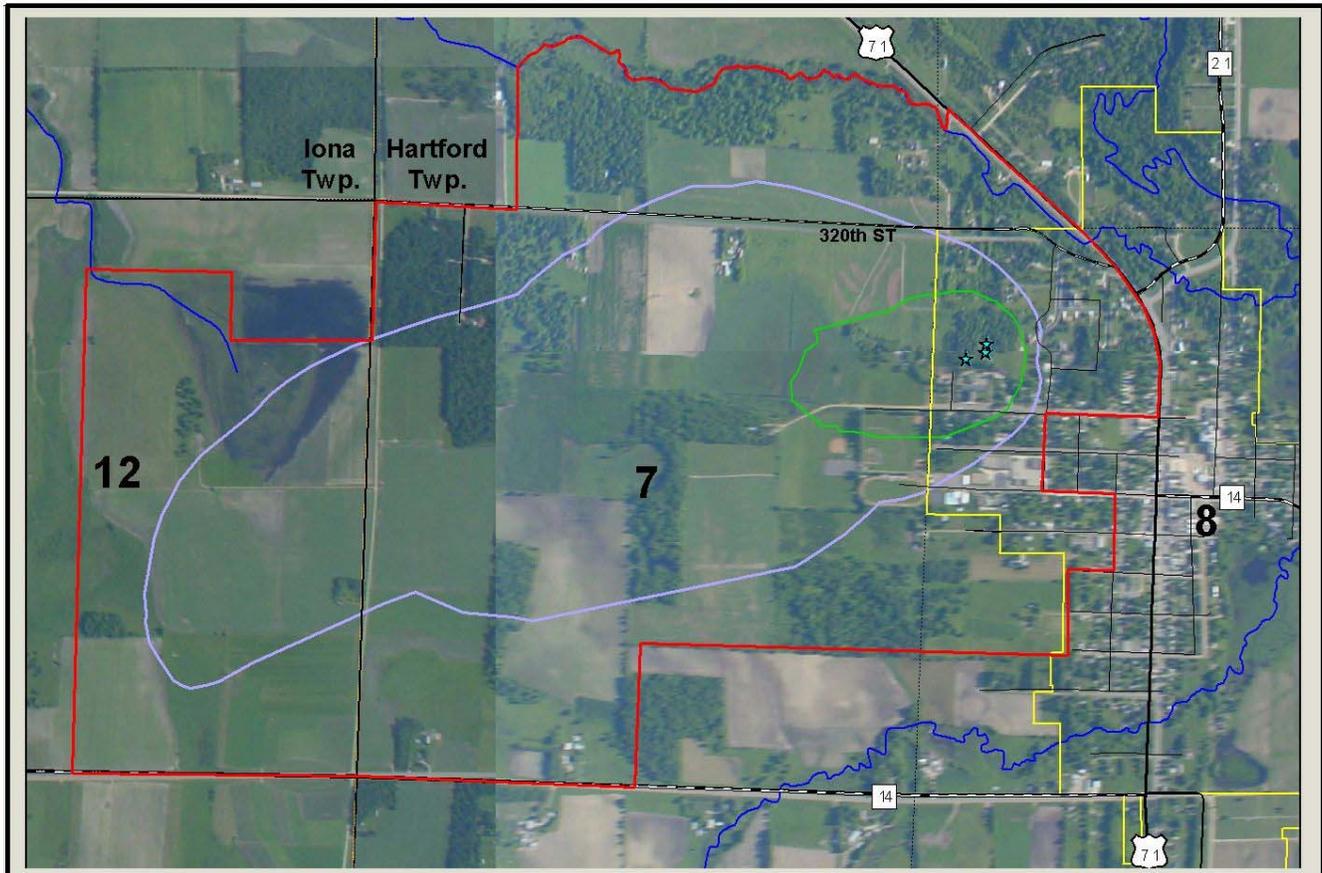


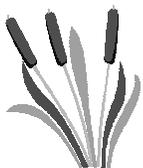
# CITY OF BROWERVILLE

## WELLHEAD PROTECTION PLAN

### PART II



## POTENTIAL CONTAMINANT SOURCE MANAGEMENT STRATEGY



**BAYERL  
WATER  
RESOURCES**

**AUGUST 2002**

# **TABLE OF CONTENTS**

	<b><u>Page Number</u></b>
PUBLIC WATER SUPPLY PROFILE	<b>3</b>
MEMBERS OF THE WPP TEAM / ABBREVIATIONS	<b>4</b>
DOCUMENTATION LIST	<b>5</b>
EXECUTIVE SUMMARY	<b>6</b>
CHAPTER 1 - Data Elements and Assessment	<b>7</b>
CHAPTER 2 - Impact of Changes on Public Water Supply Well	<b>12</b>
CHAPTER 3 - Issues, Problems and Opportunities	<b>14</b>
CHAPTER 4 - Wellhead Protection Goals	<b>16</b>
CHAPTER 5 - Objectives and Plans of Action	<b>17</b>
CHAPTER 6 - Evaluation Program	<b>26</b>
CHAPTER 7 - Alternative Water Supply; Contingency Strategy	<b>27</b>
TABLES 1 - 3	
FIGURES 1 - 12	
APPENDIX A - Referenced Data for Part 2	

## PUBLIC WATER SUPPLY PROFILE

### PUBLIC WATER SUPPLY

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### WELLHEAD PROTECTION MANAGER

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### CONSULTANT

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### GENERAL INFORMATION

UNIQUE WELL NUMBER(S)	<u>Well #4: MDH #198646</u> <u>Well #5: MDH #239924</u> <u>Well #6: MDH #603816</u>
SIZE OF POPULATION SERVED:	<u>735 People</u> <u>290-Metered Service Connections</u>
COUNTY	<u>Todd</u>

## Members of the Wellhead Protection Team

<b>NAME</b>	<b>REPRESENTING</b>	<b>PHONE</b>
Severin Blenkush	City of Browerville Administrator	320-594-2201
Chuck Buhl	Browerville Public Works Director	320-594-2201
Bruce Curley	Browerville High School	320-594-6438
Walt Lucas	Council Representative	320-594-2272
Dave Kramer	Council Representative	320-594-6217
Lee Busch	Hartford Township landowner	320-594-6145
Gloria Weisel	Todd County GIS Director	320-732-4248
Kitty Tepley	Todd County SWCD/Water Plan	320-732-2644
Mark Wettlaufer	MN Rural Water Association	218-575-3178
Beth Kluthe	MN Department of Health	218-755-4173

### Abbreviations

<b>BMP</b>	<b>Best Management Practices</b>
<b>CLWP</b>	<b>Comprehensive Local Water Plan</b>
<b>CRP</b>	<b>Conservation Reserve Program</b>
<b>DNR</b>	<b>Minnesota Department of Natural Resources</b>
<b>DWSMA</b>	<b>Drinking Water Supply Management Area</b>
<b>EQIP</b>	<b>Environmental Quality Incentive Program</b>
<b>GIS</b>	<b>Geographic Information System</b>
<b>LUG</b>	<b>Local Unit of Government</b>
<b>MCL</b>	<b>Maximum Contaminant Level</b>
<b>MDH</b>	<b>Minnesota Department of Health</b>
<b>mg/L</b>	<b>Milligrams per Liter</b>
<b>MPCA</b>	<b>Minnesota Pollution Control Agency</b>
<b>MRWA</b>	<b>Minnesota Rural Water Association</b>
<b>NRCS</b>	<b>Natural Resources Conservation Services</b>
<b>PCSI</b>	<b>Potential Contaminant Source Inventory</b>
<b>ppb</b>	<b>Parts per Billion</b>
<b>ppm</b>	<b>Parts per Million</b>
<b>PWS</b>	<b>Public Water Supply</b>
<b>SWCD</b>	<b>Soil and Water Conservation District</b>
<b>TU</b>	<b>Tritium Units</b>
<b>ug/L</b>	<b>Micrograms per Liter</b>
<b>USDA</b>	<b>United States Department of Agriculture</b>
<b>WHP</b>	<b>Wellhead Protection</b>
<b>WHPA</b>	<b>Wellhead Protection Area</b>
<b>WHPP</b>	<b>Wellhead Protection Plan</b>

## DOCUMENTATION LIST

<b>STEP</b>	<b>DATE PERFORMED</b>
Scoping Meeting 2 Held (4720.5340, subp. 1)	December 6, 2001
Scoping 2 Letter Received (4720.5340, subp. 2)	December 31, 2001
Remaining Portion of Plan Submitted to Local Units of Government (LUGs) (4720.5350)	June 3, 2002
Review Received From Local Units of Government (4720.5350, subp. 2)	August 5, 2002
Review Comments Considered (4720.5350, subp. 3)	August 8, 2002
Public Hearing Conducted (4720.5350, subp.4)	August 8, 2002
Remaining Portion WHP Plan Submitted (4720.5360, subp. 1)	August 30, 2002
Final WHP Plan Review Received (4720.5360, subp. 4)	

## EXECUTIVE SUMMARY

Part Two of Browerville's Wellhead Protection Plan speaks to sections 4720.5200 through 4720.5290 of MN Rules. This portion of the plan addresses the following:

- Data elements and their assessments
- Impact(s) of changes on the Public Water Supply Well
- Issues, problems and opportunities
- Wellhead protection goals
- Objectives and action plans
- Program evaluation
- An alternative water supply / contingency strategy

In Part One of the Plan, the delineation of the Wellhead Protection Area (WHPA), the Drinking Water Supply Management Area (DWSMA), vulnerability of the wells, and DWSMA was completed and approved by the Minnesota Department of Health (MDH). This important information was utilized in the completion of this document.

The City of Browerville is located in west central Todd County. According to Part One of the Plan, 100 to 300 feet of glacial sediment consisting mostly of clay-rich till overlies bedrock – likely from the Proterozoic age. Thin lenses of sand / gravel lie within this bedrock, and the City receives its water from one of these lenses.

The clay-rich till found throughout the DWSMA suggests a confining layer to the aquifer, however, the presence of Tritium (19.1 TU) and the “leaky” response shown in the aquifer test on well number 4 (unique well number 00198646) indicate a connection between the land surface and the aquifer. Therefore, some surface or near surface land use structures may impact groundwater quality of the Browerville PWS wells. The aquifer utilized for the City wells of Browerville, and delineated for this DWSMA is considered moderately vulnerable to contaminants from land use. Likewise, the three City wells have been assigned a moderately vulnerable status due to the Tritium found in Well number four. Wells number 5 and 6 (unique well number 00239924 and 00603816, respectively) have not been tested for tritium at this time.

This moderately vulnerable status calls for focus on existing tanks and wells (including high capacity wells) located within the DWSMA. In addition, the wellhead committee has determined public education and further data collection to determine the extent of the vulnerability and possible causes as feasible goals. It is the hope of the Wellhead Protection Committee that through increased public awareness, habits will be established that will decrease the potential for future water problems and the City can continue to enjoy the current quality of water they have come to expect.

## CHAPTER ONE

### DATA ELEMENTS/ASSESSMENT

Minnesota Rules 4720.5200

#### I. REQUIRED DATA ELEMENTS

##### A. PHYSICAL ENVIRONMENT DATA ELEMENTS

###### 1. Precipitation

Since 1997, the City of Browerville has received 23.6 to 36.4 inches of precipitation annually. See **Table One** for monthly rainfall data collected at the Browerville Wastewater Treatment Facility. Data collected in Todd County, outside the DWSMA, is available at the Todd County SWCD.

Since tritium levels of 18.9 and 19.1 TU have been detected in one of the City's wells, the potential for precipitation to carry contaminants on the land to the aquifer during recharge must be considered when developing management strategies within the DWSMA.

###### 2. Geology

The City of Browerville's three (3) wells are located in the Quaternary Buried Artesian aquifer. This aquifer, providing the City of Browerville's Public Water Supply, has been determined to be "leaky" based on Tritium dating of the water. Land use in the DWSMA appears to have little effect on the quality of this aquifer.

Geologic data elements pertinent to WHPA delineation and vulnerability status are included in Part One of this WHP and are on file with the City of Browerville and the MDH. Questions regarding the cause of the presence of tritium, e.g. thin, missing or leaky clay confining areas, along with a better understanding of the geology of the area, need to be explored through management strategies.

###### 3. Soils

The general soils map shown in **Figure One** is based on the USDA soil survey. These soils consist mainly of the sandy loam textures. Soil Sensitivity as shown in **Figure Two** depicts permeability, or the speed in which surface water passes through to the aquifer. Sandy soil is a poor filter for contaminants, whereas loam will slow surface water infiltration and remove some contaminants. The areas around the well field and toward the east have a higher potential for rapid infiltration of contaminants than those areas to the west.

Highly permeable soil types indicate a connection with the upper aquifer, where land use has an effect on the water quality. With the determination in Part One of the Plan of the connection between these aquifers, these areas become a concern. Verification and further study of this connection must be addressed in the management strategies of this plan.

Erosion and sedimentation have been determined to have no impact on the water quality of the aquifer within the DWSMA, and therefore do not need to be considered in the development of this plan.

#### 4. Water Resources

There are no surface waters within the DWSMA. Harris Creek flows along the northern boundary. Watershed Boundaries, Public Waters, wetlands and flood plains are shown in **Figure Three**. There are no Public Drainage Ditches located within the DWSMA. Water flows overland from the general direction of southwest to northeast and eventually into the Long Prairie River.

Wetlands supply recharge to the upper aquifer. Wetlands and wetland restorations are a high priority in Todd County's Comprehensive Local Water Plan. These water resource issues must be addressed in the management strategies of this document.

### B. LAND USE DATA ELEMENTS

#### 1. Land Use

The DWSMA consists of 1,102.8 acres. Ten percent or 112.3 of those acres are within the City of Browerville, with twenty-four percent or 265.5 acres lying in Iona Township and the majority in Hartford Township at sixty-six percent and 725 acres. Land use is as follows:

LAND USE	ACRES	PERCENT
Urban & Industrial	116.6	10.6
Farmsteads & Rural Residences	18.3	1.7
Cultivated Land	574.7	52.1
Grassland	197.3	17.9
Grassland - Shrub Tree Complex (Deciduous)	19.3	1.8
Deciduous Forest	176.5	16.0
Water	0.2	0.0
<b>Total</b>	<b>1102.8</b>	<b>100.0</b>

Parcel mapping, current and historical land use, as well as current zoning and wells located in the DWSMA are available in **Figures Four through Eight**.

A potential contaminant source inventory was conducted by the MDH and provided to the City. This inventory focused only on underground storage tanks and wells. Upon review by the City, it was determined no underground storage tanks are located within the DWSMA. A listing of landowners located within the DWSMA is noted in **Table Two**.

**2. Public Utility Services**

Location maps of Public Utilities (Transportation, Water Main, Sanitary Sewer, and Storm Sewer) are supplied in **Figures Nine and Ten**.

**C. WATER QUANTITY DATA ELEMENTS**

**1. Surface Water Quantity**

There are no lakes located within the DWSMA of Browerville’s wells. Harris Creek runs along the northern boundary and there is no existing data regarding high, mean or low flows. There are no permitted withdrawals from this stream.

**2. Groundwater Quantity**

The delineation study in Part One of the Plan indicates that recharge to the aquifer is about one inch per year in the till areas and eight inches per year in the outwash areas. Pumping tests conducted in Part One, showed a full recovery of the tested wells within 1485 minutes. Through these aquifer tests, it was determined the aquifer is semi-confined or “leaky”. There are no known interferences problems or water use conflicts within the DWSMA.

**D. WATER QUALITY DATA ELEMENTS**

**1. Surface Water Quality**

Harris Creek is a protected stream, with no unique DNR I.D. number. No surface water quality data exists on this creek at this time.

**2. Groundwater Quality**

The Appendix contains a copy of the 2001 Consumer Confidence Report. A summary of water quality data from 2001 follows:

<b>Test</b>	<b>Results</b>	<b>Test</b>	<b>Results</b>
pH	6.8	Lead	11.0 ppb
Sulfate	31.0 ppm	Iron (raw water)	1.42 mg/L
Nitrate Nitrite	<0.05 mg/L	Iron (filtered water)	0.03 mg/L
Sodium	6.4 mg/L	Arsenic	<1.0 ug/L
Copper	0.55 ppm	Barium	0.16 ppm

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Tritium analysis was conducted on February 24 and March 15 of 1999. Concentrations of 18.9 and 19.1 Tritium units were found, respectively. This indicates the water in the aquifer has entered from the surface since 1953. This relatively “young” age of the water helps determine the moderately vulnerable status of the aquifer. However, routine sampling conducted by the MDH found no violations of any parameters monitored for the Safe Water Drinking Act.

## **II. ASSESSMENT OF DATA ELEMENTS**

### **A. USE OF THE WELL**

The City of Browerville utilizes three (3) wells and one (1) 300,000 gallon elevated storage tank for its water supply. Well number **4** has MDH unique well number 198646, well number **5** has 239924, and well number **6** has 603816. The City provides service to 290 - metered connections through distribution mains, lines and services. The volume of water pumped has ranged from 27,238,000 gallons in 1996 to 40,756,000 gallons in 2000, with projected increases to 55,756,000 in 2005.

Dan’s Prize, Inc. is the top water user in the City of Browerville, its usage nearly double the total of the next nine combined. Other high water users include Land O’Lakes, Inc., trailer courts and apartment buildings, School District 787, and other local businesses.

### **B. WELLHEAD PROTECTION AREA DELINEATION CRITERIA**

The following data inputs were used in determination of the boundaries of the wellhead protection area.

- 1. Time of Travel**
- 2. Flow Boundaries**
- 3. Daily Volume**
- 4. Ground Water Flow Field**
- 5. Aquifer Transmissivity**

A detailed discussion of the delineation is found in Part One of the Plan.

### **C. QUALITY AND QUANTITY OF WATER SUPPLYING THE PUBLIC WATER SUPPLY WELL**

Results of routine sampling conducted by the MDH over the 1993 to 2001 time period discovered no violations of any parameters monitored under the Safe Drinking Water Act.

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The City's wells pump about 120,000 gallons per day. In 1983, the City of Browerville began iron and manganese removal from the Public Water Supply and added water meters. Improvements, including an upgrade of the filter system for Iron and Manganese removal, were added to the system in 1997 when the new tower was built. Fluoride and Chlorine are added to the drinking water for dental and disinfection, respectively. Upgrade of water use meters was completed in 2000 with the replacement of high water use meters.

#### **D. THE LAND AND GROUNDWATER USES IN THE DRINKING WATER SUPPLY MANAGEMENT AREA**

The land use in the DWSMA is residential within the City limits of Browerville. In Hartford and Iona Township land use includes agriculture, residential, recreational (including a large hunting preserve), CRP and wetlands as depicted in the **Figure Eleven** air photo. The CRP acreage of 46.2 will no longer qualify after 2003, and will likely revert to agriculture uses. Data collected in Part One of the Plan indicates that existing land uses should not have a significant effect on the PWS wells.

Thirty-two private wells, as noted in **Figure Eight**, in addition to School District 787's high capacity well, tap into the same aquifer the City wells are located in. The School District's irrigation well for the athletic fields in town is estimated to produce up to 155,000 gallons per week in dry weather conditions. No other high capacity wells are located in the DWSMA. A listing of these owners is available in **Table Three**. Proactive management of existing wells, unused, unsealed wells and underground storage tanks are of immediate concern due to the moderately vulnerable rating of the aquifer. No underground storage tanks have been identified within the DWSMA.

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## CHAPTER TWO

### IMPACT OF CHANGES ON PUBLIC WATER SUPPLY WELL

Minnesota Rules 4720.5220

#### I. CHANGES IDENTIFIED IN:

##### A. PHYSICAL ENVIRONMENT

No significant changes in the physical environment are anticipated in the next ten (10) years.

##### B. LAND USE

Minor shifts from agriculture to residential are expected, with possible increases in private wells in the aquifer. The City of Browerville anticipates orderly annexation, when feasible, as development occurs within the DWSMA. Hook-up to City services would be required at that time, eliminating the need for private wells.

There is one CRP contract due to expire in 2002-2003, possibly causing this marginal land to be utilized for cropland. Large turkey and hog operations border the DWSMA, as noted in **Figure Twelve**, and the potential for intensive agriculture uses within this area exists.

##### C. SURFACE WATER

Wetlands located within the DWSMA are designated "high priority" by the Todd County SWCD and any impacts to these wetlands will be discouraged. Wetland restorations will be encouraged within the DWSMA. District 787 students will establish water levels and water quality baseline data in Harris Creek. No other surface water changes are expected in the WHPA.

##### D. GROUNDWATER

There are no anticipated high capacity wells to be drilled in or near the DWSMA. An increase in residential wells may occur with development in agriculture areas. There are no expected changes to the existing good water quality.

#### II. IMPACT OF CHANGES

##### A. EXPECTED CHANGES IN WATER USE

The City of Browerville expects stable to moderate growth. A three (3) million gallons per year increase in water usage has been predicted for the modeling in Part One of this Plan. This increase in usage is anticipated to be mostly for industrial needs.

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## **B. INFLUENCE OF EXISTING WATER AND LAND GOVERNMENT PROGRAMS AND REGULATION**

The City of Browerville completed a Comprehensive Plan in 1997. Preservation of natural areas along Harris Creek, woodlands, and development of parklands are some priorities identified. Environmentally sensitive growth and separating residential, commercial and industrial uses have also been identified goals. An industrial park has been designated, with public water and wastewater infrastructure. This is located outside the DWSMA. The Transfer Station and the Wastewater Treatment Facility are also located outside the DWSMA.

The City of Browerville has regulatory control within the City limits through a locally adopted Zoning and Land use Ordinance. Todd County has a countywide land use ordinance, giving them regulatory jurisdiction in the DWSMA outside the City limits of Browerville. They have recently completed a County Comprehensive Plan and Comprehensive Local Water Plan (CLWP). These plans identify priorities within the County.

A well-sealing program is available through the Todd County Soil and Water Conservation District with priority funding designated to wells located within the DWSMA. A program to identify and seal unused, unsealed wells should be initiated.

Wellhead protection areas are considered a high priority for CRP Practices that include: tree planting for living snow fence, riparian buffers, field windbreaks, grass waterways, and filter strips. The Wetland Reserve Program for wetland preservation, and the EQUIP Cost share program for nutrient management plans and agriculture waste systems. There is a strong spirit of cooperation between the City of Browerville and Todd County's CLWP.

## **C. ADMINISTRATIVE, TECHNICAL, AND FINANCIAL CONSIDERATIONS**

The City of Browerville has been supportive of Wellhead Protection efforts. A Wellhead committee has been formed and has been actively involved in the planning process. A line-item budget has been established for implementation of priority strategies identified in this plan.

The WHP Manager will be responsible for implementation of this Plan. The committee will continue to meet periodically to review and discuss implementation programs.

Todd County GIS, Water Planning, and Minnesota Rural Water have provided technical assistance for this plan.

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## CHAPTER THREE

### ISSUES, PROBLEMS, AND OPPORTUNITIES

Minnesota Rules 4720.5230

#### I. LAND USE ISSUES, PROBLEMS, AND OPPORTUNITIES RELATED TO:

##### A. THE AQUIFER

Opportunities presented include: identification of unused, unsealed wells, location of underground storage tanks, and development of a procedure for tracking new wells placed in the aquifer. Further studies to identify the reasons for the detection of Tritium in this aquifer should be completed. Public education programs addressing potential contamination of the aquifer will be initiated.

##### B. THE WELL WATER

The City of Browerville has adequate water for the projected use in the next ten (10) years. The City's addition of any high capacity well may affect the WHPA and DWSMA and should be reviewed by the MDH and DNR. Education is one of the main strategies in protection of drinking water supplies.

##### C. THE DRINKING WATER SUPPLY MANAGEMENT AREA

Future development may increase individual residential wells, unless annexation is accomplished. There are 32 known existing private wells located within the DWSMA. There is potential for increased impact in the agriculture zone, with large animal operations located just outside the DWSMA.

##### **Opportunities to address future land use changes include:**

- o Work closely with Todd County Planning and Zoning to ensure future development will not impact the aquifer.
- o Meet with Todd County Feedlot Officer – educate regarding WHPA and DWSMA and request review of feedlots proposed for expansion in the area. Encourage nutrient management through SWCD.
- o Work with Local Water Planning to establish priority wetland restoration, preservation and well sealing within the DWSMA.
- o Encourage industrial development in the industrial park – outside the DWSMA.
- o Work with Public School System to initiate a monitoring program to educate students on the surface water/ground water connection.

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## **II. IDENTIFICATION OF:**

### **A. PROBLEMS AND OPPORTUNITIES DISCLOSED AT PUBLIC MEETING AND IN WRITTEN COMMENT**

The public meeting for Part One of this Wellhead Plan received general support for approval. Issues identified by the committee include inventorying and sealing unused, unsealed wells, location of underground tanks, and further study of the aquifer.

### **B. DATA ELEMENTS**

Limited geologic information is available on this aquifer. Support for Todd County in completion of a Geologic Atlas would supply the additional information needed to understand the land use/groundwater connection. Localized well data is needed and will be collected as part of action strategies in Chapter Five.

### **C. STATUS AND ADEQUACY OF OFFICIAL CONTROLS, PLANS, AND OTHER LOCAL, STATE, AND FEDERAL PROGRAMS ON WATER USE AND LAND USE**

The WHP committee feels adequate protection of the DWSMA is available through existing land use ordinances (including feedlots) in Todd County, and state well permits and groundwater appropriations permits.

The Todd County Local Water Plan, administered by the SWCD, contains priority strategies for WHPAs, such as education programs, well sealing, best management practices, and wetland preservation. A collaborative effort between the WHP Committee and Todd County is important in implementation of these programs.

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## CHAPTER FOUR

### WELLHEAD PROTECTION GOALS

Minnesota Rules 4720.5240

#### I. GOALS

##### A. PRESENT AND FUTURE WATER AND LAND USE

The overall Goal of the City of Browerville Protection Plan is:

***“To promote public health, economic development and community infrastructure by maintaining a potable drinking water supply for all residents of the community, both now and into the future.”***

The City water supply is located underground and is classified as moderately vulnerable. Consequently, this program will focus on managing other wells and tanks identified, in order to prevent possible drinking water contamination, water well interference or supply problems.

The City has historically enjoyed a sufficient and safe water supply, and proposes, through the implementation of this WHP Plan, to continue supplying safe, potable water for its residents into the future.

The wellhead protection program will achieve these stated goals through existing and planned programs such as:

- **Public Education and Information**
- **Best Management Practices**
- **Well and Tank Identification**
- **Emergency Response Procedures**

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## CHAPTER FIVE

### OBJECTIVES AND PLANS OF ACTION

Minnesota Rules 4720.5252

#### I. ESTABLISHING PRIORITIES

**A.** THE BROWERVILLE WHP TEAM CONSIDERED THE FOLLOWING ISSUES IN DETERMINING THE PRIORITY OF POTENTIAL CONTAMINANT SOURCES:

- **Any substance that exceeds Maximum Contamination Level's (MCL's)**
- **Any substance with quantifiable levels of contamination resulting from human activity, below MCL's**
- **The frequency of each source category of the Potential Contaminant Source Inventory (PCSI)**
- **The location of potential contaminant sources relative to the well(s)**
- **The assimilative capacity of the aquifer to reduce impact of potential contaminant sources**
- **The effectiveness of existing controls**
- **The time required to get cooperation from other agencies and cooperators**
- **The resources needed: staff, money, time, legal, technical**

**B.** THE WHP TEAM LISTED WELLHEAD PROTECTION MANAGEMENT ISSUES IN THE FOLLOWING ORDER OF PRIORITY, WITH A BEING OF THE HIGHEST CONCERN:

- |  |
|--|
| <ul style="list-style-type: none"><li>A. Wells</li><li>B. Public Education</li><li>C. Data Collection</li><li>D. Tanks</li></ul> |
|--|

No tanks are located within the DWSMA. See **Figure Eight** for a map depicting active and inactive/uncapped wells.

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## II. OBJECTIVES

### A. WELLS

#### **OBJECTIVE A-1: LOCATE OTHER WELLS AND UNUSED OR UNSEALED WELLS WITHIN THE DWSMA**

**MEASURE A-1:** The City conducted a survey of existing wells during the development of necessary data for this WHP Plan. Some wells may not be formally identified due to lack of well logs and/or other information. These wells will be located, identified and assigned a unique state well number. The City will continually attempt to locate other wells that could possibly threaten the City's water supply.

**Source of Action:** Browerville Water Department  
**Cooperators:** Landowners, SWCD  
**Time Frame:** Yearly  
**Estimated Cost:** Staff time  
**Goal Achieved:** Information will continue to be collected about the current number of private wells that pose a threat to City drinking water. This measure also allows for opportunity for a public education and awareness campaign.

#### **OBJECTIVE A-2: SEAL UNUSED OR UNSEALED WELLS**

**MEASURE A-2:** The City intends to help coordinate local efforts to properly seal unused wells, utilizing Local Water Planning cost-share dollars

**Source of Action:** Browerville WHP Team  
**Cooperators:** SWCD (County Water Plan) for cost share, landowners  
**Time Frame:** Summer, 2002 and on-going  
**Estimated Cost:** Unknown, estimated at \$250 to \$500 per well for landowners. Cost-share at will be available at 75%.  
**Goal Achieved:** Private well owners will become more likely to properly seal their unused wells and the City becomes aware of changes in well status.

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**OBJECTIVE A-3: RAISE WELL OWNER AWARENESS AND PREVENT CONTAMINATION OF CITY WATER SUPPLY VIA PRIVATE WELLS.**

**MEASURE A-3-1: City staff and members of the WHP Team will obtain and distribute brochures, describing proper well maintenance and operation to private landowners within the DWSMA.**

**Source of Action:** City water department, WHP Team  
**Cooperators:** MDH, local well drillers  
**Time Frame:** Fall 2002 and on going  
**Estimated Cost:** \$500  
**Goal Achieved:** Private well owners will learn proper operation and maintenance of private wells, thereby reducing potential for contamination of City water supply.

**MEASURE A-3-2: Request that Todd County formally identify the WHPA and DWSMA of well field sites when revising the County Water Plan or County Comprehensive Land Use Plans.**

**Source of Action:** City of Browerville, MDH  
**Cooperators:** Todd County SWCD  
**Time Frame:** Fall 2002 and on going  
**Estimate Cost:** Staff time  
**Goal Achieved:** Todd County will have the DWSMA/WHPA identified by the County Water Plan and considered in future land use decisions.

**OBJECTIVE A-4: IDENTIFY NEW PRIVATE WELLS PROPOSED FOR LOCATION WITHIN THE WHPA/DWSMA.**

**MEASURE A-4: Request that local well drillers notify the City of proposed new wells to be located within the WHPA/DWSMA through use of brochures, personal contact and notices to landowners and well drillers.**

**Source of Action:** City of Browerville and SWCD  
**Cooperators:** Well drillers, MDH, County, landowners  
**Time Frame:** Spring 2002, and on going  
**Estimated Cost:** Staff time  
**Goal Achieved:** The City will have opportunity to discuss the WHP Plan objectives with owners of new wells.

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**OBJECTIVE A-5:** IDENTIFY NEW HIGH-CAPACITY WELLS PROPOSED FOR CONSTRUCTION IN THE WHPA/DWSMA, OR INCREASES IN PUMPING RATES FOR EXISTING HIGH-CAPACITY WELLS TO DETERMINE IF INCREASED PUMPING WILL A.) ALTER THE CURRENT BOUNDARIES OF THE WHPA/DWSMA DELINEATIONS, OR B.) IMPACT WATER QUANTITY FOR EXISTING WATER SUPPLY WELLS WITHIN THE CURRENT WHPA/DWSMA BOUNDARIES.

**MEASURE A-5:** Staff in the Source Water Protection Unit in the MDH will a.) Coordinate with the MDNR efforts to identify proposed high capacity wells in a public water supplier's well head protection area, and b.) Evaluate, upon request from a PWS, a new high capacity well or increase in pumping of existing high capacity wells to determine whether the proposed pumping will alter the boundaries or vulnerability assessment of the delineated wellhead protection area or drinking water supply management area of the public water supplier's wells. If it is found the new high capacity well or increased pumping from existing high capacity wells may impact a public water supply well, the MDH and DNR will inform the owner of the high capacity well of the potential impacts that the new well or pumping rate will have on water supply wells within the WHPA/DWSMA.

**Source of Action:** Browerville Water Department, SWCD, MDH, and DNR

**Cooperators:** Adjacent and nearby landowners, well operators and well drillers

**Time Frame:** Summer 2002 and on going

**Estimated Cost:** Limited to staff time and special studies, if needed.

**Goal Achieved:** This action will assist with the public water supplier's goal of identifying new high capacity wells that are proposed for construction or increased pumping of existing high capacity wells within the DWSMA to determine whether the pumping of those wells will affect the public water supplier's ability to provide an adequate supply of drinking water.

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**OBJECTIVE A-6: DEVELOP A LOCAL ADMINISTRATIVE PROCESS TO EVALUATE IMPACTS NEW WELLS MAY HAVE ON AN APPROVED WHPA/DWSMA.**

**MEASURE A-6: The public water supplier will a.) Request copies of any new or revised ground water appropriations permits that are submitted to the MDNR for any high capacity wells in or near the approved DWSMA, and b.) Develop an administrative process to assess requests for proposed wells or increased pump rates from existing high capacity wells in an approved DWSMA.**

**Source of Action:** City of Browerville, MDNR, SWCD  
**Cooperators:** MDH, well operators, well drillers  
**Time Frame:** Begin in 2002, and on going thereafter  
**Estimated Cost:** Staff time and special studies if needed  
**Goal Achieved:** This action will assist with the City of Browerville's goal of identifying and reviewing new wells that are proposed for construction or increased pumping of existing high capacity wells within the DWSMA and determine if those wells will affect the City's ability to provide an adequate and safe supply of drinking water.

## **B. PUBLIC EDUCATION**

**OBJECTIVE B-1: DEVELOP PUBLIC EDUCATION PROGRAMS AIMED AT AWARENESS AND PROTECTION OF PUBLIC WATER SUPPLY**

**MEASURE B-1-1: Post signs at the perimeter of the WHPA on major roadway corridors to notify the public that they are in the DWSMA and to serve as a physical boundary identifier.**

**Source of Action:** City of Browerville  
**Cooperators:** Well Head Protection Team, Browerville Public School System, and Public Works  
**Time Frame:** Fall 2002  
**Estimated Cost:** \$500 - \$700  
**Goal Achieved:** General Public notified of boundaries of the drinking water supply area and building student/community relationships.

---

**MEASURE B-1-2: Information and brochures will be sent to utility customers in utility billing notes. County residents in the DWSMA will be sent letters educating and informing them of the Wellhead Protection Plan and Goals.**

**Source of Action:** City of Browerville  
**Cooperators:** Well Head Manager  
**Time Frame:** July 2002 and on going  
**Estimate Cost:** Wages, postage, and printing  
**Goal Achieved:** Public becomes more aware of issues related to protecting drinking water.

**MEASURE B-1-3: Envirofest: A tour of the Water Facility. School presentation to local 6<sup>th</sup> grade classes, stressing water conservation and wellhead protection.**

**Source of Action:** Browerville Public School System, SWCD  
**Cooperator:** City of Browerville and Todd County  
**Time Frame:** Annually during the last week of September  
**Estimated Costs:** Hourly wages  
**Goal Achieved:** Children and parents become more aware of the WHPP.

**MEASURE B-1-4: Information on WHPP and DWSMA will be published on the City's website.**

**Source of Action:** Browerville City Administrator  
**Cooperators:** Well Head Manager  
**Time Frame:** Summer 2002 update as necessary  
**Estimated Cost:** \$250  
**Goal Achieved:** Increased public awareness of the WHP for web-users.

**MEASURE B-1-5: Ground Water Flow Model presentations and Nitrate clinics will be scheduled for Browerville Days in June and/or at the County Fair.**

**Source of Action:** City of Browerville, SWCD  
**Cooperator:** MRWA, MDA and Host of the function or fair  
**Time Frame:** June 2002 and as needed  
**Estimated Costs:** Staff Time  
**Goal Achieved:** Maintain public awareness of the groundwater/land use connection.

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**MEASURE B-1-6: Local Media**

**Source of Action:** City of Browerville  
**Cooperator:** Browerville Newspaper, Todd County Courier, SWCD, Browerville Public Schools Newspaper, local radio  
**Time Frame:** Initial article upon completion of WHP and then at least once yearly  
**Estimated Costs:** Staff time  
**Goal Achieved:** Educate and maintain public awareness of the Wellhead Protection Plan

**MEASURE B-1-7: Presentations to local groups**

**Source of Action:** City of Browerville  
**Cooperator:** Local service organizations and clubs, MDH, and MRWA  
**Time Frame:** Once during the first year and annually  
**Estimated Costs:** Staff time  
**Goal Achieved:** Increase public awareness of the WHPP

**MEASURE B-1-8: Notify property owners in DWSMA about Conservation Reserve Program (CRP) eligibility. Promote the CRP Program as a less intensive land use option in the DWSMA.**

**Source of Action:** City of Browerville  
**Cooperator:** Landowners, NRCS, and SWCD  
**Time Frame:** Ongoing with plan adoption  
**Estimated Cost:** Staff time  
**Goal Achieved:** Less intensive land use would provide an additional level of protection in the WHP areas. Land in a WHPA qualifies under current CRP eligibility criteria.

**MEASURE B-1-9: Work with Public School students to set up Riverwatch Program on Harris Creek**

**Source of Action:** Browerville School District  
**Cooperator:** Students, City of Browerville  
**Time Frame:** Annual in the spring/summer  
**Estimated Cost:** Equipment exists / Part of school curriculum  
**Goal Achieved:** Education and awareness of students of the Wellhead Plan and hydro geologic model.

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## C. DATA COLLECTION

**OBJECTIVE C-1: COLLECT ADDITIONAL DATA REGARDING THE CITY'S AQUIFER FROM LOCAL WELL DRILLERS AND THROUGH ADDITIONAL CHEMICAL TESTING.**

**MEASURE C-1-1: Gather and record water quality data from City and other area wells on a regular basis. Maintain a record of static water levels.**

**Source of Action:** City of Browerville  
**Cooperators:** Private well owners  
**Time Frame:** June 2001 and annually  
**Estimated Cost:** Up to \$200 per well sampled  
**Goal Achieved:** By monitoring numerous wells that surround the City wells, changes in ground water supplies and contaminants can be detected before they reach the PWS. Private owners gain information about the safety of their own drinking water.

**MEASURE C-1-2: Gather new well construction logs by working with area well drillers, either through personal contact or correspondence, on an annual basis.**

**Source of Action:** Browerville Water Department  
**Cooperators:** Local well drillers  
**Time Frame:** Beginning summer of 2002, and on going  
**Estimated Cost:** Staff time  
**Goal Achieved:** Better geologic information about the aquifer will be obtained in a cost effective manner that will enhance and improve future WHP planning efforts.

**MEASURE C-1-3: Tritium testing will be done on varied wells located within the DWSMA to help determine the areas of high surface water influence. Number and location of wells sampled will be determined cooperatively between MDH and the City of Browerville.**

**Source of Action:** MDH  
**Cooperators:** City of Browerville  
**Time Frame:** 2003  
**Estimated Cost:** Cost of testing to be paid by MDH  
**Goal Achieved:** Identify connectivity between the surface and the aquifer.

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**MEASURE C-1-4: Send Letter of support for Todd County's Groundwater Assessment efforts.**

**Source of Action:** City Administrator  
**Cooperators:** SWCD  
**Time Frame:** Summer 2002  
**Estimated Cost:** Staff time  
**Goal Achieved:** Ability to provide additional, more accurate data relating to the aquifer.

**D. TANKS**

**OBJECTIVE D-1: INVENTORY AND MANAGE TANKS IN THE DWSMA FOR THE PROTECTION OF THE AQUIFER.**

**MEASURE D-1-1: Complete an inventory of all tanks in the DWSMA. Identify by category - above ground, underground, agricultural, fuel, etc. and include the parcel identification number, owner name, and contact person and phone number. Use current PCSI as a starting point.**

**Source of Action:** WHP Manager and team, Browerville  
**Cooperators:** County Assessor, City Assessor, Tank owners, MDH, MDA  
**Timeline:** No known tanks within the DWSMA. Complete inventory and pertinent accompanying data by the end of year two of the implementation. Periodically review and update the inventory as necessary.  
**Estimated Cost:** In-kind from existing staff  
**Goal Achieved:** Provide up-to-date information regarding possible contaminations sources and educate tank owners on WHP Plan.

**MEASURE D-1-2: If new tank owners discovered, prepare a list of names and mailing addresses and send to MPCA. Supply information regarding tanks and regulation to landowner.**

**Source of Action:** WHP Manager  
**Cooperators:** MPCA, WHP Team, and Browerville City  
**Timeline:** Upon completion of inventory and thereafter, periodic check for updating addresses  
**Estimated Cost:** In-kind from staff  
**Goal Achieved:** Provide on-going public education for tank owners and inform MPCA of changes.

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## CHAPTER SIX

### EVALUATION PROGRAM

Minnesota Rules 4720.5270

The success of the Potential Contaminant Source Management Strategy must be measured regularly to ensure The Plan is meeting the community needs on Wellhead understanding and compliance.

Browerville's WHPA has been designated as moderately vulnerable. This designation requires monitoring of tanks and wells within the DWSMA. A program to ensure this is completed has been documented in Chapters One through Five. In addition to this, to ensure compliance, the City of Browerville will:

- Track the implementation efforts completed;
- determine the effectiveness of these efforts; and
- identify any implementation changes needed to accomplish the goal of the plan.

To accomplish the above, the following activities will be completed:

1. Changes in land use pertaining to wells and tanks will be monitored. The Browerville Public Works Department employees will regularly drive through the DWSMA to determine changes and their potential impact on the aquifer.
2. The wellhead team will meet as needed but at least annually to review completed objectives and their effectiveness. Necessary modifications to the Plan will be discussed with strategies added as needed.
3. An annual written report will be presented to the City Council stating progress in implementation of objectives. This report will be sent to Minnesota Department of Health, Beth Kluthe; Minnesota Rural Water Association, Mark Wettlaufer; Local Water Plan Coordinator, Kitty Tepley; and be placed in the City file.

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# CHAPTER SEVEN

## ALTERNATIVE WATER SUPPLY; CONTINGENCY STRATEGY

Minnesota Rules 4720.5280

### I. PURPOSE

The purpose of this Contingency Plan is to establish, provide and keep updated, certain emergency response procedures and information for the Browerville Water Utility which may become vital in the event of a partial or total loss of public water supply services as a result of natural disaster, chemical contamination, or civil disorder of human-caused disruptions.

### II. PUBLIC WATER SUPPLY CHARACTERISTICS

#### A. CURRENT SUPPLY SOURCE

The Browerville Water Utility supplies water to the City of Browerville. The system uses three wells finished into the Quaternary Buried Artesian aquifer. Below is a table with particular characteristics of each well.

	<b>Well Number 4</b>	<b>Well Number 5</b>	<b>Well Number 6</b>
Supply Source	Quaternary	Quaternary	Quaternary
Well Depth (ft.)	107'	96'	86'
Well Diameter (in.)	12"	12"	12"
Well Capacity (gpm)	350-gpm	200-gpm	75 - 80 gpm
Well Production (gpm)	150-gpm	100 gpm	50 gpm

#### B. TREATMENT

The raw water is high in iron and manganese. Treatment consists of three pressure type filters for iron and manganese removal.

#### C. STORAGE AND DISTRIBUTION

The system currently contains one 300,000 gallon elevated storage (96 foot) tower, in addition to necessary piping and valving. The water system contains 290-metered connections. Some of the distribution is looped but the system does contain ten dead ends.

#### D. MAPS/PLANS

The Browerville Water Utility has up to date maps of the water system. These maps are available and on file at the Browerville Water Utility Office. Additional sets of these maps are stored off site (Bolton & Menk, Inc.) in the event of a fire, natural disaster or other catastrophic event impacting the Browerville Water Utility.

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### III. PRIORITY OF WATER USERS DURING WATER SUPPLY EMERGENCY

Water Use Category	Maximum daily use (gpd)	Minimum daily use (gpd)
Residential	39,500	16,000
Institutional	37,600	4,700
Commercial	2,800	1,000
Industrial	45,000	1,000
Irrigation	NA	NA
Unaccounted	NA	NA
Wholesale	NA	NA

### IV. ALTERNATIVE WATER SUPPLY OPTIONS

#### A. SURFACE WATER SOURCES AND TREATMENT NEEDS

The Long Prairie River is the closest surface water supply. The Minnesota National Guard Unit, located at Camp Ripley, MN can provide emergency treatment of surface waters for human consumption. The following procedure is recommended:

1. Contact the County Sheriff (320) 732-2157 to request assistance from the Minnesota National Guard.
2. Sheriff contacts the Minnesota National Guard, Division of Emergency Management, State Duty Officer at (800) 422-0798, Community Support Group at (651) 282-4013 to request assistance for the Utility.
3. The MN National Guard can provide a portable "ROWPU" (Reverse Osmosis Water Purification System) capable of supplying 900 gallons-per-hour, or 15 gallons-per-minute.

#### B. BOTTLED WATER SUPPLIES, DELIVERY AND DISTRIBUTION

1. The MN National Guard, Camp Ripley, MN (see above for notification) can furnish a Water Buffalo Trailer to haul potable water from another water supply to a City distribution point or facility.
2. The following vendor can be contacted for providing bottled water supply in the event of an emergency. These vendors are capable of providing bulk, bottled water in five-gallon containers. Truckload and pallet quantities are usually on hand and available.

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**Vendor:** Kandiyohi Premium Water, Willmar, MN.  
Phone: 1-800-541-9715  
Fax: 320-235-1721.

**C. SYSTEM INTERCONNECTS WITH OTHER WATER SUPPLIES**

We have no opportunities to have any interconnects at this time.

**D. NEW WELL**

No new wells are planned at this time.

**E. EMERGENCY OR BACKUP WELLS**

We have no emergency or backup well at this time.

**F. EMERGENCY TREATMENT OF WATER SYSTEM**

There are no nearby high capacity wells.

**G. SOURCE MANAGEMENT (BLENDING)**

This is not an applicable option based on the existing infrastructure of the Browerville Water Utility.

**V. INVENTORY OF AVAILABLE EMERGENCY EQUIPMENT AND MATERIALS**

<b>Description</b>	<b>Owner</b>	<b>Telephone</b>	<b>Location</b>
Well Repair	Thein Well	320-796-2111	Spicer, MN
Pump Repair	Thein Well	320-796-2111	Spicer, MN
Electrician	Central Electric	320-732-1986	Long Prairie, MN
Electrician	Dynamic Systems	800-999-3501	Minneapolis, MN
Plumber	Noska Plumbing	320-594-6366	Browerville, MN
Backhoe	Jim Statema	320-594-6347	Browerville, MN
Backhoe	Chad Twardowski	320-732-3809	Long Prairie, MN
Chemical Feed	Hawkins Water Treatment	612-331-6910	Minneapolis, MN
Meter Repair	Fargo Water	800-437-4034	Fargo, ND
Generator	Sweeney Controls	800-743-6536	Fargo, ND
Valves	Fargo Water	800-437-4034	Fargo, ND
Water Tower	Maguire Iron	605-334-9749	Sioux Falls, SD

## VI. NOTIFICATION PROCEDURES

### A. LEAD COORDINATING AGENCY

<b>Water System</b>		<b>Home</b>	<b>Work</b>
<b>Personnel</b>	<b>Name</b>	<b>Telephone</b>	<b>Telephone</b>
Mayor/Board Chair	Steve Wiersgalla	594-2862	594-2201
Council Members	Walt Lucas	594-6202	594-2272
Council Members	David Kramer	594-6217	594-2201
Council Members	Mark Oberg	594-2916	594-6421
Council Members	Sandra Christensen	594-2827	594-2201
State Incident Duty Officer	NA	NA	800-422-0798
County Emergency Director	Dave Kircher	320-285-2355	732-2157
Fire Chief	Bill Buhl	594-6496	732-2819
Sheriff	Dave Kircher	320-285-2355	732-2157
System Operator	Chuck Buhl	594-6273	594-6234
School Superintendent	Larry Werder	594-2779	594-2272
Ambulance	Tom Steinmetz	594-6440	218-849-4852
Hospital	Long Prairie Memorial	NA	320-732-2141
Power Company	Minnesota Power	NA	320-732-2119
Highway Department	Todd County	NA	320-732-2722
Telephone Company	Sprint	320-762-3554	800-880-2822
Neighboring Water System	Long Prairie, MN	NA	732-2167
MPCA Groundwater Division	Technician	NA	800-657-3864
MRWA Technical Services	Mark Wettlaufer	218-575-3178	800-367-6792
MDH Public Water Supply	Todd Johnson	NA	218-755-4173

### B. INCIDENT ASSESSMENT TEAM

<b>Responsible Party</b>	<b>Name</b>	<b>Home Phone</b>	<b>Work Phone</b>
Mayor/Board Chair	Steve Wiersgalla	594-2862	594-2201
Council Members	Walt Lucas	594-6202	594-2272
Council Members	David Kramer	594-6217	594-2201
Council Members	Mark Oberg	594-2916	594-6421
Council Members	Sandra Christensen	594-2827	594-2201
Fire Chief	Bill Buhl	594-6496	732-2819
Sheriff	Dave Kircher	320-285-2355	732-2157
County Emergency Director	Dave Kircher	320-285-2355	732-2157
Hazardous Materials Response	Browerville Fire Dept	594-6496	320-594-8200
System Operator	Chuck Buhl	594-6273	594-6234

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## C. Public Information Plan

1. Primary spokesperson for the media and/or public comment in the event of an emergency or contamination incident.

**Name:** Steve Wiersgalla  
**Title:** Mayor, City of Browerville  
**Address:** Browerville City Hall  
544 Main Street South

**Home Phone:** 320-594-2862  
**Work Phone:** 320-594-2201

Public Information Center Location during Emergency: Browerville City Hall

Times Available: As required

2. Information checklist to be conveyed to the public media:

Name of water system: \_\_\_\_\_

Contaminant of concern and date: \_\_\_\_\_

Source of contamination: \_\_\_\_\_

Public health hazard: \_\_\_\_\_

Steps the public can take: \_\_\_\_\_

Steps the water system is taking: \_\_\_\_\_

Other information: \_\_\_\_\_

3. Media Contacts

Media	Name	Telephone	Address
Newspaper	Browerville Blade	320-594-2911	609 Main St. N. Browerville, MN 56438
Radio	KEYL/KXDL	320-732-2164	221 Central Ave. Long Prairie, MN 56347
TV	KSAX/KRFX	320-763-5729	415 Fillmore Alexandria, MN 56308
TV	KCCO	320-763-5166	720 Hawthorne Alexandria, MN 56308

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## VII. MITIGATION AND CONSERVATION

### A. MITIGATION

**1. Infrastructure maintenance/upgrades/maps:**

We have annual flushing, valve turning, hydrant repair and painting. As upgrades are done to the system maps are updated and reprinted.

**2. Regular inspection of tower, well, pump house:**

The water treatment plant for each well is inspected daily, along with each well and pump. The water tower is inspected weekly or on an as needed basis.

**3. Staff emergency training:**

Emergency training is completed on different facets of the water system on a monthly basis.

**4. Site new backup well:**

At this time we have no plans for any new wells.

**5. System valving to isolate problems:**

Our emergency books and offices all have maps that show locations of main hydrant and service valves.

**6. Sanitation procedures for construction/repairs:**

Shock chlorination by contractor is undertaken after the completion of any new construction or repairs. The area is then flushed and sampled for coliform bacteria.

**7. Other:**

All services are metered, which helps focus attention during a crisis.

### B. CONSERVATION

**1. Water Meters**

Water meters are installed when service is turned on and read on a monthly basis. The utility can track water use by connection.

**2. Public Education**

Conservation tips and reminders are included with the monthly utility bills. A consumer confidence report is provided annually to residents.

**3. Rate Structure**

\$3.61 per 1,000 gallons

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## **List of Tables**

**Table 1 – Precipitation Data**

**Table 2 – Parcels Within the Browerville DWSMA**

**Table 3 – Attributes of Well Location**

**Rainfall and Snowfall at Browerville WWTP**  
**Measured in inches**

	Type	1997	1998	1999	2000	2001
<b>January</b>	Snow	30.75	13	29	12.5	8
<b>February</b>	Snow	1	1	0	10.5	34
	Rain	0	0.75	0	0.93	0
<b>March</b>	Snow	18	3.75	9	1	4.2
	Rain	0	0.74	0.6	1.56	0
<b>April</b>	Snow	0	5	5	5.5	0
	Rain	0.25	0.95	2.23	0.65	7.45
<b>May</b>	Rain	1.4	3.82	6.14	4.27	3.05
<b>June</b>	Rain	2.03	6.81	5.4	3.7	10.16
<b>July</b>	Rain	6.54	4.36	4.09	4.01	2.52
<b>August</b>	Rain	3.76	3.58	5.74	1.59	3.05
<b>September</b>	Rain	1.93	1.63	2.7	1.32	2.33
<b>October</b>	Snow	0	0	0	0	1
	Rain	1.82	3.5	0.74	1.16	1.37
<b>November</b>	Snow	13.5	7	0	11	11
	Rain	0.15	0.18	0	2.7	1.14
<b>December</b>	Snow	5.5	2	7	17.5	4
	Rain	0	0	0	0	0.2
<b>Total</b>	<b>Snow</b>	<b>68.75</b>	<b>31.75</b>	<b>50.00</b>	<b>58.00</b>	<b>62.20</b>
	<b>Rain</b>	<b>17.88</b>	<b>26.32</b>	<b>27.64</b>	<b>21.89</b>	<b>31.27</b>

**Total Precipitation\*                      23.61              28.97              31.81              26.72              36.45**

\*based on 12" snow per inch of rain

A	B	C	D	G	H	I	J	K	L	M
PARCEL	SEC	TWP	RNG	TAXPAYER1	TAXPAYER2	MAIL1	CITY	ST	ZIP	911ADDRESS
1										
2	12-0007000	6	130	33 DAVID T & DARLA ROERING		22776-320TH ST	BROWERVILLE	MN	564380000	22776 320TH ST
3	12-0007200	6	130	33 D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MN	564380000	32387 US 71
4	12-0007300	7	130	33 TERRENCE F & KIM M FRANEK		706 8TH ST W	BROWERVILLE	MN	564380000	706 8TH ST W
5	12-0007400	7	130	33 DAVID L & JOANNE BENNING		708 8TH ST W	BROWERVILLE	MN	564380000	708 8TH ST W
6	12-0007401	7	130	33 D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MN	564380000	0
7	12-0007500	7	130	33 D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MN	564380000	0
8	12-0007501	7	130	33 ROBERT C & ROSEMARIE SADLO		PO BOX 237	BROWERVILLE	MN	564380000	761 8TH ST W
9	12-0007601	7	130	33 DAVID L & JOANNE BENNING		708 8TH ST W	BROWERVILLE	MN	564380000	0
10	12-0007700	7	130	33 MICHAEL A & KAY L MURTHA		22915 320TH ST	BROWERVILLE	MN	564380000	22915 320TH ST
11	12-0007701	7	130	33 SP FORESTS L.L.C.		PO BOX 38	ALEXANDRIA	MN	563080000	0
12	12-0007800	7	130	33 GARY M DRAYNA		22812 300TH ST	BROWERVILLE	MN	564380000	0
13	12-0007900	7	130	33 LLOYD T & LEE R BUSCH		22636 COUNTY 14	BROWERVILLE	MN	564380000	22636 COUNTY 14
14	12-0008000	7	130	33 EDWARD & BERNICE HADASH		PO BOX 176	BROWERVILLE	MN	564380000	22904 COUNTY 14
15	12-0008100	7	130	33 ROBERT F & JOAN WILLING		23161 320TH ST	BROWERVILLE	MN	564380000	23161 320TH ST
16	12-0008200	7	130	33 ROBERT E & RENEE M ENGLE	PO BOX 58	698 WEST 5TH STREET	BROWERVILLE	MN	564380000	698 5TH ST W
17	12-0008900	8	130	33 ROBERT E & RENEE M ENGLE	PO BOX 58	698 WEST 5TH STREET	BROWERVILLE	MN	564380000	0
18	12-0009000	8	130	33 RICHARD E & SHIRLEY A HALLEK		393 5TH ST W	BROWERVILLE	MN	564380000	0
19	12-0009100	8	130	33 DOUGLAS J SADLO	PO BOX 179	300-3RD WEST STREET	BROWERVILLE	MN	564380000	0
20	12-0009200	8	130	33 RICHARD E & SHIRLEY A HALLEK		393 5TH ST W	BROWERVILLE	MN	564380000	393 5TH ST W
21	12-0040100			JAMES R & CAROL MARLOW		36260 255TH AVE	BROWERVILLE	MN	564380000	32191 US 71
22	12-0040200			JILL R SPOFFORD		RR 2 BOX 3	BROWERVILLE	MN	564380000	23586 320TH ST
23	12-0040300			JOHN & CAROL J FRERICHS		23526 320TH ST	BROWERVILLE	MN	564380000	23526 320TH ST
24	12-0043200			RICHARD VASSAR		119 E ST GERMAN #7	ST CLOUD	MN	563040000	0
25	12-0043400			CHARLES E & ADELIN NOSKA		31885 227TH AVE	BROWERVILLE	MN	564380000	0
26	12-0043500			DAVID J & PEGGY J KALINA		22632 320TH ST	BROWERVILLE	MN	564380000	0
27	12-0043600			DAVID J & PEGGY J KALINA		22632 320TH ST	BROWERVILLE	MN	564380000	22632 320TH ST
28	12-0043700			CHARLES E & ADELIN NOSKA		31885 227TH AVE	BROWERVILLE	MN	564380000	31885 227TH AVE
29	12-0043800			PATRICK E & SANDRA SCHORN		31827 227TH AVE	BROWERVILLE	MN	564380000	31827 227TH AVE
30	12-0044000			STEVEN & SONJA PEARSON		31774-227TH AVE	BROWERVILLE	MN	564380000	31774 227TH AVE
31	12-0044200			CLIFTON R & DONNA SADLO		31894 227TH AVE	BROWERVILLE	MN	564380000	0
32	12-0044300			CLIFTON R & DONNA SADLO		31894 227TH AVE	BROWERVILLE	MN	564380000	31894 227TH AVE
33	12-0044400			CLIFTON R & DONNA SADLO		31894 227TH AVE	BROWERVILLE	MN	564380000	0
34	12-4000400	7	130	33 INDEPENDENT SCHOOL DIST 787		PO BOX 185	BROWERVILLE	MN	564380000	698 6TH ST W
35	12-4001100	7	130	33 INDEPENDENT SCHOOL DIST 787		PO BOX 185	BROWERVILLE	MN	564380000	0
36	13-0011500	12	130	34 WILLIAM A & MARYJANE DRAYNA		22096 304TH ST	BROWERVILLE	MN	564380000	0
37	13-0011900	12	130	34 WILLIAM A & MARYJANE DRAYNA		22096 304TH ST	BROWERVILLE	MN	564380000	0
38	13-0012200	12	130	34 LEE R & KAREN BUSCH ET AL	C/O LLOYD BUSCH	22636 COUNTY 14	BROWERVILLE	MN	564380000	31223 225TH AVE
39	13-0012300	12	130	34 RICHARD L & MARY BECKER		21668 COUNTY 14	BROWERVILLE	MN	564380000	0
40	13-0012400	12	130	34 GARY D & KAY PRATHER		BOX 252	CLARISSA	MN	564400000	0
41	30-0000400	8	130	33 SCOTT E & PATRICIA A TAYLOR		RR 2 BOX 6	BROWERVILLE	MN	564380000	0
42	30-0000500	8	130	33 JILL R SPOFFORD		RR 2 BOX 3	BROWERVILLE	MN	564380000	0
43	30-0000600	8	130	33 JODY & NANCY A KIRCHER		1040 PARK AVE	BROWERVILLE	MN	564380000	0
44	30-0000700	8	130	33 D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MN	564380000	0
45	30-0000800	8	130	33 HAZEL M SIMONSON		PO BOX 255	BROWERVILLE	MN	564380000	0
46	30-0000900	8	130	33 RUSSELL & JANICE NOLAND		601 NORTH MAIN	BROWERVILLE	MN	564380000	0
47	30-0001000	8	130	33 D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MN	564380000	0
48	30-0001100	8	130	33 ARDELL D DAVEY		PO BOX 6	BROWERVILLE	MN	564380000	0
49	30-0001200	8	130	33 ROBERT J & BEVERLY GERAETS	PO BOX 344	500 WEST 8TH STREET	BROWERVILLE	MN	564380000	0
50	30-0001301	8	130	33 ROGER W & MARJORIE L WESKE		810 N MAIN	BROWERVILLE	MN	564380000	0
51	30-0001400	8	130	33 JOHN J & MARY B GAGNON		521 -8TH STREET	BROWERVILLE	MN	564380000	0
52	30-0001500	8	130	33 CHARLES & MARYETTE GERAETS		PO BOX 9	BROWERVILLE	MN	564380000	0

A	B	C	D	G		H	I	J	K	L	M
1	PARCEL	SEC	TWP	RNG	TAXPAYER1	TAXPAYER2	MAIL1	CITY	ST	ZIP	911ADDRESS
53	30-0001600	8	130	33	JOE & NORA KASCHMITTER		BOX 342	BROWERVILLE	MN	564380000	0
54	30-0001601	8	130	33	JAMES O & KAREN JONCKOWSKI		PO BOX 129	BROWERVILLE	MN	564380000	0
55	30-0001700	8	130	33	JOHN & KATHRYN J FINK		541 WEST 8TH STREET	BROWERVILLE	MN	564380000	0
56	30-0001800	8	130	33	DARYL E & KAREN BREVER		510 WEST 7TH STREET	BROWERVILLE	MN	564380000	0
57	30-0001900	8	130	33	LORRAINE I GLASEMANN		PO BOX 79	BROWERVILLE	MN	564380000	0
58	30-0002000	8	130	33	ALEXANDER G KELLEN SR		PO BOX 277-901 PARK AVE N	BROWERVILLE	MN	564380000	0
59	30-0003000	8	130	33	REGINA MCCOY		PO BOX 252	BROWERVILLE	MN	564380000	0
60	30-0003100	8	130	33	SHERRI L HINZMANN		420-8TH STREET	BROWERVILLE	MN	564380000	0
61	30-0003300	8	130	33	TRACINE RAUTIO &		241 6TH STREET WEST	BROWERVILLE	MN	564380000	0
62	30-0003400	8	130	33	GENEVEVE M WIEMELT			BROWERVILLE	MN	564380000	0
63	30-0003500	8	130	33	JOSEPH & DEVONA KURPIERS		RR 3 BOX 173	BROWERVILLE	MN	564380000	0
64	30-0003600	8	130	33	GARY F & GREGORY L CHOCK						0
65	30-0003700	8	130	33	LAMONTE MORROW						0
66	30-0003800	8	130	33	NORMAN E & GLORIA A HOST		26503 COUNTY 29	LONG PRAIRIE	MN	563470000	0
67	30-0003900	8	130	33	NORMAN E & GLORIA A HOST		26503 COUNTY 29	LONG PRAIRIE	MN	563470000	0
68	30-0004000	8	130	33	THOMAS KAHLERT		PO BOX 74	BROWERVILLE	MN	564380000	0
69	30-0004100	8	130	33	CENTRAL TODD HOUSING	HILLSIDE APARTMENTS		BROWERVILLE	MN	564380000	0
70	30-0004200	8	130	33	BARBARA R LEHMKUHL		340-5TH STREET WEST	BROWERVILLE	MN	564380000	0
71	30-0004300	8	130	33	QUINTEN I & EMILY BURT		430 5TH ST W	BROWERVILLE	MN	564380000	0
72	30-0004400	8	130	33	MELFORD L GREGERSON &	DARLENE GREGERSON	PO BOX 108	BROWERVILLE	MN	564380000	0
73	30-0004500	8	130	33	MARJORIE A ITEN		PO BOX 257	BROWERVILLE	MN	564380000	0
74	30-0004600	8	130	33	NORMAN K RASMUSSEN ET AL		PO BOX 36	BROWERVILLE	MN	564380000	0
75	30-0008200				EUGENE G JOHN		29128 KING ROAD	BROWERVILLE	MN	564380000	0
76	30-0008300				EUGENE G JOHN		29128 KING ROAD	BROWERVILLE	MN	564380000	0
77	30-0008400				GORDON & SONYA KELLEN	PO BOX 27	NORTH MAIN STREET	BROWERVILLE	MN	564380000	0
78	30-0008500				MICHAEL & ROXANNE OSTROWSKI		PO BOX 11	BROWERVILLE	MN	564380000	0
79	30-0008600				DALE A CLINE &	SHERYL R LARSON	PO BOX 153	LONG PRAIRIE	MN	563470000	0
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81	30-0008800				DALE F & CONSTANCE BECKER		RR 1 BOX 108	BROWERVILLE	MN	564380000	0
82	30-0008900				THEODORE & ROSE BOSER	PO BOX 15	940 NORTH MAIN STREET	BROWERVILLE	MN	564380000	0
83	30-0009000				LAUREL R & LEONA M KOWAL		907 PERRY AVE N	BROWERVILLE	MN	564380000	0
84	30-0009100				GARY C & DIANE JOHNSON		PO BOX 131	BROWERVILLE	MN	564380000	0
85	30-0009200				GARY C & DIANE JOHNSON		PO BOX 131	BROWERVILLE	MN	564380000	0
86	30-0009300				GEORGE J & MARGARET SOVICH		BOX 142	BROWERVILLE	MN	564380000	0
87	30-0009400				MICHAEL T & HEIDI R ITEN	PO BOX 81	121 WEST 10TH ST	BROWERVILLE	MN	564380000	0
88	30-0009600				AARON J & KIMBERLY R QUIRT	PO BOX 169	1010 NORTH MAIN	BROWERVILLE	MN	564380000	0
89	30-0009700				JAMES J SUPER			BROWERVILLE	MN	564380000	0
90	30-0010300				ROGER R & LORRAINE SADLO	PO BOX 63	1030 HWY 71 NORTH	BROWERVILLE	MN	564380000	0
91	30-0013000				VINCENT J SAVARESE			BROWERVILLE	MN	564380000	0
92	30-0024900				BRADLEY V & GAIL M QUISTORFF		900 MAIN STREET N	BROWERVILLE	MN	564380000	0
93	30-0025000				PEGGY ZIGAN		840 N MAIN STREET	BROWERVILLE	MN	564380000	0
94	30-0025100				PAUL C & KELLY R JOHNSON		PO BOX 197	BROWERVILLE	MN	564380000	0
95	30-0025200				ROGER W & MARJORIE L WESKE		810 N MAIN	BROWERVILLE	MN	564380000	0
96	30-0025300				ISABEL F & MARY A PEREZ	PO BOX 189	830 NORTH MAIN	BROWERVILLE	MN	564380000	0
97	30-0025400				THOMAS G BECKER			BROWERVILLE	MN	564380000	0
98	30-0025500				JAMES T & JANET J BECKER	PO BOX 341	321-10TH ST W	BROWERVILLE	MN	564380000	0
99	30-0025600				PAUL C & KELLY R JOHNSON		PO BOX 197	BROWERVILLE	MN	564380000	0
100	30-0025700				LESTER L & PHYLLIS BUYSSSE		PO BOX 119	BROWERVILLE	MN	564380000	0
101	30-0025800				TREVOR L & SHEILA A WENDEL	PO BOX 123	831 PARK AVENUE NORTH	BROWERVILLE	MN	564380000	0
102	30-0025801				MARK S MULLER SR/&	SUSAN A MULLER	320-8TH STREET	BROWERVILLE	MN	564380000	0
103	30-0025900				STATE OF MN-FORFEITED LANDS			BROWERVILLE	MN	564380000	0

A	B	C	D	G		H		I	J	K	L	M
1	PARCEL	SEC	TWP	RNG	TAXPAYER1	TAXPAYER2	MAIL1	CITY	ST	ZIP	911ADDRESS	
104	30-0026000				MARY E GALLIGHER	PO BOX 22	300-8TH ST W	BROWERVILLE	MIN	564380000	0	
105	30-0026100				GERALD T & IRENE MCTIGHE	TRUST	PO BOX 163	BROWERVILLE	MIN	564380000	0	
106	30-0026200				DANIEL J GAIDA		RR 3 BOX 8B	BROWERVILLE	MIN	564380000	0	
107	30-0026300				STEPHEN F & SUE WIERSGALLA		PO BOX 303	BROWERVILLE	MIN	564380000	0	
108	30-0026400				STEPHEN F & SUE WIERSGALLA		PO BOX 303	BROWERVILLE	MIN	564380000	0	
109	30-0026500				STEPHEN F & SUE WIERSGALLA		PO BOX 303	BROWERVILLE	MIN	564380000	0	
110	30-0026600				STEPHEN F & SUE WIERSGALLA		PO BOX 303	BROWERVILLE	MIN	564380000	0	
111	30-0026700				SUSAN MARLENE LORENTZ					0	0	
112	30-0026800				PAUL C & KELLY R JOHNSON		PO BOX 197	BROWERVILLE	MIN	564380000	0	
113	30-0026900				PAUL C & KELLY R JOHNSON		PO BOX 197	BROWERVILLE	MIN	564380000	0	
114	30-0029100				SEVERIN J & SANDRA BLENKUSH		PO BOX 78	BROWERVILLE	MIN	564380000	0	
115	30-0029200				ALLEN & DONNA FRISCH		PO BOX 233	BROWERVILLE	MIN	564380000	0	
116	30-0029300				WALTER D & KATHLEEN LUCAS	PO BOX 248	740 PARK AVE	BROWERVILLE	MIN	564380000	0	
117	30-0029500				DEAN R WEST &	DARLENE BODLE				0	0	
118	30-0029600				LUCILLE HOELSCHER		PO BOX 115	BROWERVILLE	MIN	564380000	0	
119	30-0029700				JOSEPH & DEVONA KURPIERS		RR 3 BOX 173	BROWERVILLE	MIN	564380000	0	
120	30-0029800				MELVIN & LOIS JOHNSON	PO BOX 157	341-6TH STREET WEST	BROWERVILLE	MIN	564380000	0	
121	30-0029900				JOHN & JEAN JOHNSTON		PO BOX 314	BROWERVILLE	MIN	564380000	0	
122	30-0030000				ROBERT L & EVELYN ENG	PO BOX 153	401 WEST 6TH STREET	BROWERVILLE	MIN	564380000	0	
123	30-0030100				HARRY W JOHN	2800 WISCONSIN AVENUE NW	APT 502	WASHINGTON	DC	200074705	0	
124	30-0030200				D STEVEN & BARBARA BECK		PO BOX 225	BROWERVILLE	MIN	564380000	0	
125	30-0030300				CENTRAL TODD HOUSING	HILLSIDE APARTMENTS		BROWERVILLE	MIN	564380000	0	
126	30-0030400				GEORGE R & GERALDINE JAGUSH		30255 235TH AVE	BROWERVILLE	MIN	564380000	0	
127	30-0030500				GEORGE R & GERALDINE JAGUSH		30255 235TH AVE	BROWERVILLE	MIN	564380000	0	
128	30-0030600				GEORGE R & GERALDINE JAGUSH		30255 235TH AVE	BROWERVILLE	MIN	564380000	0	
129	30-0038500				LARRY D & CHRISTY A WERDER		PO BOX 323	BROWERVILLE	MIN	564380000	0	
130	30-0038600				GERALD W & KAREN HUDALLA		RR 2 BOX 124G	BROWERVILLE	MIN	564380000	0	
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133	30-0038900				RODGER TWARDOWSKI		560-7TH ST W	BROWERVILLE	MIN	564380000	0	
134	30-0039100				ROGER W & MARJORIE L WESKE		810 N MAIN	BROWERVILLE	MIN	564380000	0	
135	30-0039200				JAMES T & JANET J BECKER	PO BOX 341	321-10TH ST W	BROWERVILLE	MIN	564380000	0	
136	30-0039300				EDWIN H & ELVERA M LUBERTS		131-10TH STREET WEST	BROWERVILLE	MIN	564380000	0	
137	30-0039400				RODNEY KOPP		901 PARK AVENUE	BROWERVILLE	MIN	564389801	0	
138	30-0039500				ALLEN F & LINDA HOELSCHER		PO BOX 254	BROWERVILLE	MIN	564380000	0	
139	30-0039600				MARK E OBERG		PO BOX 136	BROWERVILLE	MIN	564380000	0	
140	30-0039700				MARY A DAY &	ROGER IRSFELD	PO BOX 283	BROWERVILLE	MIN	564380000	0	
141	30-0039800				KEVIN G FLICKER					0	0	
142	30-4000100	8	130	33	SOCIETY OF ST PIUS X	BROWERVILLE MINNESOTA INC	2918 TRACY AVENUE	KANSAS CITY	MO	641091529	0	
143	30-4000500	8	130	33	SOCIETY OF ST PIUS X	BROWERVILLE MINNESOTA INC	2918 TRACY AVENUE	KANSAS CITY	MO	641091529	0	
144	30-4000600				CITY OF BROWERVILLE	CITY HALL	PO BOX 247	BROWERVILLE	MIN	564380000	0	
145	30-4001100				CITY OF BROWERVILLE	CITY HALL	PO BOX 247	BROWERVILLE	MIN	564380000	0	
146	30-4001300	8	130	33	CITY OF BROWERVILLE	CITY HALL	PO BOX 247	BROWERVILLE	MIN	564380000	0	
147	30-4002200	8	130	33	INDEPENDENT SCHOOL DIST 787		PO BOX 185	BROWERVILLE	MIN	564380000	0	
148	30-4002400	8	130	33	INDEPENDENT SCHOOL DIST 787		PO BOX 185	BROWERVILLE	MIN	564380000	0	
149	30-4002900				INDEPENDENT SCHOOL DIST 787		PO BOX 185	BROWERVILLE	MIN	564380000	0	
150	30-4003400				ZION LUTHERAN CHURCH	(CHURCH)	PO BOX 71	BROWERVILLE	MIN	564380000	0	
151	30-4003500	8	130	33	ZION LUTHERAN CHURCH	(CHURCH)	PO BOX 71	BROWERVILLE	MIN	564380000	0	
152	30-4005200	8	130	33	TODD COUNTY DEV ACHIEVEMENT	CENTER (DAC) JOHN JOHNSTON	PO BOX 206	BROWERVILLE	MIN	564380000	0	
153	30-4005300				ZION LUTHERAN CHURCH		PO BOX 71	BROWERVILLE	MIN	564380000	0	
154	30-4005400				SISTERS OF SOCIETY OF ST	PIUS X INC	540-8TH STREET WEST	BROWERVILLE	MIN	564380000	0	

**ATTRIBUTES of WELL LOCATIONS**

6/2/2002

<b>ID</b>	<b>UNIQUE WELL #</b>	<b>NAME</b>	<b>TYPE</b>	<b>DEPTH</b>	<b>PARCEL_</b>
1	n/a	DOUG SADLO	4 inch CASING	90 feet	12-0009100
2	n/a	RUSS NOLAND	4 inch CASING	94 feet	30-0000900
3	n/a	ROOSTER RIDGE	4 inch CASING	40 feet	12-0007200
4	n/a	TIM FISHER	4 inch CASING		12-0006700
5	n/a	MIKE MURTHA	HAND DUG	20 feet	12-0007700
6	n/a	MIKE MURTHA	4 inch CASING	60 feet	12-0007700
7	n/a	MIKE MURTHA	4 inch CASING	50 feet	12-0007700
8	0005676	DAVE KALINA	4 inch CASING		12-0043600
9	00154798	CHUCK NOSKA	4 inch CASING		12-0043700
10	n/a	PAT SCHORN	4 inch CASING		12-0043800
11	654664	STEVE PEARSON	4 inch CASING		12-0044000
12	n/a	BILL DRAYNA	4 inch CASING	55 feet	13-0011900
13	n/a	LEE & LLOYD BUSCH	HAND DUG	20 feet	13-0012200
14	n/a	LEE & LLOYD BUSCH	4 inch CASING		12-0007900
15	152750	CLIFF SADLO	4 inch CASING		12-0044300
16	619426	ROBERT WILLING	4 inch CASING		12-0008100
17	n/a	JOHN FREDRICKS	4 inch CASING		12-0040300
18	258080	SCOTT TAYLOR	4 inch CASING		30-0000400
19	258081	JODY KIRCHNER	4 inch CASING		30-0000600
20	258082	STEVE BECK	4 inch CASING		30-0000700
21	n/a	ZION LUTHERAN CHURCH	UNKNOWN		30-4003500
22	258097	RODNEY KOPP	4 inch CASING		30-0039400
23	258083	DAVE BENNING	4 inch CASING		12-0007400
24	258084	TERRY FRANEK	4 inch CASING		12-0007300
25	258085	BOB SADLO	4 inch CASING		12-0007501
26	000513132	BROWERVILLE HIGH SCHOOL	UNKNOWN		12-4000400
27	n/a	BROWERVILLE HIGH SCHOOL	UNKNOWN		12-4000400
28	258087	BOB ENGLE	4 inch CASING		12-0008200
29	258086	DICK HALLEK	4 inch CASING		12-0009200
30	258095	ED HADASH	4 inch CASING		12-0008000
31	n/a	JILL SPOFFORD	UNKNOWN		12-0040200
32	n/a	JIM MARLOW	UNKNOWN		12-0040100

Table Three

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## **List of Figures**

**Figure 1 – Soils Map**

**Figure 2 – Soil Sensitivity Map**

**Figure 3 – Wetlands and Floodplains**

**Figure 4 – Parcels**

**Figure 5 – 1989 Landuse**

**Figure 6 – Pre-settlement Vegetation**

**Figure 7 – Zoning**

**Figure 8 – Well Locations**

**Figure 9 – Transportation**

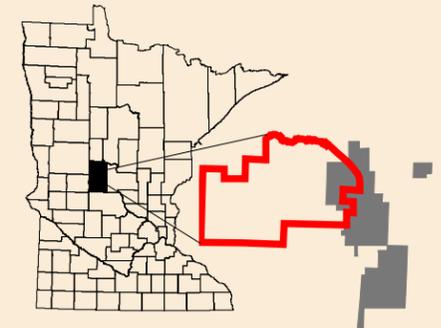
**Figure 10 – Public Utilities**

**Figure 11 – Basemap with Aerial Photo**

**Figure 12 – Feedlot location map**

# City of Browerville Wellhead Protection Plan Soils

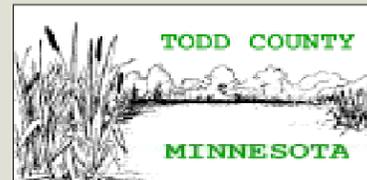
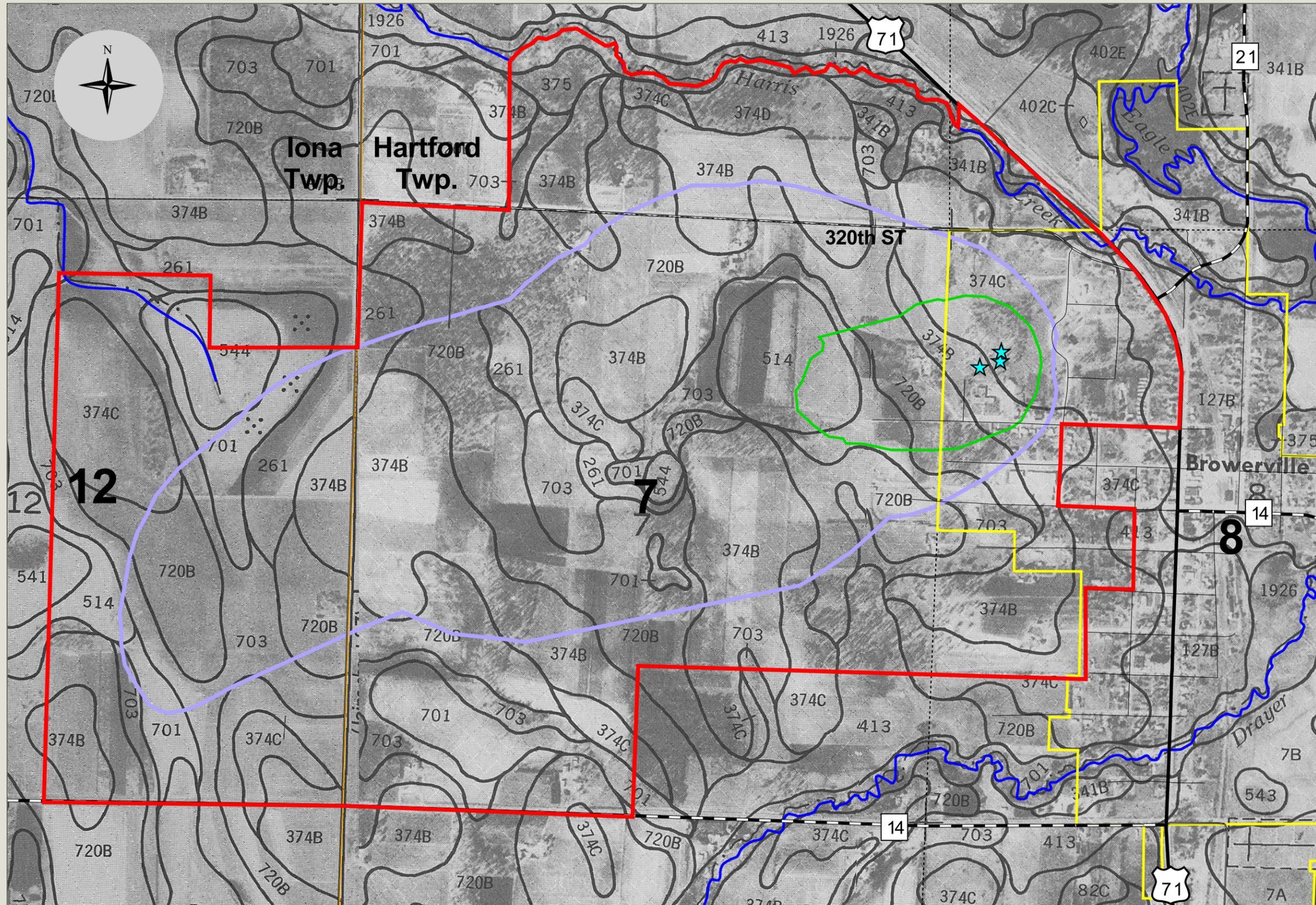
(FIGURE #1)



**Browerville DWSMA  
Todd County  
Minnesota**

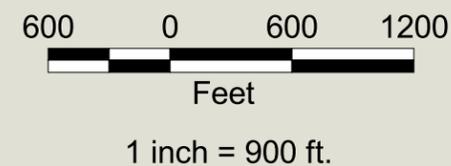
**Soils Information**  
Scanned soil sheets 26 & 27  
from the USDA Soil Survey of  
Todd County, Minnesota.  
Georeferenced with an RMS  
error under 6.

- City Wells
- DWSMA  
(Drinking Water Supply  
Management Area)
- Ten-Year time of  
travel WHPA  
(Wellhead Protection Area)
- One-Year time of  
travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line
- Road Network**
  - US-Paved
  - State Highway
  - CSAH-Paved
  - CSAH-Gravel
  - County Road-Paved
  - County Road-Gravel
  - TWP-Paved
  - TWP-Gravel
  - TWP-Min. Maint.
  - Municipal



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www.co.todd.mn.us

The Todd County GIS Department has made every effort to provide the most up-to-date information available in this publication and cannot be held responsible for any unforeseen errors.



**Map Resource Information:**  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
Soils - scanned from USDA Soil Survey



Iona Twp.

Hartford Twp.

71

21

320th ST

12

7

8

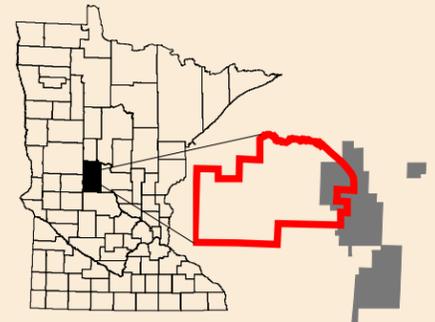
14

71

# City of Browerville Wellhead Protection Plan

## Soil Sensitivity

(FIGURE #2)



**Browerville DWSMA  
Todd County  
Minnesota**

### Soil Sensitivity

- Loam over loam
- Loam over sand
- Sand over sand
- Water/wetlands/marsh/peat/alluvial

- City Wells
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line

### Road Network

- US-Paved
- State Highway
- CSAH-Paved
- CSAH-Gravel
- County Road-Paved
- County Road-Gravel
- TWP-Paved
- TWP-Gravel
- TWP-Min. Maint.
- Municipal

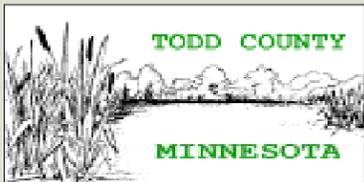
600 0 600 1200



Feet

1 inch = 900 ft.

Map Resource Information:  
 Roads - Todd County 911 Project  
 DWSMA - MN Department of Health  
 Wells - MN Department of Health  
 Streams - MN DNR  
 Soils - Sustainable Lakes Planning Project

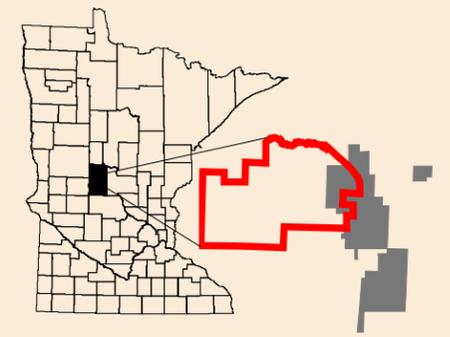


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 toddgis@co.todd.mn.us  
 www.co.todd.mn.us

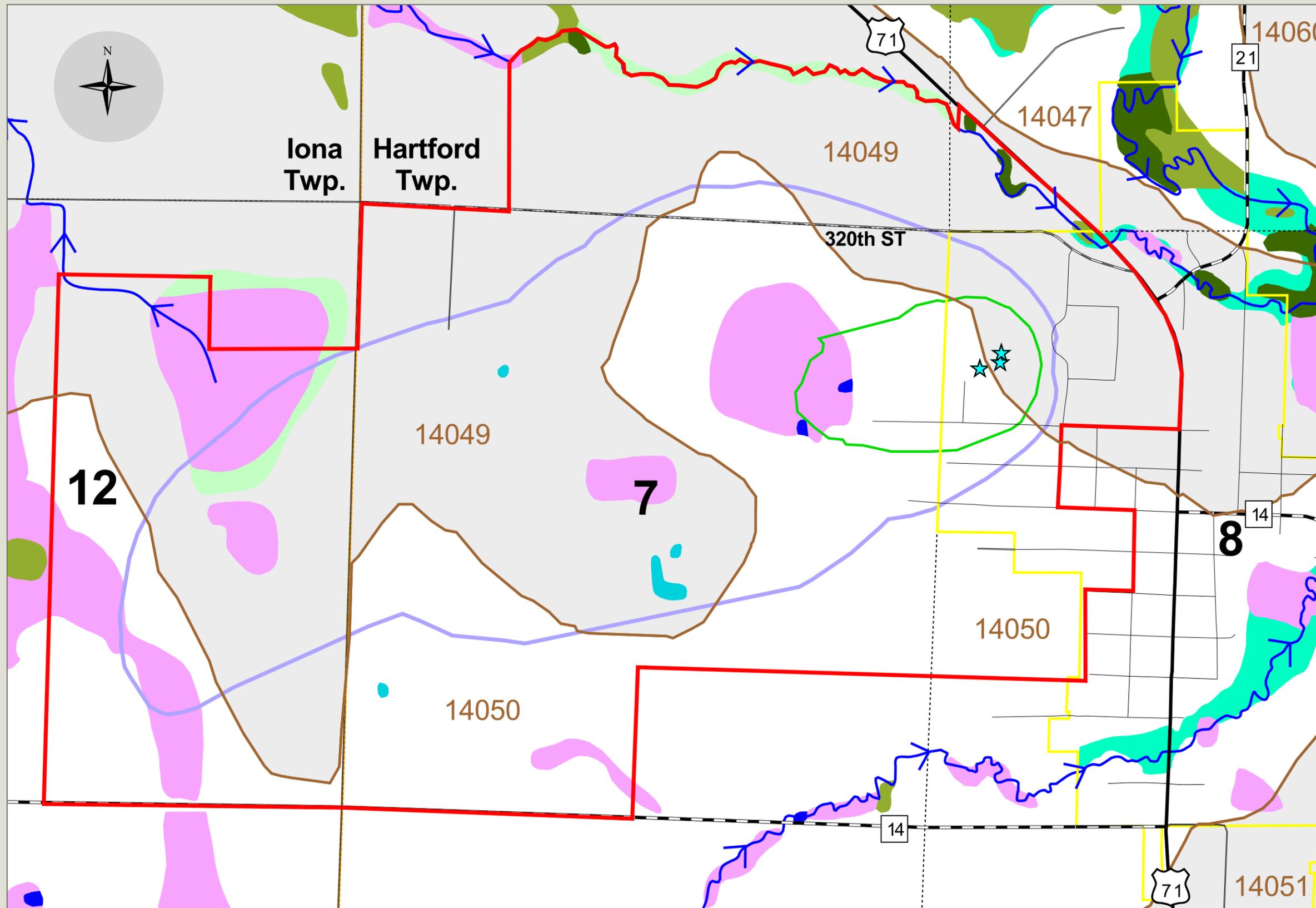
The Todd County GIS Department has made every effort to provide the most up-to-date information available in this publication and cannot be held responsible for any unforeseen errors.

**City of  
Browerville  
Wellhead Protection  
Plan  
Wetlands  
and Floodplains**

(FIGURE #3)

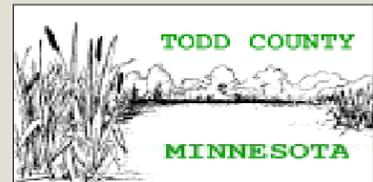


**Browerville DWSMA  
Todd County  
Minnesota**



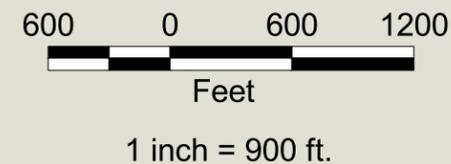
**Circular 39 Wetland Classification  
by Type - NWI**

- 1 Seasonally flooded basins or flats
- 3 Inland shallow fresh marshes
- 4 Inland deep fresh marshes
- 5 Inland open fresh water
- 6 Shrub swamps
- 7 Wooded swamps
- 98 Upland
- Approximate FEMA Floodplain: Zones A & AE
- City Wells
- Minor Watershed Boundaries
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line



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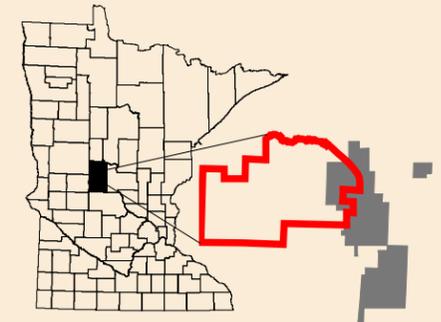
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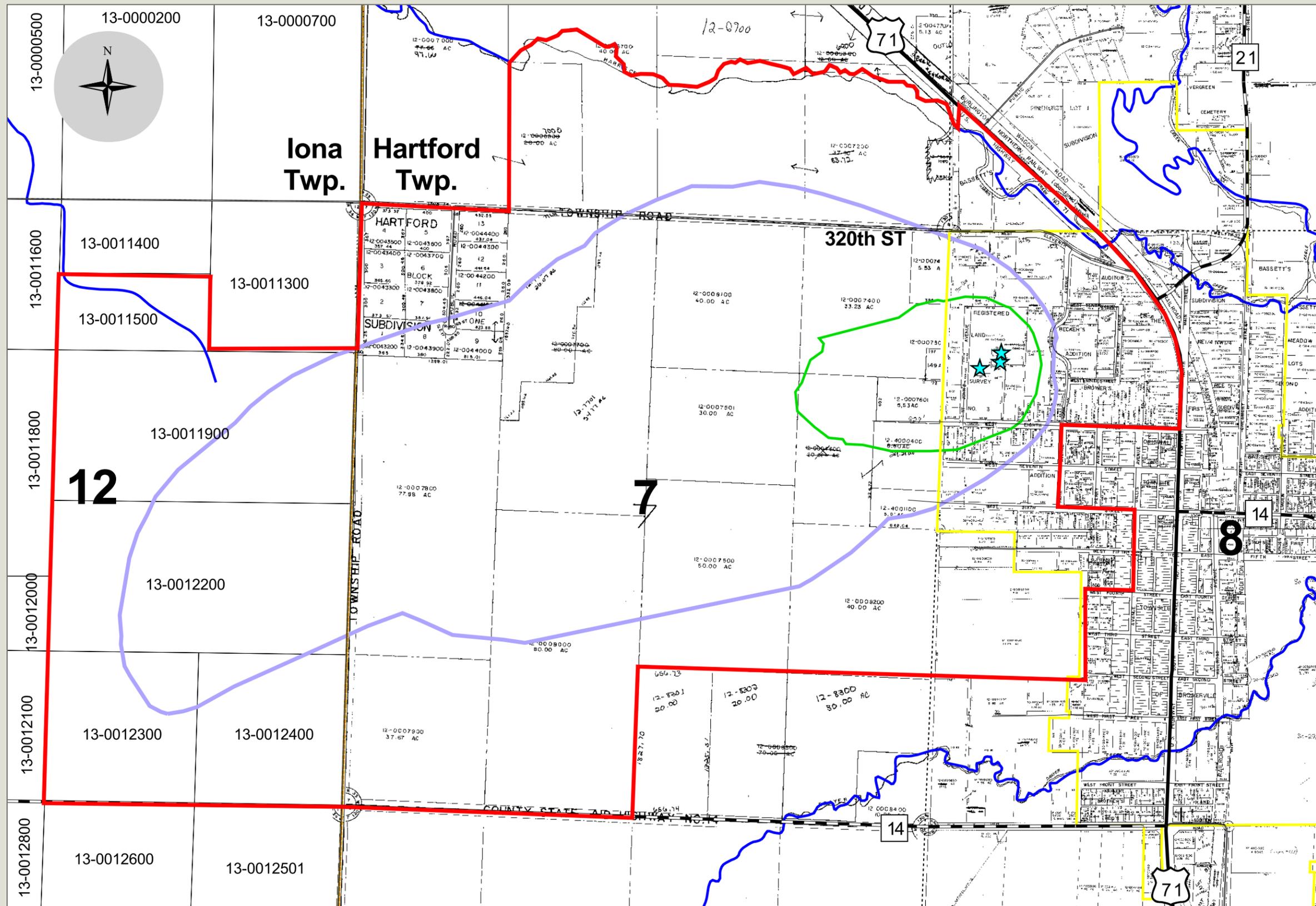
Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
National Wetland Inventory- MN DNR  
Floodplain - FEMA  
Minor Watersheds - MN DNR

# City of Browerville Wellhead Protection Plan Parcels

(FIGURE #4)



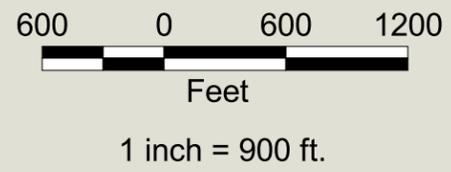
**Browerville DWSMA  
Todd County  
Minnesota**



**Parcel Information:**  
The parcels in Hartford Township were scanned from the half-section maps and georeferenced to the PLS40 data. Parcels in Iona Township were digitized from their legal descriptions. ALL parcel information on this map is approximated.

- City Wells
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line
- Road Network**
  - US-Paved
  - State Highway
  - CSAH-Paved
  - CSAH-Gravel
  - County Road-Paved
  - County Road-Gravel
  - TWP-Paved
  - TWP-Gravel
  - TWP-Min. Maint.
  - Municipal

**Map Resource Information:**  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
Parcels - Todd County GIS Dept



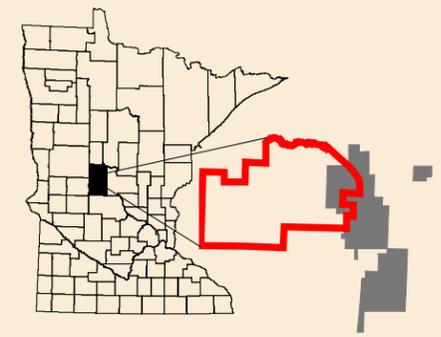
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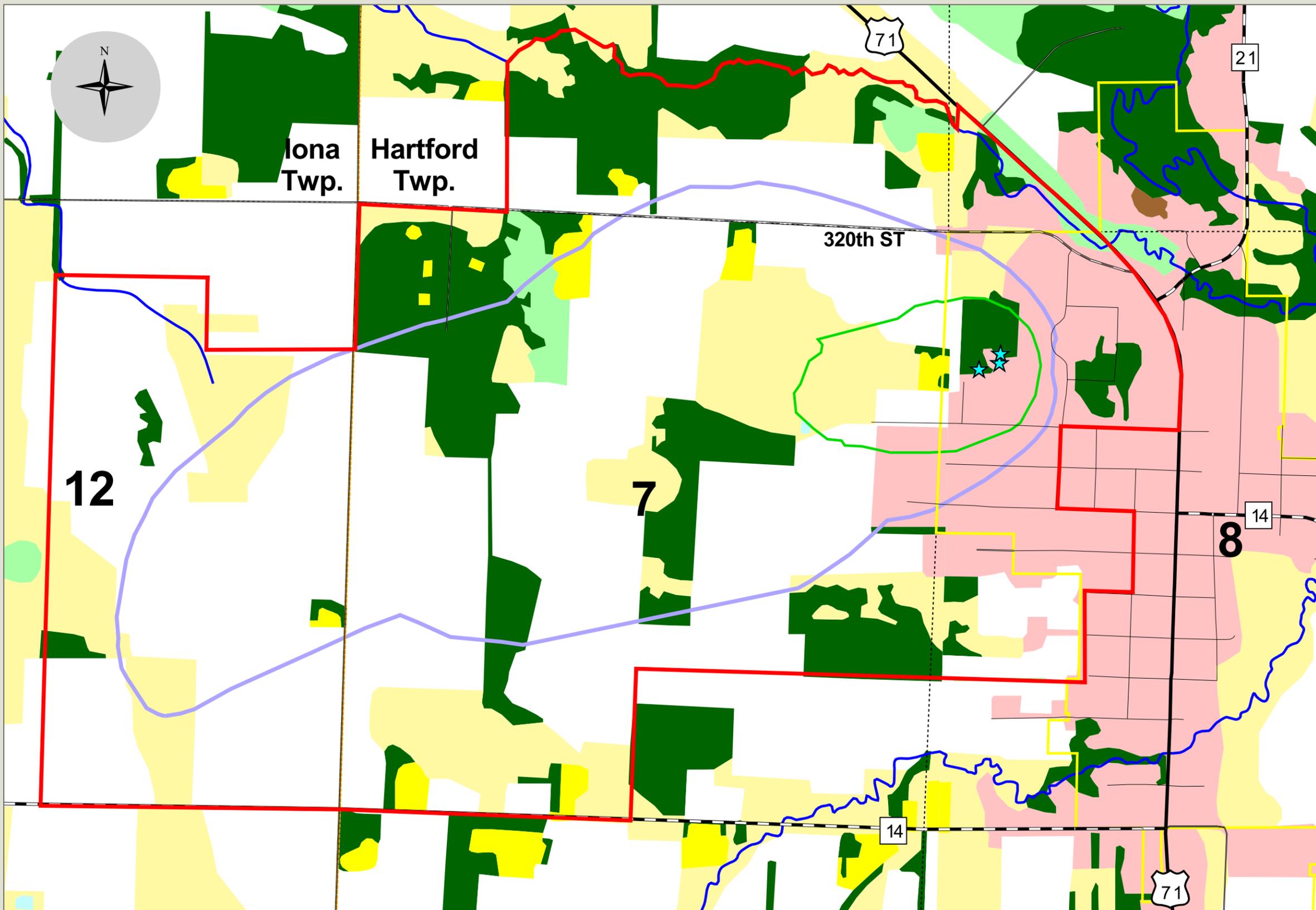


**City of  
Browerville  
Wellhead Protection  
Plan  
1989 Landuse**

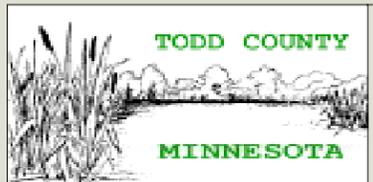
(FIGURE #5)



**Browerville DWSMA  
Todd County  
Minnesota**

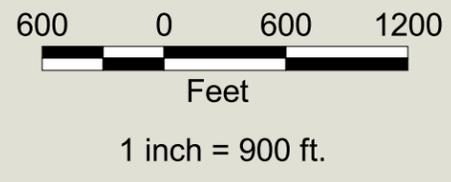


- 1989 Landuse**
- Urban & Industrial
  - Farmsteads & Rural Residences
  - Cultivated
  - Grassland
  - Grass/Shrub/Tree
  - Deciduous Tree
  - Water
  - Gravel Pits
  - City Wells
  - DWSMA (Drinking Water Supply Management Area)
  - Ten-Year time of travel WHPA (Wellhead Protection Area)
  - One-Year time of travel zone
  - Browerville Border
  - Streams
  - Section Lines
  - Township Line



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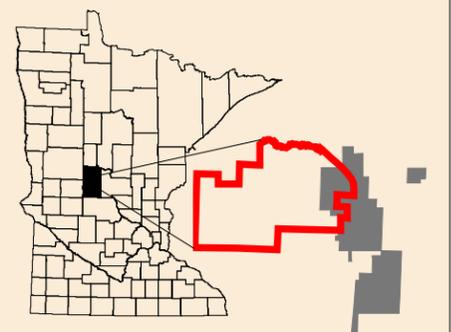
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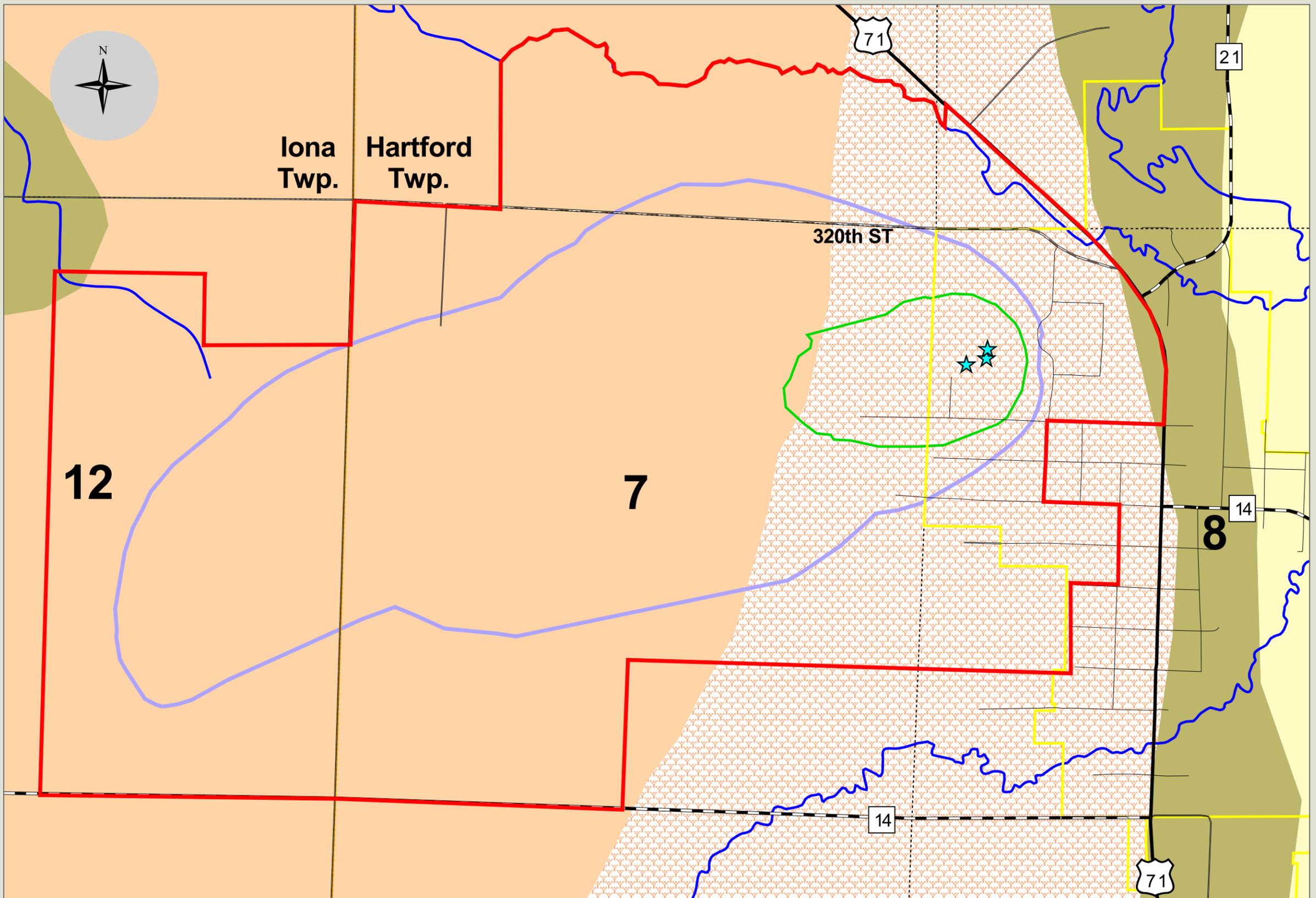
Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
1989 Landuse - International Coalition  
Land Use / Land Cover - LMIC

**City of  
Browerville  
Wellhead Protection  
Plan  
Presettlement  
Vegetation**

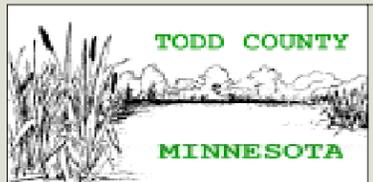
(FIGURE #6)



**Browerville DWSMA  
Todd County  
Minnesota**

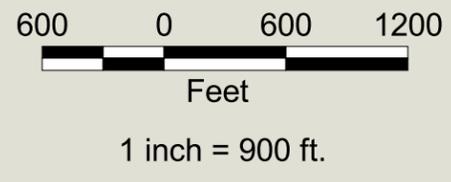


- Presettlement Vegetation**
- Prairie
  - Wet Prairie
  - Aspen-Oak Land
  - Big Woods -Hardwood
- City Wells
- DWSMA  
(Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA  
(Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line



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Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
Presettlement Vegetation - Based on Marschner's original analysis of 1895 Public Land Survey notes



Iona Twp.  
Hartford Twp.

12

7

320th ST

71

21

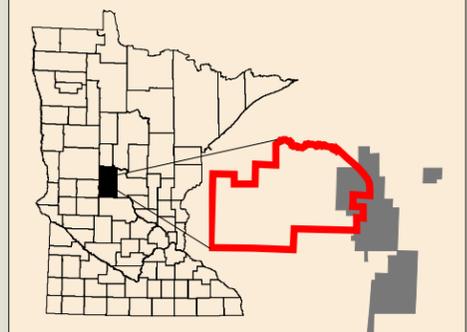
14

71

# City of Browerville Wellhead Protection Plan

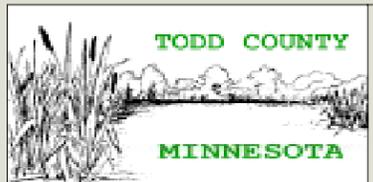
## City / County Current Zoning

(FIGURE #7)



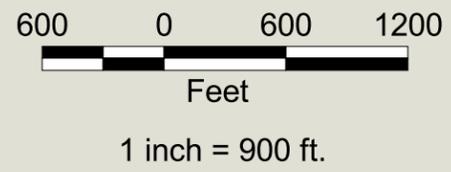
Browerville DWSMA  
Todd County  
Minnesota

- 300ft River & Stream Buffer
- Vacant/Agriculture
- Single Family
- Multi-Family
- Downtown Commercial
- Highway Commercial
- Industrial
- Public
- Park/Open
- Rural Residential (county)
- City Wells
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line



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Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
Zoning - Todd County GIS



Iona Twp.

Hartford Twp.

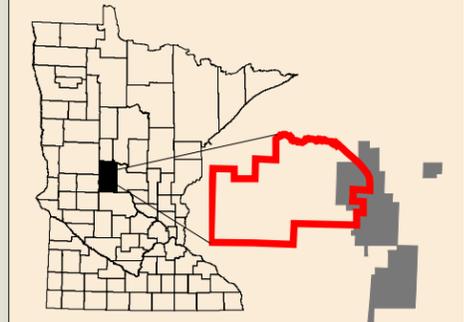
71

21

# City of Browerville Wellhead Protection Plan

## Well Locations

(FIGURE #8)



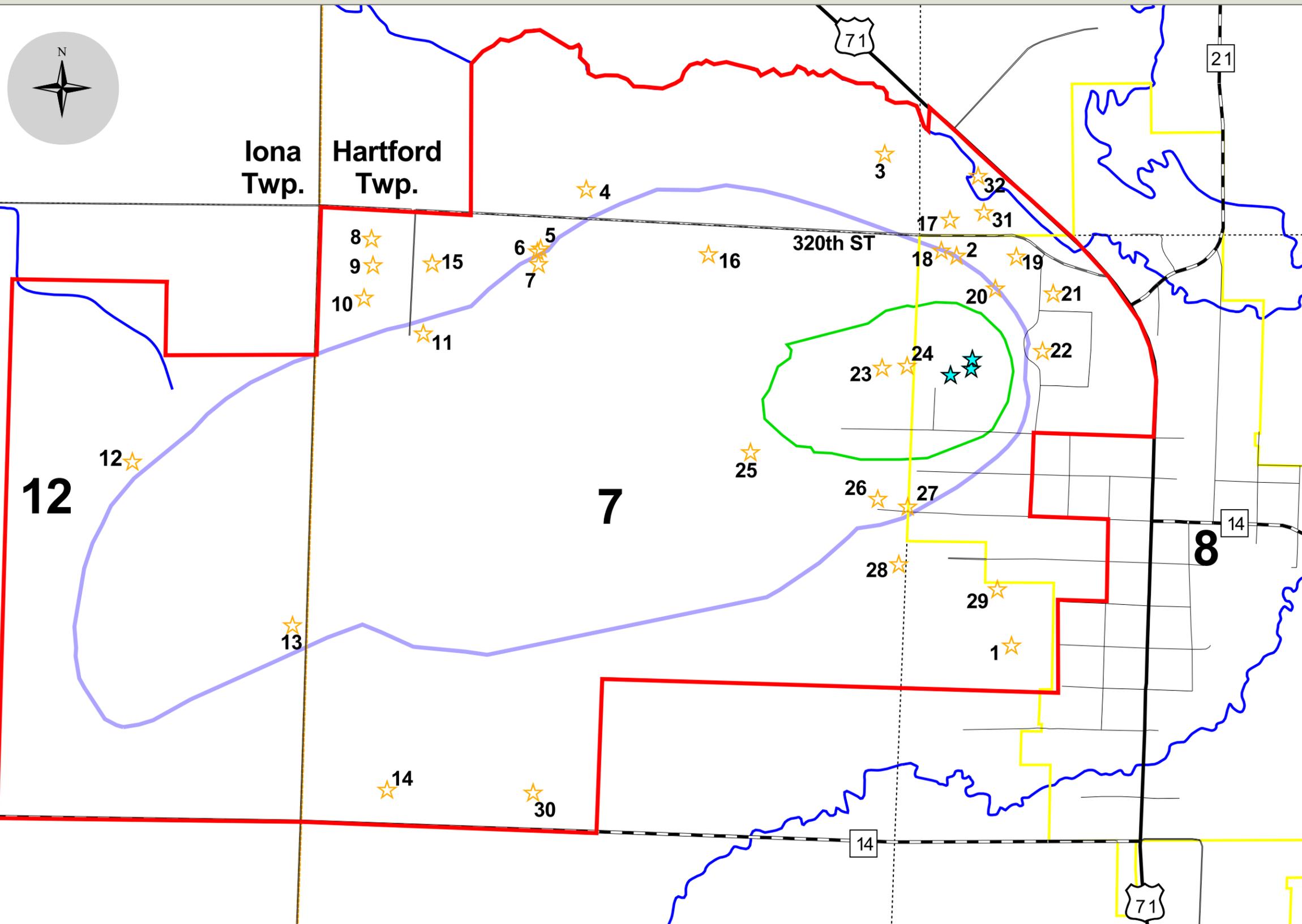
**Browerville DWSMA  
Todd County  
Minnesota**

12

7

8

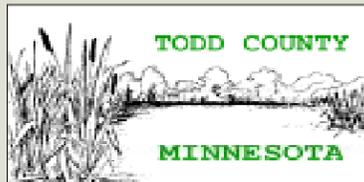
320th ST



- City Wells
- Private Wells
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line

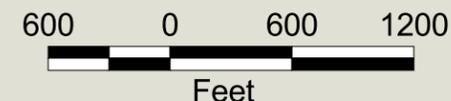
### Road Network

- US-Paved
- State Highway
- CSAH-Paved
- CSAH-Gravel
- County Road-Paved
- County Road-Gravel
- TWP-Paved
- TWP-Gravel
- TWP-Min. Maint.
- Municipal



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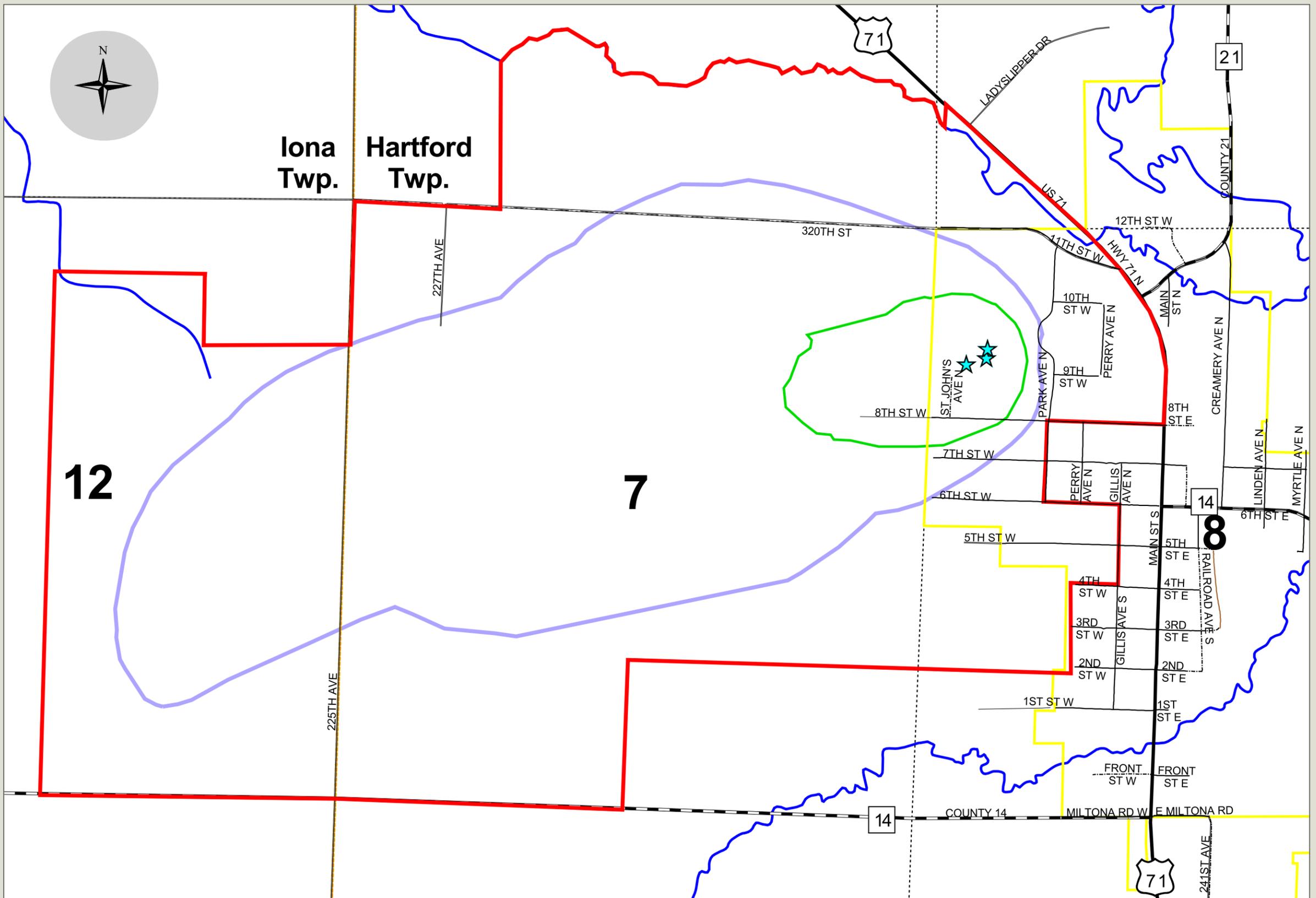
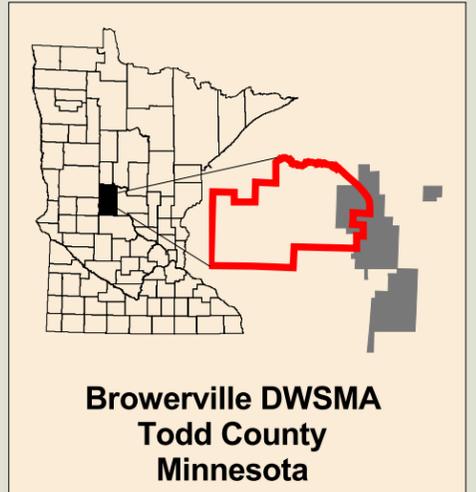


1 inch = 900 ft.

Map Resource Information:  
 Roads - Todd County 911 Project  
 DWSMA - MN Department of Health  
 City Wells - MN Department of Health  
 Streams - MN DNR  
 Private Wells - information provided by the City of Browerville Public Works

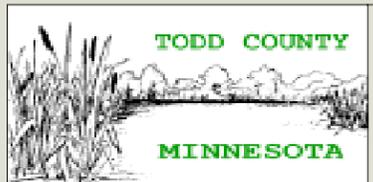
# City of Browerville Wellhead Protection Plan Transportation

(FIGURE #9)



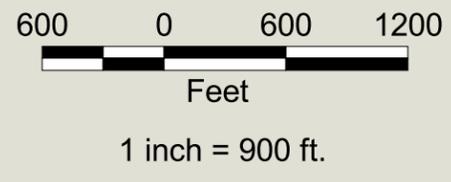
- City Wells
- DWSMA (Drinking Water Supply Management Area)
- Ten-Year time of travel WHPA (Wellhead Protection Area)
- One-Year time of travel zone
- Browerville Border
- Streams
- Section Lines
- Township Line

- Road Network**
- US-Paved
  - State Highway
  - CSAH-Paved
  - CSAH-Gravel
  - County Road-Paved
  - County Road-Gravel
  - TWP-Paved
  - TWP-Gravel
  - TWP-Min. Maint.
  - Municipal - Bituminous
  - Municipal - Dirt
  - Municipal - Gravel



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Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR



Iona Twp.

Hartford Twp.

71

21

320th ST

12

7

8

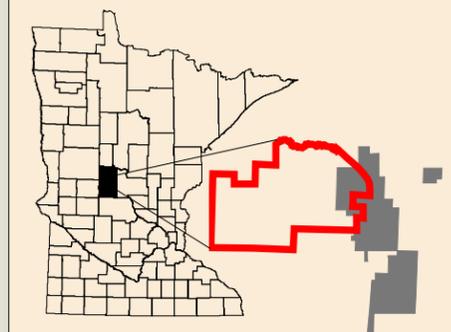
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14

71

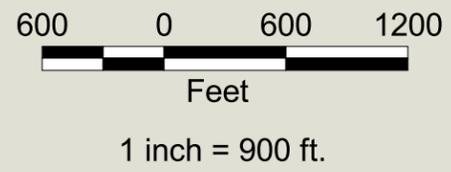
# City of Browerville Wellhead Protection Plan Public Utilities

(FIGURE #10)

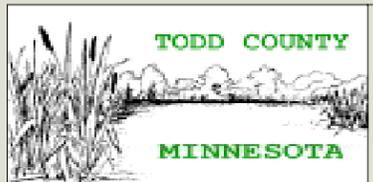


Browerville DWSMA  
Todd County  
Minnesota

- Public Utilities**
- Hydrants
  - Wells
  - Valves
  - Curb Stops
  - Storm Structures
  - Sanitary Structures
  - Forcemain
  - Sanitary Pipes
  - Storm Pipes
  - Watermain
  - Water Services
  - City Wells
  - DWSMA (Drinking Water Supply Management Area)
  - Ten-Year time of travel WHPA (Wellhead Protection Area)
  - One-Year time of travel zone
  - Browerville Border
  - Streams
  - Section Lines
  - Township Line

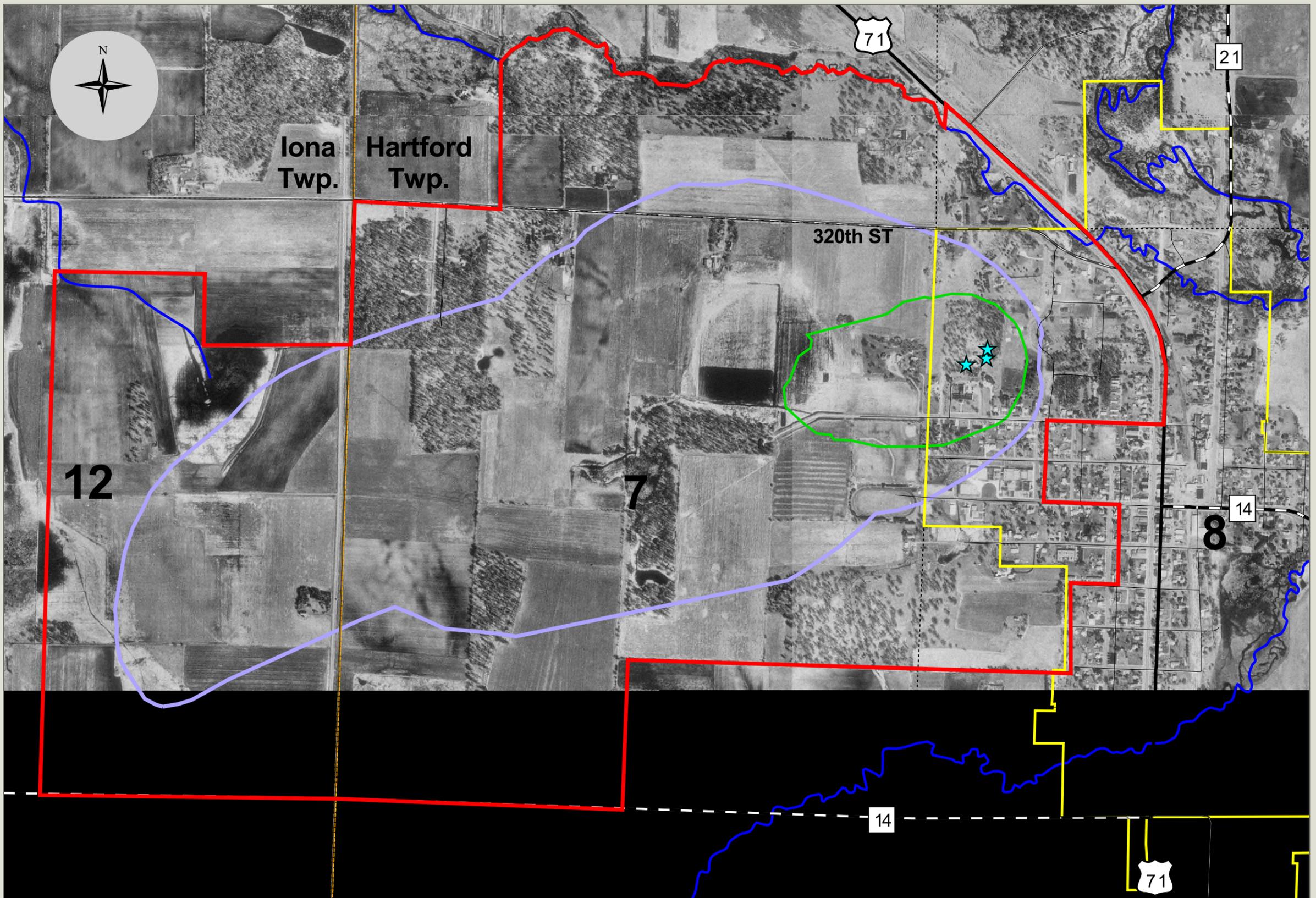


Map Resource Information:  
 Roads - Todd County 911 Project  
 DWSMA - MN Department of Health  
 Wells - MN Department of Health  
 Streams - MN DNR  
 Utility information provided by  
 Bolton & Menk, Inc

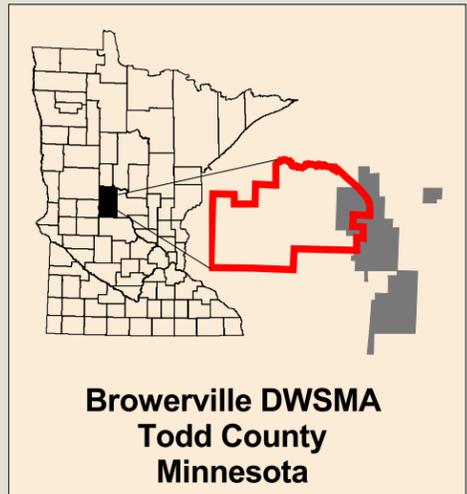


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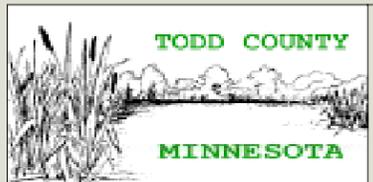
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**City of  
Browerville  
Wellhead Protection  
Plan  
Basemap with  
Aerial Photo**  
(FIGURE #11)

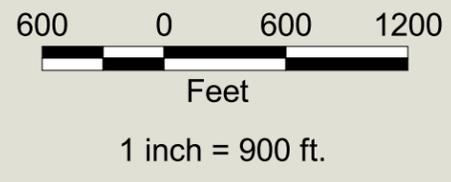


- City Wells
  - DWSMA (Drinking Water Supply Management Area)
  - Ten-Year time of travel WHPA (Wellhead Protection Area)
  - One-Year time of travel zone
  - Browerville Border
  - Streams
  - Section Lines
  - Township Line
- Road Network**
- US-Paved
  - State Highway
  - CSAH-Paved
  - CSAH-Gravel
  - County Road-Paved
  - County Road-Gravel
  - TWP-Paved
  - TWP-Gravel
  - TWP-Min. Maint.
  - Municipal



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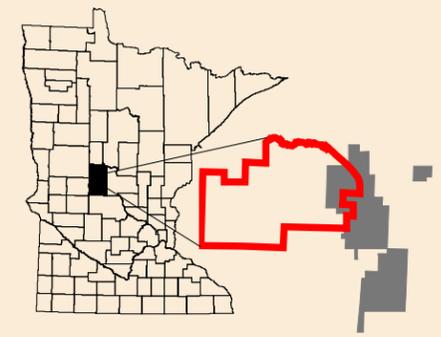
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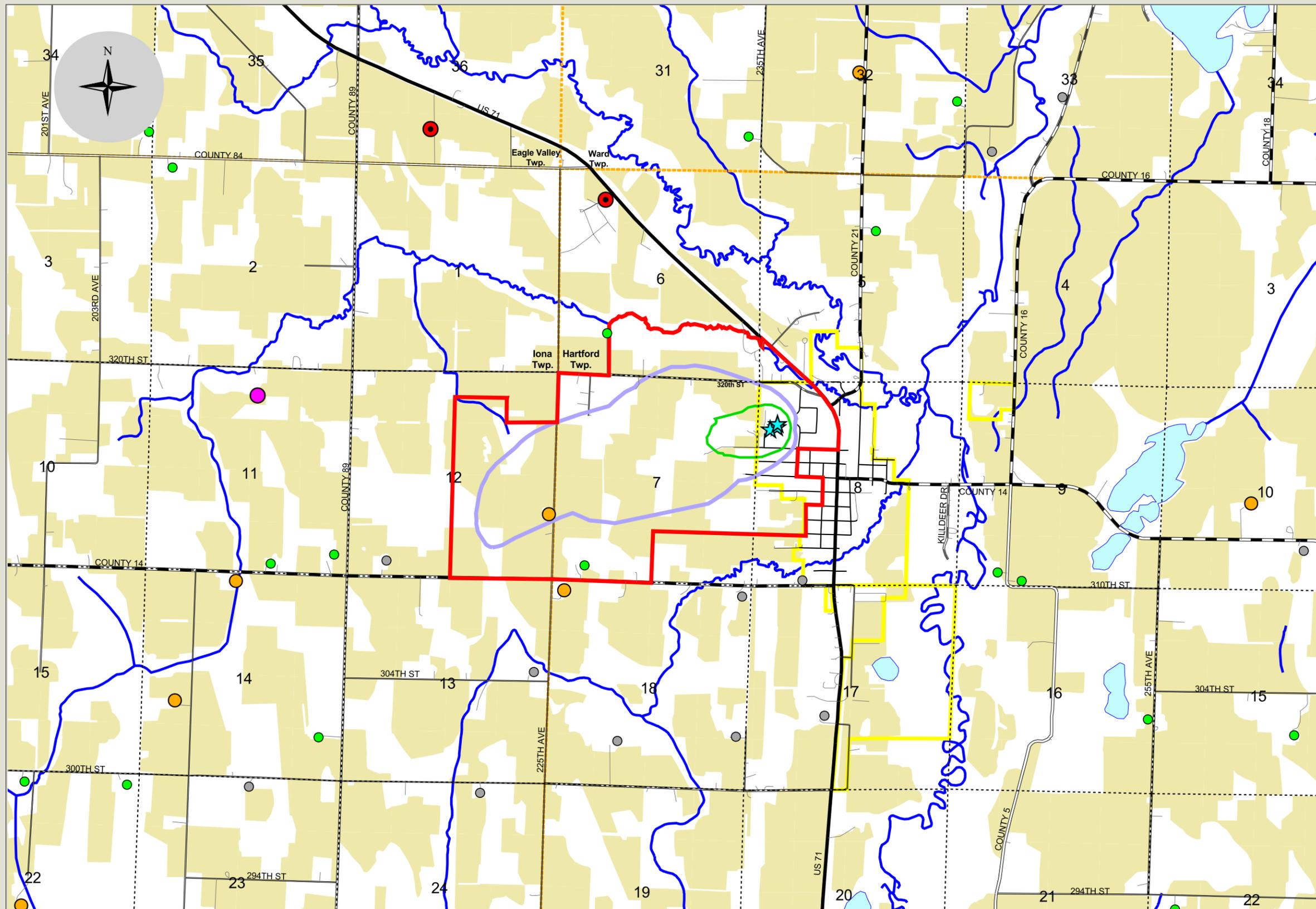
Map Resource Information:  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Streams - MN DNR  
Aerial Photo from 1992 USGS flight

# City of Browerville Wellhead Protection Plan Area Feedlots

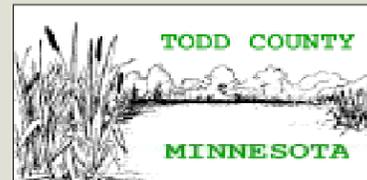
(FIGURE #12)



**Browerville DWSMA  
Todd County  
Minnesota**

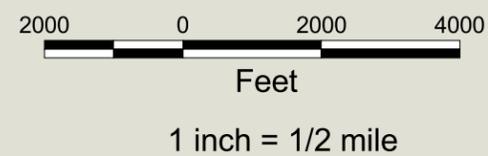


- Feedlots by Animal Units**
- 6 - 60
  - 61 - 163
  - 164 - 330
  - 331 - 592
  - 593 - 1293
- Cultivated Land
  - ★ City Wells
  - DWSMA  
(Drinking Water Supply Management Area)
  - Ten-Year time of travel WHPA  
(Wellhead Protection Area)
  - One-Year time of travel zone
  - Browerville Border
  - Streams
  - Section Lines
  - Township Line
  - Protected Lakes



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**Map Resource Information:**  
Roads - Todd County 911 Project  
DWSMA - MN Department of Health  
Wells - MN Department of Health  
Lakes & Streams - MN DNR  
Feedlots - Todd County Planning & Zoning  
Cultivated Land - based on 1989 landuse

---

## **Appendix**

**Item 1 - Scoping 2 Letter**

**Item 2 - 2001 Consumer Confidence Report**

**Item 3 - LGU / Public Notice for Review and Comment**

**Item 4 - Browerville Wellhead Plan – Part One**



*Protecting, maintaining and improving the health of all Minnesotans*

December 31, 2001

Mr. Severin Blenkush, Administrator  
City of Browerville  
P.O. Box 247  
Browerville, Minnesota 56438-0247

Dear Mr. Blenkush:

I am writing to provide notice of our findings of the December 6, 2001, second scoping meeting held to determine the data elements that are to be used to develop the remainder of the wellhead protection (WHP) plan for the city of Browerville. I am pleased that the city of Browerville is proceeding with the preparation of the WHP plan following the department's approval of the delineated WHP area, drinking water supply management area (DWSMA) and well and aquifer vulnerability assessments for your wells (Unique Wells Nos. 198646, 239924, and 603816).

The remainder of this letter will focus on the data elements the city must collect and use to prepare the remainder of its WHP plan. I will address each of the data elements identified in part 4720.5400.

**DATA ELEMENTS**  
**(Minnesota Rules 4720.5400, subpart 2-5)**  
**PHYSICAL ENVIRONMENT**

**A. PRECIPITATION**

**1. An existing map or list of local precipitation gauging stations.**

This data element must be included in the remainder of your WHP plan. Please state in the WHP plan what impact, if any, this precipitation data may have on the selection of appropriate management strategies within the DWSMA

**2. An existing table showing the average monthly and annual precipitation in inches for the preceding five years.**

This data element must be included in the remainder of your WHP plan. Please state in the WHP plan what impact, if any, this precipitation data may have on the selection of appropriate management strategies within the DWSMA.

**B. GEOLOGY**

**1. A map and a description of the geology, including important aquifers, confining layers, recharge areas, discharge areas, sensitive areas, and groundwater flow characteristics.**

This data element was included with the first part of the WHP plan so it does not need to be included again. However, you must describe how this information regarding geology will impact the management of the DWSMA and use it to select appropriate management strategies.

**2. Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations.**

This data element was included with the first part of the WHP plan so it does not need to be included again. However, you must describe how this information regarding geology will impact the management of the DWSMA and use it to select appropriate management strategies.

**3. Existing borehole geophysical records from wells, borings and exploration test holes.**

This data element was included with the first part of the WHP plan so it does not need to be included again. However, you must describe how this information regarding geology will impact the management of the DWSMA and use it to select appropriate management strategies.

**4. Existing surface geophysical studies.**

This data element was included with the first part of the WHP plan so it does not need to be included again. However, you must describe how this information regarding geology will impact the management of the DWSMA and use it to select appropriate management strategies.

**C. SOILS**

**1. Existing map of soils and a description of the soil's infiltration characteristics.**

This data element must be included in the remainder of your WHP plan. You must describe how this information regarding soils will impact the management of the DWSMA and use it to select appropriate management strategies.

**2. A description or map where eroding lands are causing sedimentation problems.**

This data element does not need to be included in the remainder of your WHP plan. You need only to state in the WHP plan that this data element does not impact the management of the DWSMA.

**D. WATER RESOURCES**

**1. A map of the boundaries and flow directions of watershed units and minor watershed units.**

This data element must be included in the remainder of your WHP plan. You must describe how this information will impact the management of the DWSMA and use it to select appropriate management strategies.

**2. An existing map and a list of public waters and their shoreland classification under Minnesota Statutes, sections 103G and 103F and pursuant to part 6120.3000, and public drainage ditches.**

This data element must be included in the remainder of your WHP plan. You must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies.

**3. An existing map of wetlands regulated under Minnesota Statutes, section 103G.**

If this information exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan.

**4. An existing map showing those areas delineated as flood plain by existing local ordinances.**

If this information exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan.

## **LAND USE**

### **A. LAND USE**

**1. An existing map of parcel boundaries, political boundaries and public land survey.**

This data element must be included in the remainder of your WHP plan. You must describe how this information regarding land use will impact the management of the DWSMA and use it to select appropriate management strategies.

**2. A map and inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.**

This data element is very important and must be included in the WHP plan. The identification of current and historical land uses within the DWSMA must be included in the remainder of your WHP plan. In addition, other wells and underground storage tanks within the DWSMA must be identified. The plan must include any state identifiers, if available, that have been assigned to a specific source of contamination. MDH will contact the various state agencies to provide this information for you.

**3. An existing comprehensive land-use map and zoning map.**

If this information exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding land uses will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan.

### **B. PUBLIC UTILITY**

**1. Maps of transportation routes or corridors, storm sewers, sanitary sewers, public water supply systems, public drainage systems (or list) and record of construction, maintenance and use of public water supply wells and other wells within the DWSMA.**

These data items must be included in the remainder of the WHP plan. You must describe how this information may impact the management of the DWSMA and, further, how this information will be used in developing management strategies within the DWSMA.

## WATER QUANTITY

### A. SURFACE WATER

1. **Existing descriptions of high, mean and low flows on streams; an existing list of those lakes and streams for which protected levels or flows have been established; an existing list of permitted withdrawals from lakes and streams, including source, use and amounts withdrawn; and an existing description of known water-use conflicts, including those caused by groundwater pumping.**

If this information exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water quantity will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan. The Wild Rice Watershed District may be able to supply some of this data.

### B. GROUNDWATER

1. **An existing list of any wells covered by state appropriation permits, including amounts of water appropriated, type of use and aquifer source; any existing description of known well interference problems and water-use conflicts; and any existing lists of state environmental bore holes, including unique well number, aquifer measured, years of record, and monthly levels.**

If this data exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan.

## WATER QUALITY

### A. SURFACE WATER

1. **Existing maps or list of the state water quality management classification for each stream.**

This data element does not need to be included in the remainder of your WHP plan. You need only to state in the WHP plan that this data element does not impact the management of the DWSMA.

2. **Existing summaries of lake and stream water quality monitoring data.**

If this data exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies. If it does not exist, include a statement to that effect in your WHP plan. Monitoring data should include bacteriological contamination indicators, inorganic and organic chemicals, sedimentation, dissolved oxygen, and excessive growth or deficiency of aquatic plants. Your county water planning office may be able to assist you with these data items.

Mr. Severin Blenkush  
Page 5  
December 31, 2001

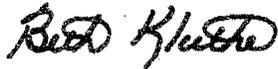
## B. GROUNDWATER

1. Existing summaries of water quality data, including bacteriological contamination indicators, inorganic and organic chemicals; existing lists of water chemistry and isotopic data from wells, springs, or other groundwater sampling points; any reports of groundwater tracer studies, existing site studies and well water analysis of known areas of groundwater contamination; existing property audits identifying contamination and any reports to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency on contaminant spills and releases.

If this data exists, it must be included in the remainder of your WHP plan and you must describe how this information regarding water resources will impact the management of the DWSMA and use it to select appropriate management strategies. MDH will assist you with data relating to contaminant spills and releases. If it does not exist, include a statement to that effect in your WHP plan.

In closing, we are very pleased to see the City of Browerville moving forward to complete its wellhead protection plan, and we will be happy to assist you with this. If you have any questions regarding this letter please contact me at 218/755-4173.

Sincerely,



Beth .S. Kluthe, Planner  
Drinking Water Protection  
Environmental Health Division  
1819 Bemidji Avenue  
Bemidji, Minnesota 56601

BSK:kmc

bcc: Chuck Regan, Minnesota Pollution Control Agency  
Joe Zachmann, Minnesota Department of Agriculture  
Jim Japs, Minnesota Department of Natural Resources  
Dave Nieman, Minnesota Rural Water Association  
Mark Wettlaufer, Minnesota Rural Water Association

May 15, 2002

Users of the Browerville Water Supply

RE: 2001 Consumer Confidence Report

The City of Browerville is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2001. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

The City has an elevated storage tank of 300,000 gallon capacity which will provide two days of storage under normal circumstances. Water is filtered, after being pumped from the wells, to remove iron and manganese. While iron and manganese are not harmful in themselves, they do create an unsightly appearance/taste of the water. Fluoride is also added to the water for healthier teeth. Chlorine is also injected to disinfect the water.

The draft copy of the Wellhead Protection Plan will be complete by the end of May 2002. After review by local government agencies and the State Department of Health, Council approval is expected by October of 2002. This plan identifies the Drinking Water Supply Management Area of the land above the aquifer furnishing groundwater to the city wells. The plan will be used as a management tool ensuring proper environmental use of the land to protect the integrity of the aquifer.

### **Source of Water**

The City of Browerville provides drinking water to its residents from a groundwater source: three wells ranging from 96 to 107 feet deep, that draw water from the Quaternary Buried Artesian aquifer. Call Chuck Buhl at 594-6234 if you have questions about the City of Browerville's drinking water or would like information about opportunities for public participation in decisions that may effect the quality of water.

### **Results of Monitoring**

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The tables that follow show the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2001. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

### **Key to abbreviations:**

**MCLG** - Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**MCL** - Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**AL** - Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

**90th Percentile Level** -- This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples). Note: In situations in which only 5 samples were taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

**ppb**--Parts per billion, which can also be expressed as micrograms per liter (ug/l).

**ppm**--Parts per million, which can also be expressed as milligrams per liter (mg/l).

**N/A**--Not applicable (does not apply)

### **Compliance with National Primary Drinking Water Regulations**

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

*Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

*Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or results from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

*Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

*Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

*Radioactive contaminants*, which can be naturally-occurring or be the results of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Hotline at 800-426-4791

*Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 800-426-4791.*

Please see tables 1, 2, and 3 for specific contaminants and test results:

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2001)	Average /Result*	
Fluoride (ppm)	4.0	4.0	1.0-1.7	1.23	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.
Barium (ppm) (06/07/2000)	2.0	2.0	N/A	0.16	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Xylenes (ppm) (06/07/2000)	10.0	10.0	N/A	0.0002	Discharge from petroleum factories; Discharge from chemical factories.

\*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Lead (ppb) (09/13/1999)	N/A	15	11.0	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper (ppm) (09/13/1999)	N/A	1.3	0.55	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits.

Some contaminants do not have Maximum Contaminant Levels established for them. These “unregulated contaminants” are assessed using state standards known as health risk limits to determine if they pose a threat to human health. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions. In the table that follows are the unregulated contaminants that were detected:

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Sulfate (ppm) (06/07/2000)	N/A		31.0		Erosion of natural deposits.
Sodium (ppm) (06/07/2000)	N/A		0.7		Erosion of natural deposits.

Here are tips for protecting water quality in our lakes, creeks and rivers during the season when we use them most.

Summer is prime time for maintaining cars and boats, but some activities can harm our lakes, creeks and rivers. Here's how to prevent that:

- ✓ Avoid washing your car at home, where the dirty soapy water flows into ditches. Commercial car washes are an environmentally friendly alternative because their wash water drains into sanitary sewers and is treated before discharge.
- ✓ Bring used motor oil to a free drop off site. Never spill gasoline, motor oil, washer fluid, antifreeze or other products on hard surfaces. They will flow through ditches to our lakes, creeks and rivers and poison fish, plants and other aquatic life.
- ✓ Don't litter. Recycle bottles and cans. Put trash from your car in the garbage. Shake and wash floor mats over your lawn, not hard surfaces.

When soil washes down ditches it flows directly into our lakes, creeks, and rivers. Soil particles contain phosphorus. In the water phosphorus feeds algae and lowers water quality. Here's what you can do to keep soil out of the water:

- ✓ Keep your lawn healthy and reseed any bare spots. Plant flowers or other ground covers in open soil
- ✓ If you have a Blooming Boulevard, maintain a turf border or edging around it to keep the soil in place
- ✓ When you're done with yard work clean your lawn and garden equipment on the grass, not on hard surfaces. Sweep up soil and grass clippings. Never wash or blow them into the street.

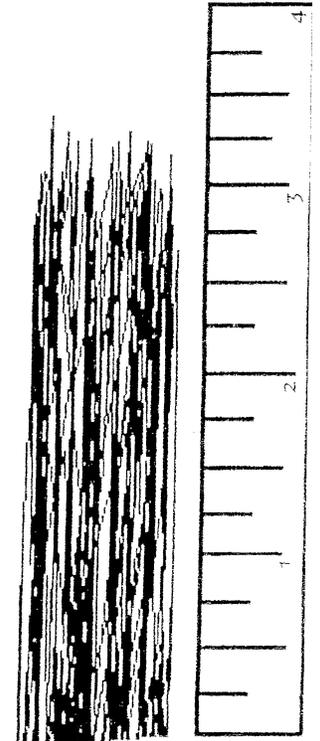
There's phosphorus in organic debris too, so it lowers water quality as well. Here's how to keep organic debris out of our lakes, creeks and rivers:

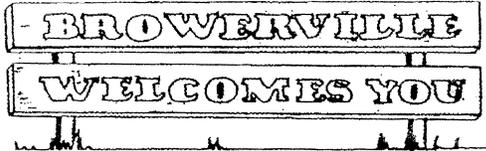
- ✓ Near hard surfaces, use wood shavings or other organic mulches that knit together when wet and stay put during heavy rains.
- ✓ Leaves, twigs, tree flowers and other organic debris accumulates on roofs and in gutters. Keep it from washing into the street by directing your downspouts away from buildings and onto grass or ground cover, where the nutrients will be absorbed and recycled. If you live near a storm sewer grate, remove debris after every rain. Bag it and place in the garbage. Be sure to wear gloves.
- ✓ Debris can clog storm drains and cause street flooding.
- ✓ Pet waste can contain harmful bacteria as well as nutrients. Pick up feces promptly. Double bag them and put them in the garbage. Never drop feces in the street or in ditches.

One more tip for protecting our lakes, creeks and rivers:

- ✓ Don't apply fertilizer or treat dandelions during the hot days of summer. Fall is the best time to fertilize your lawn and treat broadleaf weeds.

This information provided courtesy of the Rice Creek Watershed District, White Bear Lake Conservation District, Minnesota Department of Agriculture, University of Minnesota and Minneapolis Park and Recreation Board.





## CITY OF BROWERVILLE

544 Main Street South  
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Browerville, MN 56438  
Phone: 320-594-2201  
Fax: 320-594-2233

A GREAT PLACE TO LIVE

E-Mail: [ctybrow@rea-alp.com](mailto:ctybrow@rea-alp.com)

June 3, 2002

Region 5  
611 Iowa Avenue  
Staples, MN 56479

RE: CITY OF BROWERVILLE WELLHEAD PROTECTION PLAN, PART II DRAFT

Attached is a draft copy of the City of Browerville Wellhead Protection Plan, Part II, for your review and comments in accordance with the Minnesota Wellhead Protection Rule 4720.5350, subs. 1-3. An on line version can also be found at <http://www.co.todd.mn.us/gis/gis.htm>. The objectives of this plan are to prevent human-caused contaminants from entering the city water supply wells and protect users from the adverse health effects of contaminated groundwater.

This plan has been developed per the requirements of MN Rule 4720. Part I of the Plan (identification of recharge areas and aquifer vulnerability) was previously approved by the MN Department of Health and is on file at City Hall. Your agency was previously mailed a copy of Part I.

A Public Hearing is scheduled for August 8, 2002 at 7:00 p.m. in City Hall for further comments from local units of government and the general public. However, if you have any questions or comments, please address them to my attention not later than Monday, August 5, 2002. Thank you for your assistance and support of our Wellhead Protection Plan.

Sincerely,

Severin J. Blenkush  
City Administrator

CC: w/o attachments

Beth Kluthe, Bemidji Office, Minnesota Department of Health  
Mark Weitlaufer, Minnesota Rural Water Association  
Trudi Witkowski, St. Paul Office, Minnesota Department of Health

Todd County P & Z  
TCS&WCD  
Iona Twp.  
Hartford Twp.