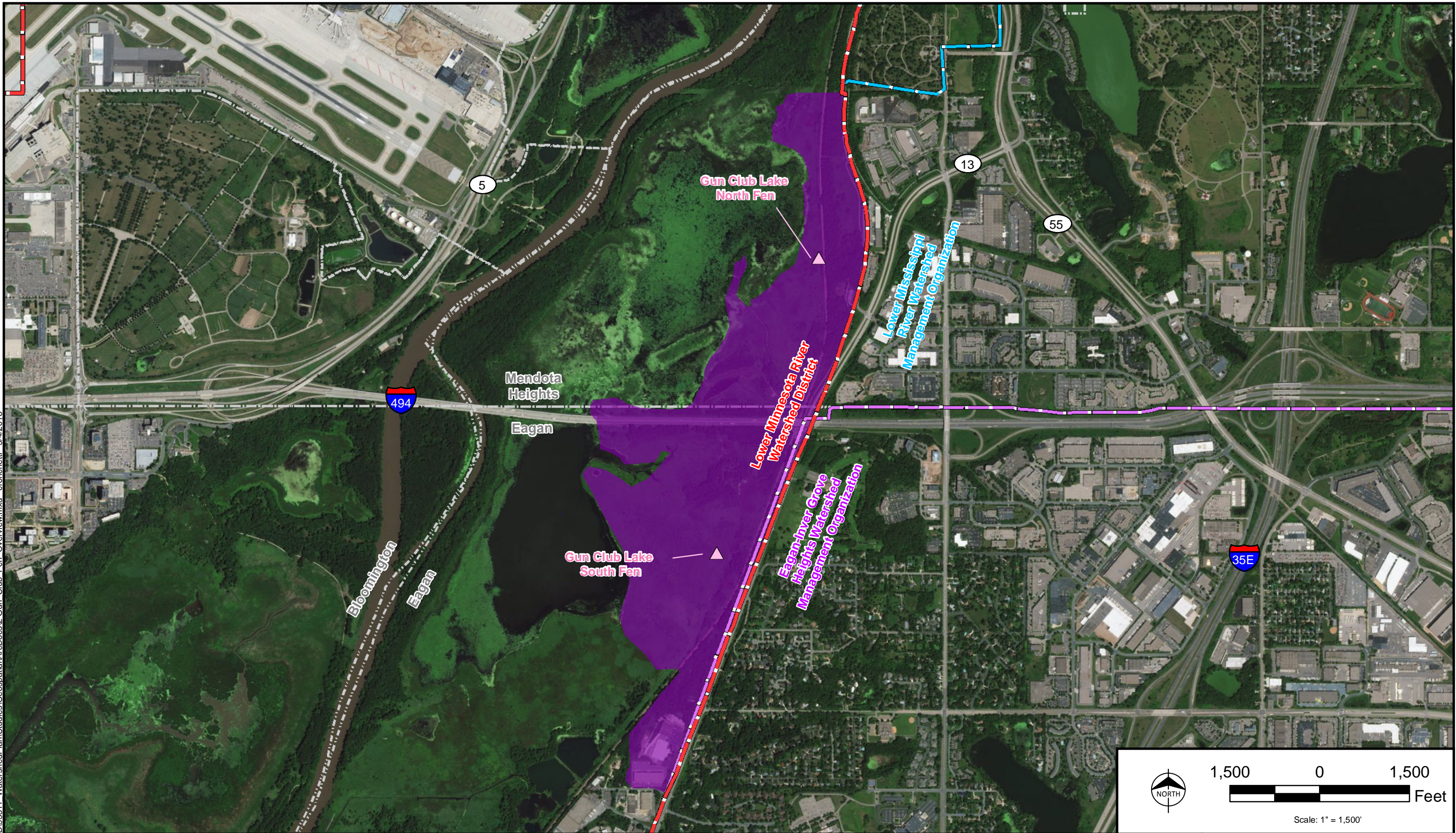


High Value Resource Area (HVRA)	MNDNR Publicly Available Data	Jurisdictional Boundaries
HVRA Overlay District	Calcareous Fen Point	Municipal Boundary
	Trout Stream	Lower Minnesota River Watershed District
	Trout Pond/Lake	Riley-Purgatory-Bluff Creek Watershed District
		Black Dog Watershed Management Organization



Lower Minnesota River Watershed District
 High Value Resources Area
 Overlay District Map
 Figure K1
 1 of 5

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High Value Resource Area (HVRA)

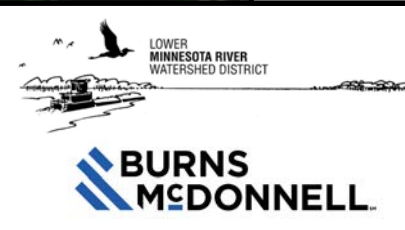
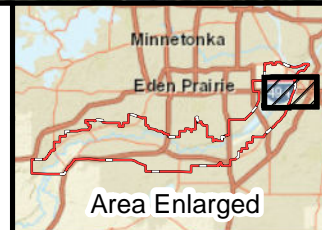
■ HVRA Overlay District

MNDNR Publicly Available Data

- ▲ Calcareous Fen Point
- Trout Stream
- ▨ Trout Pond/Lake

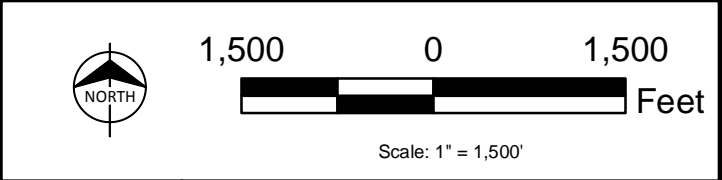
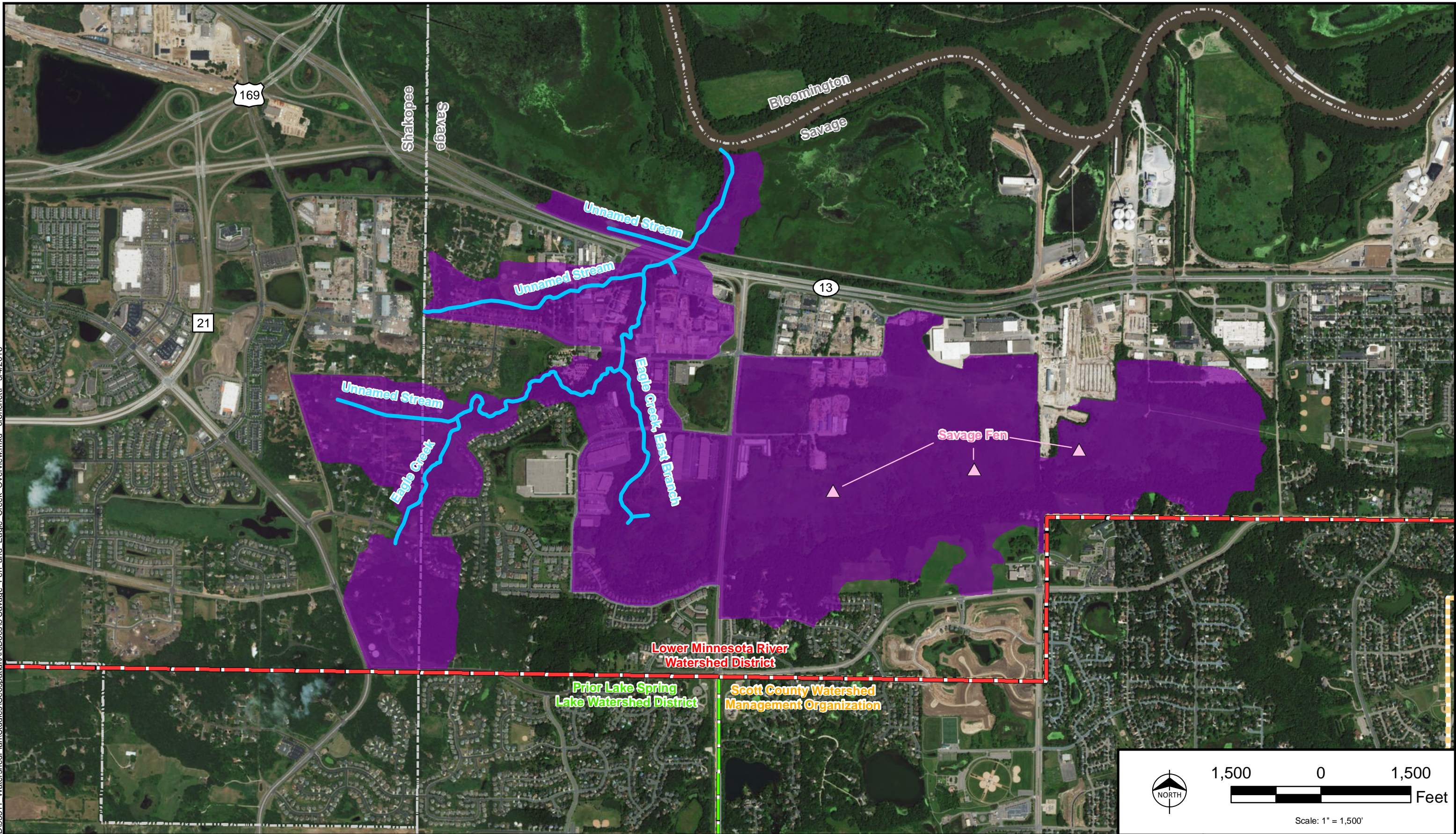
Jurisdictional Boundaries

- ▭ Municipal Boundary
- ▭ Lower Minnesota River Watershed District
- ▭ Riley-Purgatory-Bluff Creek Watershed District
- ▭ Lower Mississippi River Watershed Management Organization

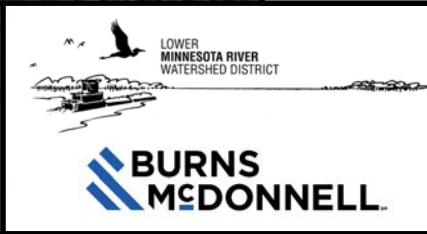
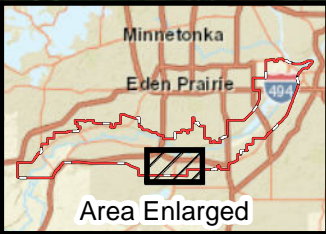


Lower Minnesota River Watershed District
 High Value Resources Area
 Overlay District Map
 Figure K1
 2 of 5

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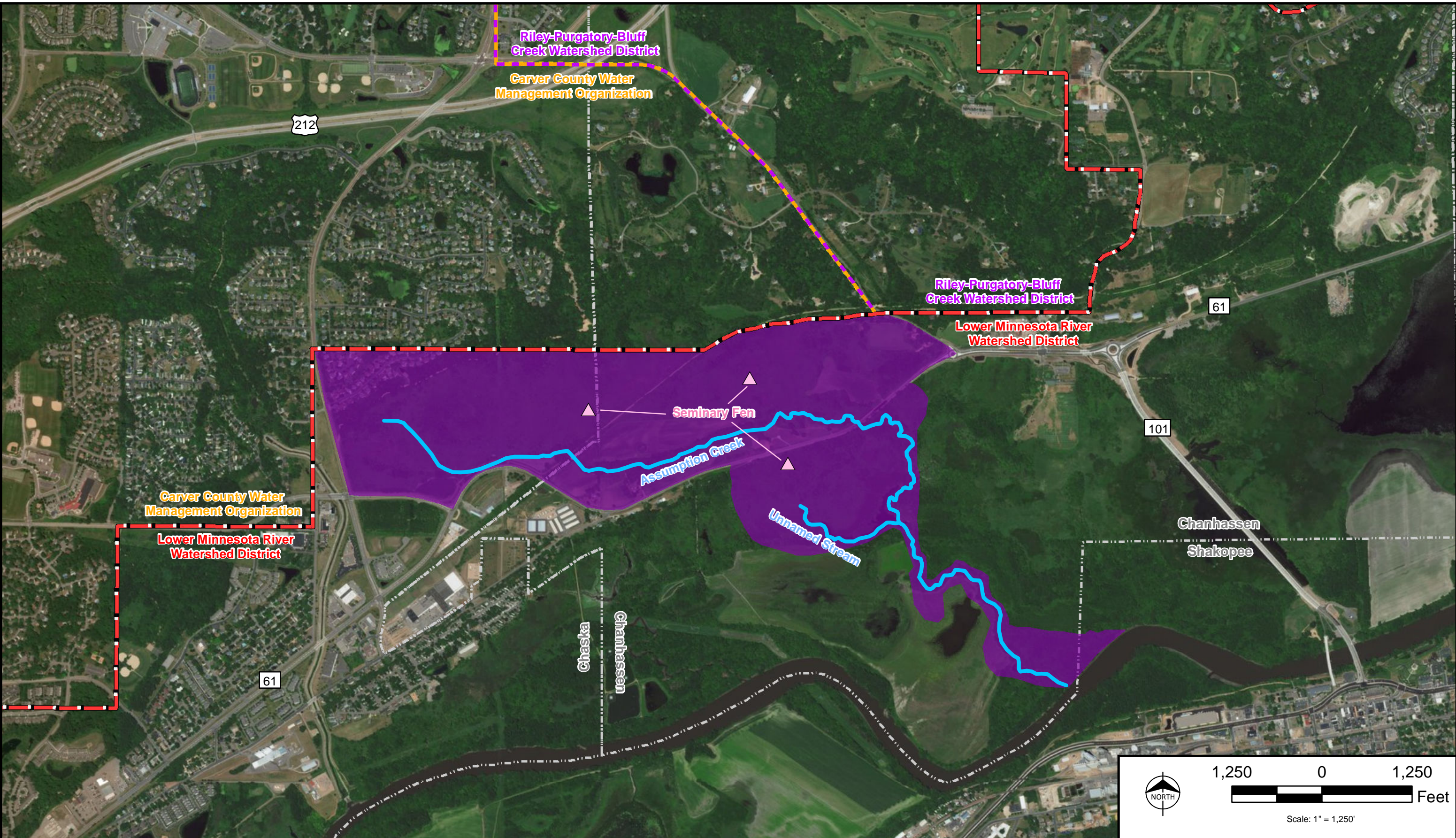


High Value Resource Area (HVRA)	MNDNR Publicly Available Data	Jurisdictional Boundaries
HVRA Overlay District	Calcareous Fen Point	Municipal Boundary
	Trout Stream	Lower Minnesota River Watershed District
	Trout Pond/Lake	Prior Lake Spring Lake Watershed District
		Scott County Watershed Management Organization

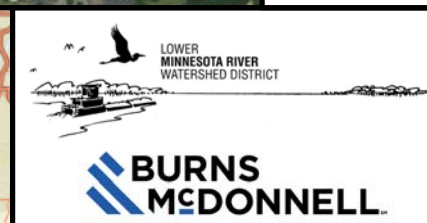
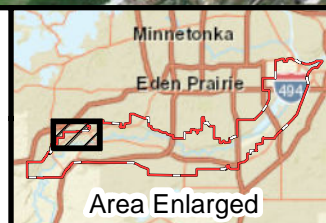


Lower Minnesota River Watershed District
 High Value Resources Area
 Overlay District Map
 Figure K1
 3 of 5

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Lower Minnesota River Watershed District
 High Value Resources Area
 Overlay District Map
 Figure K1
 4 of 5


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High Value Resource Area (HVRA)

 HVRA Overlay District

MNDNR Publicly Available Data

 Calcareous Fen Point

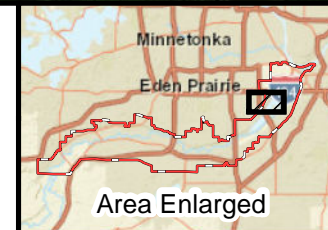
 Trout Stream

 Trout Pond/Lake

Jurisdictional Boundaries

 Municipal Boundary

 Lower Minnesota River Watershed District



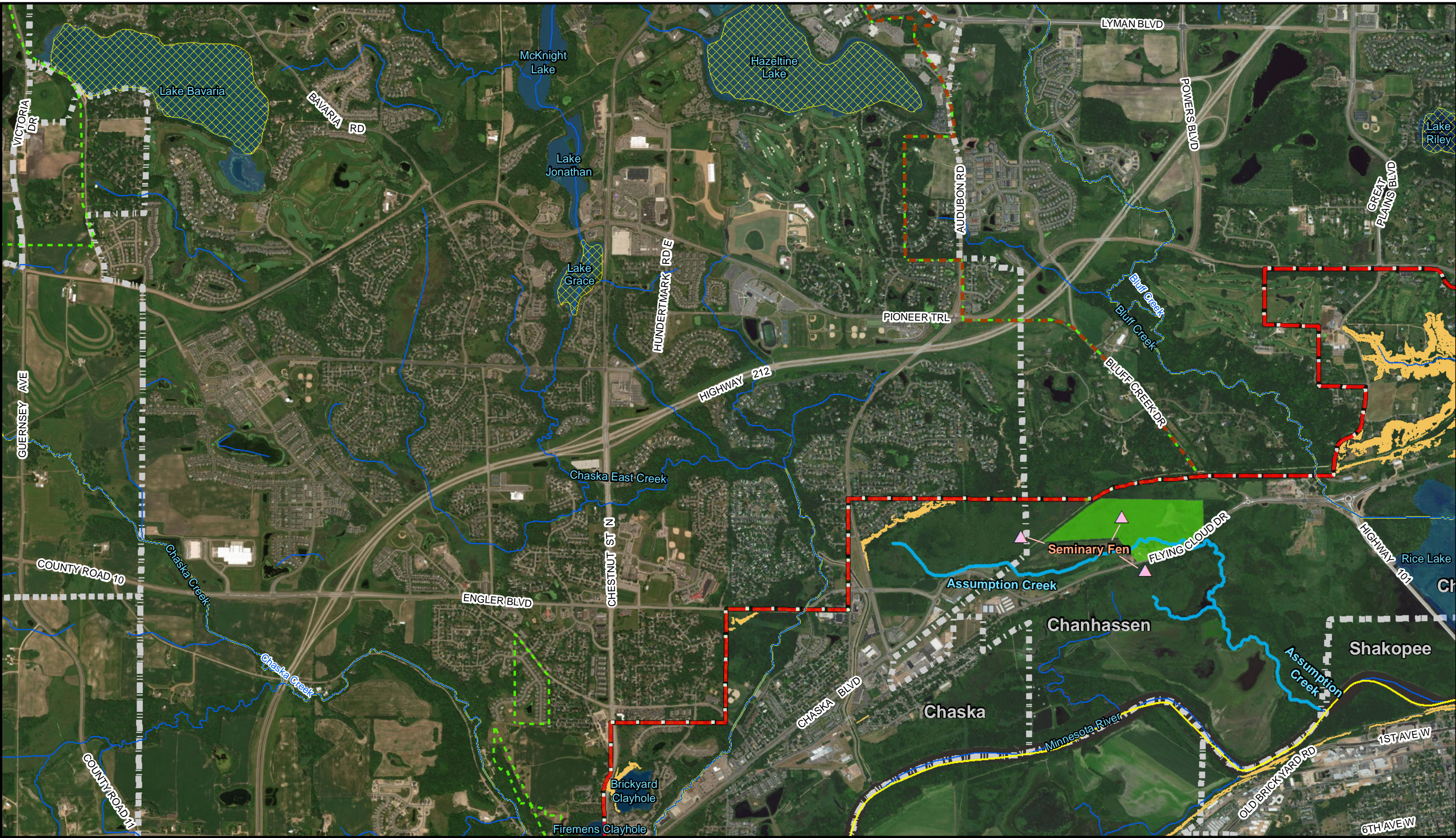
Lower Minnesota River Watershed District
High Value Resources Area
Overlay District Map
Figure K1
5 of 5

1
2

Figure K2: Lower Minnesota River Watershed District – Steep Slopes Overlay District Map

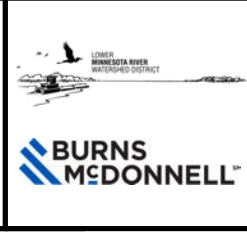
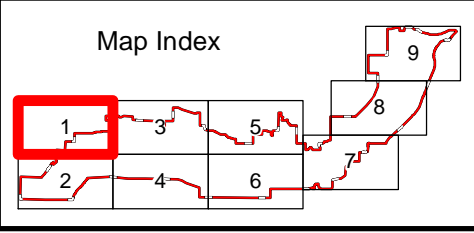
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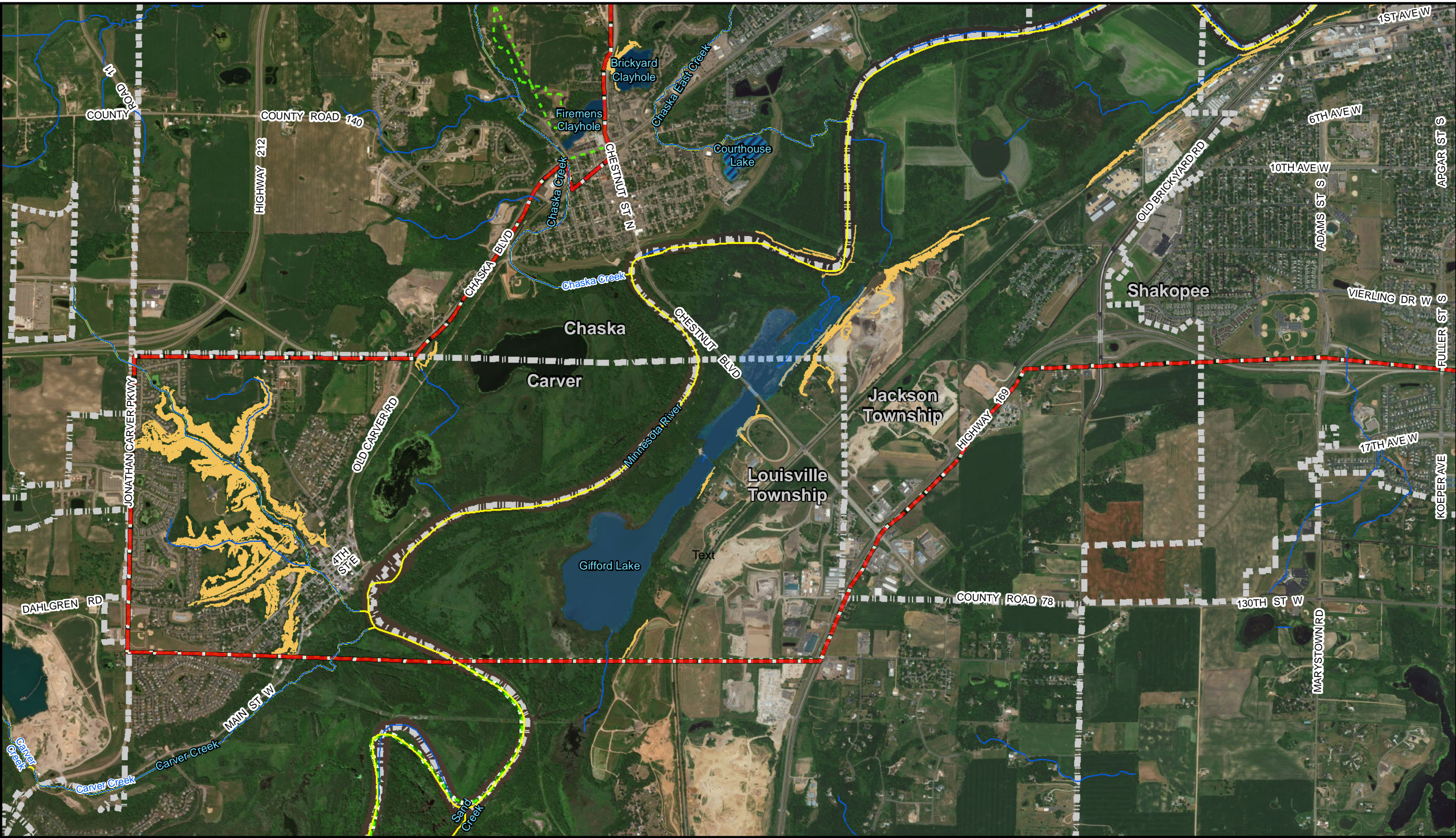
Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Carver County	Stream/River	Impaired River or Stream	PWI Water
Riley-Purgatory-Bluff Creek	Impaired Lake	Trout Stream	Calcareous Fen Point
Scott	Municipal Boundary		
Lower MN River			

2,000 1,000 0 2,000
 Feet



Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 1 of 9

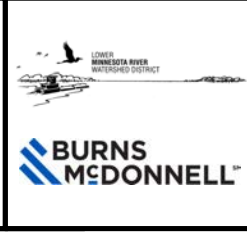
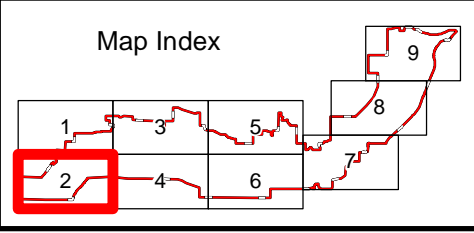
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Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Carver County	Stream/River	Trout Pond/Lake	PWI Water
Scott	Impaired River or Stream	Calcareous Fen Point	Municipal Boundary
Lower MN River	Impaired Lake		

2,000 1,000 0 2,000
Feet

NORTH

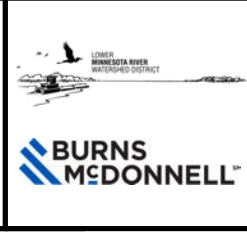
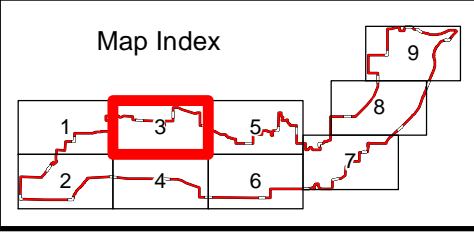
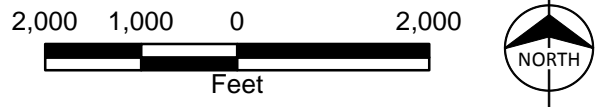


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 2 of 9

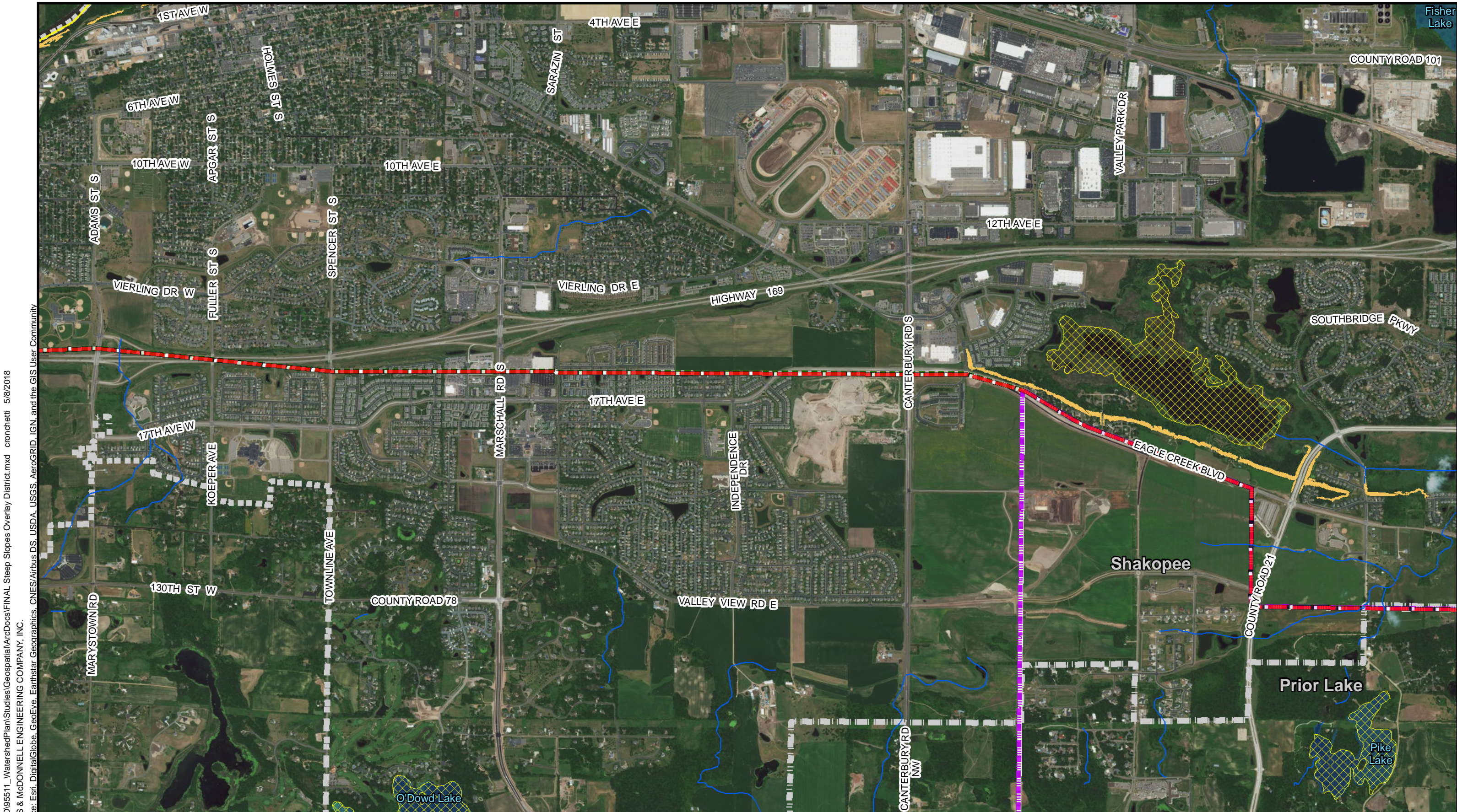
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Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Riley-Purgatory-Bluff Creek	Stream/River	PWI Water	Trout Stream
Scott	Impaired River or Stream	Calcareous Fen Point	Municipal Boundary
Lower MN River	Impaired Lake		

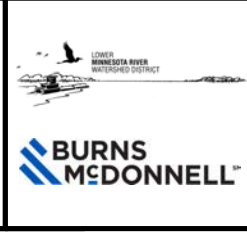
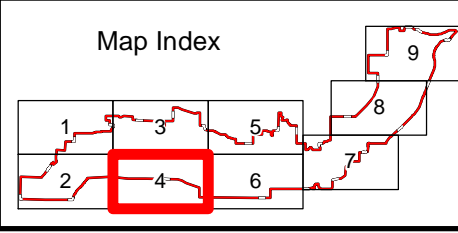
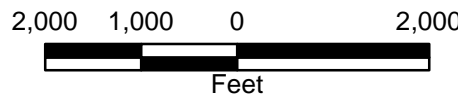


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 3 of 9



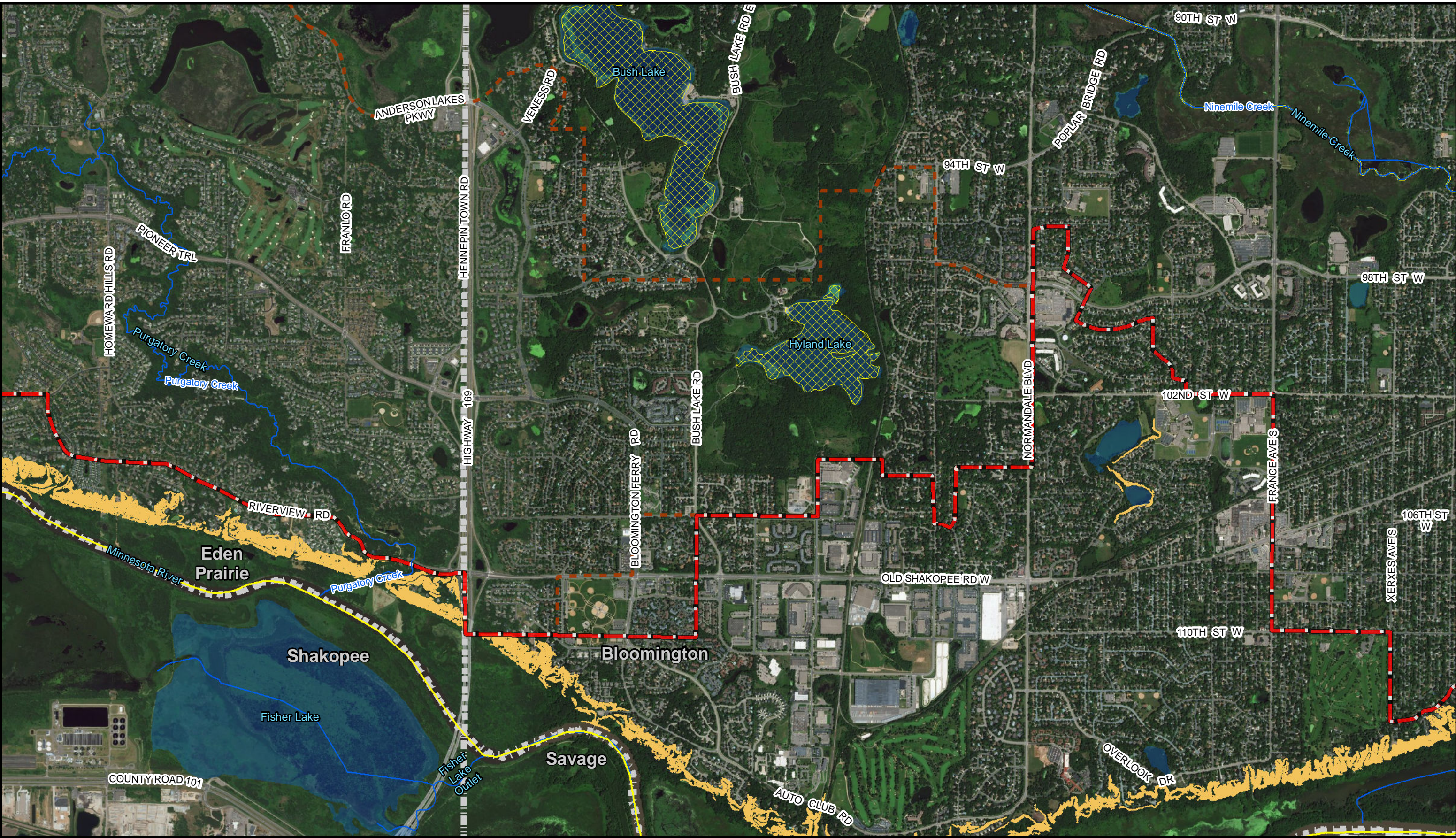
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Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Prior Lake-Spring Lake	Stream/River	Impaired River or Stream	PWI Water
Scott	Impaired Lake	Calcareous Fen Point	Municipal Boundary
Lower MN River			

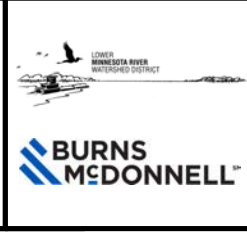
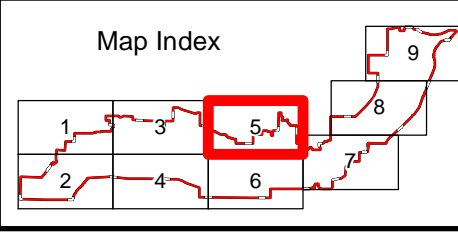
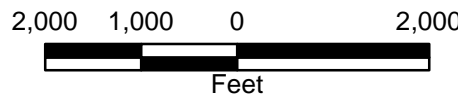


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 4 of 9

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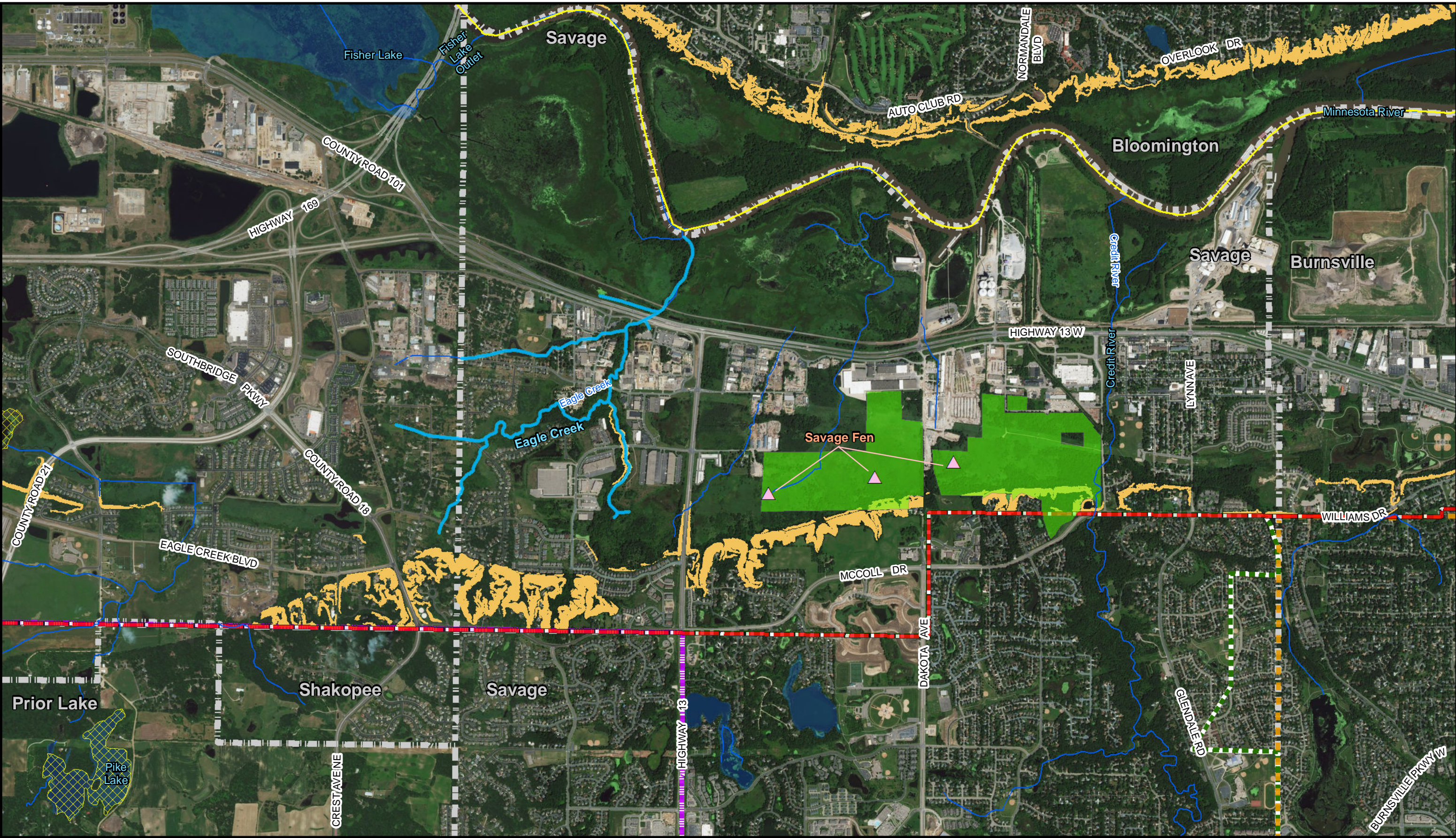


Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Riley-Purgatory-Bluff Creek	Stream/River	PWI Water	Calcareous Fen Point
Scott	Impaired River or Stream	Impaired Lake	Municipal Boundary
Lower MN River			

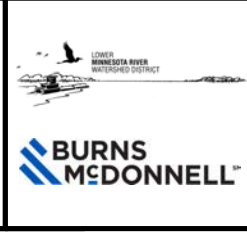
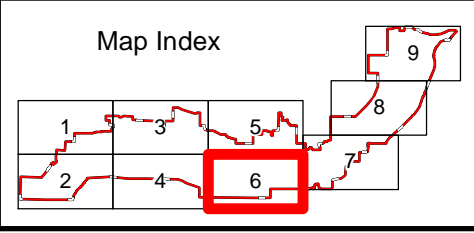
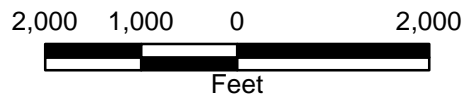


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 5 of 9

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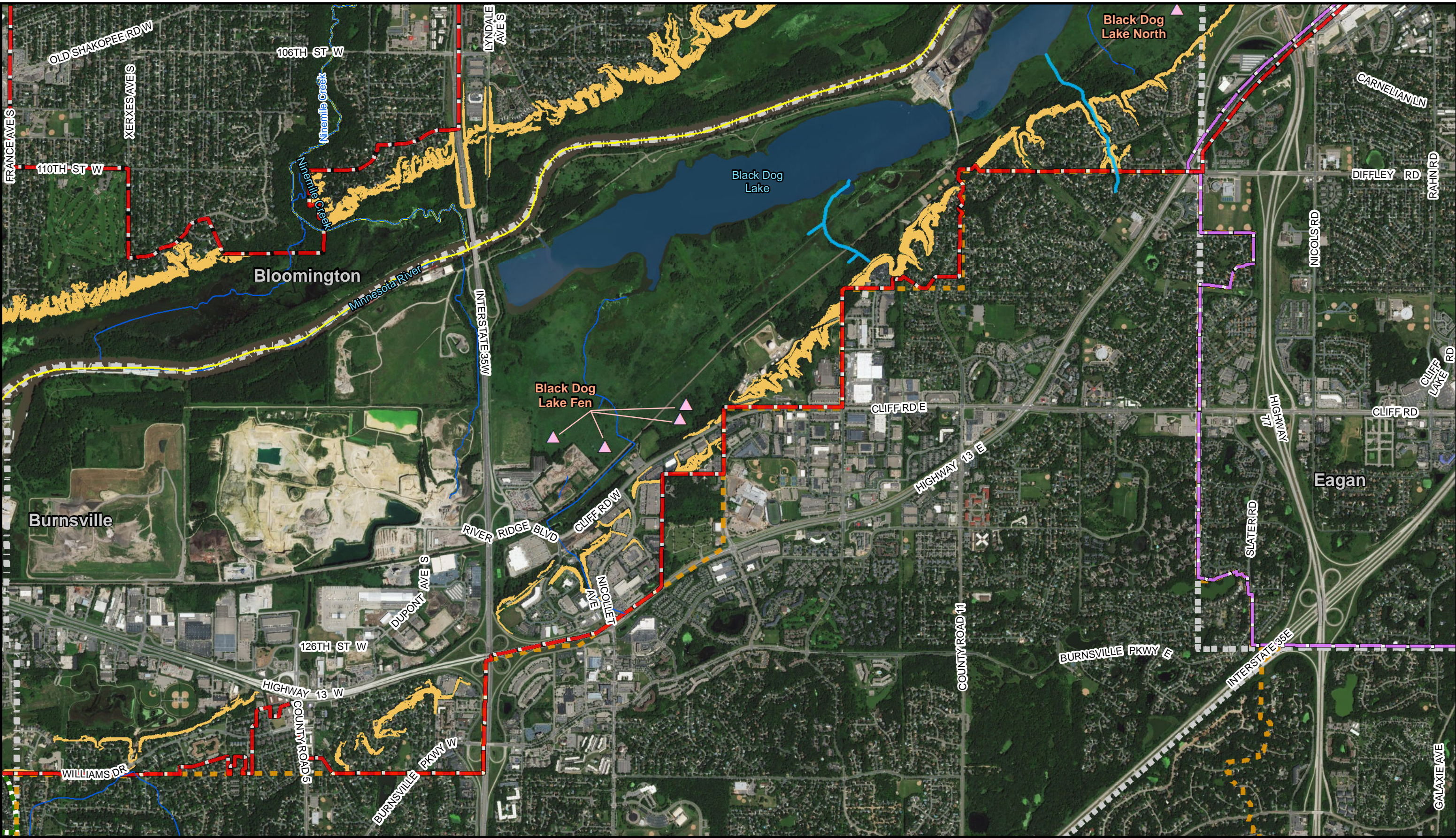


Steep Slope	Watershed District Boundary	Stream/River	SNA - Fens
Black Dog	Impaired River or Stream	PWI Water	Trout Stream
Prior Lake-Spring Lake	Impaired Lake	Calcareous Fen Point	Municipal Boundary
Scott			
Lower MN River			

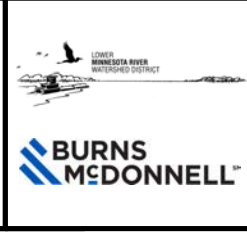
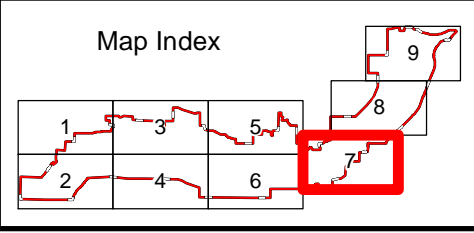
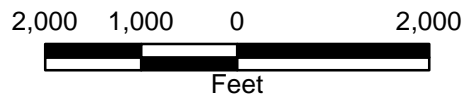


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
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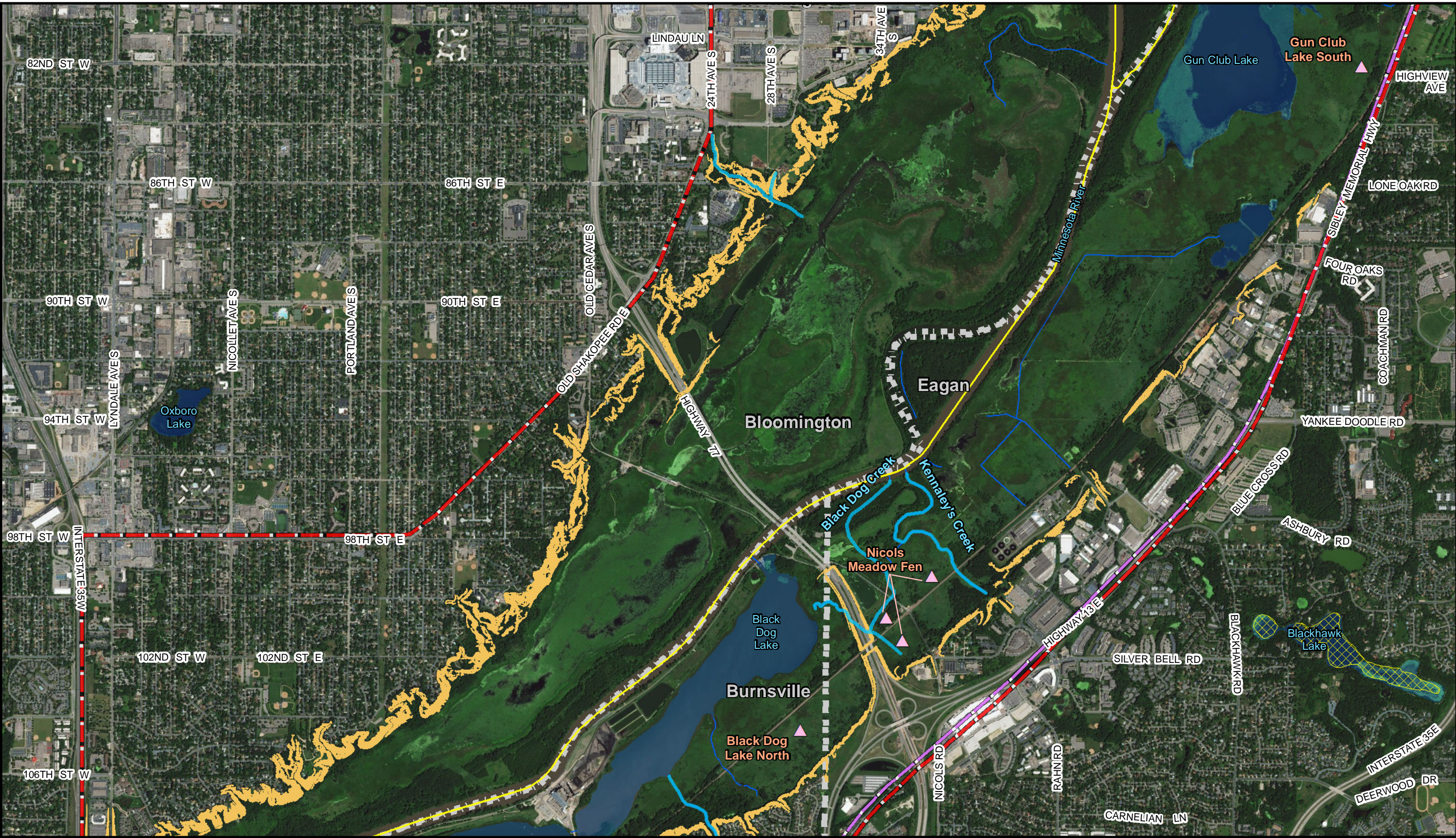


Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Black Dog	Stream/River	Impaired River or Stream	PWI Water
Eagan-Inver Grove	Impaired Lake	Calcareous Fen Point	Trout Stream
Scott		Municipal Boundary	
Lower MN River			

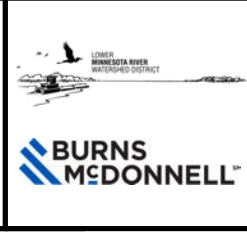
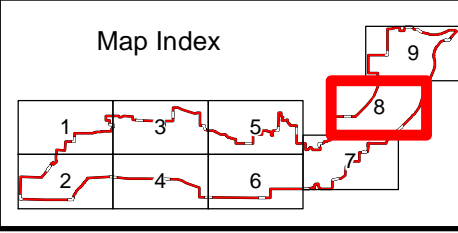
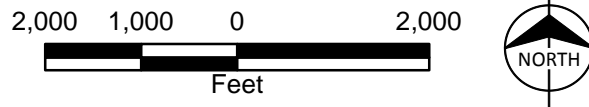


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 7 of 9

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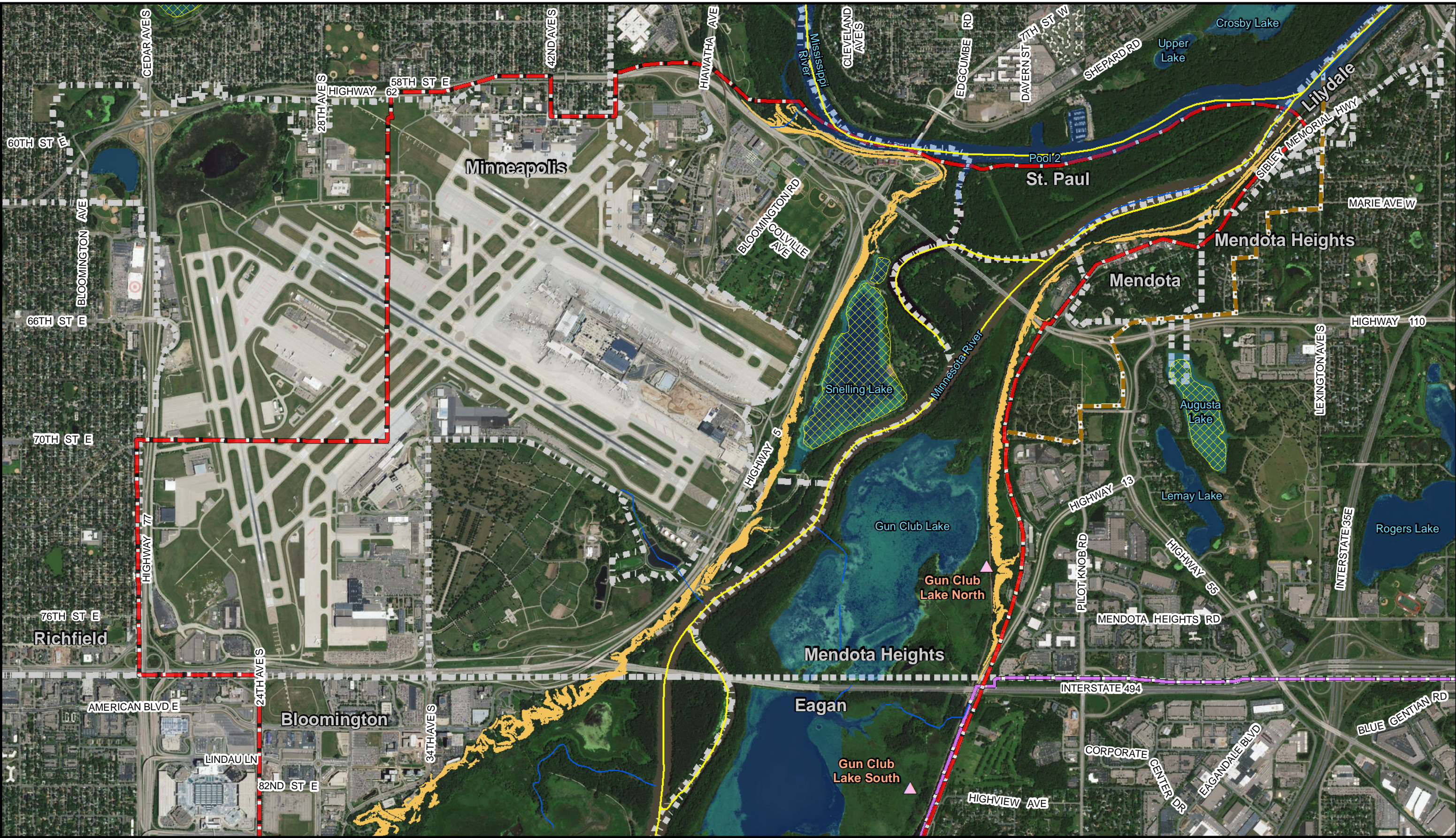


Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Eagan-Inver Grove	Stream/River	PWI Water	Trout Stream
Scott	Impaired River or Stream	Impaired Lake	Calcareous Fen Point
Lower MN River	Municipal Boundary		

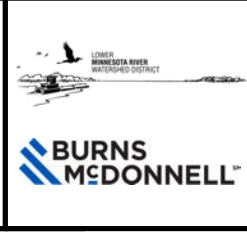
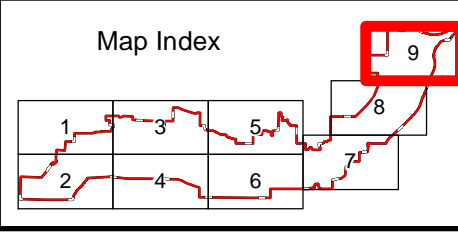
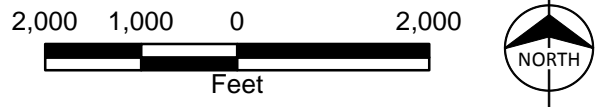


Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 8 of 9

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Steep Slope	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Eagan-Inver Grove	Stream/River	PWI Water	Calcareous Fen Point
Lower MS River	Impaired River or Stream	Calcareous Fen Point	Municipal Boundary
Scott	Impaired Lake		
Lower MN River			



Lower Minnesota River Watershed District
 Steep Slopes Overlay District
 Figure K2
 9 of 9