

Bluff and Steep Slope Standard

The following definitions would replace or be added to the definitions in the Draft Plan:

Bluff. "Bluff" means a topographic feature such as a hill, cliff, or embankment having all of the following characteristics:

- A. part or all of the feature is located in a shoreland area, as defined in Minnesota Statutes and Rule;
- B. the slope rises at least 25 feet above the ordinary high water level of the waterbody;
- C. the grade of the slope from the toe of the bluff to a point 25 feet or more above the ordinary high water level averages 30 percent or greater; and
- D. the slope must drain toward the waterbody.

An area with an average slope of less than 18 percent over a distance for 50 feet or more shall not be considered part of the bluff. See Figure 1.

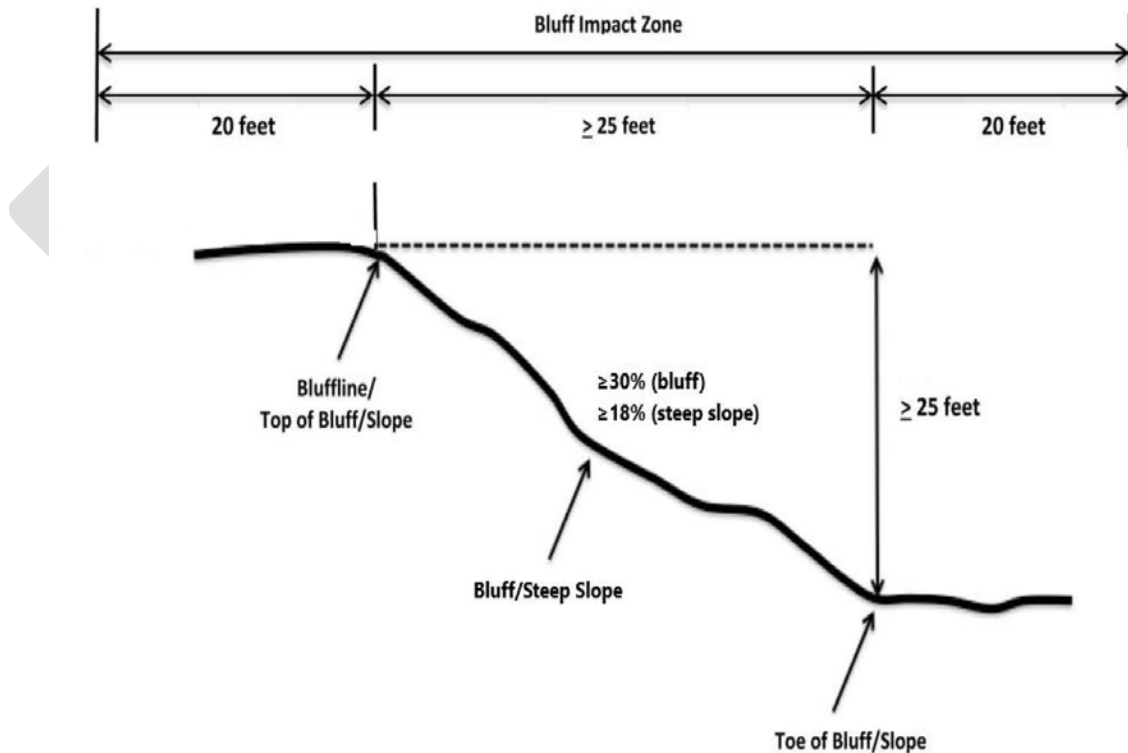


Figure 1: Bluff, Bluff Impact Zone, and Steep Slopes Diagram

Steep slope. "Steep slope" means a natural topographic feature having a slope that rises at least 25 feet above the ordinary high water level, or toe of the slope to the top of the slope, and the grade of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet, as follows:

1. where the slope begins above the ordinary high water level, from the toe of the slope to the top of the slope.
2. where the slope begins below the ordinary high water level, from the ordinary high water level or toe of the slope to the top of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet. See Figure 1.

Bluff and Steep Slopes Overlay District. "Bluff and Steep Slopes Overlay District" means a district containing bluff and steep slope areas established by Lower Minnesota River Watershed District standards/regulations and is subject to the provisions of both the primary standards/regulations and those of the overlay district. See Figure K1, Pages 1 – 9.

Policy Statement

It is the District's policy to:

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

Regulated Activities

- Land-disturbing activities that involves the excavation of 50 cubic yards or more of earth, or alteration or removal of 5,000 square feet or more of surface area or vegetation within

the Bluff and Steep Slopes Overlay District, as shown on the Lower Minnesota River Watershed District - Bluff and Steep Slopes Overlay District Map.

- Activities requiring municipal/LGU grading, building, parking lot, foundations or other commercial or residential permits that result in a net increase in impervious surface or stormwater runoff within the Bluff and Steep Slope Overlay District.

Exceptions

1. Maintenance, repair, or replacement of existing structures, public roads, utilities, and drainage systems within the Bluff and Steep Slopes Overlay District.
2. Disturbances that are part of an approved local water plan (LWP) to repair, grade, or re-slope existing bluffs or steep slopes that are eroding or unstable to establish stable slopes and vegetation.
3. Native plantings that enhance natural vegetation of bluffs and steep slopes.
4. Selective removal of noxious, exotic, or invasive vegetation using locally recognized methods to control and/or minimize their spread.
5. Pruning of trees or vegetation that are dead, diseased or pose a public hazard, and removal of vegetation in emergency situations from bluffs and steep slopes.
6. Maintenance of existing lawns, landscaping, and gardens.
7. Agricultural and forestry activities.

Standard

The standards outlined in this section apply to the areas identified on the Lower Minnesota River Watershed District - Bluff and Steep Slopes Overlay District Map (Figure L1).

- A. Land disturbing activities as regulated in this section may occur within the Bluff and Steep Slope Overlay District, provided a professional engineer registered in the state of Minnesota certifies the suitability of the area for the proposed activities, structures or uses resulting from the activities and the following requirements are addressed:
 1. Minimum erosion and sediment control best management practices (BMPs) include site stabilization and slope restoration measures to ensure the proposed activity will not result in:
 - i. adverse impacts to adjacent and/or downstream properties or water bodies;
 - ii. unstable slopes conditions; and

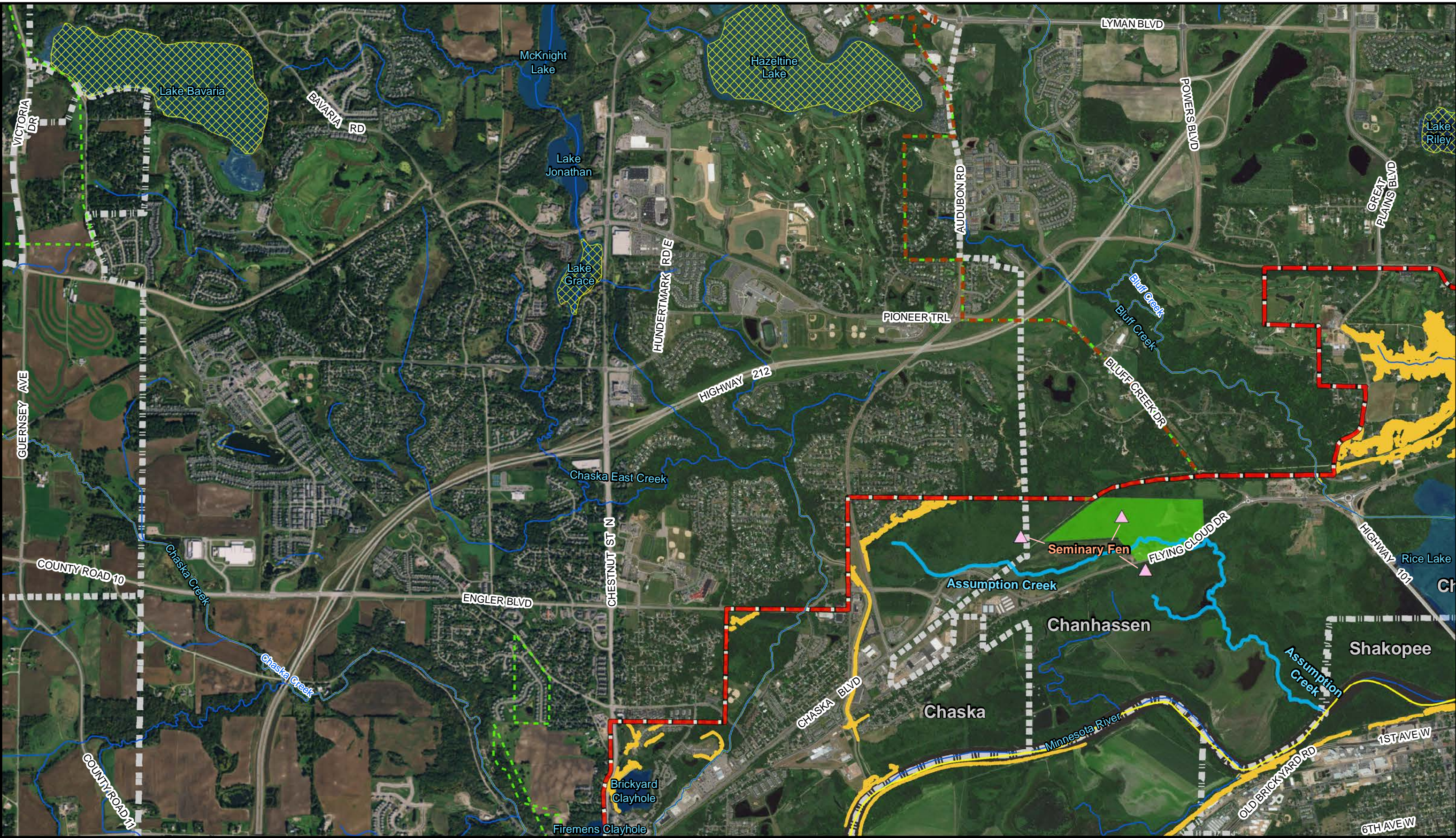
- iii. degradation of water quality due to erosion, sedimentation, flooding, and other damage.
 - 2. Preservation of existing hydrology and drainage patterns. Land-disturbing activities may not result in any new water discharge points on steep slopes or along the bluff.
- B. Stormwater ponds, swales, infiltration basins, or other soil saturation-type features shall not be constructed within the Bluff and Steep Slope Overlay District.

DRAFT

DRAFT

Bluff and Steep Slopes Overlay District Maps

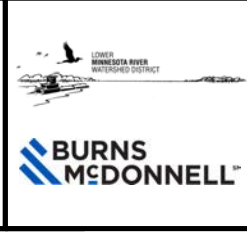
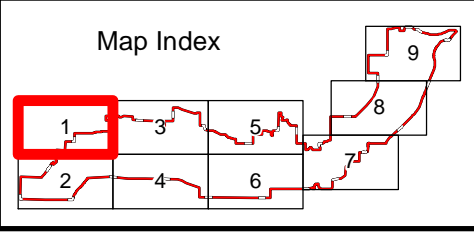
Path: \\bmc\dfs\clients\ENSL\LMRWD\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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

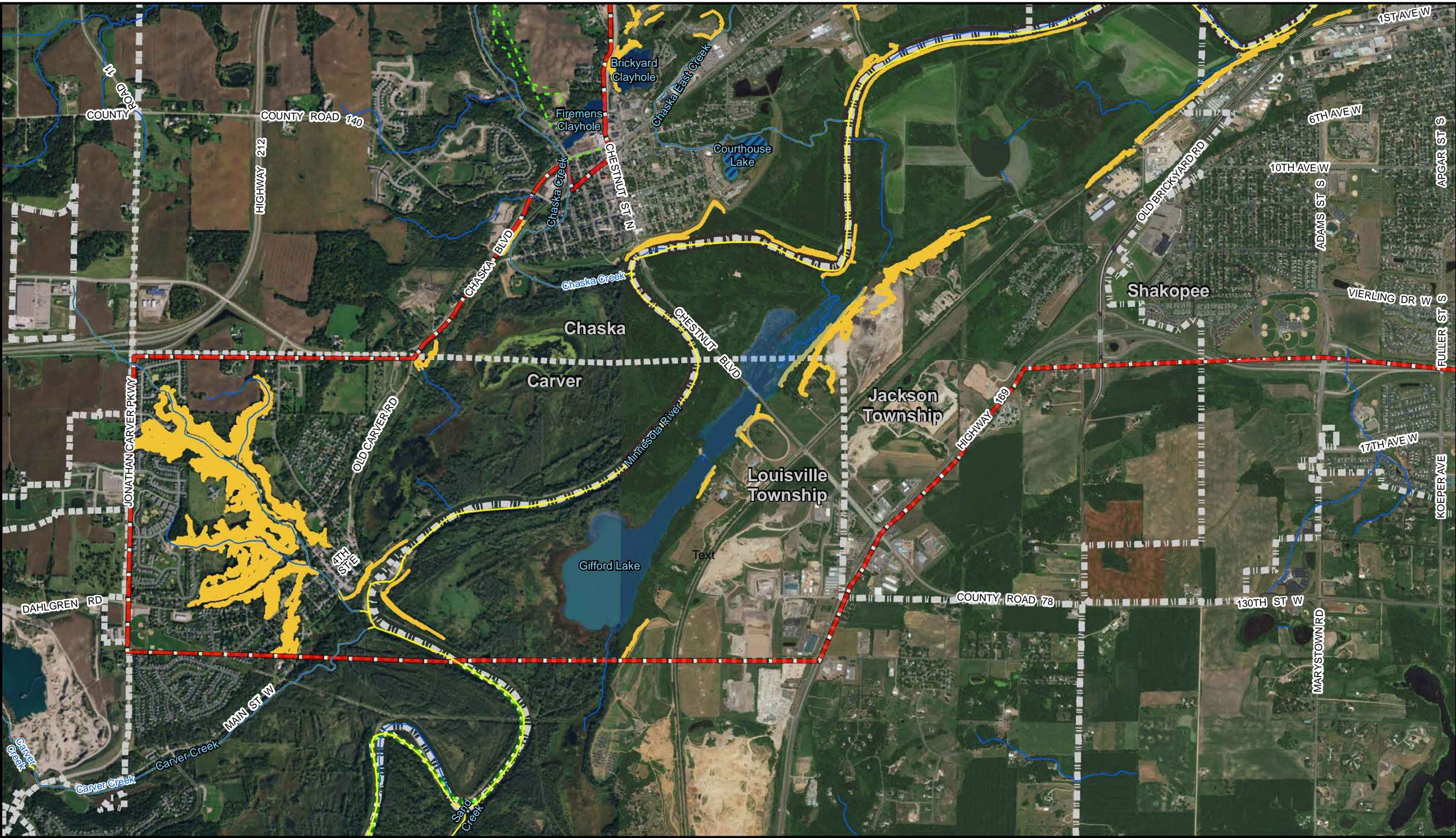
2,000 1,000 0 2,000
 Feet

NORTH

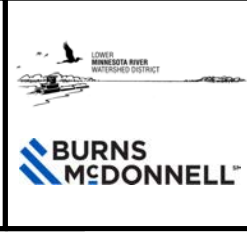
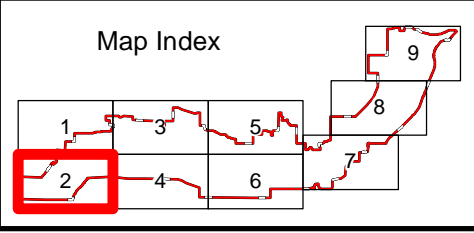
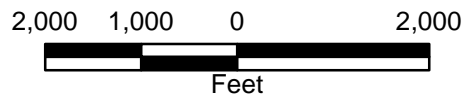


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 1 of 9

Path: \\bmc\dfs\clients\ENSL\LRWD\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

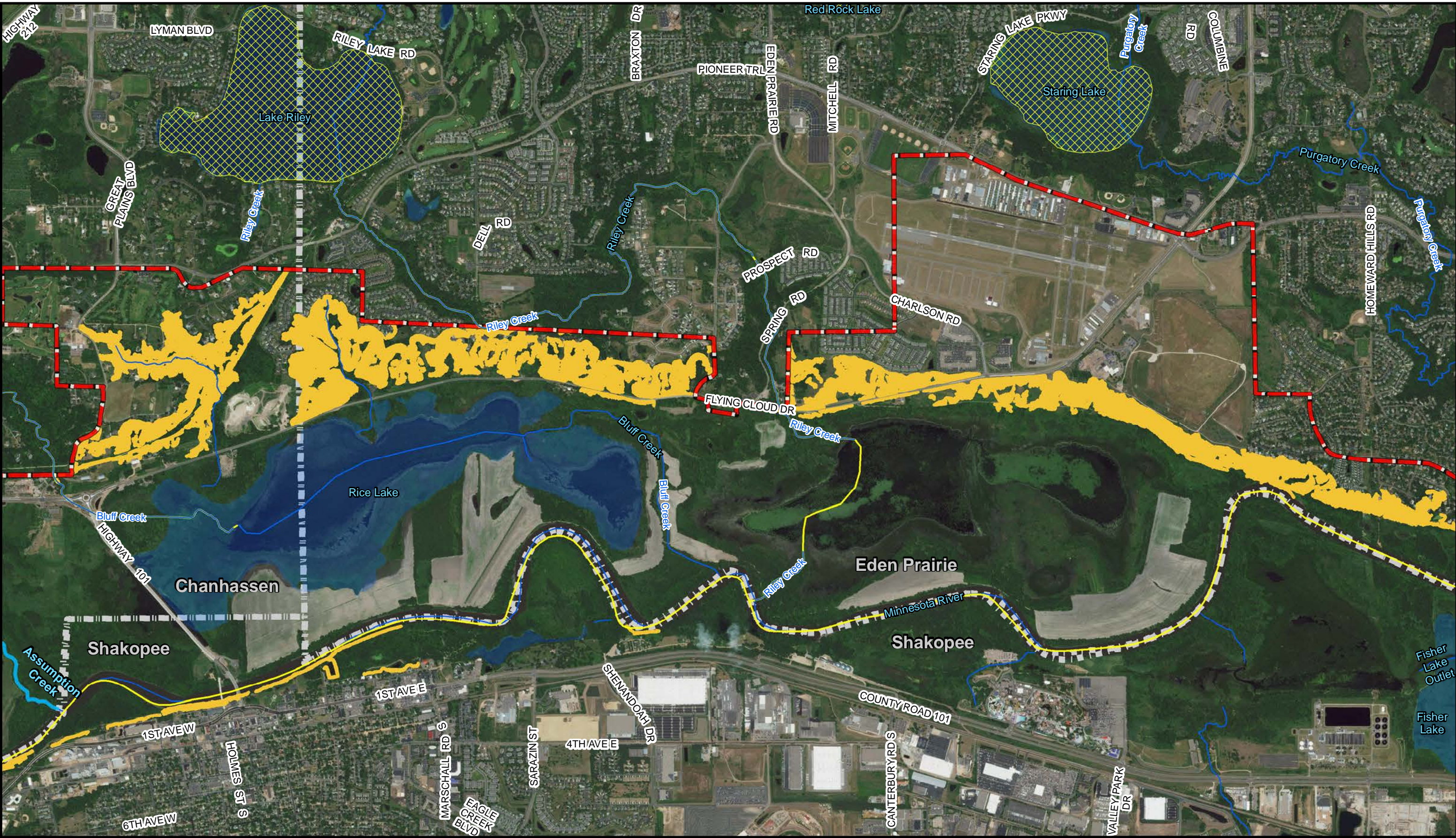


- | | | | |
|---|------------------------------------|--------------------------------------|--------------------|
| Bluff and Steep Slopes Overlay District | Watershed District Boundary | MNDNR Publicly Available Data | SNA - Fens |
| Carver County | Stream/River | Trout Pond/Lake | PWI Water |
| Scott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



Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 2 of 9

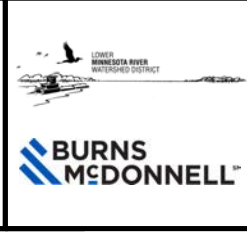
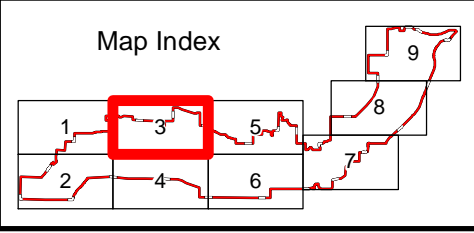
Path: \\bmc\dfs\clients\ENR\LMRW\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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

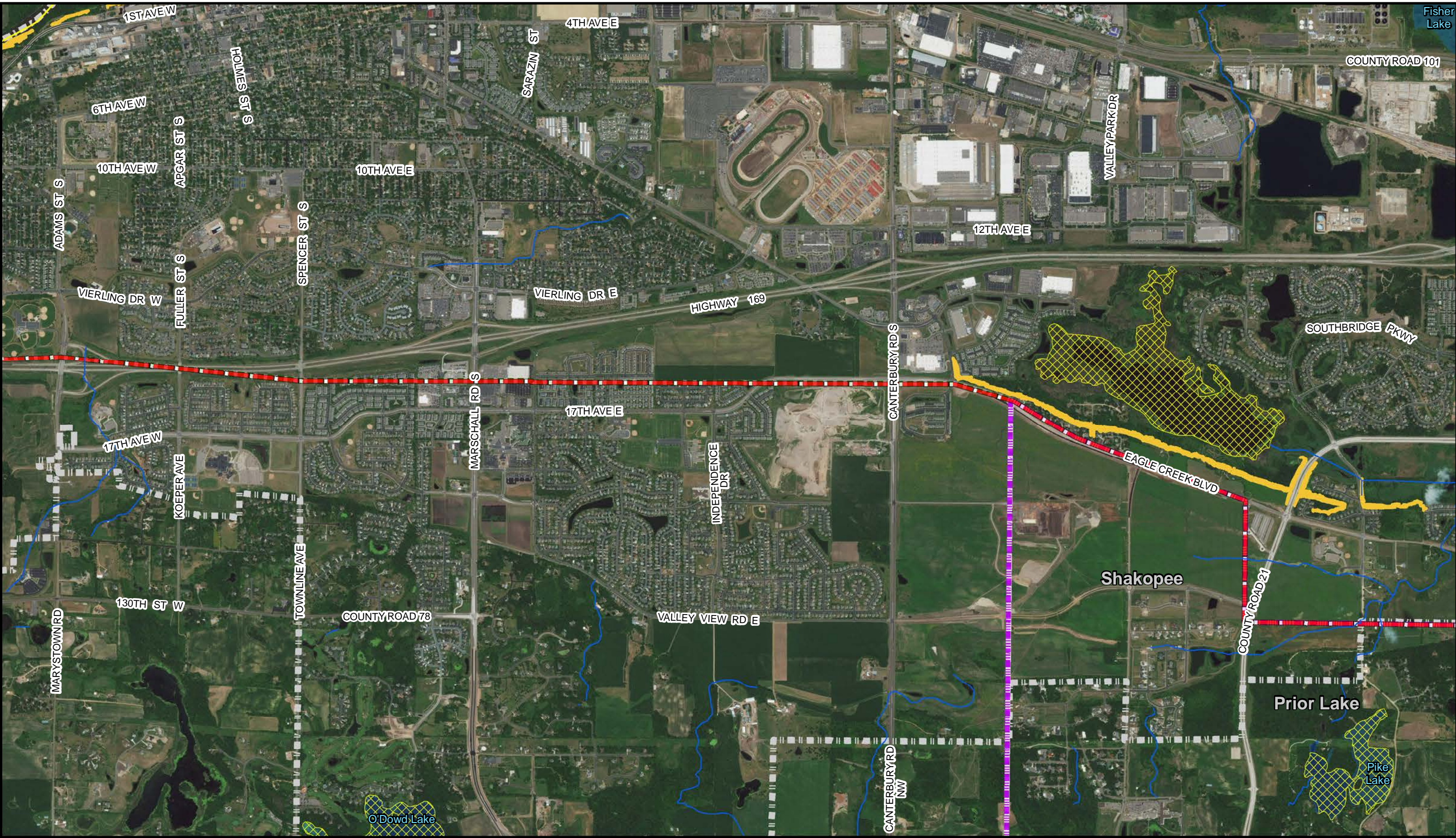
2,000 1,000 0 2,000
 Feet

NORTH

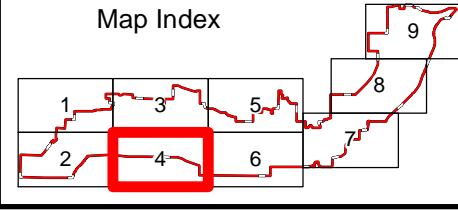
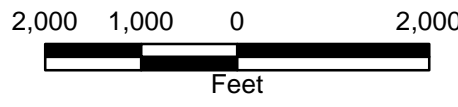


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 3 of 9

Path: \\bomcd\dfs\Clients\LMRW\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & MCDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

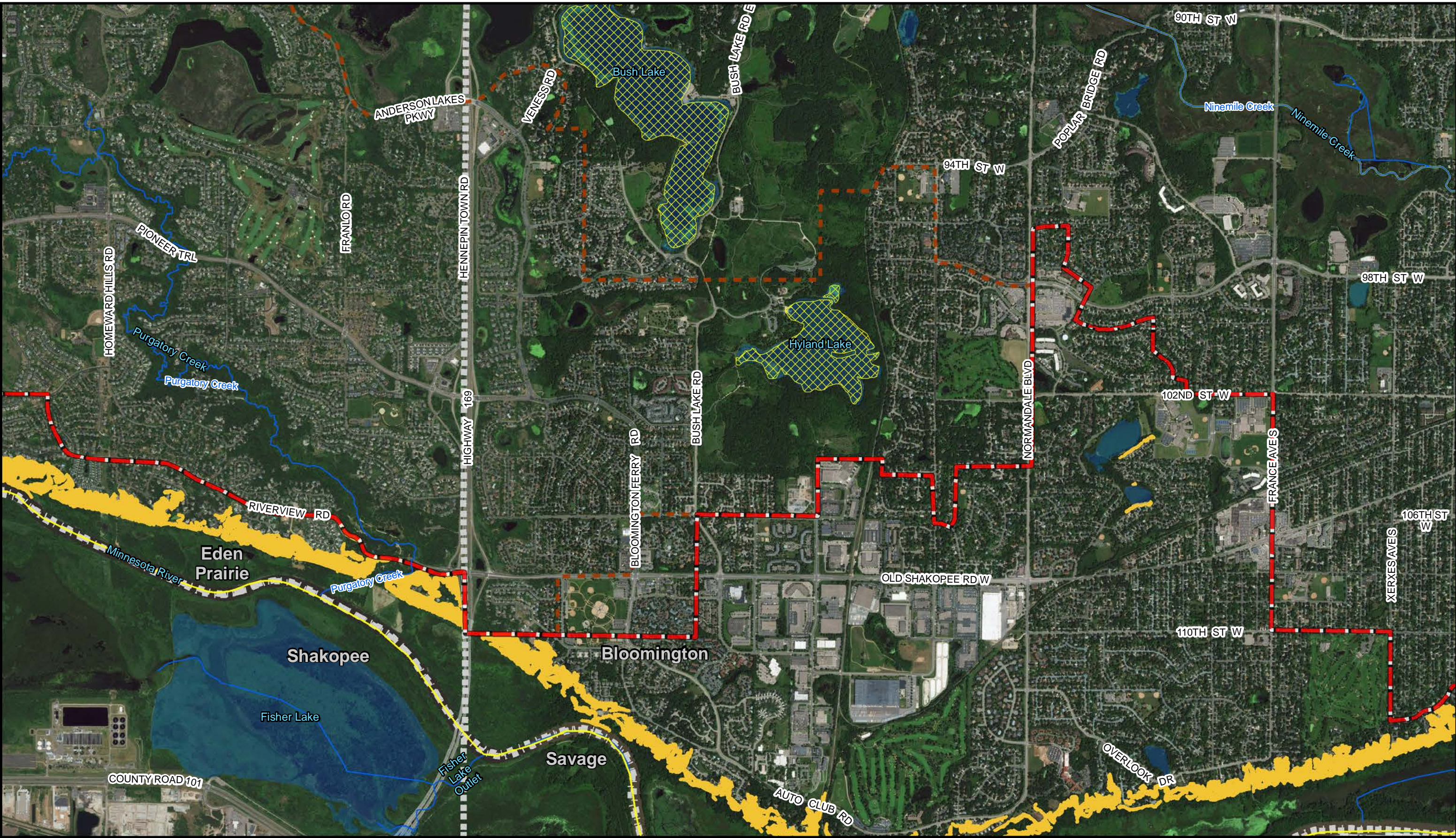


Bluff and Steep Slopes Overlay District	Watershed District Boundary	MNDNR Publicly Available Data	SNA - Fens
Prior Lake-Spring Lake	Stream/River	PWI Water	Calcareous Fen Point
Scott	Impaired River or Stream	Municipal Boundary	
Lower MN River	Impaired Lake		

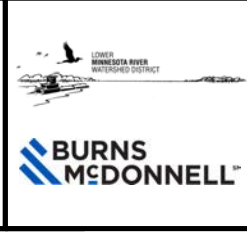
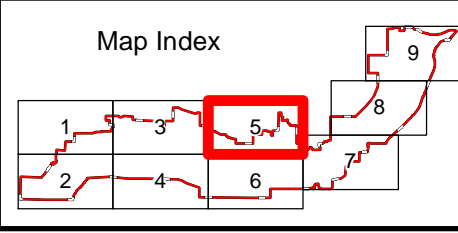
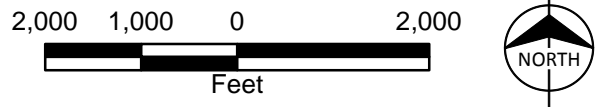


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 4 of 9

Path: \\bmc\dfs\clients\ENR\LMR\WD\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & MCDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

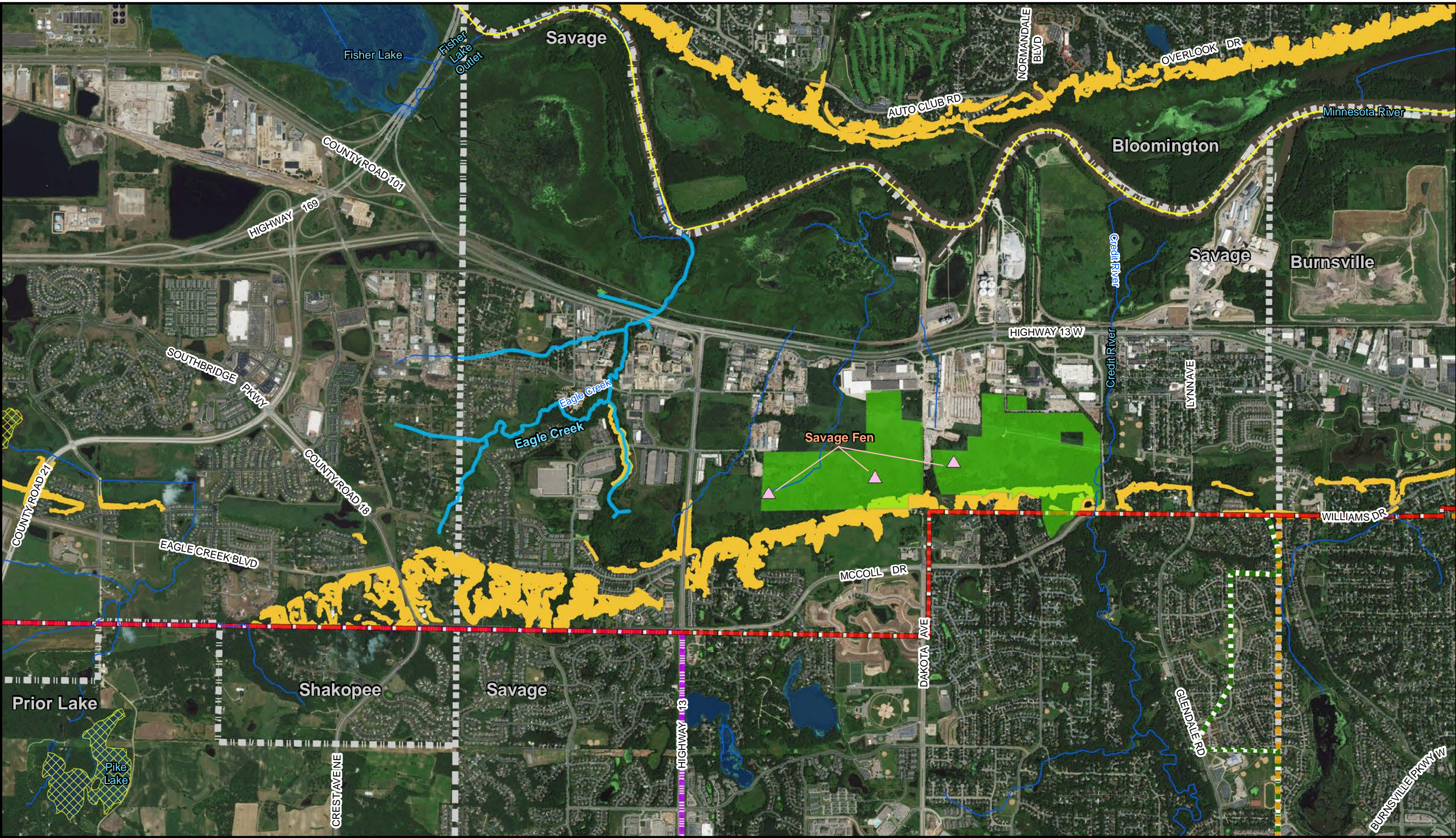


Bluff and Steep Slopes Overlay District	Watershed District Boundary Riley-Purgatory-Bluff Creek Scott Lower MN River	MNDNR Publicly Available Data Stream/River Impaired River or Stream Impaired Lake	MNDNR Publicly Available Data SNA - Fens PWI Water Calcareous Fen Point Municipal Boundary
---	--	---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

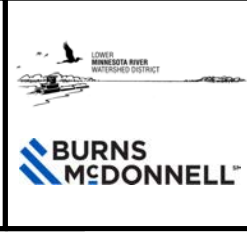
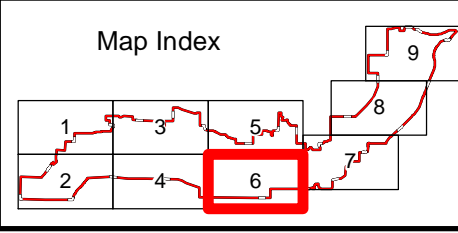
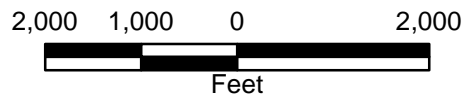


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 5 of 9

Path: \\bmc\dfs\clients\ENR\LMRW\95111_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd crnchett 12/27/2017
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

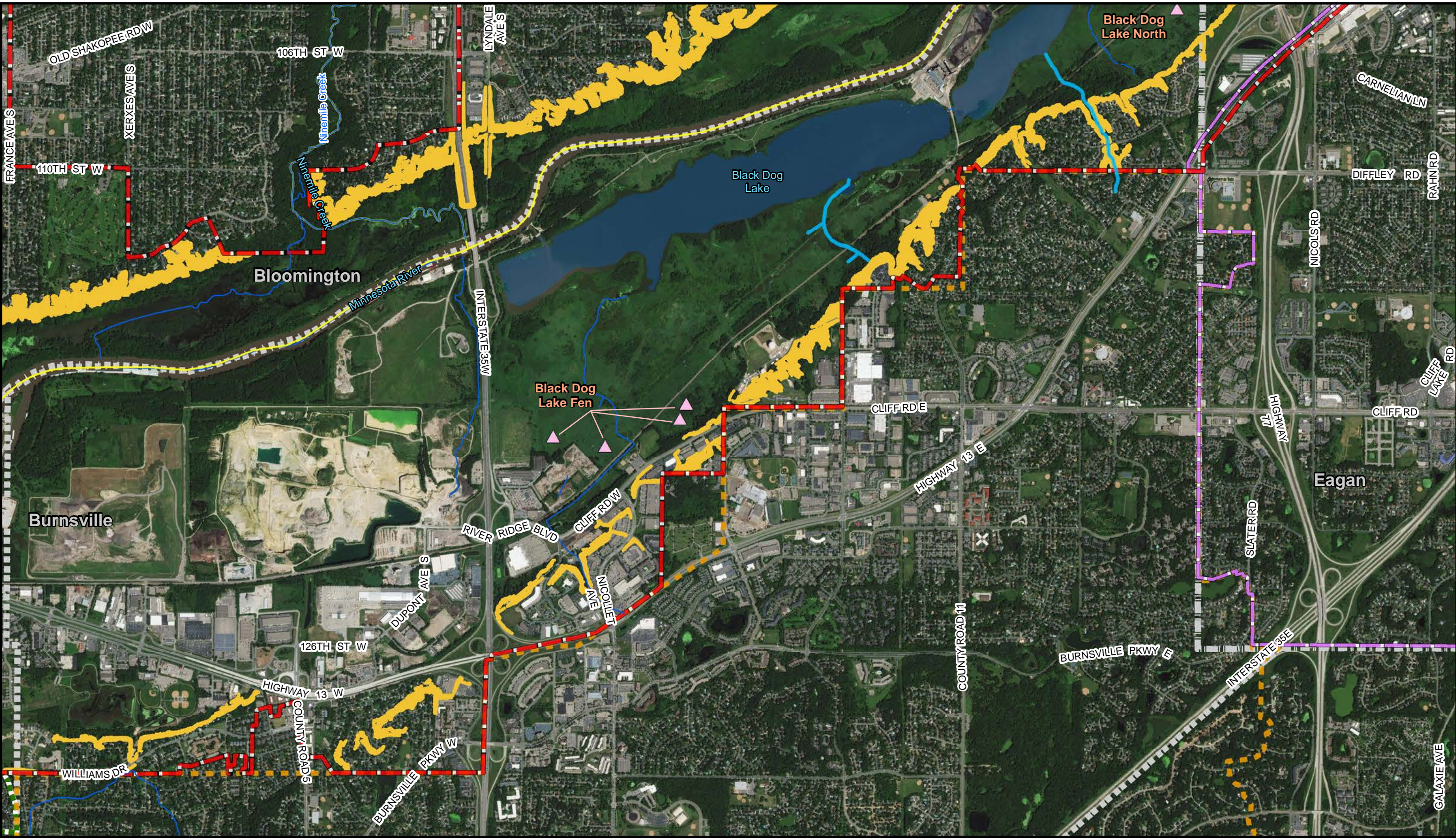


Bluff and Steep Slopes Overlay District	Watershed District Boundary Black Dog Prior Lake-Spring Lake Scott Lower MN River	MNDNR Publicly Available Data Stream/River Impaired River or Stream Impaired Lake	SNA - Fens SNA - Fens PWI Water Trout Stream Calcareous Fen Point Municipal Boundary
---	--	---	--

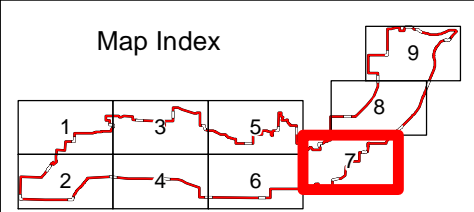
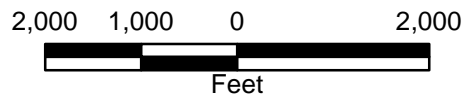


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 6 of 9

Path: \\bmc\dfs\clients\ENR\LMR\W\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & McDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

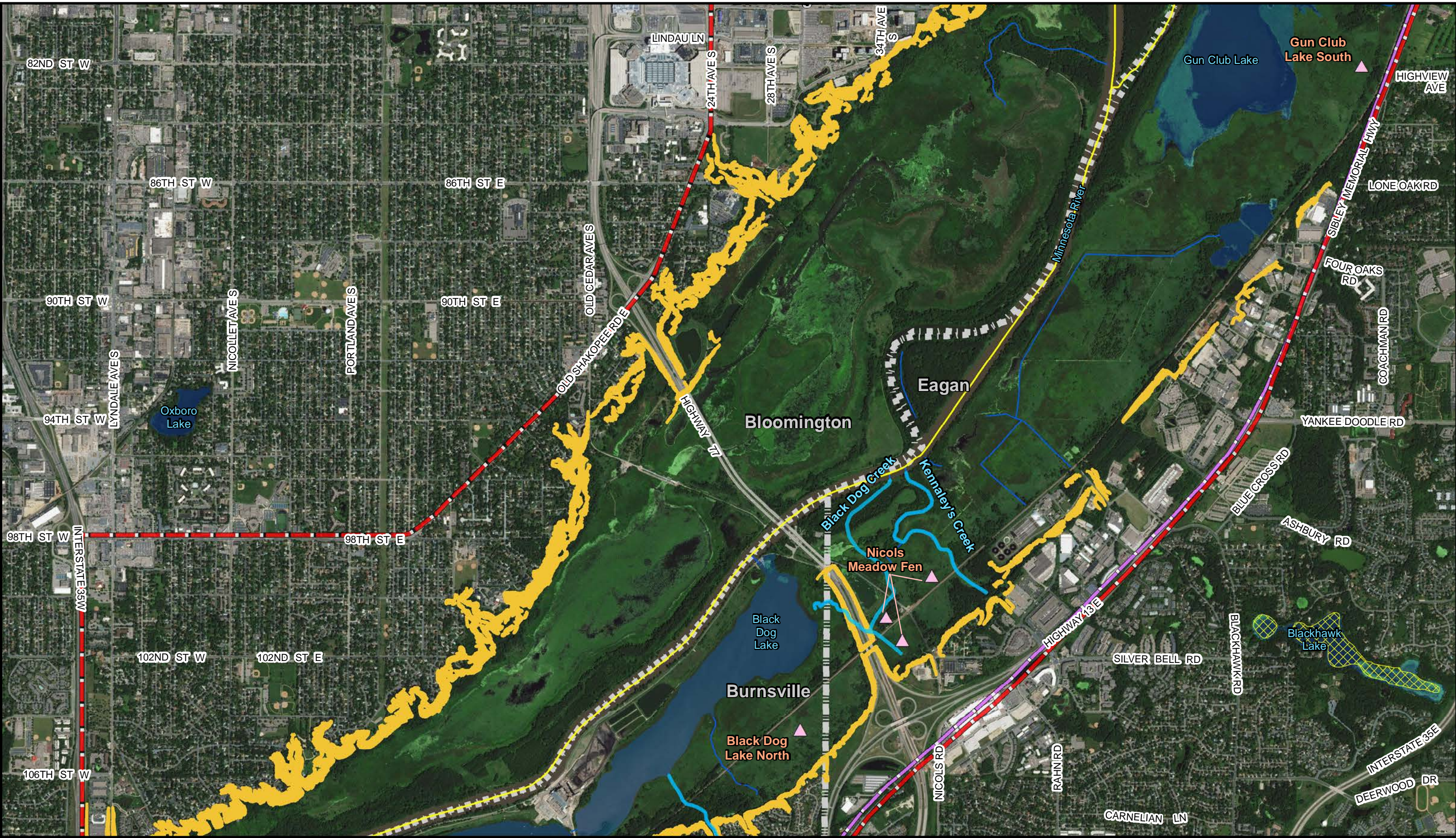


- Bluff and Steep Slopes Overlay District
- Watershed District Boundary
- MNDNR Publicly Available Data
- SNA - Fens
- PWI Water
- Stream/River
- Impaired River or Stream
- Trout Stream
- Impaired Lake
- Calcareous Fen Point
- Municipal Boundary
- Black Dog
- Eagan-Inver Grove
- Scott
- Lower MN River

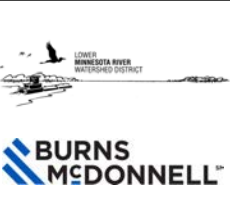
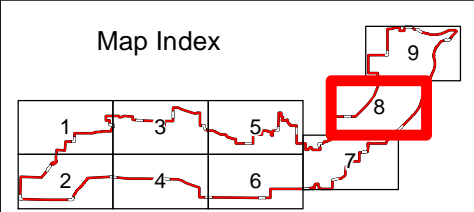
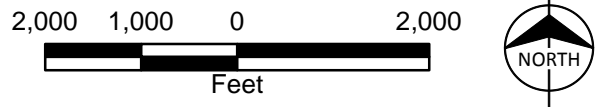


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 7 of 9

Path: \\bmc\dfs\clients\ENR\LMR\W\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & MCDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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

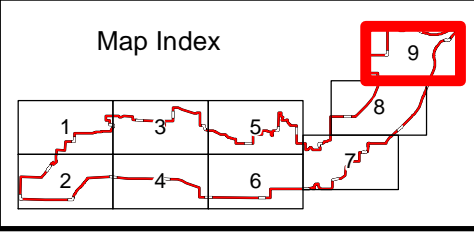
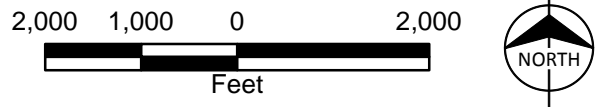


Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 8 of 9

Path: \\bmc\dfs\clients\ENR\LMR\WD\95511_WatershedPlan\Studies\Geospatial\ArcDocs\Bluff and Steep Slopes Overlay District.mxd cronchetti 12/27/2017
 COPYRIGHT © 2017 BURNS & MCDONNELL ENGINEERING COMPANY, INC.
 Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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



Lower Minnesota River Watershed District
 Bluff and Steep Slopes Overlay District
 Figure K1
 9 of 9