City of Redwood Falls

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PART II SUBMITTAL TO LGUs FOR COMMENT

Date: 2-26-2020

To: Lon Walling, Chairperson, Redwood County Board, 403 South Mill Street, PO Box 130, Redwood Falls, MN 56283
Tom Quackenbush, Mayor, City of Redwood Falls, PO Box 526, Redwood Falls, MN 56283
Michael W. Nelson, Chairperson, Redwood Falls Township Board, 29553 Knox Ave., Redwood Falls, MN 56283
Mark Parker, Chairperson, Paxton Township Board, 34076 300th Street, Redwood Falls, MN 56283
Jeff Potter, Chairperson, Redwood Soil and Water Conservation District, 1241 East Bridge Street, Suite C, Redwood Falls, MN 56283
Scott Wold, Director, Redwood County Environmental Office, 403 South Mill Street, PO Box 130, Redwood Falls, MN 56283
Jay Trusty, Director, Southwest Regional Development Commission, 2401 Broadway Ave. Suite 1, Slayton, MN 56172
Amanda Strommer, Minnesota Department of Health Planner, 1400 E. Lyon Street, Marshall, MN 56258-1268

From: Jim Doering and Tom Stough, City of Redwood Falls

Re: Wellhead Protection Plan for the City of Redwood Falls, Part II

The City of Redwood Falls is in the process of developing a wellhead protection plan for its drinking water supply wells. Enclosed for your review and comment is the draft wellhead protection plan, Part II, for this system as required in the Minnesota Wellhead Protection Rule (part 4720.5350, subparts 1-3). This portion of the plan includes information pertaining to:

1. The inventory of potential contaminants of concern within the drinking water supply management area;
2. The data that was considered in this portion of the plan;
3. Issues, problems, and concerns within the drinking water supply management area;
4. Goals, objectives, and action strategies to address the issues and concerns within the drinking water supply management area;
5. A plan evaluation strategy; and
6. A contingency strategy in the event of water system disruption.

Your comments on this portion of the plan will be accepted through the 60-day comment period. Please send your written comments to Jim Doering at PO Box 526, Redwood Falls, MN 56283 by April 30, 2020.

Consistent with the Wellhead Protection Rule (part 4720.5350, subpart 4), a Public Hearing has been scheduled on 19 day, May, 2020 at 5:00 PM at the city office at 333 S. Washington Street, Redwood Falls, MN to discuss issues and address all comments related to the enclosed document.

We look forward to your participation.

cc: Trudi Witkowski, Minnesota Department of Health, SWP Unit, PO Box 64975, St. Paul, MN 55164-0975

WELLHEAD PROTECTION PLAN AMENDMENT – PART 2

City of Redwood Falls
Redwood Falls, Minnesota
Carlson McCain Project #7270-01

Prepared for:

City of Redwood Falls
333 South Washington Street
PO Box 256
Redwood Falls, Minnesota 56283

February 5, 2020
Draft Report for Public Notice

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Glossary of Terms

Data Element. A specific type of information required by the Minnesota Department of Health to prepare a wellhead protection plan.

Drinking Water Supply Management Area (DWSMA). The area delineated using identifiable land marks that reflects the scientifically calculated wellhead protection area boundaries as closely as possible (Minnesota Rules, part 4720.5100, subpart 13).

Drinking Water Supply Management Area Vulnerability. An assessment of the likelihood that the aquifer within the DWSMA is subject to impact from land and water uses within the wellhead protection area. It is based upon criteria that are specified under Minnesota Rules, part 4720.5210, subpart 3.

Emergency Response Area (ERA). The part of the wellhead protection area that is defined by a one-year time of travel within the aquifer that is used by the public water supply well (Minnesota Rules, part 4720.5250, subpart 3). It is used to set priorities for managing potential contamination sources within the DWSMA.

Inner Wellhead Management Zone (IWMZ). The land that is within 200 feet of a public water supply well (Minnesota Rules, part 4720.5100, subpart 19). The public water supplier must manage the IWMZ to help protect it from sources of pathogen or chemical contamination that may cause an acute health effect.

Wellhead Protection (WHP). A method of preventing well contamination by effectively managing potential contamination sources in all or a portion of the well's recharge area.

Wellhead Protection Area (WHPA). The surface and subsurface area surrounding a well or well field that supplies a public water system, through which contaminants are likely to move toward and reach the well or well field (Minnesota Statutes, section 103I.005, subdivision 24).

Well Vulnerability. An assessment of the likelihood that a well is at risk to human-caused contamination, either due to its construction or indicated by criteria that are specified under Minnesota Rules, part 4720.5550, subpart 2.

Acronyms

1W1P - One Watershed One Plan

City – City of Redwood Falls

DNR – Minnesota Department of Natural Resources

DWSMA – Drinking Water Supply Management Area

EPA – United States Environmental Protection Agency

ERA – Emergency Response Area

GIS – Geographic Information Systems

GRAPS - Groundwater Restoration and Protection Strategies

IWMZ – Inner Well Management Zone

LWMP – Local Water Management Plan

MCL – Maximum Contaminant Level

MDA – Minnesota Department of Agriculture

MDH – Minnesota Department of Health

MGD – Million Gallons per Day

MGS – Minnesota Geological Survey

MGY – Million Gallons per Year

MnDOT – Minnesota Department of Transportation

MnGEO – Minnesota Geospatial Information Office

MPARS – Minnesota Permitting and Reporting System (DNR)

MPCA – Minnesota Pollution Control Agency

MWI – Minnesota Well Index

NRCS – Natural Resource Conservation Service

QBAA – Quaternary Buried Artesian Aquifer

PCS – Potential Contaminant Source

PCSI– Potential Contaminant Source Inventory

PLSS – Public Land Survey System

RCRCA – Redwood-Cottonwood Rivers Control Areas

RO – Reverse Osmosis

SWCD – Soil and Water Conservation District

UMN – University of Minnesota

USDA – United States Department of Agriculture

USGS – United States Geological Survey

WHP – Wellhead Protection

WHPA – Wellhead Protection Area

WHPP – Wellhead Protection Plan

WIMN – What's in my Neighborhood

WRAPS – Watershed Restoration and Protection Strategies

WTF – Water Treatment Facility

1.0 INTRODUCTION

1.1 Background

This Wellhead Protection Plan (WHPP) Amendment - Part 2 (Plan) was prepared in accordance with Minnesota Rules Chapter 4720.5400 and the Minnesota Department of Health (MDH) Scoping 2 Decision Notice and Meeting Summary – City of Redwood Falls – PWSID 1640008 (MDH, 2019a). The Scoping 2 Decision Notice is included as Appendix A. This is the second part of the City of Redwood Falls' (City's) Wellhead Protection Plan (WHPP) Amendment. The WHPP Amendment - Part 1 was prepared by Carlson McCain, dated March 4, 2019 (Carlson McCain, 2019) and approved by MDH on March 20, 2019. The WHPP Amendment - Part 1 is available for review at the City or can be obtained from MDH.

In this report, Section 2.0 describes the required data elements about the physical environment, land use, water quantity and water quality; Section 3.0 describes the impact of changes on the water supply wells; Section 4.0 describes the wellhead protection issues, problems and opportunities; Section 5.0 describes the wellhead protection goals; Section 6.0 discusses the wellhead protection objectives and plans of action; Section 7.0 describes the Plan evaluation program; and Section 8.0 describes the water supply contingency plans.

1.2 Description of the Public Water Supply System

The City's water supply is currently obtained from five wells located near Highway 71, south of the City, in Redwood Falls and Paxton Townships. Table 1 lists the basic information for each well currently in the City's public water supply system and Figure 1 shows the location of the wells and the associated drinking water supply management areas (DWSMAs). The City's water supply wells are completed in sand and gravel aquifer formations at varying depths within glacial till. While the wells are completed in three aquifer horizons (A, B and C), all three aquifers are classified as Quaternary Buried Artesian Aquifers (QBAA) by the Department of Natural Resources (DNR). The City operates a 1.5 million gallon per day (mgd) water treatment facility designed to reduce iron and manganese concentrations to acceptable levels. This system is combined with a reverse osmosis (RO) process using a 75% blend ratio to produce finished water that meets both primary and secondary drinking standards.

1.3 Description of the Drinking Water Supply Management Areas

The location and extent of DWSMA A for the Ramsey well (completed in the A aquifer) and DWSMA B/C for wells RF-1, RF-2, RF-3 and RF-5 (completed in the B/C aquifers) are shown on Figure 2 along with the associated wellhead protection areas (WHPAs) and Emergency Response Areas (ERA)s. Potential Contaminant Source Inventories (PCSI) of the land located within a 200-foot radius of each municipal well, which is designated as the Inner Well Management Zone (IWMZ), were completed in May 2016 by MDH staff and are included in Appendix B.

Part 1 of the City's WHPP Amendment (Carlson McCain, 2019) also included an assessment of the vulnerability of the DWSMAs which determined that the vulnerability of DWSMA A is moderate and DWSMA B/C is low. The vulnerability of each DWSMA is also illustrated on Figure 2.

2.0 DATA ELEMENTS AND ASSESSMENTS

In accordance with Minnesota Rules Chapter 4720.5400, and the Scoping document (MDH, 2019a), this section discusses the required data elements for this Plan. The required data elements include information relating to geology, water resources, land use, public utility services, and groundwater quantity/quality. Note that not all data elements are required at both DWSMAs. The higher vulnerability of DWSMA A warrants a more detailed assessment of the data elements for this area.

2.1 Physical Environment Data Elements

2.1.1 Geology

The City of Redwood Falls is located on the south side of the Minnesota River at the base of a broad, poorly drained till plain between the eastern slope of a regional topographic feature known as the Prairie Coteau and the Minnesota River. The Prairie Coteau trends in a northwesterly direction and there is a prominent drop in topographic relief in a northeasterly direction all along its entire eastern slope. From the base of the slope to the northeast towards the Minnesota River, is a lowland plain. Precambrian crystalline bedrock and Cretaceous shale are exposed in the Minnesota River valley where the surface elevation is approximately 850 feet above mean sea level (msl). Most of the City lies in the adjacent upland area at an elevation of 1000 to 1050 feet msl and is underlain by deposits of clayey glacial till. Due to the presence of a variable bedrock surface, the thickness of the glacial deposits range from approximately 50 feet to more than 250 feet. The deepest deposits are thought to be associated with a bedrock valley that generally parallels the Minnesota River, on the south side near the City of Redwood Falls. The City's wellfield is located south of the City with the wells located near Highway 71. Geologic Cross-sections including the area of the City's water supply wells were included in Part 1 of the City's WHPP Amendment (Carlson McCain, 2019).

A - Aquifer
The City's Ramsey Well is constructed in the A - Aquifer just south of the City. The A – Aquifer consists of sand and gravel glacial outwash and is about 8 to 31 feet thick but thins to just a few feet in areas further away from the Ramsey Well. This aquifer occurs between the depths of approximately 50 and 100 feet and is confined by clayey glacial till both above and below the sand and gravel aquifer material.

B/C - Aquifer
The B/C - Aquifer is comprised of two aquifer horizons that are composed of buried sand and gravel outwash and are separated by a discontinuous clay layer where the aquifers overlap. The B – Aquifer horizon is approximately 50 thick and is where Wells 1 and 2 are completed at depths of 182 and 172 feet, respectively. Wells 3 and 5 are completed at depths of 231 and 268 feet in the underlying C – Aquifer, respectively. The C – Aquifer is approximately 50 feet thick and directly overlies the crystalline bedrock at depths of up to 275 feet. The combined B and C – Aquifer horizons appear to function as a single aquifer near the City wells based on pumping test data and the fact that the aquifers appear to be in direct contact near the wellfield.

2.1.2 Water Resources

2.1.2.1 Watersheds

Most of DWSMA A and all of DWSMA B/C are located in the Middle Minnesota River – Mankato Watershed and Crow Creek Subwatershed, while a small portion of DWSMA A is located in the Redwood River Watershed and Redwood River Subwatershed. The Redwood River is a watershed within the Minnesota River Basin and, as such, the water flows toward the Minnesota River. The City's DWSMAs are located within the Redwood-Cottonwood Rivers Control Area (RCRCA). Local water planning efforts such as One Watershed One Plan (1W1P), Watershed Restoration and Protection Strategies (WRAPS) and/or Groundwater Restoration and Protection Strategies (GRAPS) are ongoing and will be completed in the future.

2.1.2.2 Floodplain Area

Floodplains in the area of the City's DWSMAs are shown on Figure 3. Floodplain data was obtained from insurance rate maps from the Federal Emergency Management Agency (FEMA), which can be accessed online through FEMA Flood Hazard Layer Viewer. The areas DWSMA A and DWSMA B/C are located in an area of minimal flood hazard. A review of the Redwood County Zoning Map, accessed through Redwood County's beacon site, also showed that the areas of DWSMA A and DWSMA B/C are not located in a floodplain. The closest floodplain to the DWSMAs is the Redwood River floodplain located approximately 6,000 feet northwest of the DWSMA A.

2.2 Land Use Data Elements

2.2.1 Land Use

2.2.1.1 Parcel Boundaries

Parcel boundaries are shown on Figure 4 for DWSMAs A and B/C. Parcel data was obtained from Redwood County.

2.2.1.2 Political and Public Land Survey System Boundaries

Political boundaries are shown on Figure 5 and public land survey system (PLSS) boundaries are shown on Figure 6 for DWSMAs A and B/C. Political boundary and PLSS data was obtained from the Minnesota Geospatial Information Office (MnGeo).

2.2.1.3 Potential Contaminant Source Inventory

The Potential Contaminant Source Inventory (PCSI) is shown on Figure 7 for DWSMAs A and B/C, and tabular lists of both located Potential Contaminant Sources (PCSs) are presented in Table 2. A summary table for PCSs including assigned risk for each, not including PCSs located with the IWMZs, is shown below.

Potential PCS Type and Assigned Risk			
PCS Codes	**Number in DWSMA A**	**Number in DWSMA B/C**	**Level of Risk**
WEL – Wells	31	21	Medium

PCSs located within the IWMZs were located by the MDH during inspections of the IWMZs during May 2016 and inspection reports are included as Appendix B. A summary table showing PCSs within the IWMZs including assigned risk for each is shown below.

Potential PCS Type and Assigned Risk						
PCS Codes	**Ramsey Well**	**RF-1**	**RF-2**	**RF-3**	**RF-5**	**Level of Risk**
GP1 – Gravel pocket or French Drain	1	1	1	1	1	Medium
ET1 – Electrical Transformer	0	1	1	1	2	Low
WEL – Operating Well	2	2	1	1	0	Low
UUW – Unused Unsealed Well	0	0	0	0	1	High

To ensure all required PCSs were accounted for in the PCSI, the most recent geographic information system (GIS) files were downloaded in September 2019 from the Minnesota Well Index (MWI – both located and unlocated wells), the Minnesota Pollution Control Agency's (MPCA) What's in my Neighborhood (WIMN) and the Minnesota Department of Agriculture's (MDA) WIMN database. PCS files were clipped with respect to each DWSMA boundary. Before and after clipping, PCSs located near the boundaries of the DWSMAs were evaluated to ensure that all PCSs actually located within the DWSMAs were included in the PCSI. Prior to further evaluation of the location of PCSs, the following items were removed from the PCSI:

- Wells less than 110 feet in depth for the low vulnerability DWSMA B/C based on the requirements from Page 2 of the Scoping 2 document (MDH, 2019a); and
- Any PCS types/codes not required to be reported in accordance with inventory requirements for moderately and/or low vulnerability DWSMAs.

Locating PCSs within a parcel boundary allows the City to contact the owners regarding items such as well maintenance and sealing as a means to mitigate potential contaminant sources. The remaining new PCSs were evaluated to determine if each could be located within a parcel boundary that has an address using GIS. Wells were located by reviewing well logs and other information from the MWI to identify locations of wells within parcel boundaries. The information used to determine the final location of the wells was prioritized in the following order:

1. Address/Name Matching;
2. Site Sketches;

3. First and Last Name Matching; and
4. Last Name Matching.

Once PCSs were located, a GIS PCSI file geodatabase template was set up with the required attributes for WHPP PCSIs listed in MDH guidance dated April 2015 and appropriate data was entered into the database. Concluding the data entry, a PCSI ID was assigned for each of the PCSs located within the City's DWSMAs.

A GIS ArcMap project and a file geodatabase including feature classes with spatial data of the PCSI will be made available to the MDH via Carlson McCain's share file site.

2.2.1.4 Land Use and Cover Maps

A land cover map is included as Figure 8 for the DWSMAs. The predominant land use within the DWSMAs is cultivated crops. The Land cover map data was obtained from the 2016 National Land Cover Database map. Percentages of land cover in each DWSMA according to the 2016 National Land Cover Database map are shown in the table below.

Land Cover Class	Land Cover	DWSMA A		DWSMA B/C	
		Acres	Percent	Acres	Percent
21	Developed, Open Space	83.00	3.5	34.89	2.04
22	Developed, Low Intensity	18.60	0.78	14.22	0.82
23	Developed, Medium Intensity	5.14	0.22	2.55	0.15
24	Developed, High Intensity	0.47	0.02	5.55	0.31
31	Barren Land (Rock/Sand/Clay)	3.47	0.15	0.14	0
41	Deciduous Forest	9.41	0.40	2.00	0.16
43	Mixed Forest	0.96	0.04	1.03	0.06
81	Pasture/Hay	1.82	0.08	0.00	0.00
82	Cultivated Crops	2247.39	94.63	1653.12	96.45
95	Emergent Herbaceous Wetlands	4.62	0.19	0.22	0.01
99	Total	2374.89	100.00	1713.73	100.00

2.2.1.5 Zoning Map

A zoning map is included as Figure 9 for the DWSMAs. Zoning data was obtained from Redwood County. The comprehensive plan map for Redwood County is reportedly the same as the zoning map and, as such, is not included as a figure in this report.

2.2.2 Public Utility Services

2.2.2.1 Transportation Routes

Existing transportation routes and corridors near the DWSMAs are shown on Figure 10.

2.2.2.2 Storm Sewers, Sanitary Sewers and Public Water Supply Systems

A map showing storm sewers, sanitary sewers and public water supply systems is included as Figure 11 for the DWSMAs. Datasets for storm sewers and sanitary sewers and public water supply systems were obtained from the City.

2.2.2.3 Gas and Oil Pipelines

No pipelines are located in the vicinity of the DWSMAs and, as such, a figure is not included for pipelines in this report. Gas and oil pipeline data was reviewed online using the National Pipeline Mapping System website.

2.2.2.4 Well Information

Table 1 presents well information for the City's public water supply wells. Information for other wells is included as part of the PCSI in this Plan and the Minnesota Well Index.

2.3 Water Quantity Data Elements

2.3.1 Groundwater Quantity

A search was conducted in the Department of Natural Resources (DNR) Minnesota Permitting and Reporting System (MPARS) database for wells/facilities that have State appropriation permits. The table below lists the water supply wells not owned by City located within the DWSMAs having active groundwater appropriations permits.

Well Owner	Unique Number	Appropriations Permit Number	Well Depth	Permit Volume (millions of gallons per year)	Well Use	DWSMA
Jim Tersteeg	229604	1977-4164	92	3.3	Nursery Irrigation	A

The Tersteeg well identified above appears to be constructed in the same aquifer as the City's Ramsey well, however, the permitted volume for this well is unlikely to impact the City's usage of the Ramsey well.

No conflict or interference from the well listed in the table above has been identified to date. Groundwater levels are adequate for the amounts which the City is currently permitted for under the DNR groundwater appropriations program.

2.4 Water Quality Data Elements

2.4.1 Groundwater Quality

Water samples from the City's public water supply are routinely collected and analyzed as required under the Public Water Supply Program and the federal Safe Drinking Water Act. The water samples are routinely taken by MDH staff. A copy of the City's Drinking Water Consumer Confidence Report can be found on the City's website. The report indicates that no contaminants have been detected at levels that violated federal drinking water standards.

3.0 IMPACT OF CHANGES ON THE PUBLIC WATER SUPPLY WELLS

Minnesota Rules 4720.5220 indicates that a wellhead protection plan must identify and describe expected changes that may occur during the next ten years to the physical environment; land use; surface water; and groundwater. It must also assess the possible impacts on the aquifer serving the public water supply resulting from the expected changes, the influence of existing water and land government programs and regulations; and the administrative, technical, and financial considerations of the public water supplier and the property owners within the drinking water supply management area.

3.1 Changes Identified

3.1.1 Physical Environment

No significant changes in the physical environment are anticipated in the next ten years in either of the City's DWSMAs.

3.1.2 Land Use

As shown on the Zoning map on Figure 8, the City may eventually annex land near and/or within DWSMA A near the Ramsey well possibly resulting in less undeveloped agricultural land and more developed urban land uses in the northern part of DWSMA A. The land use in DWSMA B/C is not anticipated to change significantly over the next ten years.

3.1.3 Surface Water

No changes in surface water quantity or quality is expected to occur in the next ten years. Existing State and local programs oversee and assess surface water, provide guidance for the wise development of shorelands, preserve and enhance the quality of surface waters, and thus act to reduce potential negative impacts from surface water infiltration.

3.1.4 Groundwater

The City's public water supply wells have historically provided groundwater that, with iron and manganese filtration and reverse osmosis treatment, is of excellent quality and quantity. As of the date of this Plan approval, the City does not anticipate a significant increase in water use and is not aware of any such water use expansions in the DWSMAs or immediately adjacent areas.

3.2 Impact of Changes

3.2.1 Expected Changes

The City does not anticipate that its water use will increase by more than five percent during the first

five years that this Plan is in effect. The City will re-evaluate its water-use patterns for the second five-year interval as part of its normal planning activities and incorporate these results into future revisions of this plan.

3.2.2 Influence of Existing Water and Land Government Programs and Regulation

Redwood County currently has regulatory jurisdiction over the DWSMAs with the City of Redwood Falls possibly expanding and taking over zoning in the northern part of DWSMA A in the future. Where the City does not have jurisdiction over its DWSMAs, the City must rely on Redwood County for planning and zoning regulations that address issues that may impact the source water aquifers. Redwood County has been supportive of the City's wellhead protection efforts.

Redwood County has developed a Local Water Management Plan (LWMP) to provide information and direction regarding the administration and implementation of water resource management activities within the County. Protection of the source water in Redwood County is a priority in the LWMP.

The City annually conducts a rate/fee analysis for water and wastewater treatment and, due to continuing rising costs, rates and fees have been increasing as well for municipal water usage. As a result of the water and sewer rate increases, voluntary water conservation in homes and businesses in the City is also increasing.

3.2.3 Administrative, Technical and Financial Considerations

The WHP Manager will be responsible for and manage the implementation of this Plan. In consideration that the City's DWSMAs are located in Redwood County's regulatory jurisdiction, it is anticipated that Redwood County will continue to be supportive of the City's wellhead protection efforts.

With existing cost-share programs and grant opportunities, it appears the City will have the resources available to regulate the public water supply's source water and implement the management strategies found herein. Funds to support ongoing wellhead and source water protection efforts will come from the City's general fund and MDH grants. Wellhead and source water protection activities will be evaluated approximately every 2.5 years, and any changes in the focus of the tasks will also be evaluated to determine if additional funding will be necessary to accommodate the changes.

4.0 ISSUES, PROBLEMS AND OPPORTUNITIES

4.1 Requirement

Minnesota Rules 4720.5230, Subp. 1 (Requirement) indicates that a wellhead protection plan must identify water use and land use issues, problems and opportunities related to the aquifer serving the public water supply well; the well water; and the drinking water supply management area.

4.1.1 The Aquifer

The source of the City's water supply in DWSMA A has been identified as moderately vulnerable and DWSWA B/C is identified as being low vulnerability.

As previously discussed, the PCSI identifies present and historical land uses within the DWSMAs which have the potential to impact the public water supply sources. These potential contaminant sources may include: potential class V wells, non-municipal wells, release/spill sites, registered storage facilities, and registered hazardous waste generators. The identified potential contaminant sources are located outside the City and the City does not have jurisdictional control over them. The City will rely upon public education and appropriate County and State programs, to the extent practicable, to regulate the potential contaminant sources that have been identified.

The City believes that Redwood County's existing surface water and land management programs are adequate to aid in source water protection within the DWSMAs. The City will rely upon public education and the management programs of Redwood County to promote source water protection in the City's DWSMAs.

With regard to source water availability, the City has no regulatory authority over water appropriations and must rely on the DNR. The City will monitor water use patterns and water level data to aid in the assessment of source water availability.

4.1.2 The Well Water

Water samples from the City's public water supply are routinely collected and analyzed as required under the Public Water Supply Program and the federal Safe Drinking Water Act. No contaminants have been detected at levels that have violated federal drinking water standards.

The Water Treatment Facility (WTF) is designed to produce 1.5 Million Gallons Per Day (MGD) maximum output with iron and manganese filtration. Combining the system with a 75% blend ratio of Reverse Osmosis (RO) treated water will provide a blended output of 1,200 gallons per minute. The WTF has a total storage capacity of 524,000 gallons of treated water for distribution to the residents of Redwood Falls and commercial users. The WTF will meet both Tier 1 drinking water standards as defined by the MDH and will also meet Tier 2 standards by significantly reducing: sulfate levels from

800 parts per million (ppm) to 250 ppm, total dissolved solids (TDS) from 1,500 ppm to approximately 400 ppm, and as a by-product of the RO process, hardness will be reduced from 59 grains to 12-13 grains. Fluoride is also required to enhance the prevention of tooth decay.

4.1.3 The DWSMA

As previously discussed, the City's DWSMAs are located outside of the City boundaries, and within Redwood County's jurisdiction. As such, the City will work collaboratively with Redwood County to the extent possible in an effort to ensure protection of the source water aquifers. Redwood County, in its LWMP, have indicated a willingness to assist the City in the protection of source waters within wellhead protection areas.

Potential contaminant sources were identified in this Plan within the DWSMAs. The City will rely on state agencies with regulatory control to oversee these types of facilities and aid in the protection groundwater resources.

The principal concern expressed by the City is to ensure consistent and long-term management of water wells, environmental bore holes, and observation wells within the DWSMAs. The City has limited legal capabilities to regulate well construction and sealing in the areas of the DWSMAs beyond its legal authority. However, opportunities are being provided by the MDH to well owners in the City's DWSMAs to seal wells through WHP Implementation Grants. Second, any increased pumping of the aquifers used by the City's wells needs to be assessed for possible impacts on water availability and quality. The City has no regulatory authority over water appropriations and must rely on the State of Minnesota to address issues and concerns related to pumping.

4.2 Identification

To identify water use and land use issues, problems and opportunities, Minnesota Rules 4720.5230, Subp. 2 (Identification) indicates that the public water supplier must assess those problems and opportunities disclosed at public meetings and in written comment; the data elements identified by the department in parts 4720.5310, Subp. 2, and 4720.5340, Subp. 2; and the status and adequacy of official controls, plans, and other local, state, and federal programs on water use and land use.

4.2.1 Problems and Opportunities Disclosed at Public Meetings and Written Comment

Per Minnesota Rules 4720.5350, the City is required to submit copies of the Part 1 WHPP Amendment (Carlson McCain, 2019) to local units of government wholly or partly within the WHP area. It is also noted that the City's DWSMAs are located within the Redwood-Cottonwood Rivers Control Area (RCRCA) and the Southwest Regional Development Commission. No other watershed districts, or watershed management organizations requiring submittal of the Part 1 WHPP Amendment are located within the DWSMAs. The City held a public information meeting to receive comments on the Part 1 WHPP Amendment from the general public on May 21, 2019 at the City offices. No concerns were

expressed from the general public at the meeting and, at the time of this submittal, no comments, problems or opportunities had been disclosed to the City.

4.2.2 Data Elements

Data elements identified by the MDH in Scoping Decision Notice No. 2 have been addressed. In summary, the required data elements included information relating to geology, water resources, land use, public utility services, and groundwater quantity/quality. Available local and regional information was used in compiling and assessing the data elements. Ongoing efforts to update information from regulatory data sources will continue as it becomes available for the life of this Plan.

4.2.3 Status and Adequacy of Official Controls, Plans, and Other Local, State and Federal Programs on Water and Land Use

The City believes that the DWSMAs are adequately protected with existing ordinances, local water management plans and watershed plans; coupled with County, State and Federal oversight of contaminated properties, well construction, groundwater appropriation, hazardous waste permitting and storage tank permitting. The City will continue to work with Redwood County, to the extent practicable, to promote source water protection efforts. Public education and the promotion of best management practices (BMPs) are continuing efforts by the City.

5.0 WELLHEAD PROTECTION GOALS

Minnesota Rules 4720.5240 indicates that a wellhead protection plan must state goals for present and future water use and land use to provide a framework for determining plan objectives and related actions. Goals presented in this section were identified based upon the information presented and evaluated in this Plan.

The overall goals of the City of Redwood Falls' Wellhead Protection Plan are to:

- Continue to provide a safe water supply to its residents by maintaining or improving the current level of municipal water quality that meets or exceeds State and federal drinking water standards.
- Increase public awareness of groundwater-related issues and the City's wellhead and source water protection efforts.
- Continue to collaborate with the Redwood County on efforts protect source waters in and around the City's DWSMAs.
- Provide for the ongoing collection of data to support current and future wellhead and source water protection efforts.

6.0 OBJECTIVES AND PLANS OF ACTION

Minnesota Rules 4720.5250 indicate that a wellhead protection plan must have measurable objectives for the well and drinking water supply management area. A wellhead protection plan must state a plan of action. A plan of action must address the problems and opportunities identified in the wellhead protection plan; identify and prioritize the wellhead protection measures that will be used; and identify a time frame for the implementation of the action identified in the plan.

6.1 Objectives

The objectives and plan of action designed to meet the goals of the WHPP are described as follows:

A. Potential Contaminant Sources. Maintain an inventory of Potential Contaminant Sources to identify sites that have the potential to impact source water quality and work to minimize the number of PCSs in the DWSMAs.
B. Data Collection. Provide the ongoing collection of data to support current and future wellhead and source water protection efforts.
C. Public Education. Continue public education efforts such that Redwood Falls businesses and residents will become more aware of wellhead and source water protection issues and the actions that the City is taking to protect the municipal water.
D. Land Use Management. The City will work cooperatively and collaboratively with Redwood County to promote wellhead and source water protection efforts in future planning, zoning and permitting processes that have the potential to impact the area supplying groundwater to the City's wells.
E. Inner Well Management Zone. Ensure that the IWMZ is properly managed to minimize risk of contamination to the City's wells.

Based upon the objectives listed above in Section 6.1, the City has identified WHP measures that will be implemented over the 10-year period that this Plan is in effect and has assigned an appropriate priority ranking as described in Sections 6.2 through 6.6 below.

The objective that each measure supports is noted as well as 1) the lead party and any cooperators, 2) the anticipated cost for implementing the measure and 3) the year or years in which it will be implemented. The following table lists each measure that may be implemented over the ten-year period that the City's WHP plan is in effect, as well as the priority that it has assigned to each measure.

6.2 Potential Contaminant Sources

Measure	Priority	Potential Contaminant Source Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
1	High	6.2.1 Potential Contaminant Source Inventory The PCSI will be updated periodically to determine if new potential sources of contamination have been identified. The information will be retrieved from available government records such as the MPCA, Minnesota Well Index and the Minnesota Department of Agriculture. Verification of the locations of potential sources of contamination has been completed, with the exception of potential Class V well locations and field verification private well locations.	A	City, Consultant	$5,000						•				
2	High	6.2.2 Old Municipal Well Report As part of the PCSI Update discussed in 6.2.1 above, review Old Municipal Well Report for Redwood Falls (MDH, 2019b) to determine the location and status of old municipal wells operated by the City in which it is unknown if several of the wells were properly sealed. For reference, the first several pages of the old municipal well report is attached this Plan as Appendix C.	A	City, Consultant	$5,000						•				
3	High	6.2.3 Well Sealing The sealing of unused, poorly maintained, damaged or abandoned wells are identified as a significant risk to water quality within the DWSMAs. These wells can short circuit the natural protection afforded to the aquifer by penetrating the overlying confining layers.	B	City, MDH, Consultant	$5,000 per year	As Opportunities Arise									

Measure	Priority	Potential Contaminant Source Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
4	Medium	6.2.4 Private Well Maintenance Every five years the City will distribute literature to private well owners located within the City's DWSMAs and may include MDH printed material to identified well owners. Copies will also be available at City offices.	A	City	$500 per mailing					•					•
5	Medium	6.2.5 Management of Class V Injection Wells Class V Injection Wells, particularly those associated with automotive waste disposal or other industrial operations can serve to introduce potential contaminants into the subsurface. Proper management of Class V wells in the DWSMA to minimize the impact of any release to the environment would include sealing and remediation of known Class V wells. Presently Class V Injection Wells are regulated by EPA. Class V wells include a wide variety of devices ranging from drain fields to "dry wells" and other waste disposal systems. Brochures will be hand delivered or mailed to property owners with verified Class V wells.	A, C	City, Consultant	Staff Time						•				
6	Medium	6.2.6 Ramsey Well If the pump in the Ramsey well is pulled for maintenance or replacement during plan implementation, the city should consider a downhole video inspection to look for potential flaws in the well casing that could result in the low-level detections of tritium seen in samples from the well. Depending on the availability of funds, MDH may be able to conduct the logging of the well and will also work with the Minnesota Geological Survey on downhole logging. The City should contact their Source Water Protection hydrologist for assistance.	A, B	City, Consultant, MDH	$5,000	As Opportunities Arise									

Measure	Priority	Potential Contaminant Source Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
7	Medium	6.2.7 Municipal Well Management If needed, request technical and financial assistance from MDH and/or SWCD for locating, prioritizing and properly sealing of unused or abandoned old municipal wells. Apply for MDH grant to seal wells deemed to be a risk to the aquifer used by city. Complete the work once grant funds have been secured.	A	City, Consultant, MDH	$10,000	As Opportunities Arise									
8	Medium	6.2.8 Private Well Management If needed, request technical and financial assistance from MDH and/or SWCD for locating, prioritizing and properly sealing of unused or abandoned wells located in the DWSMA. Apply for MDH grant to seal wells in DWSMA deemed to be a risk to the aquifer used by city. Complete the work once grant funds have been secured.	A	City, Consultant, MDH	$10,000	As Opportunities Arise									

6.3 Data Collection

Measure	Priority	Data Collection Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
9	High	6.3.1 Appropriations Identify new high-capacity wells and changes to appropriations of existing high-capacity wells. A water use (appropriation) permit from DNR Waters is required for all users withdrawing more than 10,000 gallons of water per day or 1 million gallons per year.	B	City, DNR, Consultant	Staff Time		•		•		•		•		•

Measure	Priority	Data Collection Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
10	High	6.3.2 Water Level Monitoring The city should consider developing and implementing a water level monitoring program if suitable wells can be identified for use as potential long-term monitoring points. The use of water level data loggers could simplify data collection over time and provide a record of water level changes that could be correlated with groundwater withdrawals and varying recharge based on climatic patterns and could help with model calibration in future amendments.	B	City, DNR, Consultant	$10,000 start-up + Staff Time	As Opportunities Arise									
11	Medium	6.3.3 Water Quality Monitoring During year six of plan implementation the City should consider development of a sampling plan for the active public water supply wells. MDH may be able to assist with development and implementation of the plan which would include sampling for the MDH vulnerability parameters including chloride, bromide, sulfate, nitrate, ammonia, tritium, field measurements, alkalinity, water stable isotopes and total organic carbon. This information would be used to inform the next amendment of the City's Wellhead Protection Plan.	B	City, MDH	Based on Scope						•				

6.4 Public Education

Measure	Priority	Public Education Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
12	Medium	6.4.1 Interaction with Residents Interaction with local schools on education programs that focus on water conservation, stormwater runoff, sustainability, waste reduction, and environmental awareness as well as during city events and festivals. Tours of the City's water treatment plant may be incorporated into the educational experience.	C	City	Staff Time	As Opportunities Arise									
13	High	6.4.2 Drinking Water Consumer Confidence Report City will continue to prepare the Drinking Water Consumer Confidence Report on an annual basis, which is made available on the City's website. It provides information regarding the City's public water supply system and its water quality.	B, C	City, DNR	Staff Time	•	•	•	•	•	•	•	•	•	•
14	Medium	6.4.3 Information Distribution Information is available on the City website and distributed through pamphlets, mailings, utility bill inserts, local newspapers, cable television, council meetings, and other appropriate media and/or means of distribution.	C	City, MDH	Staff Time, Mailings	As Opportunities Arise									
15	Medium	6.4.4 Spills and Emergency Response Provide information about the drinking water supply management area and source water protection to local emergency personnel.	A, C	City, Police Dept., Fire Dept., Street Dept., Redwood Co. Highway Dept.	Staff Time	•					•				

6.5 Land Use Management

Measure	Priority	Land Use Management Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
16	Medium	6.5.1 Land Use Changes Maintain a line of communication between local government units in order to remain abreast of any land use changes which are pending within City's DWSMAs. Send via email the new DWSMA boundaries to local government units and request the opportunity to provide comments on pending land use changes within the DWSMAs.	D	City, Redwood County	Staff Time	On-going									

6.6 Inner Well Management Zone

Measure	Priority	Inner Well Management Zone Tasks	Objective Addressed	Cooperators	Cost	Implementation time frame									
						2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
17	Medium	6.6.1 Implement WHP Measures Implement the recommended wellhead protection measures in current (Appendix B) and future IWMZ Inventories.	D	City, MDH	Staff Time	On-going									
18	High	6.6.2 Setbacks for New PCSs Work with MDH to ensure that setback distances for new potential contamination sources are met.	A	City, MDH	Staff Time	On-going									
19	Low	6.6.3 IWMZ Inventories Assist MDH staff in completing future Inner Wellhead Management Zone Inventories for the public water supply wells.	A	City, MDH	Staff Time				•					•	

7.0 EVALUATION STRATEGY

Minnesota Rules 4720.5250 indicate that the progress in implementing a WHPP must be routinely evaluated to determine the effectiveness of the WHPP in terms of meeting its goals. City's evaluation activities will include the following:

- Document the implementation of the goals, objectives, activities, and tasks discussed in this Plan;
- Determine the effectiveness of specific management strategies corresponding to the protection of City's municipal water supply;
- Identify potential changes to the current management strategies in order to improve their overall effectiveness; and
- Determine the adequacy of financial resources and staff availability to perform and implement the planned management strategies.

The City will continue to coordinate with the MDH in the annual monitoring of City's municipal water supply to determine if the management strategies presented in this Plan are having an impact on water quality.

At the end of each evaluation period (approximately every two and a half years), City's Wellhead Protection Manager will make a written report regarding progress of plan of action and the impact of a (any) contaminant release on the aquifer supplying the public water supply well (Minn. Rule 4720.5270). This report may be completed using the MDH Wellhead Protection Program Evaluation form. A copy of the report will be sent to the MDH Source Water Protection Unit. The City will also keep a copy of the report in its records. The intent of the evaluation is to compile a complete and comprehensive study of the implementation of the source management strategies for use when City updates or revises this Plan. As required by the Wellhead Protection Rules, this Plan will be amended every 10 years at a minimum.

8.0 ALTERNATIVE WATER SUPPLY; CONTINGENCY STRATEGY

Minnesota Rule 4720.5280 indicates that a wellhead protection plan must have a contingency strategy that addresses disruptions of the water supply caused by contamination or mechanical failures of the public water supply system.

The City has completed its Water Emergency and Conservation Plan (i.e. Water Supply Plan). The City's Water Supply Plan outlines procedures and information for the public water supply, 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, civil disorder, or human-caused disruptions. As required, the plan was submitted to the DNR Waters-Water Permit Programs for review and approval. The Water Supply Plan was approved on October 22, 2019 by the DNR was adopted by City on December 3, 2019. The DNR approval of the Water Supply Plan and City's Certificate of Adoption of the Water Supply Plan are attached to this Plan as Appendix D. Copies of the Water Supply Plan are available from City.

9.0 REFERENCES

Liesch Associates, 2010. Wellhead Protection Plan Part 2, Redwood Falls, prepared for City of Redwood Falls, Revised August, 2010.

Carlson McCain, 2019. Wellhead Protection Plan Amendment – Part 1 (Revision 2), Wellhead Protection Area Delineation, Drinking Water Supply Management Area Delineation, Well and Drinking Water Supply Management Area Vulnerability Assessments, prepared for the City of Redwood Falls, March 4, 2019.

MDH, 2019a. Scoping 2 Decision Notice and Meeting Summary, City of Redwood Falls – PWS ID 1640008, prepared by the Minnesota Department of Health, June 4, 2019.

MDH, 2019b. Old Municipal Well Report, City of Redwood Falls – PWS ID 1640008, prepared by the Minnesota Department of Health, March, 2019.

Tables

TABLE 1
Water Supply Well Information

Local Well ID	Unique Number	Use[1]/ Status	Casing Diameter (inches)	Casing Depth (feet)	Well Depth (feet)	Date Constructed & Reconstructed	Aquifer[2]	Well Vulnerability
RF-1	209660	P/Active	12	142	182	1954	QBAA	Not Vulnerable
RF-2	455796	P/Active	12	116	168	10/27/1988	QBAA	Not Vulnerable
RF-3	403995	P/Active	12	189	230	5/21/1985	QBAA	Not Vulnerable
RF-5	403955	P/Active	16/10[3]	220	268	05/21/1984 & 2017[3]	QBAA	Not Vulnerable
RF-RAMSEY	241414	P/Active	12	82	94	1950	QBAA	Vulnerable

Notes:

1. Primary (P), Emergency Backup (E), Abandoned (A)
2. Quaternary Buried Artesian Aquifer (QBAA)
3. RF-5 was originally constructed in 1984 and was reconstructed in 2017. The reconstruction involved installation of an 10-inch liner inside the original casing which had deteriorated.

Table 2
Potential Contaminant Source Inventory (Located PCSs)
City of Redwood Falls (PWSID 1640008)

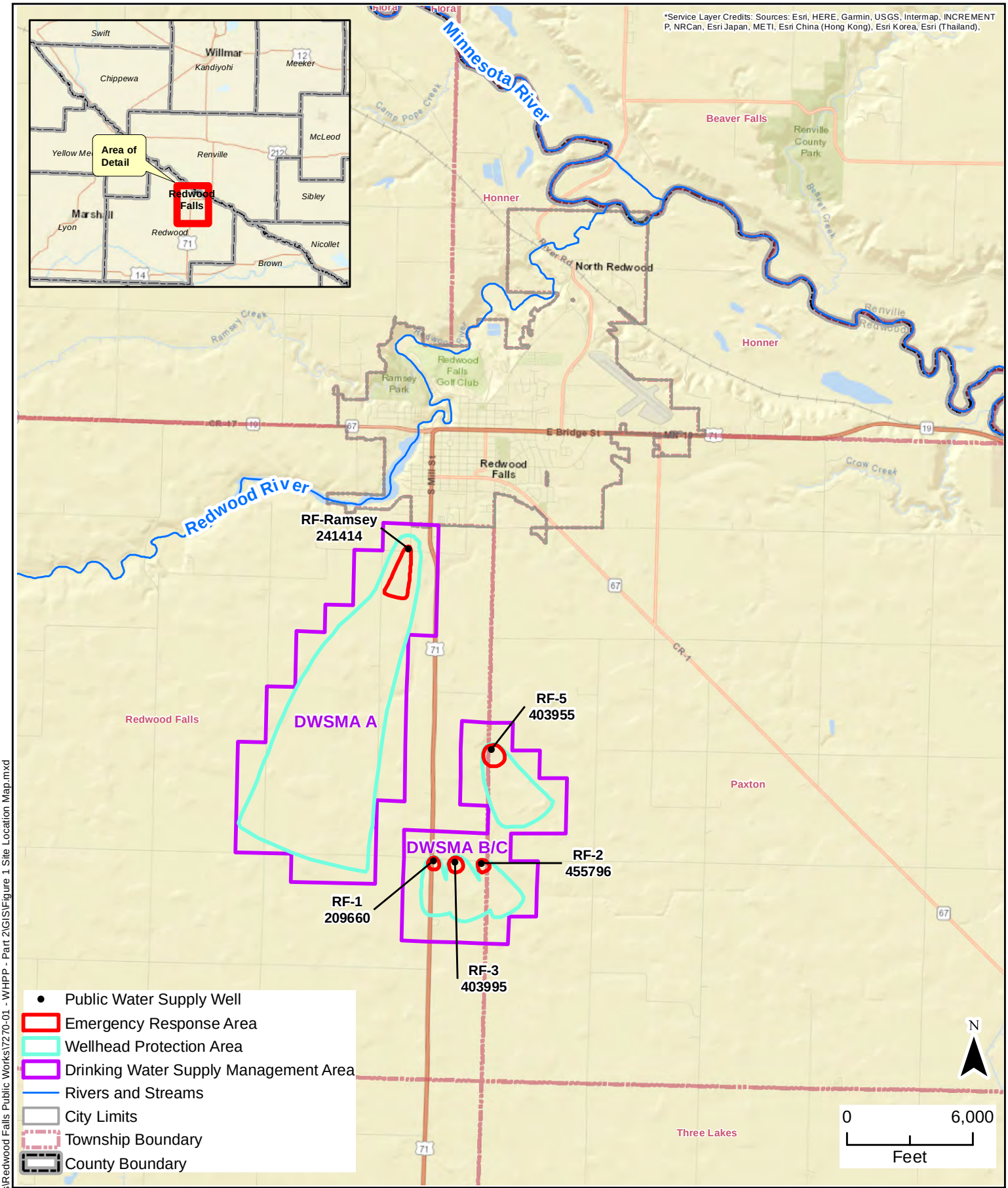
PCSI ID	PIN	FAC_NAME	ADDRESS	CITY	ZIP CODE	PCS CODE	STATUS CODE	WELL DEPTH	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA VULNERABILITY	DWSMA ID
1	630254020	REDWOOD FALLS	29439 US HWY 71 RWF (2)	Redwood Falls	56283	WEL	U	250	<null>	00195196	1	Minnesota Well Index Located Well	Low	453
2	630141060	REDWOOD FALLS TH7	0	Redwood Falls	56283	WEL	U	244	<null>	00268691	1	Minnesota Well Index Located Well	Moderate	453
3	630251020	REDWOOD FALLS TH20	0	Redwood Falls	56283	WEL	U	NA	<null>	00268711	1	Minnesota Well Index Located Well	Low	453
4	630132020	REDWOOD FALLS TH9	31837 LIBERTY AVE RWF	Redwood Falls	56283	WEL	U	NA	<null>	00268710	1	Minnesota Well Index Located Well	Moderate	453
5	630122100	REDWOOD FALLS TH14	0	Redwood Falls	56283	WEL	U	NA	<null>	00268708	1	Minnesota Well Index Located Well	Moderate	453
6	<null>	REDWOOD FALLS TH13	<null>	Redwood Falls	56283	WEL	U	NA	<null>	00268707	1	Minnesota Well Index Located Well	Moderate	453
7	630111060	REDWOOD FALLS TH10	32678 LIBERTY AVE RWF	Redwood Falls	56283	WEL	U	NA	<null>	00268706	1	Minnesota Well Index Located Well	Moderate	453
8	630234020	REDWOOD FALLS TW7	0	Redwood Falls	56283	WEL	U	240	<null>	00268700	1	Minnesota Well Index Located Well	Moderate	453
9	630244080	REDWOOD FALLS TW6	0	Redwood Falls	56283	WEL	U	196	<null>	00268699	1	Minnesota Well Index Located Well	Low	453
10	630242040	REDWOOD FALLS TW2	0	Redwood Falls	56283	WEL	U	191	<null>	00268695	1	Minnesota Well Index Located Well	Moderate	453
11	630244080	REDWOOD FALLS OBWELL 2 FOR TW2	0	Redwood Falls	56283	WEL	U	NA	<null>	00268703	1	Minnesota Well Index Located Well	Low	453
12	630122125	REDWOOD FALLS TH15	0	Redwood Falls	56283	WEL	U	NA	<null>	00268709	1	Minnesota Well Index Located Well	Moderate	453
13	630254020	REDWOOD FALLS OBWELL 1	29439 US HWY 71 RWF (2)	Redwood Falls	56283	WEL	U	270	<null>	00268705	1	Minnesota Well Index Located Well	Low	453

PCSI ID	PIN	FAC_NAME	ADDRESS	CITY	ZIP CODE	PCS CODE	STATUS CODE	WELL DEPTH	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA VULNERABILITY	DWSMA ID
14	630141060	REDWOOD FALLS TH1	0	Redwood Falls	56283	WEL	U	243	<null>	00270174	1	Minnesota Well Index Located Well	Moderate	453
15	630133020	REDWOOD FALLS TH6	0	Redwood Falls	56283	WEL	U	244	<null>	00268690	1	Minnesota Well Index Located Well	Moderate	453
16	630122125	REDWOOD FALLS TH5	0	Redwood Falls	56283	WEL	U	210	<null>	00268689	1	Minnesota Well Index Located Well	Moderate	453
17	630251020	REDWOOD FALLS 2	0	Redwood Falls	56283	WEL	A	184	<null>	00209659	1	Minnesota Well Index Located Well	Low	453
18	630252040	MONSANTO COMPANY	29750 US HWY 71 RWF	Redwood Falls	56283	WEL	A	153	<null>	00682460	1	Minnesota Well Index Located Well	Low	453
19	630251100	REDWOOD FALLS 1	0	Redwood Falls	56283	WEL	A	182	<null>	00209660	1	Minnesota Well Index Located Well	Low	453
20	630141060	RF-1 (DNR OB 64001)	0	Redwood Falls	56283	WEL	U	244	<null>	00250531	1	Minnesota Well Index Located Well	Moderate	453
21	630141040	BOOTS, FRANK	31678 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	214	<null>	00209643	1	Minnesota Well Index Located Well; Last name match	Moderate	453
22	630132020	TIFFANY, J.C.	31837 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	277	<null>	00209644	1	Minnesota Well Index Located Well; Last name match	Moderate	453
23	630122100	REDWOOD FALLS SO. RAMSEY	0	Redwood Falls	56283	WEL	A	94	<null>	00241414	1	Minnesota Well Index Located Well	Moderate	453
24	620183020	REDWOOD FALLS 5	0	Redwood Falls	56283	WEL	A	274	<null>	00403955	1	Minnesota Well Index Located Well	Low	453
25	630111060	BALL, G.	32678 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	166	<null>	00209642	1	Minnesota Well Index Located Well; Location updated slightly	Moderate	453
26	630251120	REDWOOD FALLS 2	0	Redwood Falls	56283	WEL	A	181	<null>	00455796	1	Minnesota Well Index Located Well	Low	453
27	630122100	OBSERVATION WELL	0	Redwood Falls	56283	WEL	A	154	<null>	00270177	1	Minnesota Well Index Located Well	Moderate	453
28	630251140	REDWOOD FALLS 3	0	Redwood Falls	56283	WEL	A	240	<null>	00403995	1	Minnesota Well Index Located	Low	453

PCSI ID	PIN	FAC_NAME	ADDRESS	CITY	ZIP CODE	PCS CODE	STATUS CODE	WELL DEPTH	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA VULNERABILITY	DWSMA ID
												Well		
29	630132020	TIFFANY, JOHN	31837 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	244	<null>	00161632	1	Minnesota Well Index Located Well; Last name match	Moderate	453
30	630251140	REDWOOD FALLS OB	0	Redwood Falls	56283	WEL	A	268	<null>	00403958	1	Minnesota Well Index Located Well	Low	453
31	630251100	RF-40	0	Redwood Falls	56283	WEL	U	161	<null>	00250537	1	Minnesota Well Index Located Well	Low	453
32	<null>	RF-38	<null>	Redwood Falls	56283	WEL	U	247	<null>	00250536	1	Minnesota Well Index Located Well	Low	453
33	630244080	RF-30	0	Redwood Falls	56283	WEL	U	221	<null>	00250535	1	Minnesota Well Index Located Well	Low	453
34	630234020	RF-29	0	Redwood Falls	56283	WEL	U	202	<null>	00250533	1	Minnesota Well Index Located Well	Moderate	453
35	630224020	RF-32	0	Redwood Falls	56283	WEL	U	165	<null>	00250532	1	Minnesota Well Index Located Well	Moderate	453
36	630122125	RF-17	0	Redwood Falls	56283	WEL	U	210	<null>	00250525	1	Minnesota Well Index Located Well	Moderate	453
37	630122120	RF-18	0	Redwood Falls	56283	WEL	U	165	<null>	00250524	1	Minnesota Well Index Located Well	Moderate	453
38	630122125	RF-23	0	Redwood Falls	56283	WEL	U	103	<null>	00250523	1	Minnesota Well Index Located Well	Moderate	453
39	630122100	RF-24	0	Redwood Falls	56283	WEL	U	108	<null>	00250522	1	Minnesota Well Index Located Well	Moderate	453
40	630122060	RF-16	33295 327 ST RWF	Redwood Falls	56283	WEL	U	110	<null>	00250521	1	Minnesota Well Index Located Well	Moderate	453
41	630133020	RF-3	0	Redwood Falls	56283	WEL	U	244	<null>	00250528	1	Minnesota Well Index Located Well	Moderate	453
42	638750020	DNR OB 64005 (RF-26)	29770 US HWY 71 RWF	Redwood Falls	56283	WEL	A	205	<null>	00244365	1	Minnesota Well Index Located Well	Low	453

PCSI ID	PIN	FAC_NAME	ADDRESS	CITY	ZIP CODE	PCS CODE	STATUS CODE	WELL DEPTH	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA VULNERABILITY	DWSMA ID
43	630122020	TERSTEEG, JIM	0	Redwood Falls	56283	WEL	A	100	<null>	00229605	1	Minnesota Well Index Located Well; Name match	Moderate	453
44	630122020	TERSTEEG INC.	0	Redwood Falls	56283	WEL	A	92	<null>	00229604	1	Minnesota Well Index Located Well; Name match	Moderate	453
45	630141040	BOOTS, HENRY & MARY JO	31678 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	240	<null>	00419204	1	Minnesota Well Index Located Well; Last name match	Moderate	453
46	630122140	RASMUSSEN, JASON & MAGAN	32746 US HWY 71 RWF	Redwood Falls	56283	WEL	A	92	<null>	00624244	1	Minnesota Well Index Located Well; Name match	Moderate	453
47	638750020	MONSANTO COMPANY	29770 US HWY 71 RWF	Redwood Falls	56283	WEL	A	152	<null>	00556660	1	Minnesota Well Index Located Well; Name match	Low	453
48	630252040	MONSANTO COMPANY	29750 US HWY 71 RWF	Redwood Falls	56283	WEL	A	162	<null>	00502652	1	Minnesota Well Index Located Well; Name match	Low	453
49	630111070	HANSEN, PATRICK & NANCY	32724 LIBERTY AVE RWF	Redwood Falls	56283	WEL	A	95	<null>	00545479	1	Minnesota Well Index Located Well; Name match	Moderate	453
50	620183020	REDWOOD FALLS TW5	0	Redwood Falls	56283	WEL	U	271	<null>	00268698	1	Minnesota Well Index Located Well	Low	453
51	620183020	<null>	0	Redwood Falls	56283	WEL	A	NA	<null>	00829557	1	Minnesota Well Index Located Well	Low	453
52	630251080	<null>	29751 US HWY 71 RWF	Redwood Falls	56283	WEL	A	NA	<null>	00836479	1	Minnesota Well Index Located Well	Low	453

Figures



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 1 Site Location Map.mxd

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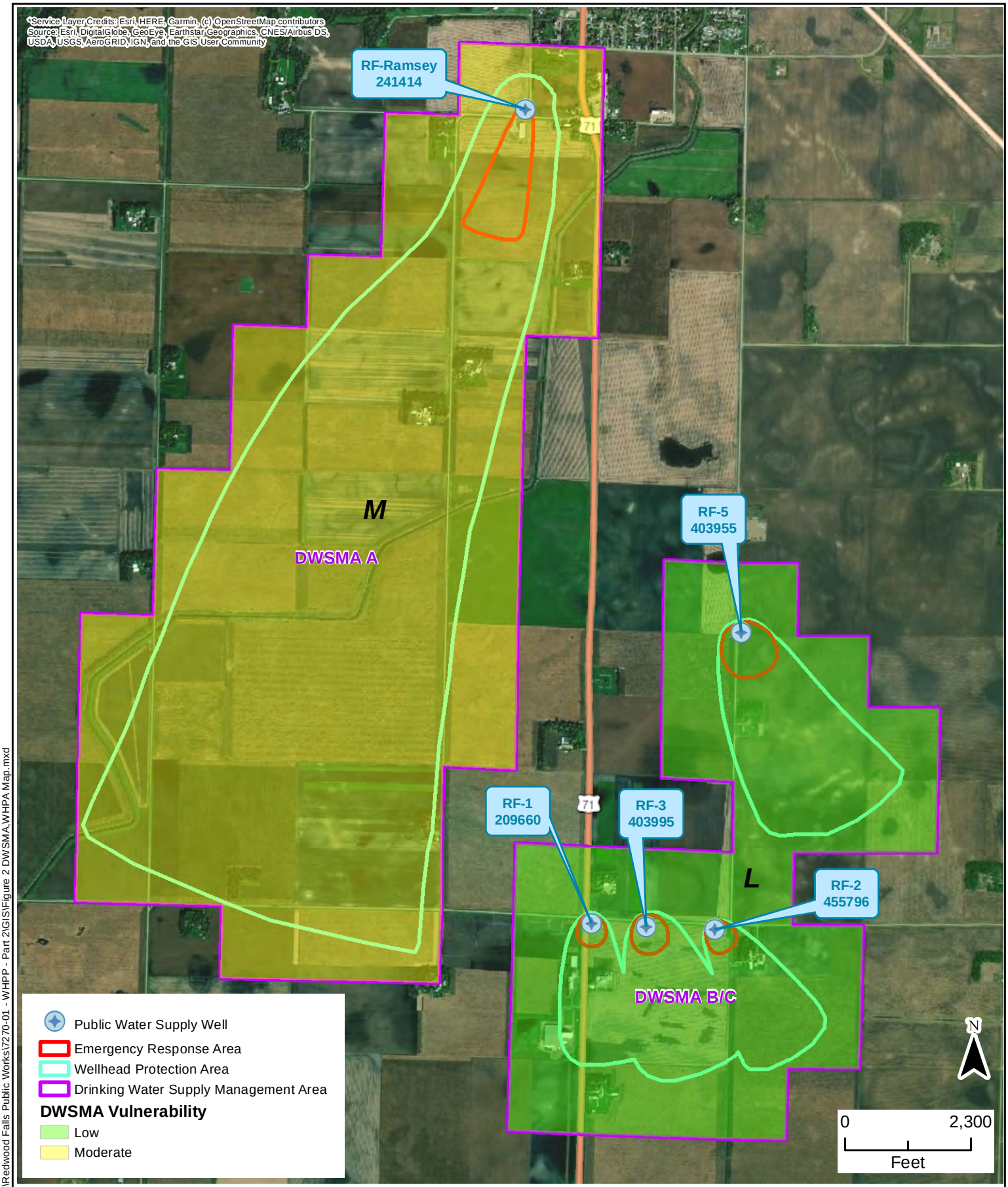
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT

City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 1

DRINKING WATER SUPPLY MANAGEMENT AREA LOCATION MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 2 DWSMA,WHPA Map.mxd

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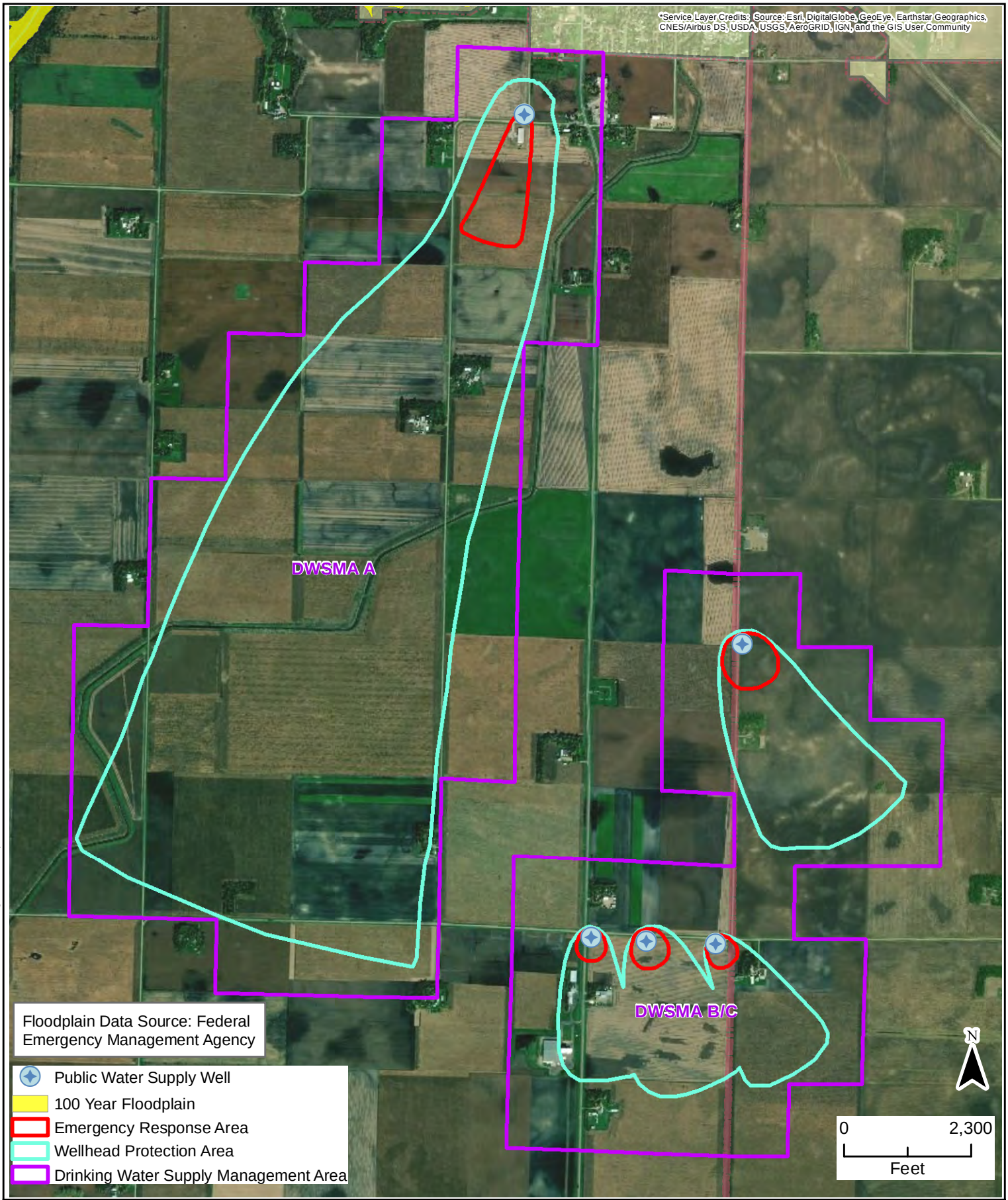
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 2
DWSMA AND WHPA LOCATIONS WITH VULNERABILITY



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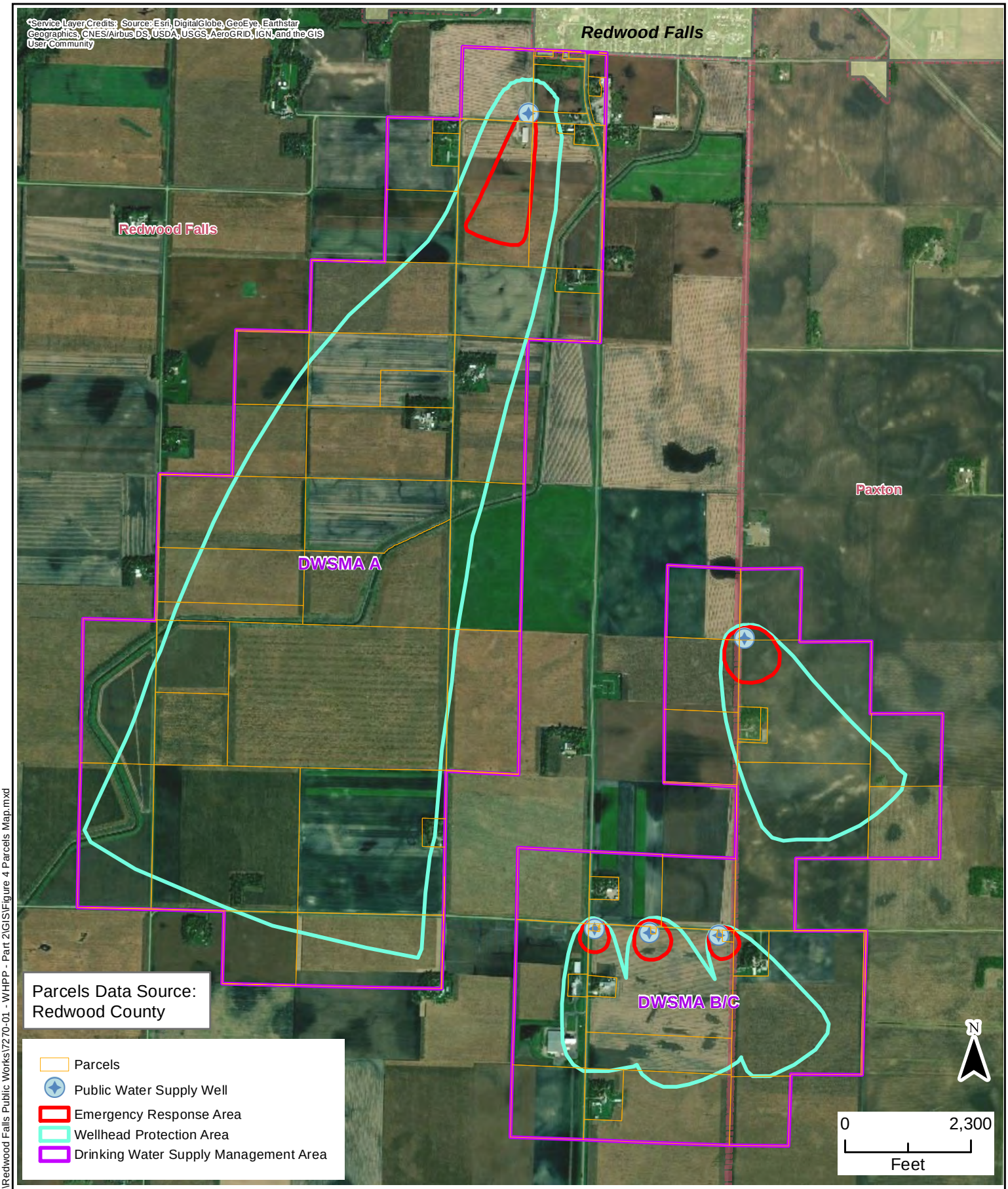
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT

City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 3

FLOODPLAIN MAP

Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 3 Floodplains.mxd



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 4 Parcels Map.mxd

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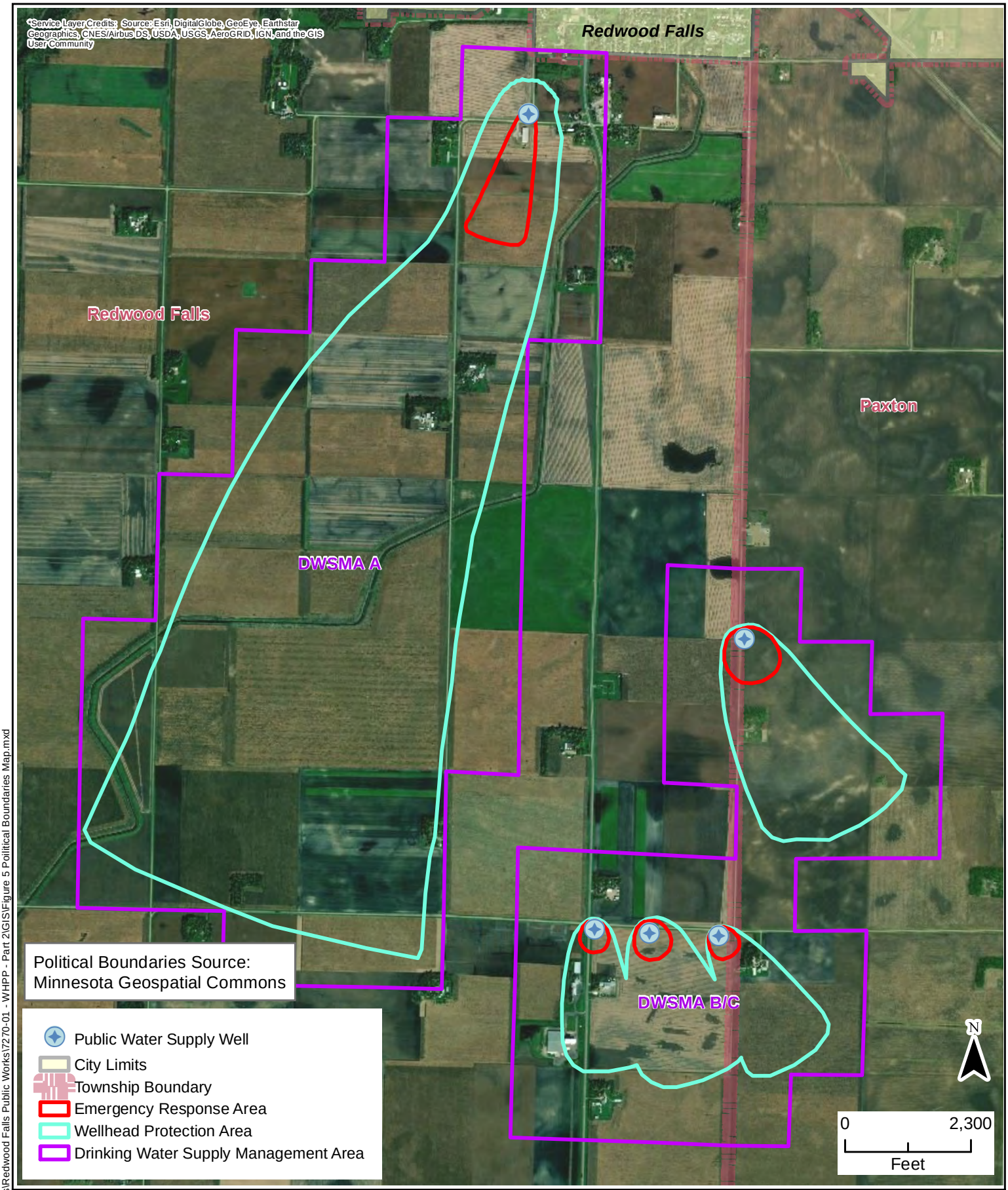
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 4

PARCEL BOUNDARY MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 5 Political Boundaries Map.mxd

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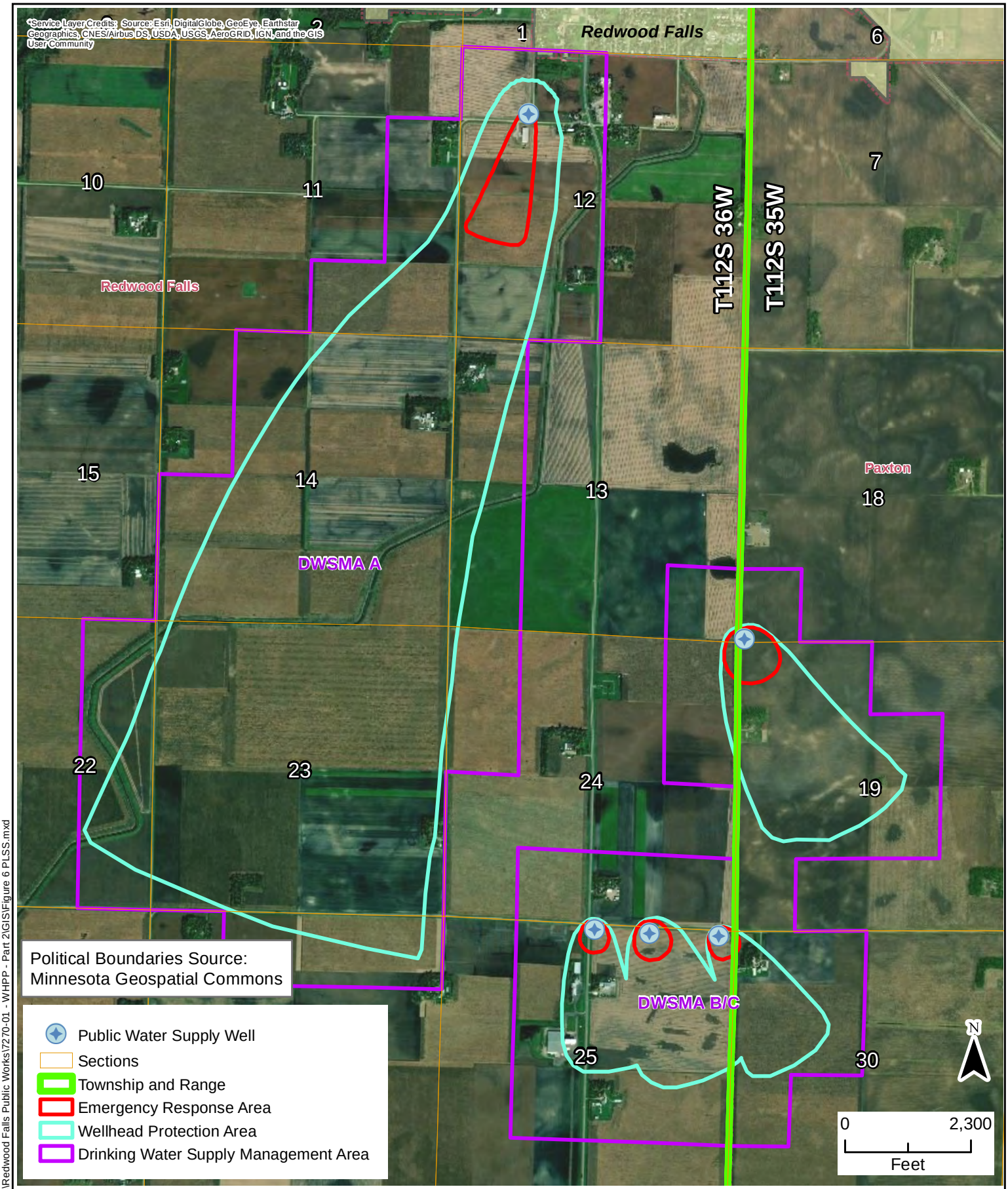
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 5

POLITICAL BOUNDARY MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 6 PLSS.mxd

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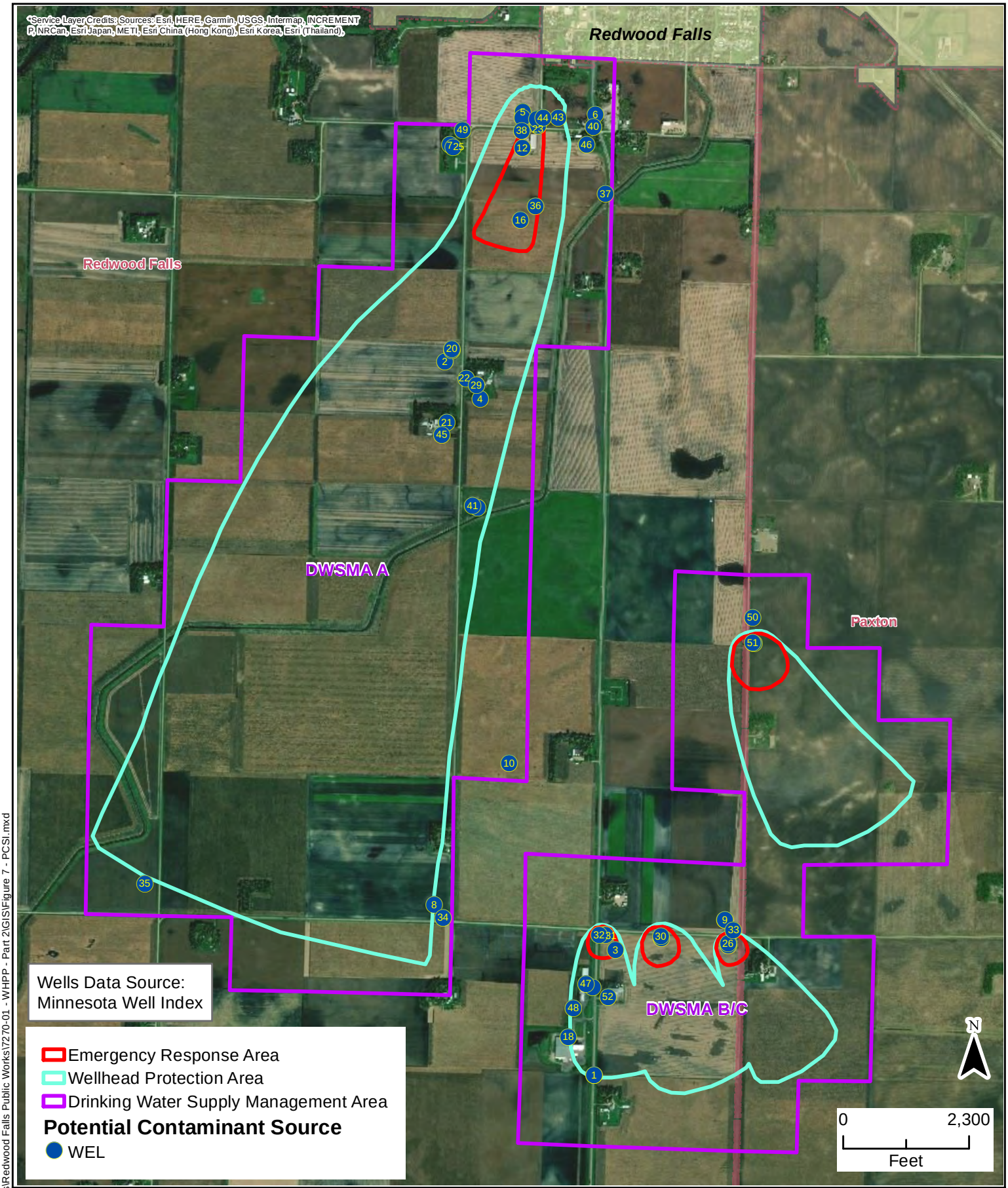
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 6
PUBLIC LAND SURVEY SYSTEM MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 7 - PCSI.mxd

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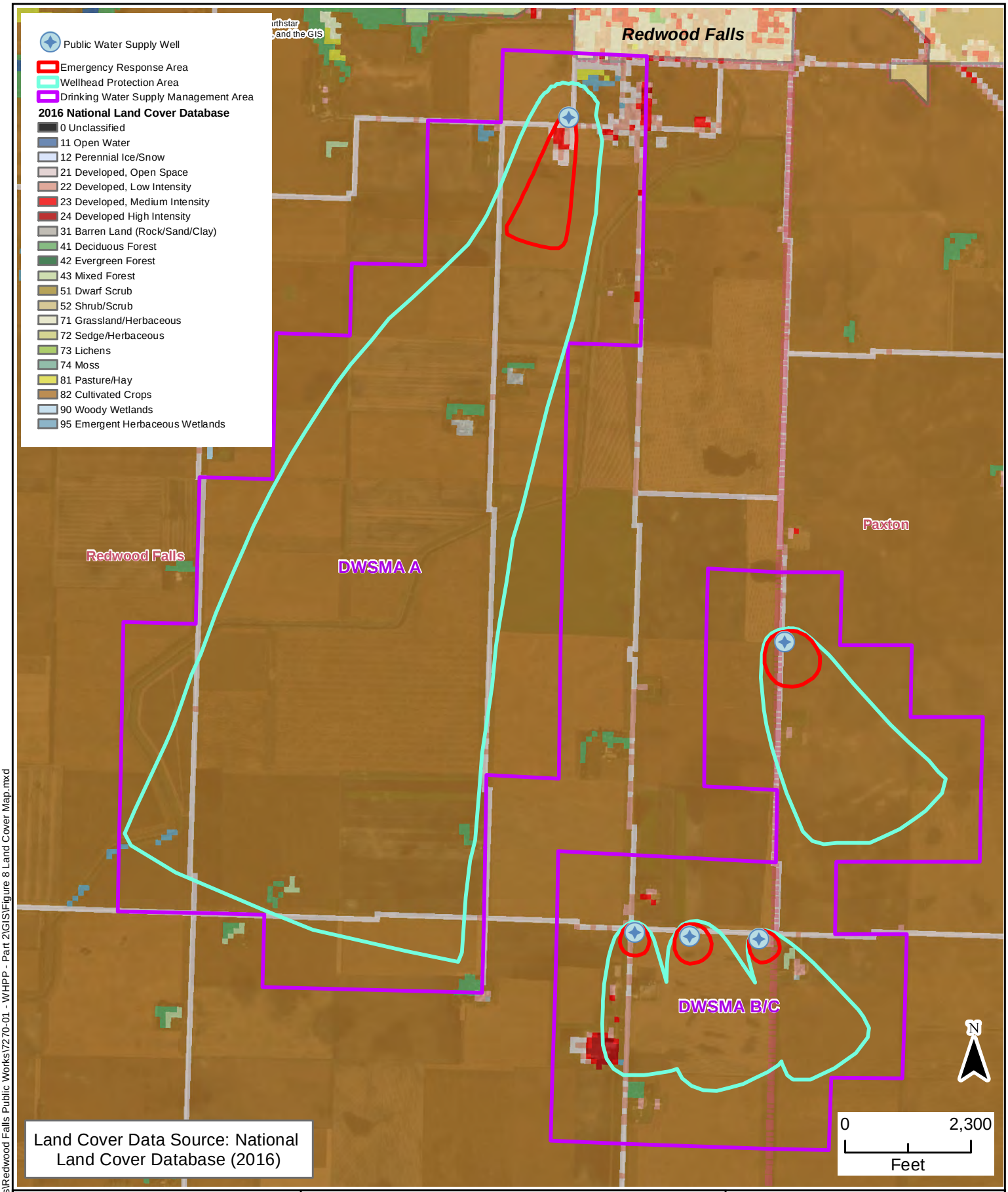
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 7

PCSI - POTENTIAL CONTAMINANT SOURCE INVENTORY



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 8 Land Cover Map.mxd

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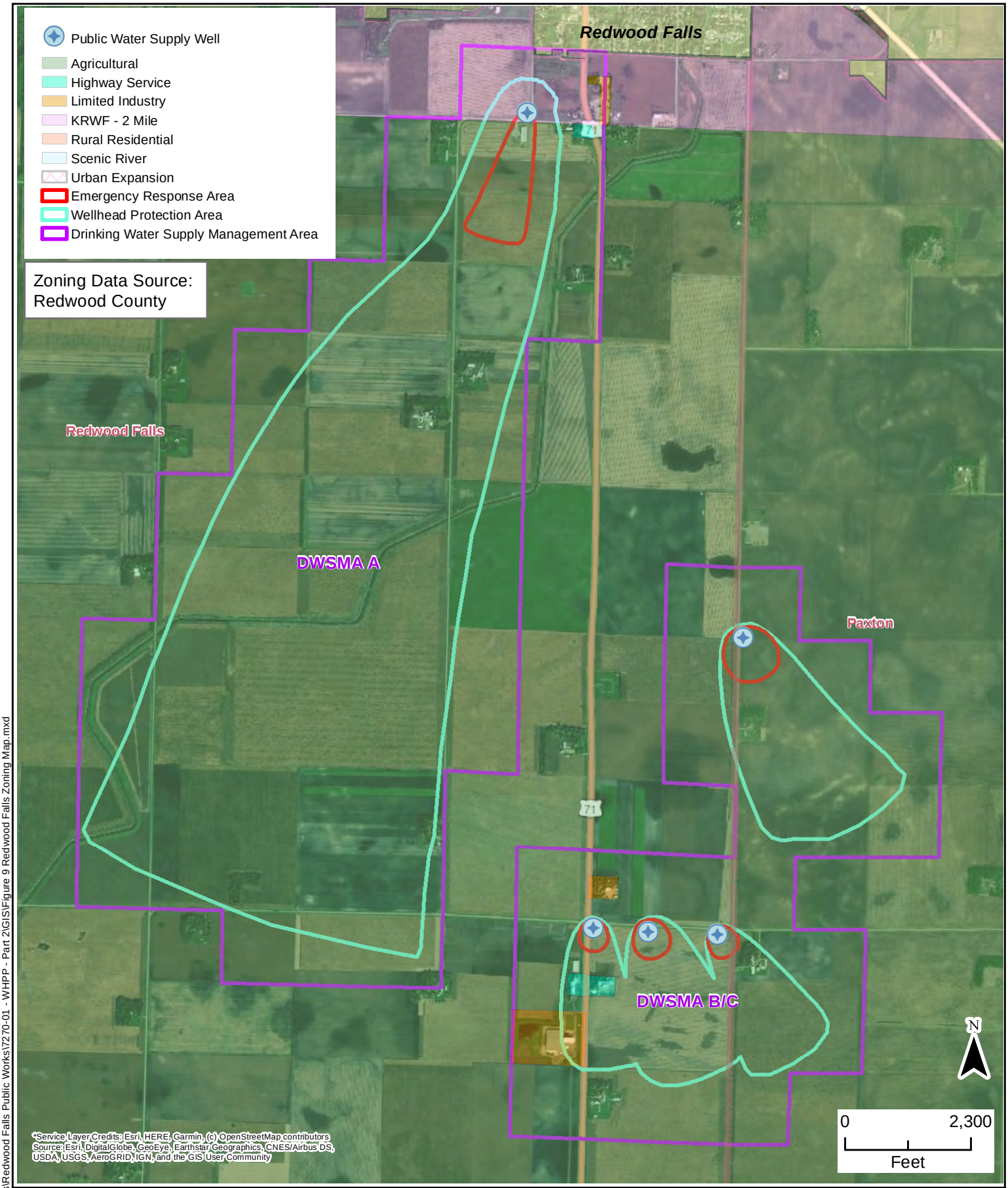
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 8

LAND COVER MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 9 Redwood Falls Zoning Map.mxd

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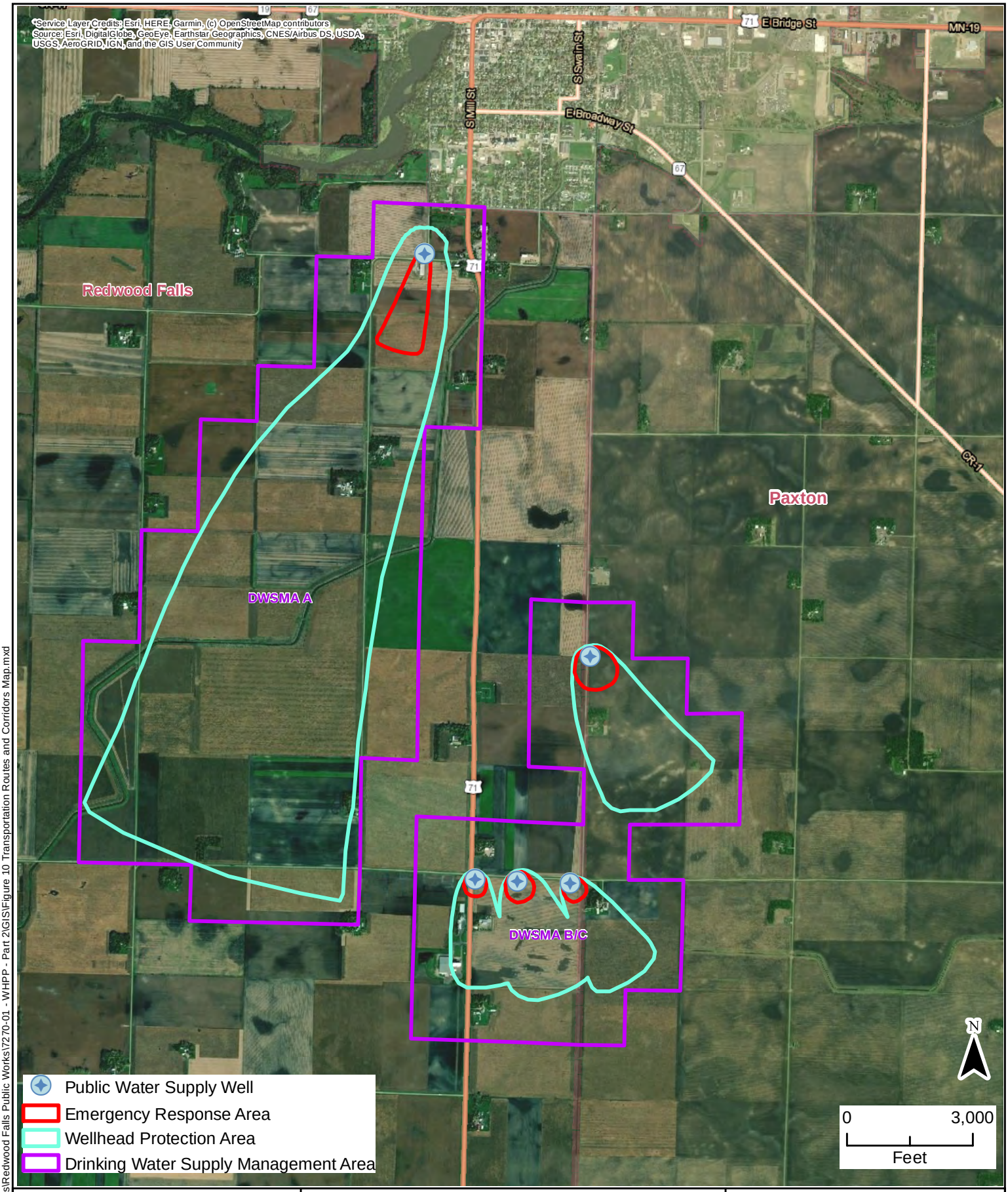
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 9
REDWOOD COUNTY ZONING MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 10 Transportation Routes and Corridors Map.mxd

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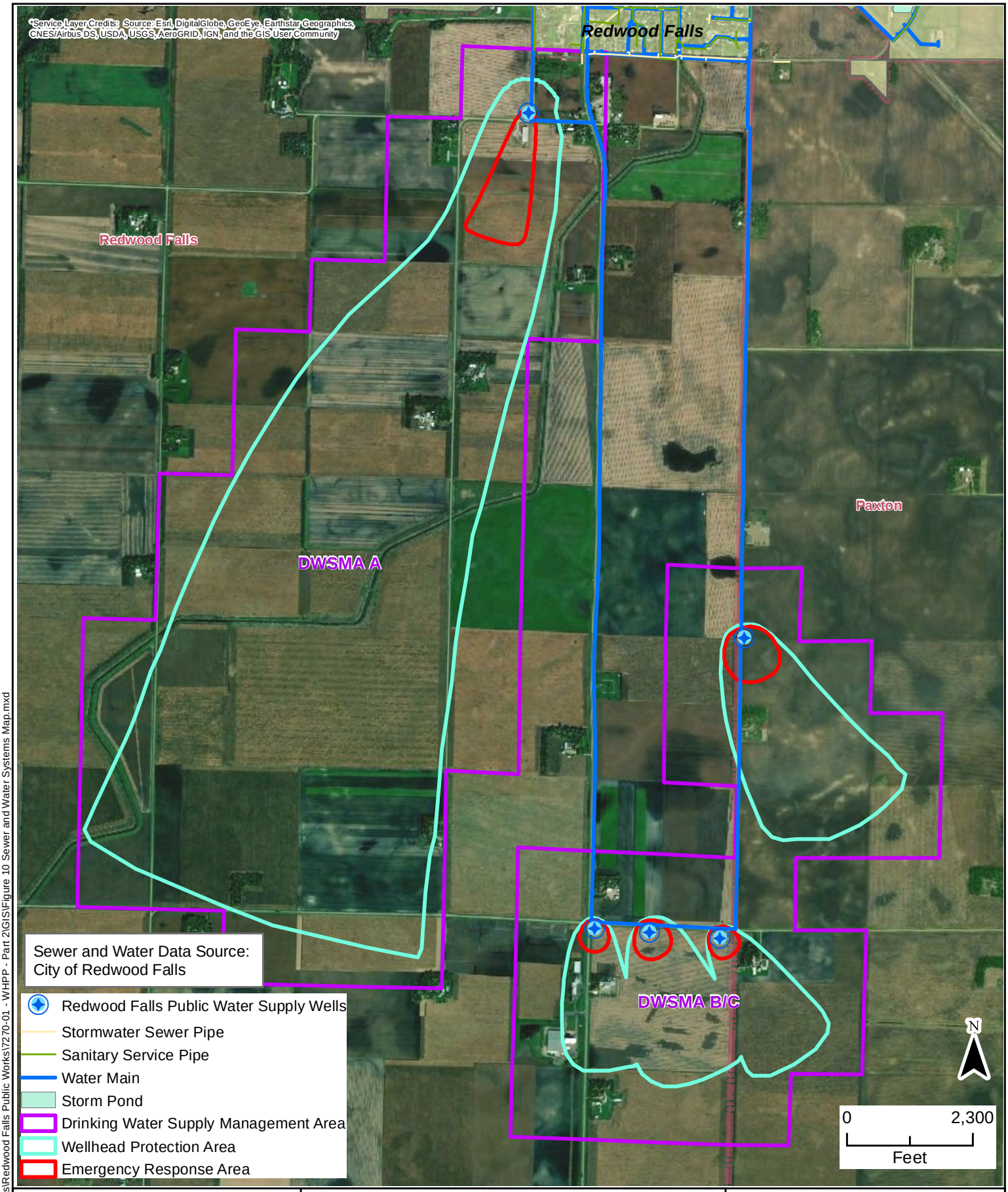
WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 10
TRANSPORTATION ROUTE AND CORRIDOR MAP



Document Path: P:\Projects\Redwood Falls Public Works\7270-01 - WHPP - Part 2\GIS\Figure 10 Sewer and Water Systems Map.mxd

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WELLHEAD PROTECTION PLAN - PART 2 AMENDMENT
City of Redwood Falls
333 South Washington Street
Redwood Falls, Minnesota

FIGURE 11
SEWER AND WATER SYSTEMS MAP

Appendix A

June 4, 2019 Scoping 2 Decision Notice and
Meeting Summary – City of Redwood Falls – PWSID 1640008

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

June 4, 2019

Mr. James Doering, Public Works Project Coordinator
Mr. Tom Stough, Water-Wastewater Superintendent
City of Redwood Falls
P.O. Box 526
Redwood Falls, Minnesota 56283-0526

Subject: Scoping 2 Decision Notice and Meeting Summary – City of Redwood Falls – PWSID 1640008

Dear Mr. Doering and Mr. Stough:

This letter provides notice of the results of a scoping meeting held with you both of you (city of Redwood Falls), David Katzner (Carlson McCain), and me on May 22, 2019, at Redwood Falls City Offices regarding wellhead protection (WHP) planning. During the meeting, we discussed the data elements that must be compiled and assessed to prepare the part of the WHP plan related to the management of potential contaminants in the approved drinking water supply management area. The enclosed Scoping 2 Decision Notice lists the data elements discussed at the meeting. We also discussed a summary of planning issues and recommendations that were identified during the Part 1 WHP Plan development process which should be considered for inclusion in your Part 2 WHP Plan.

The city of Redwood Falls has met the requirements to distribute copies of the first part of the WHP plan to local units of government and hold an informational meeting for the public. The city of Redwood Falls will have until February 18, 2020, to complete its WHP plan.

MDH understands a consultant will be working with you to develop a draft of the remainder of the WHP plan. I will be contacting you to review the progress of the development of Part 2 of your plan. Upon request, the Technical Assistance Planner can provide a glossary of terminology, identification of information sources for the required Data Elements, and other technical assistance documents. If you have any questions regarding the enclosed notice, contact me by email at Amanda.Strommer@state.mn.us or by phone at 507-476-4241.

Sincerely,

Amanda Strommer

Amanda Strommer, Planner
Environmental Health Division
1400 East Lyon Street
Marshall, Minnesota 56258-2529

AS:ds-b

Enclosures

cc: John Blomme, MDH Engineer, Marshall District Office
Luke Stuewe, Minnesota Department of Agriculture

Date: June 4, 2019

Name of Public Water Supply: City of Redwood Falls

PWSID: 1640008

Name of the Wellhead Protection Manager: Mr. James Doering, Public Works Project Coordinator and Mr. Tom Stough, Water-Wastewater Superintendent

Address: P.O. Box 526

City: Redwood Falls

Zip: 56283-0526

Phone: 507-637-5755

Primary Unique Well Numbers: 241414 (Well South Ramsey), 209660 (Well #1), 455796 (Well #2), 403995 (Well #3), 403955 (Well #5)

DWSMA Vulnerability: ☒ Low ☒Moderate

The purpose for the second scoping meeting, as required by Minnesota Rules, part 4720.5340, is to discuss the information necessary for preparing Part 2 of a Wellhead Protection Plan. The Part 1 Plan identifies the area that provides the source of drinking water for the public water supply (PWS) and assesses how vulnerable that area is to contamination. The PWS can utilize that information to develop land use and management practices that protects their groundwater resource from contamination.

The wellhead rule (Minnesota Rules, part 4720.5340) refers to the information required for wellhead planning as data elements. This notice lists the data elements that are stated in Minnesota Rules, part 4750.5400 and are selected for the PWS because of the vulnerability of the drinking water supply management area (DWSMA) as determined in Part 1.

Scoping 2 Data Elements Needed for the Part 2

Data Elements are pieces of information in the form of a map, a list, records, tables and inventories. Where appropriate, they should be reviewed and assessed in terms of their present and/or future implications on the 1) use of the well(s), 2) quality and quantity of water supplying the public water supply wells(s), and 3) land and groundwater uses in the DWSMA. It is important to discuss the relevance of the data elements to management of the DWSMA. Check the technical assistance comments for guidance on reviewing the data elements and conducting these assessments. Clearly identify in the plan which data elements are associated with which tables/figures. If a data element does not exist, state that in the narrative.

Submit –

The following information MUST be submitted in the Part 2 by including it in the plan narrative and/or appendix. An asterisk* with red text indicates information that MUST be contained in the Part 2.

- ☐ *A map that indicates the vulnerability and includes the DWSMA, WHP Area, and Emergency Response Area must be included in the Part 2. This map with vulnerability is a product of the Part 1 and provides a basis for planning activities in Part 2. SWP Planner can provide the DWSMA figure.

DATA ELEMENTS ABOUT THE LAND USE –

Land Use

- ☐ *An existing map of political boundaries.
- ☐ *An existing map of public land surveys including township, range, and section.

Technical Assistance Comments: A map or maps showing updated political boundaries and township, range, section with labels is required for determining land use authorities for the land within the DWSMA. DWSMA figure map provided by SWP Planner will also contain political boundaries with township, range, and section. Determine and discuss how the various land use authorities may affect the management of the DWSMA.

- A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.
  - ☐ *The Potential Contaminant Source Inventory (PCSI) data in both a table and map format must be created and included in the Part 2. Include potential contaminant sources as listed on the PCSI attachment provided for each existing vulnerability within the DWSMA.
    - If DWSMA contains low vulnerability inventory wells greater than 110 feet in depth. Also inventory wells of undocumented or unknown depths.}
      {If DWSMA contains moderate vulnerability inventory all wells.
    - The inventory should include your community wells but not include any wells that are known to have been sealed according to the Minnesota Well Code (MN Rules 4725).
  - ☐ *A land use/land cover map and table. SWP Planner can provide a land cover map and data/table from federal sources. This data set should be used unless an alternative electronic data set that is more current and detailed is available. Assess and discuss changes in land use that could impact management of the DWSMA.

- ☐ *An inventory of the Inner Wellhead Management Zone (IWMZ). A recent IWMZ inventory (within six years) for each primary well with management recommendations on the MDH form, or a table that summarizes the number and type of contaminant sources with the management recommendations must be included. Incorporate or reference the recommendation(s) from the IWMZ into the Part 2. IWMZ will be completed by the SWP Planner with assistance from the PWS staff. A copy will be provided to the PWS.

Technical Assistance Comments: This section encompasses the Potential Contaminant Source Inventory known as the PCSI. See the Scoping 2 Decision Notice Potential Contaminant Source Inventory Requirement Attachment(s) and endorsement procedures/fact sheets for further information. Utilize the PCSI geodatabase attribute template provided by SWP Planner. Management strategies must be developed for potential sources of contamination that pose a risk to the drinking water supply.

- ☐ *An existing comprehensive land-use map.
- ☐ *An existing zoning map.

Technical Assistance Comments: This information can indicate areas in the DWSMA where growth or the addition of potential contaminant sources is likely to occur. Furthermore, the review of local zoning and comprehensive land-use maps facilitates the evaluation of the degree of compatibility current and future land uses have with the PWS goals of protecting the drinking water wells and aquifer.

Public Utility Services

- ☐ *An existing map of transportation routes or corridors.

Technical Assistance Comments: Highway and railroad corridors can be used to move hazardous materials. These corridors should be evaluated to determine the level of risk they pose for spills in the DWSMA, considering their proximity to the wells, the local topography, and geologic conditions.

- ☐ *An existing map of storm sewers, sanitary sewers, and public water supply systems.

Technical Assistance Comments: Storm sewer systems and sanitary systems can be sources of contamination. Storm sewers are generally considered a public utility element designed to convey storm water runoff and use constructed features such as pipes and ponds. Evaluate the integrity and condition (age, type of material, any investigative work, etc.) of these systems in the DWSMA, noting the location of the water supply system and public water supply wells in relation to these potential contaminant sources. It is not necessary to include a map of your public water supply system in the Part 2 if you believe it would pose a threat to the security of your system.

☐ *An existing map of the gas and oil pipelines used by gas and oil suppliers.

Technical Assistance Comments: Petroleum pipelines can be sources of contamination (excluding liquefied natural gas pipelines). If possible, describe what is generally known about the condition of these pipelines in the DWSMA, and the readiness of the PWS to respond to an emergency. It is not necessary to include a map in the Part 2 if you believe it would pose a security threat.

Required to be discussed in plan-

The following information (if existing) MUST be reviewed and discussed in the development of the Part 2. The Part 2 narrative must contain a description identifying whether/how the information may influence the management of the DWSMA. The data element may be located in the public domain. While the map or document reviewed is not required to be included in the Part 2, the source of the data element must be provided in the plan narrative by indicating a web address or reference to its location.

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT –

Water Resources

- An existing map of the boundaries and flow directions of major watershed units and minor watershed units.

Technical Assistance Comments: Identify/list the major and minor watershed(s) in the Part 2 in order to become aware of local water planning efforts such as One Watershed One Plan (1W1P), Watershed Restoration and Protection Strategies (WRAPS), and/or Groundwater Restoration and Protection Strategies (GRAPS).

- An existing map showing those areas delineated as floodplain by existing local ordinances.

Technical Assistance Comments: Assess and describe any issues and management needed in the DWSMA based on the Federal Emergency Management Agency (FEMA) Floodplain 100-year FIRM (Flood Insurance Rate Map) and (or) other State and local floodplain or flooding information. Consult with the WHP Manager to evaluate any potential or historical flooding impacts on the public water supply wells or aquifer. The Inner Well Management Zone report and Sanitary Survey may be used to identify flooding issues and impacts.

DATA ELEMENTS ABOUT THE LAND USE –

Land Use

- An existing map of parcel boundaries.

Technical Assistance Comments: Parcel boundaries may have been used for delineation of the DWSMA in Part 1. In Part 2, parcel identification information must be included or linked and must be used for education or targeting activities or practices in addressing potential contaminants. In the narrative indicate if parcel data is available from the public domain (i.e. county GIS or associated website such as Beacon).

Part 1 -

The following information was reviewed and assessed in Part 1. The Part 1 should be used as a data source for the Part 2. The technical assistance comments provide the requirements for how this information must be discussed and/or included in the Part 2. Include relevant excerpts or summaries from the Part 1 where indicated. Or, if the Part 1 is included in the appendix that can be referenced.

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT –

- An existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics.
- Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department.
- Existing borehole geophysical records from wells, borings, and exploration test holes.
- Existing surface geophysical studies.

Technical Assistance Comments: Provide a summary in the plan narrative (few sentences/paragraph) of the Description of the Hydrologic Setting from Part 1. Provide the conclusions regarding the Well and DWSMA Vulnerabilities related to the geologic conditions and how these conditions influence the management of the DWSMA.

DATA ELEMENTS ABOUT THE LAND USE –

Public Utility Services

- An existing record of construction, maintenance, and use of the public water supply well and other wells within the DWSMA.

Technical Assistance Comments: Well construction records indicate what is known about the well(s) and can indicate if the well(s) have structural integrity or groundwater protection issues. Briefly summarize in the plan narrative what is discussed about each well from the Assessment of Well Vulnerability in Part 1.

DATA ELEMENTS ABOUT WATER QUANTITY –

Groundwater Quantity

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

Technical Assistance Comments: This information, if known, was incorporated into the Part 1 and was used to assist in determining hydrologic boundary conditions and area static water levels. In Part 2, information about Department of Natural Resources appropriation permit holders and any known well interference problems or water use conflicts must be discussed, including how this information could affect the management of the DWSMA.

DATA ELEMENTS ABOUT WATER QUALITY –

Groundwater Quality

- An existing summary of water quality data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; and 3. organic chemicals.
- An existing list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points.
- An existing report of groundwater tracer studies.

Technical Assistance Comments: This information, if known, was incorporated into the Part 1. Provide a summary of the assessment of well vulnerability and/or any relevant chemistry and isotopic composition data available from PWS wells and other wells/sources.

- An existing site study and well water analysis of known areas of groundwater contamination.
- An existing property audit identifying contamination.
- An existing report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.

Technical Assistance Comments: This information, if known, was incorporated into the Part 1. Discuss whether there are groundwater contamination areas that could pose a risk to the public water supply well(s) now or in the future. Include any relevant data and how this information may affect the management of the DWSMA.

Revised: 04/2019

DEPARTMENT OF HEALTH

Redwood Falls Scoping 2 Meeting
Wellhead Protection (WHP) Plan Amendment
Summary of Planning Issues

This planning issues summary is intended to guide plan writers and WHP teams when developing their amendment. It highlights key issues identified to date that you should consider and discuss. It should not be considered a list of complete requirements for the amendment.

Summarize the management implications from minor changes in DWSMA or vulnerability:

DWSMA changed from one DWSMA with moderate vulnerability to two DWSMAs with moderate and low vulnerability.

Community changes and implications for management:

The city made good progress in the implementation of the original wellhead protection plan. Examples include landowner mailings and partnership with the county/SWCD. Commercial and residential water use is declining due to conservation measures. The water plant is sized appropriately to handle any growth.

Key management activities to carry forward:

Note to plan writer: Update current language so management strategies are SMART (Specific, Measurable, Achievable, Relevant/Realistic, Timing). Consider using the MDH Management Strategy Catalog.

The wellhead protection team will evaluate and determine management activities to carry forward during plan development.

New management strategies to consider:

1. Well Inventory: The Wellhead Protection Plan Part 2 should provide for an inventory of wells within the DWSMAs as part of the Potential Contaminant Source Inventory (PCSI). The inventory should be updated every 2.5 years and include both active and sealed wells. This can be accomplished using the Minnesota Well Index and through collaboration with high capacity well users and with the DNR High Capacity Appropriations permit program. The city should attempt to verify unused wells in the vicinity of the wellfields and provide guidance or assistance to seal the wells as appropriate. Well sealing assistance may be available in certain circumstances through the county or as part of the MDH implementation grant program. Additional information can be found at the MDH Well Management Program website.

2. If the pump in the Ramsey well is pulled for maintenance or replacement during plan implementation, the city should consider a downhole video inspection to look for potential flaws in the well casing that could result in the low-level detections of tritium seen in samples from the well. Depending on the availability of funds, MDH may be able to conduct the logging of the well and will also work with the Minnesota Geological Survey on downhole logging. The city should contact their Source Water Protection hydrologist for assistance.

3. Water Level Monitoring: The city should consider developing and implementing a water level monitoring program if suitable wells can be identified for use as potential long term monitoring points. The use of water level data loggers could simplify data collection over time and provide a record of water level changes that could be correlated with groundwater withdrawals and varying recharge based on climatic patterns and could help with model calibration in future amendments.

4. Water Quality Monitoring: During year six of plan implementation the city should consider development of a sampling plan for the active public water supply wells. MDH may be able assist with development and implementation of the plan which would include sampling for the MDH vulnerability parameters including chloride, bromide, sulfate, nitrate, ammonia, tritium, field measurements, alkalinity, water stable isotopes and total organic carbon. This information would be used to inform the next amendment of the city's Wellhead Protection Plan.

Old municipal wells that need to be sealed:

See Old Municipal Well Report from MDH dated March 2019.

Important partnerships to maintain or establish:

Continue and maintain partnerships and wellhead protection team through the planning and implementation process.

Water quantity issues and implications:

Continue opportunities to address any issues with water quantity and encourage conservation measures.

Water quality issues and implications:

Continue opportunities to address any issues with water quality.

Appendix B

May 2016 Inner Well Management Zone PCSI Reports

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1640008 **COMMUNITY**
NAME	Redwood Falls
ADDRESS	Redwood Falls Water Superintendent, P.O. Box 526, Redwood Falls, MN 562830526

FACILITY (WELL) INFORMATION

NAME	Well So. Ramsey
FACILITY ID	S01
UNIQUE WELL NO.	241414
COUNTY	Redwood

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1640008 S01	**UNIQUE WELL NO.**	241414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1640008 S01	UNIQUE WELL NO.	241414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	173	
WEL	Operating well	record dist.	record dist.		Y	125	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	5	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		

PWS ID / FACILITY ID	1640008 S01	UNIQUE WELL NO.	241414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

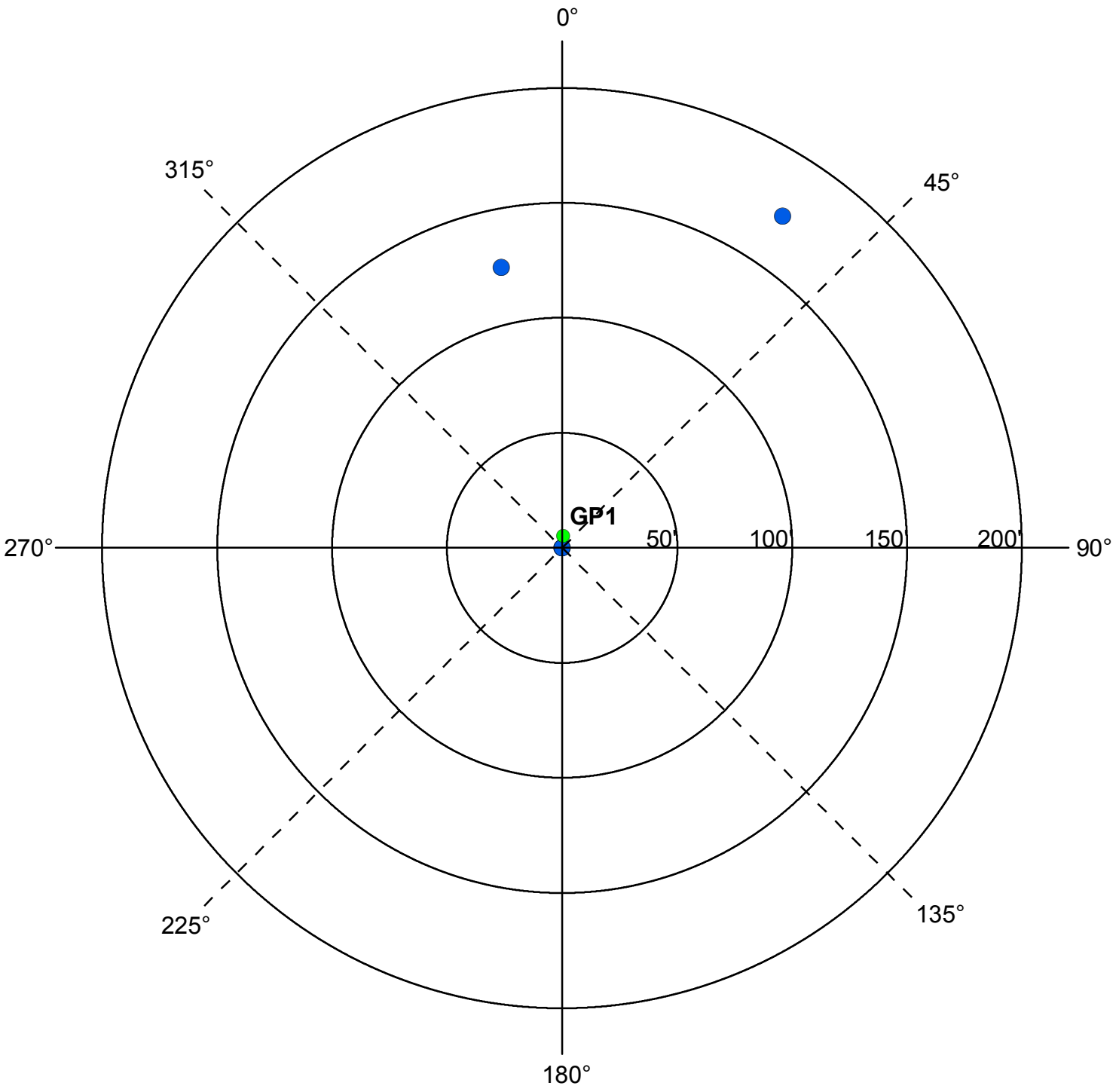
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1640008 S01	UNIQUE WELL NO.	241414

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?	X		
Is the system monitoring existing nonconforming sources of contamination?	X		

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Strommer, Amanda	DATE	5 - 10 - 2016

PWS ID / FACILITY ID	1640008 S01	UNIQUE WELL NO.	241414

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		05/10/2016
Any unused and unsealed wells in the IWMZ should be sealed in accordance with Minn. Rules 4725.3850 and 4725.3875 by a properly licensed well contractor. Unused wells that have not been properly sealed can provide a direct pathway for contaminants to enter the drinking water source.		05/10/2016
The gravel pocket/french drain should be relocated to meet the required minimum isolation distance of 20 feet specified in Minn. Rules, Chapter 4725. This could reduce the risk of potential contaminants from entering your drinking water supply well.		05/10/2016

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1640008 **COMMUNITY**
NAME	Redwood Falls
ADDRESS	Redwood Falls Water Superintendent, P.O. Box 526, Redwood Falls, MN 562830526

FACILITY (WELL) INFORMATION

NAME	Well #1
FACILITY ID	S02
UNIQUE WELL NO.	209660
COUNTY	Redwood

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1640008 S02	**UNIQUE WELL NO.**	209660

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1640008 S02	UNIQUE WELL NO.	209660

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	27	
WEL	Operating well	record dist.	record dist.		Y	89	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		Y	10	N
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	3	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		

PWS ID / FACILITY ID	1640008 S02	UNIQUE WELL NO.	209660

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

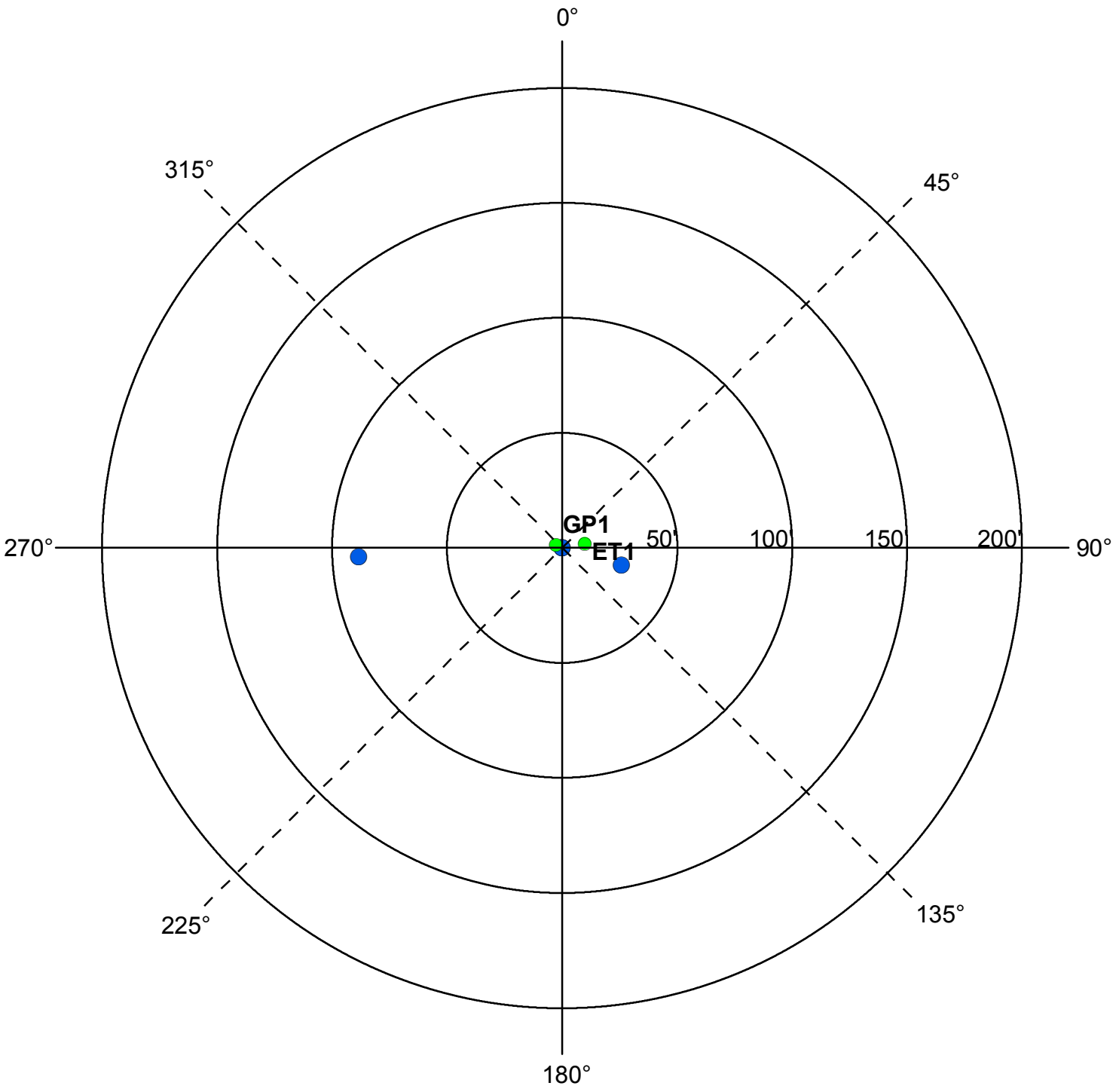
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1640008 S02	UNIQUE WELL NO.	209660

SETBACK DISTANCES — **All potential contaminant sources must be noted on sketch.**

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?	X		
Is the system monitoring existing nonconforming sources of contamination?	X		

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Strommer, Amanda	DATE	5 - 10 - 2016

PWS ID / FACILITY ID	1640008 S02	UNIQUE WELL NO.	209660

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		05/10/2016
Any unused, unsealed wells located in the IWMZ should be sealed in accordance with Minn. Rules 4725.3850 and 4725.3875 by a properly licensed well contractor. Unused wells that have not been properly sealed can provide a direct pathway for contaminants to enter the drinking water source.		05/10/2016
The gravel pocket/french drain should be relocated to meet the required minimum isolation distance of 20 feet specified in Minn. Rules, Chapter 4725. This could reduce the risk of potential contaminants from entering your drinking water supply well.		05/10/2016

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1640008 **COMMUNITY**
NAME	Redwood Falls
ADDRESS	Redwood Falls Water Superintendent, P.O. Box 526, Redwood Falls, MN 562830526

FACILITY (WELL) INFORMATION

NAME	Well #2
FACILITY ID	S03
UNIQUE WELL NO.	455796
COUNTY	Redwood

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1640008 S03	**UNIQUE WELL NO.**	455796

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1640008 S03	UNIQUE WELL NO.	455796

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	26	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		Y	85	N
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	14	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1640008 S03	UNIQUE WELL NO.	455796

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

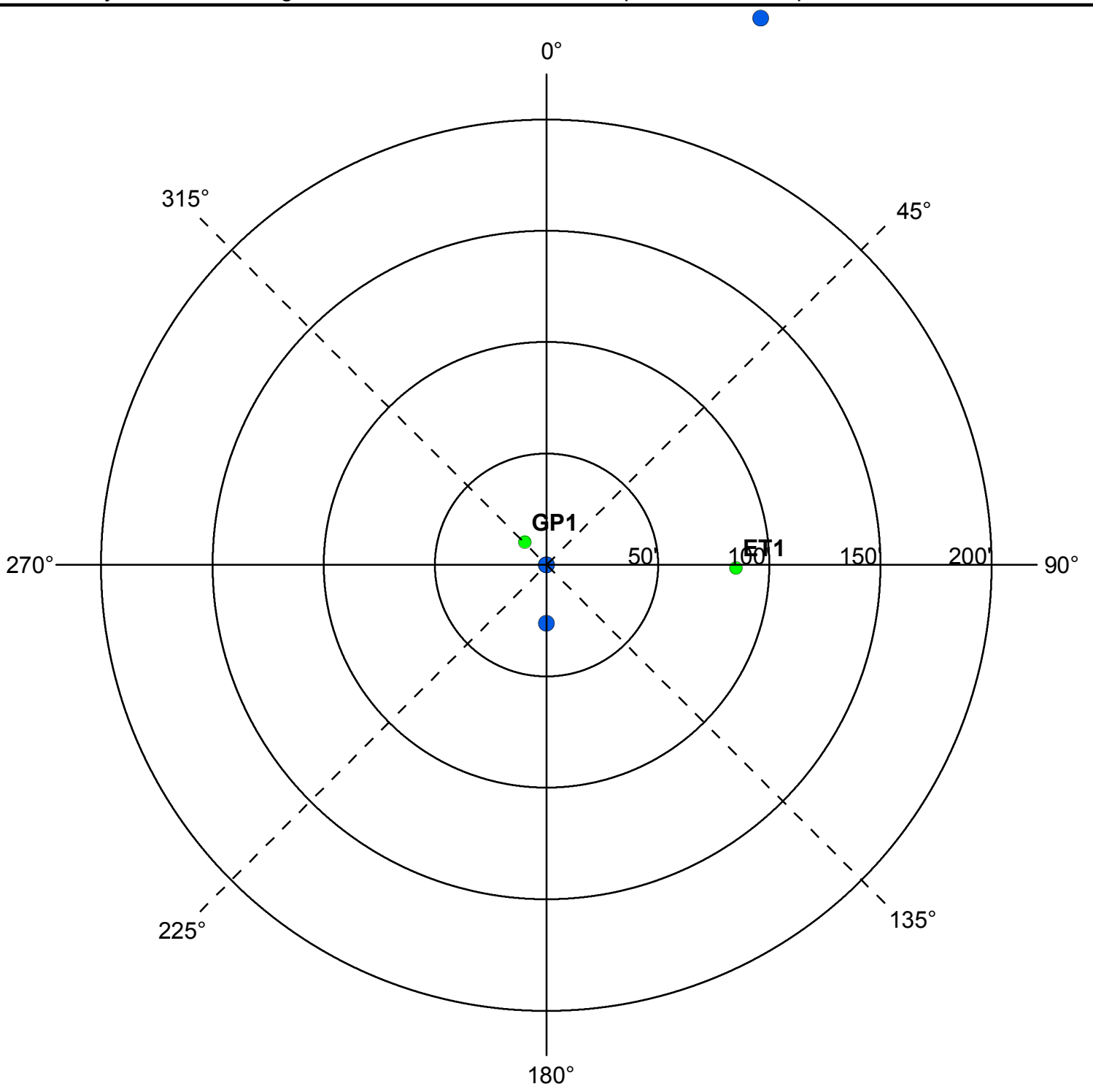
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1640008 S03	UNIQUE WELL NO.	455796

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?	X		
Is the system monitoring existing nonconforming sources of contamination?	X		

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Strommer, Amanda	DATE	5 - 10 - 2016

PWS ID / FACILITY ID	1640008 S03	UNIQUE WELL NO.	455796

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		05/10/2016
Any unused, unsealed wells located in the IWMZ should be sealed in accordance with Minn. Rules 4725.3850 and 4725.3875 by a properly licensed well contractor. Unused wells that have not been properly sealed can provide a direct pathway for contaminants to enter the drinking water source.		05/10/2016
The gravel pocket/french drain should be relocated to meet the required minimum isolation distance of 20 feet specified in Minn. Rules, Chapter 4725. This could reduce the risk of potential contaminants from entering your drinking water supply well.		05/10/2016

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1640008 **COMMUNITY**
NAME	Redwood Falls
ADDRESS	Redwood Falls Water Superintendent, P.O. Box 526, Redwood Falls, MN 562830526

FACILITY (WELL) INFORMATION

NAME	Well #3
FACILITY ID	S05
UNIQUE WELL NO.	403995
COUNTY	Redwood

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1640008 S05	**UNIQUE WELL NO.**	403995

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1640008 S05	UNIQUE WELL NO.	403995

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	42	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		Y	15	N
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	3	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1640008 S05	UNIQUE WELL NO.	403995

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

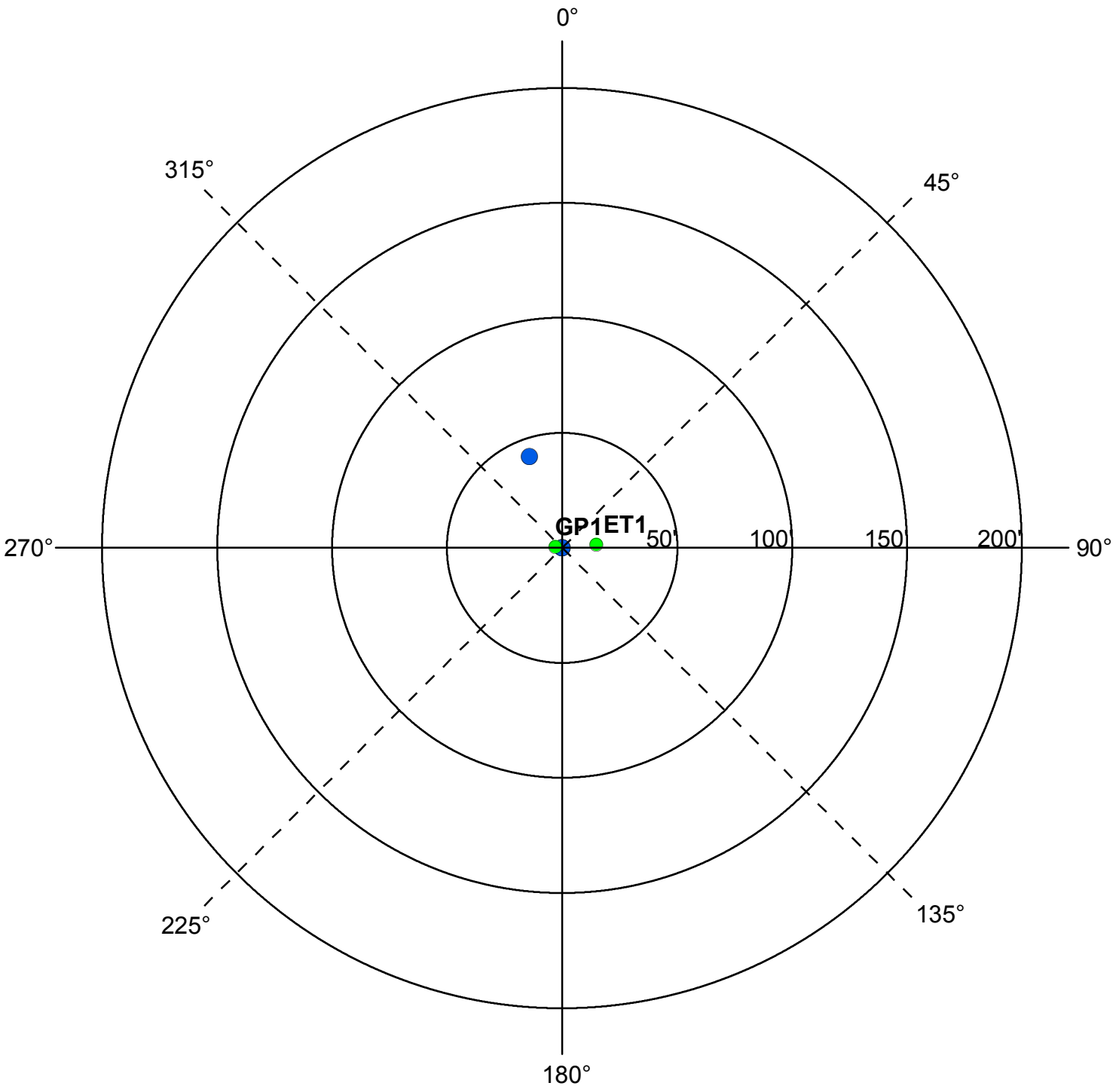
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1640008 S05	UNIQUE WELL NO.	403995

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?	X		
Is the system monitoring existing nonconforming sources of contamination?	X		

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Strommer, Amanda	DATE	5 - 10 - 2016

PWS ID / FACILITY ID	1640008 S05	UNIQUE WELL NO.	403995

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		05/10/2016
Any unused, unsealed well located in the IWMZ should be sealed in accordance with Minn. Rules 4725.3850 and 4725.3875 by a properly licensed well contractor. Unused wells that have not been properly sealed can provide a direct pathway for contaminants to enter the drinking water source.		05/10/2016
The gravel pocket/french drain should be relocated to meet the required minimum isolation distance of 20 feet specified in Minn. Rules, Chapter 4725. This could reduce the risk of potential contaminants from entering your drinking water supply well.		05/10/2016

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1640008 **COMMUNITY**
NAME	Redwood Falls
ADDRESS	Redwood Falls Water Superintendent, P.O. Box 526, Redwood Falls, MN 562830526

FACILITY (WELL) INFORMATION

NAME	Well #5
FACILITY ID	S04
UNIQUE WELL NO.	403955
COUNTY	Redwood

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?

☐ **YES** (Please attach a copy)
☐ **NO** ☐ **UNDETERMINED**

PWS ID / FACILITY ID	1640008 S04	**UNIQUE WELL NO.**	403955

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1640008 S04	UNIQUE WELL NO.	403955

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		Y	67	N
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		Y	10	N
*ET1	Electrical transformer storage area, oil-filled	50	50		Y	15	N
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		Y	3	N
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		

PWS ID / FACILITY ID	1640008 S04	UNIQUE WELL NO.	403955

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

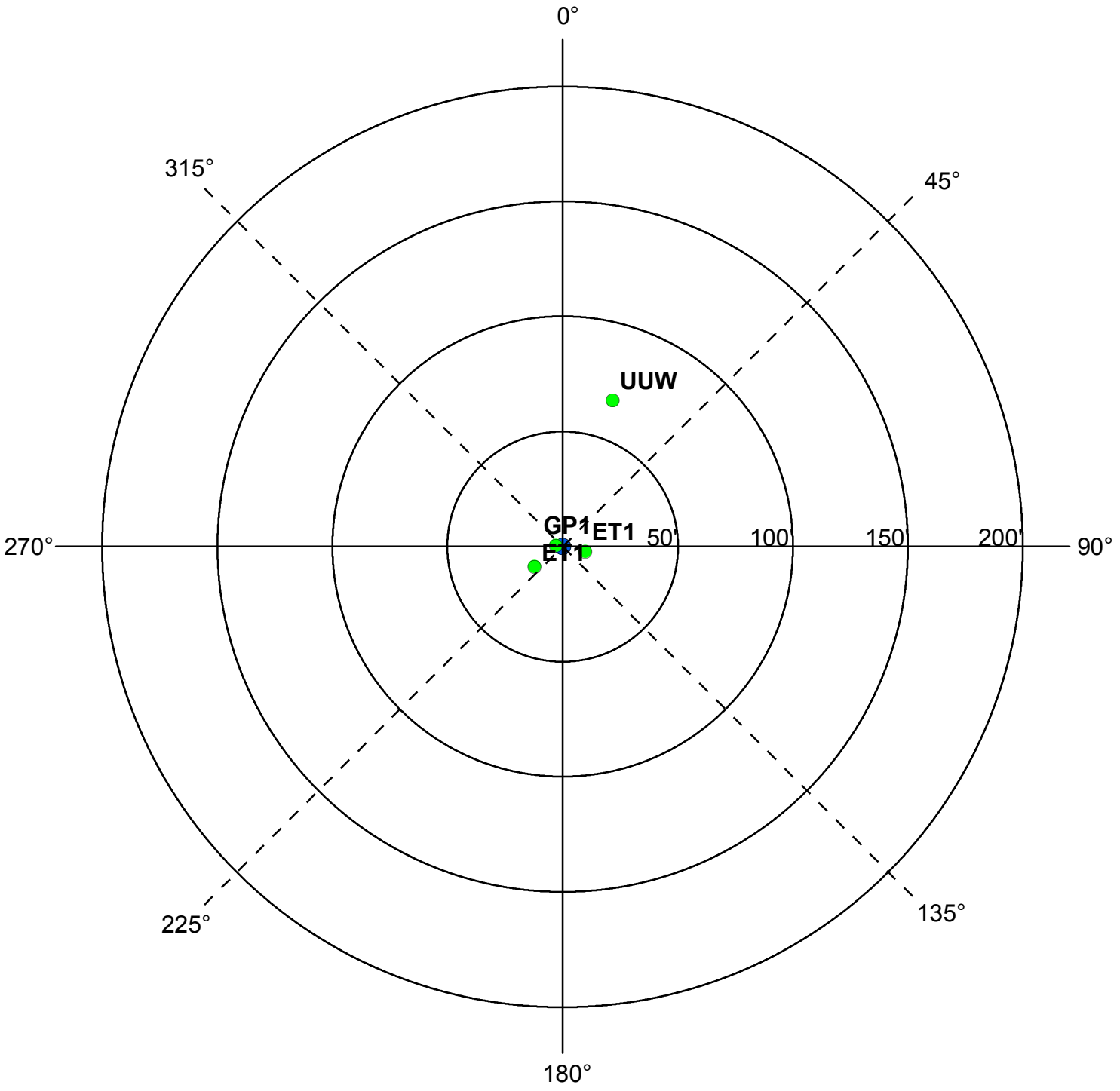
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1640008 S04	UNIQUE WELL NO.	403955

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?	X		
Is the system monitoring existing nonconforming sources of contamination?	X		

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Strommer, Amanda	DATE	5 - 10 - 2016

PWS ID / FACILITY ID	1640008 S04	UNIQUE WELL NO.	403955

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		05/10/2016
Any unused, unsealed wells located in the IWMZ should be sealed in accordance with Minn. Rules 4725.3850 and 4725.3875 by a properly licensed well contractor. Unused wells that have not been properly sealed can provide a direct pathway for contaminants to enter the drinking water source.		05/10/2016
The gravel pocket/french drain should be relocated to meet the required minimum isolation distance of 20 feet specified in Minn. Rules, Chapter 4725. This could reduce the risk of potential contaminants from entering your drinking water supply well.		05/10/2016

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Appendix C

Old Municipal Well Report for Redwood Falls

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

Old Municipal Well Report for Redwood Falls

PWSID: 1640008

MDH

March 2019

Minnesota Department of Health
Environmental Health in Minnesota

MDH Public Water Supply Sources Report

PWSID: **1640008**
PWS Name: **Redwood Falls**
PWS Type: **Community**
PWS Status: **Active**

Public Water Supply Sources: Information from MNDWIS and CWI (sorted by Sample Point ID)
Source Type Codes: **GW** = Ground water; **SW** = Surface water; **GUI** = Ground water under influence
Location Source: **MGS** = digitized by the MN Geological Survey; ***** indicates imcomplete records
O* = duplicate in Old Municipal Well Data; **R*** = duplicate in MNDWIS PWS Sources Removed from Flow; **S*** = duplicate in MNDWIS PWS Sources in Flow;

MNDWIS PWS SOURCES IN FLOW															
Source Info							MNDWIS Data				CWI Data				
Sample Point ID	Name	Type	Availability	Status	Well No. (link to Well Log (s))	Location Info (link to Map)	Drill Year	Depth (in feet)	Case Depth (in feet)	Case Diam. (in inches)	Drill Date	Depth Completed (in feet)	Case Depth (in feet)	Case Diam. (in inches)	
S01	**Well So. Ramsey**	GW	Primary	Active	241414 **O***	05/31/2016 (A. Strommer)	1950	94	82	12	00-00-1950	94	82	12	
S02	**Well #1**	GW	Primary	Active	209660 **O***	05/31/2016 (A. Strommer)	1954	182	142	12	00-00-1954	182	142	12	
S03	**Well #2**	GW	Primary	Active	455796	05/31/2016 (A. Strommer)	1988	168	116	12	10-27-1988	168	116	12	
S04	**Well #5**	GW	Primary	Active	403955 **O***	05/31/2016 (A. Strommer)	1984	268	220	**16**	05-16-1984	268	220	**10**	
S05	**Well #3**	GW	Primary	Active	403995 **O***	05/31/2016 (A. Strommer)	1985	230	189	12	05-21-1985	230	189	12	

MNDWIS and CWI data value discrepancies in preceding tables are shown in **RED** (0 or null values excepted).

Old Municipal Wells

The following tables show information on wells whose existence (or previous existence) has not yet been confirmed.

OLD MUNICIPAL Well Data													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
Well A	Spring #1; East Well		8				1930	Dug				One-half mile SW of the city limits. Near pumping station	Abandoned 1955
Well B	Spring #2; East Well		8				1930	Dug				One-half mile SW of the city limits. Near pumping station	Abandoned 1955
Well C	Spring #3; East Well		8				1930	Dug				One-half mile SW of the city limits. Near	Abandoned 1955

OLD MUNICIPAL Well Data													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
												pumping station	
Well D	Spring #4; West Well		8				1930	Dug				One-half mile SW of the city limits. Some distance west from pumping station	Abandoned 1955
Well E	Spring #5; West Well		8				1930	Dug				One-half mile SW of the city limits. Some distance west from pumping station	Abandoned 1955
Well F	Spring #6		10				1930	Dug				One-half mile SW of the city limits.	Abandoned 1955
Well G	Well No. 1		48			22	1943	Dug				1500 ft W of the iron removal plant and 100 ft from the lake shore. South bank of Redwood Lake about one mile SW of the city.	Farthest east of the wells
Well H	Well No. 2; North Well		20				1943	Dug				South bank of Redwood Lake about one mile SW of the city. 1200 ft W of Well No. 1 and 50 ft from the edge of the water.	
Well I	Well No. 2; South Well		30				1943	Dug				South bank of Redwood Lake about one mile SW of the city. 1200 ft W of Well No. 1 and 50 ft from the edge of the water.	
Well J	Well No. 3		26				1943	Cable Tool/Bored				South bank of	

OLD MUNICIPAL Well Data													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
												Redwood Lake about one mile SW of the city. .	
Well K	Well No. 4		26				1943	Cable Tool/Bored				150 ft SE of Well No. 3 on the side of the ravine. 250 ft from waters edge on the hillside west of ravine. South bank of Redwood Lake about one mile SW of the city.	
Well L	Well No. 5		20				1943	Dug				South bank of Redwood Lake about one mile SW of the city. 150 ft SE of Well No. 4	
Well M	Well No. 6		12				1944	Dug				25 ft south of Well No. 4 One mile SW of the city at the base of the right bluff of the Redwood River.	
Well N	Well No. 7		15				1946	Dug				20 ft SW from Well No. 5 and only about 40 ft horizontally from the bottom of the ravine. One mile SW of the city at the base of the right bluff of the Redwood River.	
Well O	Well No. 8		15				1946	Dug				One mile SW of the city at the base of the right bluff	

OLD MUNICIPAL Well Data

Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
												of the Redwood River. 15 ft N of Well No. 4 and only 35 ft from the ravine	
Well P	Well No. 9		20			8	1948	Dug				One mile SW of the city at the base of the right bluff of the Redwood River.	
Well Q	Spring #7		8				1930	Dug				One-half mile SW of the city limits	Abandoned 1955
Well R	Well No. 10		21				1949	Dug				Adjacent to Well No. 8	
Well S	1951: Well No. 1; Deep Well No. 1		92		81	12	1951	Rotary/Drilled				high ground one-half mile south of the elevated tank at Ramsey Street.	Abandoned 1972
Well T	1955: Well No. 40; 1957: Well No. 2; 1985: Well No. 1	209660 S*	182		122	12	1954	Rotary/Drilled				NW corner, NE 1/4 - Section 25 - T 112 N-R 36 W	Active
Well U	1957: Well No. 3; 1985: Well No. 2	209659	185		145	12	1957	Rotary/Drilled				NE 1/4 - Sec. 25 - T112 N - R-6	
Well V	1972: Well No. 4		242				1972	Rotary/Drilled				South well field	
Well W	South Ramsey	241414 S*	94		82	12	1950	Rotary/Drilled					Active
Well X	Well No. 3A	241320	231		140	16	1957	Rotary/Drilled					
Well Y	CWI Redwood Falls	195196	250				1985						Test Well

Databases Searched	Remarks
County Well Index (1-mile radius); MDH DWP Microfiche; MDH 1988-2002 Muni Well Inventory (1Suite); Biennial Report of the MN State Dairy and Food Commissioner-1907; Minnesota Geological Survey City Well File Folders; MGS Bulletin (22, 27, 31, or 32); MDH DWP MNDWIS; MN Historical Soc.- Fire Underwriters Insp. Bureau (Fisher) historical map ; Sanborn Fire Insurance Maps; MDH WELLS	

OLD MUNICIPAL Well Data													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
Old Municipal Well Data Compiled By: **Mara Boulanger** Compiled Date: **3/15/2019 3:26:40 PM**													

OLD MUNICIPAL Well Data - **the following data are from RAW HYDRO spreadsheets, and need to be processed accordingly.**													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
1	Spring #1 (East Well)		1930: 4x6x8 feet deep (?)				Pre-1917	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits *Near the pumping station	
2	Spring #2 (East Well)		1930: 4x6x8 feet deep (?)				Pre-1918	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits *Near the pumping station	
3	Spring #3 (East Well)		1930: 4x6x8 feet deep (?)				Pre-1919	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits *Near the pumping station	
4	Spring #4 (West Well)		1930: 4x6x8 feet deep (?)				Pre-1920	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits *Some distance West of the pumping station	
5	Spring #5 (West Well)		1930: 4x6x8 feet deep (?)				Pre-1921	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits *Some	

OLD MUNICIPAL Well Data - the following data are from RAW HYDRO spreadsheets, and need to be processed accordingly.													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
												distance West of the pumping station	
6	Spring #6		10 feet			22 feet	Pre-1922	Dug	1956: Well abandoned			*At the edge of the Redwood River; 1/2 mile SW of the city limits	
7	Well Number 1		48 feet				Pre-1943	Dug	1947: No longer in use			*1500 feet west of the iron removal plant; 100 feet from the lakeshore	
8	Well No. 2 (North Well)		1943: 20 feet 1948: 13 feet; 24 feet			10 feet	Pre-1943; 1947: New well drilled inside dug well	Dug; Gravel Packed	1956: Well abandoned			*1200 feet west of Well #1; 50 feet from the waters edge	
9	Well No. 2 (South Well)		1943: 35 feet 1948: 13 feet			10 feet	Pre-1943	Dug	1956: Well abandoned			*50 feet from Well #2 North Well	
10	Well No. 3		1943: 26 feet 1948: 12 feet				Pre-1943	Bored	1947: No longer in use			*1000 feet west of Well No. 2; 100 feet from the waters edge	
11	Well No. 4		1943: 26 feet 1948: 16 feet				Pre-1943	Bored	1956: Well abandoned			*150 feet SE of Well No. 3; on the side of the ravine	
12	Well No. 5		20 feet				Pre-1943	Dug	1947: No longer in use			*150 feet SE of Well No. 4	
13	Well No. 6		12 feet			1947: 12 feet 1948: 10 feet	1944	Dug	1956: Well abandoned			*25 feet south of Well No. 4	
14	Well No. 7		1947: 15 feet 1948: 17 feet			1947: 10 feet 1948: 12 feet	1946	Dug	1956: Well abandoned			*20 feet SW of Well No. 5	
15	Well No. 8		15 feet			10 feet	1946	Dug	1956: Well abandoned			*15 feet north of	

OLD MUNICIPAL Well Data - the following data are from RAW HYDRO spreadsheets, and need to be processed accordingly.													
Well Search Reference	Name(s)	Unique Well Number	Drilled Depth (ft.)	Completed Depth (ft.)	Depth Cased (ft.)	Casing Diameter (in.)	Year Constructed	Construction Type	Year Out of Service	Sealing Record?	Year Sealed	Location Info	Comments
												Well No. 4	
16	Well No. 9		20 feet			12 feet	1947	Dug	1956: Well abandoned			*150 feet east of Well No. 1; 80 feet from the lake shore	
17	Spring #7		1930: 4x6x8 feet deep (?)				Pre-1917	Dug	1956: Well abandoned				
18	Well No. 10		21 feet			20 feet	1948-1949	Dug	1956: Well abandoned			*Adjacent to Well No. 8	
19	1951: Well No. 1		92 feet		0-81 feet	12 inch	1951	Drilled	1972: Well abandoned			*1/2 mile South of Ramsey Street elevated tank	
20	1955: Well No. 40 1957: Well No. 2 1985: Well No. 1 (WELL STILL ACTIVE)	209660 S*	182 feet		0-122 feet	12 inch	1954-1955	Drilled				*NW corner, NE 1/4 of T112 R36 S25 *In the well field South of the City	
21	1957: Well No. 3 1985: Well No. 2	209659	1957: 185 feet 1970: 180 feet		0-145 feet	12 inch	1957	Drilled				*NE 1/4 of T112 R6 S25 *In the well field South of the City	
22	1972: Well No. 3A												
23	Well No. 3A	241320	231 feet		0-140 feet	16 inch	1971	Drilled	Abandoned				
24	Well No. 3B (WELL STILL ACTIVE)	403955 S*	230 feet		0-189 feet	12 inch	1985	Drilled					
25	Well No. 5 (WELL STILL ACTIVE)	403995 S*	268 feet		0-220 feet	16 inch	1984	Drilled					
26	South Ramsey (WELL STILL ACTIVE)	241414 S*	94 feet		0-82 feet	12 inch	1950	Drilled					
Databases Searched					**Remarks**								
Old Municipal Well Data Compiled By: **Steve Robertson** Compiled Date: **2/20/2007**													

Source: MN Dep't. of Health - 3/15/2019

Use of MDH Public Water Supply Sources Report

The report you have received shows three classes of Public Water Supply wells:

- In Use (actively used)
- Removed From Flow (for back-up or emergency use; may be disconnected from PWS)
- **Old Municipal Wells (unused wells with no documented location, unique ID number, and/or well sealing record)**

Old Municipal Wells are unsealed, abandoned wells. These wells pose a risk of contamination to existing wells and aquifers. According to State Well Code and under the terms of your Wellhead Protection Plan, your PWS may need to identify, locate, and properly seal Old Municipal Wells within your Drinking Water Supply Management Area, to current MDH standards. While historical records may indicate that some of these wells were "capped", "abandoned", or "sealed" in the past, unless it can be shown that the sealing was performed to current standards, they may need to be located, cleaned out, and sealed properly with a well sealing record issued.

The report lists database references that were searched to compile the report. Under "Remarks" are notes and questions to help you with this process. State grant funding is available to help fund sealing of these old public water supply wells.

If you have questions, please talk to your MDH Planner or Hydrologist to address your PWS's specific issues. This report is not intended to be the "last word" on the status of Old Municipal Wells and your input will be critical in successfully finding and sealing these potential sources of contamination.

Restart

Appendix D

Water Supply Plan DNR Approval Letter

DEPARTMENT OF NATURAL RESOURCES

Division of Ecological and Water Resources
20596 Highway 7
Hutchinson, MN 55350
320-234-2550

OCTOBER 22, 2019

CITY OF REDWOOD FALLS
JAMES DOERING, PUBLIC WORKS COORDINATOR
THOMAS STOUGH, WATER/WASTEWATER SUPERINTENDENT
P. O. BOX 526
REDWOOD FALLS, MN 56283

RE: Water Supply Plan Approval, City of Redwood Falls, Redwood County

Dear Messrs. Doering and Stough,

Our office has completed the review of your Water Supply Plan for public water supply authorized under DNR Water Appropriation Permit # 1954-0268. I am pleased to advise you that in accordance with Minnesota Statutes, Section 103G.291, Subdivision 3, and on behalf of the Commissioner of the Department of Natural Resources, I hereby **approve your Water Supply Plan**. We encourage cities to complete the attached "Certification of Adoption" form. Please upload the form to MPARS-Water Supply Plan tab as soon as the city officially adopts the Plan.

The DNR, Minnesota Rural Water Association, and The Metropolitan Council encourage the city to educate its customers on how they can reduce household water use. As mentioned at the Water Supply Planning Workshops, the DNR will be contacting you periodically about progress the city has made on their water conservation goals. We encourage you to keep records of your success.

The Emergency Preparedness section generally looks adequate. We have noted the city's participation in MnWARN.

Thank you for your efforts in planning for the future of the City of Redwood Falls water supply and for conserving the water resources of the State of Minnesota. If you have any questions or need additional assistance with the city's water appropriation permit, please contact me at 320-234-2550, ext. 231.

Sincerely,

Anne Hall
Acting Groundwater Area Hydrologist

Ec: Carmelita Nelson, DNR
Robert Collett, DNR Regional Manager
Jim Sehl, DNR District Manager
Redwood County Soil and Water Conservation District
Minnesota Permitting and Reporting System (MPARS)

CERTIFICATE OF ADOPTION
WATER SUPPLY PLAN

City or Water System Name: City of Redwood Falls

Name of Person Authorized to Sign Certificate on Behalf of the System: Keith Muetzel

Title: City Administrator

Address: 333 S. Washington St., Redwood Falls, MN 56283

Telephone: 507-616-7400

E-mail: KMuetzel@ci.redwood-falls.mn.us

I certify that the Water Supply Plan approved by the Department of Natural Resources has been adopted by the city council or utility board that has authority over water supply services.

Signed: [signature] Date: 12-3-19

Submit Certificate of Adoption through MPARS
Or mail this certificate to: DNR Waters
Water Permit Program Supervisor
500 Lafayette Road
St. Paul, MN 55155-4032